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FRONTIERS IN PSYCHOCUTANEOUS DISEASES

**SELECTED WRITINGS IN PSYCHOSOMATICS, PSYCHO-
DERMATOLOGY AND PSYCHO-NEURO-ENDOCRINE-
IMMUNOLOGY**

**A MEMORIAL PUBLICATION FOR
EMILIANO PANCONESI**

Authors:

Lucía Tomas-Aragones

Uwe Gieler

M. Dennis Linder

Society for Publication of
Acta Dermato-Venereologica

ACTA DERMATO-VENEREOLOGICA

The journal was founded in 1920 by Professor Johan Almkvist. Since 1969 ownership has been vested in the Society for Publication of Acta Dermato-Venereologica, a non-profit organization. Since 2006 the journal is published independently without a commercial publisher. (For further information please see the journal's website <http://www.medicaljournals.se/adv>)

Acta Dermato-Venereologica is a journal for clinical and experimental research in the field of dermatology and venereology and publishes high-quality articles in English dealing with new observations on basic dermatological and venereological research, as well as clinical investigations. Each volume also features a number of review articles in special areas, as well as Correspondence to the Editor to stimulate debate. New books are also reviewed. The journal has rapid publication times and is amply illustrated with an increased number of colour photographs to enhance understanding.

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FRONTIERS IN PSYCHO- CUTANEOUS DISEASES

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**A MEMORIAL PUBLICATION FOR
EMILIANO PANCONESI**

**AUTHORS:
LUCÍA TOMAS-ARAGONES
UWE GIELER
M. DENNIS LINDER**

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GUEST EDITORIAL



This special issue of *Acta Dermato-Venereologica*, the official journal of the European Society for Dermatology and Psychiatry (ESDaP), is dedicated to one of the founders of ESDaP, Professor Emiliano Panconesi, who passed away on 18 March 2014, at the age of 91 years. He was also among the founders of the European Academy for Dermatology and Venereology and the first president of this highly regarded professional

association. His beloved wife Diana was his life-long partner, manager and English translator, and she provided him with constant support, motivation and comfort.

Emiliano was never happy with the term “Psychodermatology” and, utilizing his profound and extensive knowledge of art and literature, he coined the phrase “Psychosomatic Dermatology”.

When he conceived the idea for an international meeting that would be confined to questions of psychosomatic dermatology, he discussed the concept with the former head of the Vienna University Hospital of Psychiatry, Peter Berner, and together they developed the innovative professional association, ESDaP. Michael Musalek, a well-known psychiatrist from Vienna and collaborator of Professor Berner, became the first Secretary at a meeting in Vienna in 1984, which is where Uwe Gieler first had the pleasure of meeting Emiliano. His good humour, easy communication and Italian culture were immediately apparent and would engage so many dermatologists, psychiatrists and psychologists who have played a role in the evolution of psychodermatology. He was a medical doctor in the fullest sense of the word, showing passion and interest in all things human, from science to literature, from music to paintings and languages. Some of us remember, for instance, how, shortly

before becoming ill, he showed pride in having started learning Russian. Or how, during a congress on psychosomatic dermatology, a presentation dedicated to the symbolic meaning of hair in Hindu culture raised his interest and he immediately underlined the importance of mingling of different cultures and disciplines. His never-ending curiosity and love of knowledge was inspiring to all those who were fortunate enough to have met him. Nobody could be a better role model than Emiliano for how doctors should address patients. He was, and always will be, a pride to our profession.

Emiliano inspired a multitude of scientists and clinicians, who instigated new ideas and diagnostic therapies for dermatology. He was one of the first to put forward a vision on the relationship between the skin and the brain. His book, *Stress and Skin Disease: Psychosomatic Dermatology* (Philadelphia, J. B. Lippincott; 1984) reflected this vision. The book described the most important dermatological aspects of skin diseases and set out a future for psychoneuroimmunology, one of Emiliano’s favoured research interests. As Professor of Dermatology at the University Clinic in Florence, he was responsible for a wide range of research projects and published more than 100 papers.

We are dedicating this supplement of *Acta Dermato-Venereologica* to Emiliano in honour of his work as a pioneer in the field of psychodermatology; he was a groundbreaker in the search for the correlation between stress and skin disease and links between the immune system, emotional factors and the skin.

The authors of this supplement were more than happy to use their most recent research in memory of the man and his ideas. They hope to illustrate the significance of his efforts and show the importance of his theories and concepts. We are proud that this issue offers such a large range of articles concerning psychodermatological research. The ESDaP editors and the authors of the articles wish to pay homage to Emiliano, his life and his work.

Since *Acta Dermato-Venereologica* is the journal of ESDaP, our editors aim to publish articles of outstanding scientific interest and rigour. We have published many papers on psychodermatology in the last years and would like to think that we have made a contribution to the development of the discipline, which was so fortunate to be served by a figure of such magnitude as Emiliano Panconesi.

The editors and authors of this supplement wish to express their sincere gratitude to Anders Vahlquist, Editor-in-chief of *Acta Dermato-Venereologica* for his constant encouragement in pursuing this project. Our awareness that he was overseeing our work in his discrete and attentive way has made us feel more secure and confident. Also, we are all deeply indebted to Agneta Andersson and Anna-Maria Andersson, without whose dedication, enormous patience and friendly engagement the supplement in memory of Emiliano Panconesi would have never become reality.

Ciao Emiliano! We hope that this supplement celebrates the way in which your vision became a reality.



Professor Emiliano Panconesi and his wife, Diana, at the 2005 ESDaP Congress in Giessen, Germany.

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(ESDaP President)

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REVIEW ARTICLE

The Psychosomatic Practice

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There is increasing awareness of the limitations of the disease-oriented approach in medical care. The primary goal of psychosomatic medicine is to correct this inadequacy by incorporation of innovative operational strategies into clinical practice. Psychosomatic practice can be recognized by 2 distinctive features: the holistic approach to patient management (encompassing psychosocial factors) and the clinical model of reasoning (which reflects a multifactorial frame of reference). A basic psychosomatic assumption is the consideration of patients as partners in managing disease. The partnership paradigm includes collaborative care (a patient–physician relationship in which physicians and patients make health decisions together) and implementation of self-management (a plan that provides patients with problem-solving skills to enhance their self-efficacy). Pointing to strategies that focus on individual needs may improve patient quality of life and final outcomes. Key words: psychosomatic medicine; stress, psychological; quality of life; psychological well-being; Diagnostic Criteria for Psychosomatic Research.

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In 1960, George Engel sharply criticized the concept of disease: “The traditional attitude toward disease tends in practice to restrict what it categorized as disease to what can be understood or recognized by the physician and/or what he notes can be helped by his intervention. This attitude has plagued medicine throughout its history and still stands in the way of physicians’ fully appreciating disease as a natural phenomenon” (1). His unified concept of health and disease was subsequently elaborated within the biopsychosocial model (2). Not surprisingly, Engel was very critical of the disease concept of functional medical disorders or medically unexplained symptoms. As an increasing body of literature documents (3), it is not that certain disorders lack an explanation; it is our assessment that is inadequate in most of the clinical encounters, since it does not reflect a global psychosomatic approach.

Among leading authors in the field, Tinetti & Fried (4) suggested that time has come to abandon disease as the primary focus of medical care. When disease became the focus of medicine in the past two centuries, the average life expectancy was 47 years, and most clinical encounters were for acute illness. Today the life expectancy in Western countries is much higher and most clinical activities are concentrated on chronic diseases or non-disease-specific complaints. “The changed spectrum of health conditions, the complex interplay of biological and non-biological factors, the aging population, and the inter-individual variability in health priorities render medical care that is centred primarily on the diagnosis and treatment of individual diseases at best out of date and at worst harmful. A primary focus on disease, given the changed health needs of patients, inadvertently leads to under-treatment, overtreatment, or mistreatment” (4). Tinetti & Fried (4) pointed out that the goal of treatment should be the attainment of individual goals, and the identification and treatment of all modifiable biological and non-biological factors, according to Engel’s biopsychosocial model (2).

The question arises as to how we should assess these non-biological factors. In clinical medicine there is a tendency to rely exclusively on “hard data”, preferably expressed in the dimensional numbers of laboratory measurements, excluding “soft information” such as impairments and well-being. This soft information, however, can now be reliably assessed by clinical rating scales and indexes which have been validated and extensively used in psychosomatic research and practice (5, 6).

Psychosomatic medicine may be defined as a comprehensive, interdisciplinary framework for the: (i) assessment of psychosocial factors affecting individual vulnerability, course, and outcome of any type of disease; (ii) holistic consideration of patient care in clinical practice; and (iii) integration of psychological therapies in the prevention, treatment, and rehabilitation of medical disease.

Psychosomatic medicine is, by definition, multidisciplinary. In clinical practice, the traditional boundaries among medical specialties, that are mostly based on organ systems (e.g. dermatology, cardiology), appear to be inadequate in dealing with symptoms and problems which cut across organ system subdivisions (3–6). Interestingly, the general psychosomatic approach has resulted in a number of sub-disciplines within their

own areas of application: psycho-oncology, psychonephrology, psycho-neuroendocrinology, psychoneuroimmunology, and psycho-dermatology, among others. Such sub-disciplines have developed clinical services, scientific societies, and medical journals; they stem from the awareness of the considerable limitations that the artificial boundaries of medicine (traditional specialties) entail for clinical practice. The history of psychosomatic medicine is often a two way street. On one end, there are psychiatrists who progressively extend their approach to consideration of the role of psychosocial factors in medical disease; on the other end there are non-psychiatric physicians who recognize the importance of the psychosomatic approach in medical practice. Emiliano Panconesi was an eminent example of the clinical broadening of dermatology into psychodermatology (7, 8). Regardless of their initial point of origin, psychosomatic clinicians can be recognized by two common features: the holistic approach to their practice (encompassing psychosocial factors) and their model of clinical reasoning.

ASSESSMENT OF PSYCHOSOCIAL FACTORS AFFECTING INDIVIDUAL VULNERABILITY TO MEDICAL DISEASE

Psychosocial factors may operate to facilitate, sustain, or modify the course of disease, even though their relative weight may vary from illness to illness, from one individual to another, and even between 2 different episodes of the same illness in the same individual (9). Whitlock was a dermatologist who pursued his psychosomatic interest to become a psychiatrist and who wrote a milestone book on psycho-dermatology (10). He emphasized how, in patients with skin disorders, the potential success of proposing a psychological treatment to a very large extent depends on the quality of the recognition by the dermatologist of the psychosocial component of illness (10). It is becoming increasingly clear that medical care can be improved by paying more attention to psychological aspects in the setting of medical assessments, with particular reference to the role of stress (5). A number of factors have been implicated to modulate individual vulnerability to disease.

Illness behavior

Lipowski (9) remarked that once the symptoms of a somatic disease are perceived by a person, or "he has been told by a doctor that he is ill even if symptoms are absent, then this disease-related information gives rise to psychological responses which influence the patient's experience and behavior as well as the course, therapeutic response, and outcome of a given illness episode". The study of illness behavior, defined as the ways in which individuals experience, perceive, evaluate,

and respond to their own health status has yielded important information in medical patients (11). In the past decades research has focused on illness perception, frequency of attendance at medical facilities, health care seeking behavior, delay in seeking treatment, and treatment adherence. In dermatology, factitious dermatitis is an extreme form of abnormal illness behavior in which patients intentionally produce skin lesions in order to assume the sick role (12). Abram et al. (13) underscored the importance of subjective disease perception in rosacea and their findings may apply also to other skin disorders. Assessing illness behavior and devising appropriate responses by health care providers may contribute to improvement of final outcomes in dermatology (12).

Recent life events and allostatic load

The notion that events and situations in a person's life which are meaningful to him/her may be followed by ill health has been a common clinical observation. The introduction of structured methods of data collection and control groups has allowed to substantiate the link between life events and a number of medical disorders, encompassing endocrine, cardiovascular, respiratory, gastrointestinal, autoimmune, skin, and neoplastic disease (5). The role of life changes and chronic stress has evolved from a simplistic linear model to a more complex multivariate conception embodied in the "allostatic" construct. McEwen (14) proposed a formulation of the relationship between stress and the processes leading to disease based on the concept of allostasis: the ability of the organism to achieve stability through change. The concept of allostatic load refers to the wear and tear that results from either too much stress or from insufficient coping, such as not turning off the stress response when it is no longer needed. Clinical criteria for determining the presence of allostatic load are also available (15). Thus, life changes are not the only source of psychological stress, and subtle and long-standing life situations should not be too readily dismissed as minor or negligible, since chronic, daily life stresses may be experienced by the individual as taxing or exceeding his/her coping skills. The concept of cumulative life course impairment refers to the burden of dermatologic disease over time (stigma, medical and psychological comorbidities, social and economic correlates) that may hinder full life potential (16). Such impairments have been illustrated in a number of disorders, such as psoriasis, vitiligo, and chronic wounds (16).

Health attitudes, social support and well-being

Unhealthy lifestyle is a major risk factor for many of the most prevalent diseases and disorders, such as diabetes, obesity, and cardiovascular illness (17). Helping

the patient to modify his/her own behavior and switch to healthier lifestyles may be a major source of clinical benefit (6). For instance, weight loss is associated with reduction in the severity of psoriasis (18).

Prospective population studies have found associations between measures of social support and mortality, psychiatric and physical morbidity, as well as adjustment to and recovery from chronic disease (5), and this applies also to skin disorders (16).

An impressive amount of studies have suggested that psychological well-being plays a buffering role in coping with stress and has a favorable impact on disease course (19). Its assessment is thus of considerable importance in the setting of a medical disease.

Psychiatric disturbances

Psychiatric illness, depression and anxiety in particular, is strongly associated with medical conditions. Mental disorders increase the risk for communicable and non-communicable diseases. At the same time, many health conditions increase the risk for mental disturbances, and the presence of comorbidity complicates both recognition and management of medical disorders (5). Major depression has emerged as an extremely important source of comorbidity in medical disorders. It has been found to affect quality of life and social functioning, lead to increased health care utilization, be associated with higher mortality (particularly in the elderly), have an impact on compliance, and increase susceptibility to medical illness (5). Depression and anxiety are associated with various manifestations of somatization and abnormal illness behavior (20). In dermatology, as in other medical specialties, a substantial proportion of patients meet the psychiatric criteria for mood and anxiety disorders (12, 21). Trichotillomania (12) and body dysmorphic disorder (22) are two other disturbances that may be encountered in clinical practice.

Psychological symptoms

Current emphasis in psychiatry concerns the assessment of symptoms used for the diagnosis of syndromes identified by set diagnostic criteria (e.g., Diagnostic and Statistical Manual of Mental Disorders (DSM)). However, emerging awareness that also psychological symptoms which do not reach the threshold of a psychiatric disorder may affect quality of life and entail pathophysiological and therapeutic implications led to the development of the Diagnostic Criteria for Psychosomatic Research (DCPR) (23, 24). The DCPR were introduced in 1995 and tested in various clinical settings (23, 24). Of the subclinical syndromes assessed by the DCPR, demoralization and irritable mood were the most common. Demoralization connotes the patient's consciousness of having failed to meet his/

her own expectations (or those of others) with feelings of helplessness, hopelessness, or giving up. Irritable mood, that may be experienced as brief episodes or be prolonged and generalized, has also been associated with the course of several medical disorders. Both syndromes were the most frequent also in patients with dermatological disorders (21). The DCPR also provide a classification for illness behavior encompassing persistent somatization (conceptualized as a clustering of functional symptoms involving different organ systems), conversion (involving features such as ambivalence, histrionic personality, and precipitation of symptoms by psychological stress of which the patients is unaware), illness denial (persistent denial of having a medical disorder and needing treatment, lack of compliance, delay in seeking medical attention).

The advantage of this classification is that it departs from the organic/functional dichotomy and from the misleading and dangerous assumption that if organic factors cannot be identified, there should be psychiatric reasons that may be able to fully explain the somatic symptomatology. The presence of a non-functional medical disorder does not exclude, but indeed increases the likelihood of psychological distress and abnormal illness behavior (9).

THE PSYCHOSOMATIC CONCEPTUAL FRAMEWORK VERSUS EVIDENCE-BASED MEDICINE

Engel (25) identified the key characteristic of clinical science in its explicit attention to humanness, where observation (outer-viewing), introspection (inner-viewing), and dialogue (inter-viewing) are the basic methodological triad for clinical assessment and for making patient data scientific. The exclusion of this interaction by medical science continuing to adhere to a 17th century scientific view makes this approach unscientific. Accordingly, "the human realm either has been excluded from accessibility to scientific inquiry or the scientific approach to human phenomena has been required to conform to the reductionistic, mechanistic, dualistic predicates of the biomedical paradigm" (25). This restrictive ideology characterizes evidence-based medicine (EBM) (26). The gap between clinical guidelines developed by EBM and the real world of clinicians and patients has been widely recognized and it does not seem that EBM has actually improved patient care (27). Each therapeutic act may be seen as a result of multiple ingredients, which may be specific or non-specific. Expectations, preferences, motivation, and patient-doctor interactions are examples of non-specific variables that may affect the outcome of any specific treatment, such as pharmacotherapy or psychotherapy (26). While there is growing awareness that the aim of treatment should refer to personal goals (4), EBM does not do justice to the relevance of

psychosocial variables and provides an oversimplified and reductionistic view of treatment. Even though personalized medicine, described as genomics-based knowledge, has promised to approach each patient as the biological individual he/she is, the practical applications still have a long way to go, and neglect of social and behavioral features may actually lead to “depersonalized” medicine (28). A basic psychosomatic assumption is the consideration of patients as partners in managing disease. The partnership paradigm includes collaborative care (a patient–physician relationship in which physicians and patients make health decisions together) and implementation of self-management (a plan that provides patients with problem-solving skills to enhance their self-efficacy) (5). Endorsement of a psychosomatic conceptual framework, including the consideration of psychosocial variables, comorbidity, and multimorbidity, may lead to more effective and shared decision making. This alternative conceptual model is centered primarily on clinical judgment.

CLINICAL REASONING

Feinstein (29) remarks that, when making a diagnosis, thoughtful clinicians seldom leap from a clinical manifestation to a diagnostic endpoint. Clinical reasoning goes through a series of “transfer stations”, where potential connections between presenting symptoms and the pathophysiological process are drawn. These stations are a pause for verification, or change to another direction. However, disturbances are generally translated into diagnostic end-points, where the clinical process stops. This does not necessarily explain the mechanisms by which the symptom is produced (29). Not surprisingly, psychological factors are often advocated as an exclusion resource when symptoms cannot be explained by standard medical procedures, a diagnostic oversimplification which both Engel (1) and Lipowski (9) refused. As Feinstein remarks, “even when the morphologic evidence shows the actual lesion that produces the symptoms of a functional disorder, a mere citation of the lesion does not explain the functional process by which the symptom is produced (...)”. Thus, a clinician may make an accurate diagnosis of gallstones, but if the diagnosed gallstones do not account for the abdominal pain, a cholecystectomy will not solve the patient’s problem” (29).

In psychodermatology clinical judgment is required for evaluating the primary or secondary nature of psychiatric disorder (12), the impact of psychosocial factors on disease course (16), and the potential indications for psychotropic drug therapy (12, 30) and/or psychotherapeutic strategies, such as cognitive behavior approach to body dysmorphic disorder (31) or internet-based self-help for trichotillomania (32).

CONCLUSION

Whether in psychiatry, in general medicine, or in specialties such as dermatology, clinicians endorsing the psychosomatic approach share features that are uniquely geared to addressing current challenges.

Chronic disease is now the principal cause of disability and consumes almost 80% of health expenditures (4). Yet, current health care is still conceptualized in terms of acute care perceived as processing of a product, with the patient as a customer, who can, at best, select among the services that are offered. As Hart has observed, in health care the product is clearly health and the patient is one of the producers, not just a customer (33). As a result, “optimally efficient health production depends on a general shift of patients from their traditional roles as passive or adversarial consumers to become producers of health jointly with their health professionals” (33). In this view, the exponential spending on preventive medication, justified by potential long-term benefits to a small segment of the population, is now being challenged. Instead, the benefits of modifying lifestyles by population-based measures are increasingly demonstrated and are in keeping with the biopsychosocial model (2, 4).

The need to include consideration of functioning in daily life, productivity, performance of social roles, intellectual capacity, emotional stability, and well-being, has emerged as a crucial part of clinical investigation and patient care (5). Psychosomatic medicine is timelier than ever.

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REVIEW ARTICLE

From Evidence-based Medicine to Human-based Medicine in Psychosomatics

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Human-based medicine (HbM), a form of medicine that focuses not only on fragments and constructs but on the whole person, no longer finds its theoretical basis in the positivism of the modern era, but rather owes its central maxims to the post-modernist ideal that ultimate truths or objectivity in identifying the final cause of illness remain hidden from us for theoretical reasons alone. Evidence-based medicine (EbM) and HbM are thus not mutually exclusive opposites; rather, despite superficial differences in methods of diagnosis and treatment, EbM must be integrated into HbM as an indispensable component of the latter. Probably the most important difference between EbM and HbM lies in the aims and methods of treatment. In HbM the goal is no longer simply to make illnesses disappear but rather to allow the patient to return to a life that is as autonomous and happy as possible. The human being with all his or her potential and limitations once again becomes the measure of all things. This also implies, however, that the multidimensional diagnostics of HbM are oriented not only towards symptoms, pathogenesis, process and understanding but also to a greater degree towards the patient's resources. Treatment options and forms of therapy do not put the disease construct at the centre of the diagnostic and therapeutic interest, but have as their primary aim the reopening of the possibility of a largely autonomous and joyful life for the patient. *Key words: evidence-based medicine; human-based medicine; humanistic medicine; multidimensional diagnostics; multidimensional treatment; resource-oriented treatment; medical social aesthetics.*

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The introduction of evidence-based medicine (EbM) some 30 years ago marked a milestone in medical history. In contrast to “Eminence-based Medicine” – which had previously dominated the field and in which a small number of recognised experts determined medical standards – EbM used statistical findings from cohort studies as the basis for rational medical practice. From the outset, epidemiological studies, controlled cohort comparisons

and biostatistics were the masters of the universe in EbM (1–3). Undoubtedly, the objectification of our medical interventions, which in the final analysis can remain nothing more than an expression of a collective and collectivised form of subjectivity, and which should therefore be perceived as a frustrated attempt to escape from the constraints of this forced subjectivity, has incalculable advantages. In its essence, today's much-praised EbM is still indebted to the positivism of the modern and its maxims, and accordingly asserts (ultimately unverifiable) the objectifiable and objectified correctness of its approaches, which are defined as guidelines in state-of-the-art or consensus conferences and which must then in deference to ultimate medical truths be followed (4).

TRUTH VERSUS PROBABILITY

Today's EbM elevates statistical significance to the sole criterion of truth, i.e. the criterion that decides whether a statement is meaningful or whether it is better left unsaid (5). This was not always the case. Sackett and co-workers (6) from the Department of Clinical Epidemiology and Biostatistics at the MacMaster University in Hamilton/Ontario Canada, one of the birthplaces of contemporary EbM, still define EbM as “the conscientious, explicit and judicious use of the current best evidence in making decisions about the care of individual patients. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research” (7). This “integrative” approach advocated by the founders of EbM contrasts sharply with the current clinical practice promoted in strict EbM, in which the physician's clinical expertise counts for far less than controlled statistical studies. Thus, the clinical expertise of an experienced clinician ranks for example only fourth in the German Medical Association's hierarchy of evidence criteria, and as such is the lowest level of acceptable evidence, while the meta-analyses of controlled studies are ranked first and are considered to be the highest level (8).

In contrast to worshipping a strict EbM the analysis of the literature and discussion of EbM raises a host of problems (4). Attention has already been drawn to the central problem, namely the equating or confusing of “truth” and “probability”. It is obvious to anyone who has explored the basic principles of mathematics that

probability calculations can only ever show probabilities and never scientific truths (9), something that is often denied by science-oriented medical research. The results of statistical calculations are in some cases celebrated as scientific proof, although they can at best be indicators of certain factual relationships. In addition, there are a host of methodological problems in strict EbM that have their origins in the modalities with which cohort studies are carried out. These include, for example, problems in relation to the duration of such controlled studies, outcome criteria, selection of study patients, co-morbidities, control groups and exclusion criteria. The resulting limitations of collective case studies mean that the study results can only in exceptional cases, if at all, be considered representative for those patients who in clinical practice are then ultimately to be treated with the treatment modalities derived from the therapy studies (4).

MEDICAL RESEARCH AND CLINICAL PRACTICE

However, the major problem of EbM that overshadows all else lies in the direct transfer of quality assurance measures from medical research to quality assurance in clinical practice. By nature, EbM research projects must be devised as reductionistic; i.e. they aim primarily to simplify the subject or process that is to be studied. Separation, reduction and abstraction are the magic words of positivistic empirical research. In contrast, clinical practice must primarily do justice to the complexity of disease processes and the manifold interactions between disease processes, treatment processes and individualities of those who are to be treated. Individuals do not always behave in the same way as the group (although certain group phenomena cannot be denied). Human beings cannot be reduced to simple machines, their disorders cannot therefore as a rule be remedied with simple measures. For this reason alone, there will never be binding “pilot manuals” for treating sick people. A strict form of medicine based solely on evidence-based data must therefore always fall short; it can only result in effective treatments being withheld from patients, notwithstanding the fact that complex decisions can only sensibly be made by experienced clinicians bearing in mind the potential and limitations of the particular patient, and always taking into account all available proven research results.

Only a few years after the development of EbM, without actually mentioning it specifically, Gadamer (10) wrote an essay entitled “Über die verborgene Gesundheit” (“On Hidden Health”), in which he expressed the desire to see greater awareness of the differences between medical research and the actual art of healing – a difference that automatically existed between knowledge of things in general and the specific application of knowledge in the individual case, between theoretical treatises or hypotheses and the practical application of knowledge.

As important and indispensable the achievements of EbM are, it nevertheless needs to be expanded by a medicine, which focuses not just on disorders and their treatment but which places the person with all his or her potential and limitations at the centre of its diagnosis and therapy interests, and which therefore can be truly called human-based medicine (HbM) (11, 12). This HbM has its roots in patient-centred approaches that go far back in medical history to Hippocrates (13). However, it also broadens these approaches in as much as it focuses on the living individual (the indivisible human being) whereas the majority are patient-oriented approaches (person-centred approaches) (14, 15).

Whereas the main job of the researcher is to provide an analysis that is easy to follow and can be checked by others – in other words an analysis that correctly reduces, separates and abstracts data – the task of the clinician is to help alleviate the patient’s suffering as far as possible and to induce and support a process of healing. The basis for a medicine understood not only as a scientific discipline but also fundamentally as an art of healing applied in clinical practice, is not simply the analysis of pathologically determined factors, but rather the synthesis of all the individual pieces of information to which clinicians have access on account of their academic knowledge, their experience and their observations and assessments and which enable them to formulate a multidimensional treatment plan that reflects the complex nature of human beings. Adhering to the findings of individual studies without seeking to synthesize them in any way not only fails to improve the possibilities for treatment (which is said to be the supreme objective of EbM), but inevitably leads to a restriction and hence a deterioration of the treatment situation. People suffering from disorders are not clones of study groups; they are always originals. Not to mention the fact that – contrary to what the prevailing symptom-based EbM would have us believe – in everyday clinical practice what we encounter is not the disorders themselves but rather whole human beings suffering from particular pathological states and features.

Considerations like these formed the starting point for evolving a form of “psychosomatics” that focuses not only on fragments and constructs but on the whole person. This approach, which we call HbM, no longer finds its theoretical basis in the positivism of the modern era, but rather owes its central maxims to the post-modernist ideal that ultimate truths or objectivity in identifying the cause of illness remain hidden from us for theoretical reasons alone: all being is always dependent on context and thus subject to change; language as the basis of our thinking has multiple meanings, and it changes in and through its use; the observer always remains part of the system, so that he himself becomes an important part of the input leading to the results that he then describes as “objective” (4). A medicine built on such foundations

must not necessarily culminate in an “anything goes” situation (16) without truths or reference points. On the contrary: HbM as envisaged here, focuses on the whole individuum. The absence of ultimate truths opens up the possibility of simultaneously recognising different, even apparently contradictory truths, which may emerge in the course of a multidimensional diagnosis.

HUMAN-BASED AND EVIDENCE-BASED MEDICINE ARE NOT MUTUALLY EXCLUSIVE

The main theoretical premise of HbM, the dependence of being on context, enables the simultaneous coexistence of several apparently contradictory “truths”. EbM and HbM are thus not mutually exclusive opposites; rather, despite superficial differences in methods of diagnosis and treatment, EbM must be integrated into HbM as an indispensable component of the latter. The risk of a “pure HbM” with absolutely no evidence-based foundation is that medical decisions in diagnostics and treatment will be based solely on the subjective experience of individuals, with which the earlier problem of an “eminence-based medicine”, i.e. medicine based on the subjective clinical experience of more or less highly respected clinicians, would reappear in everyday medical practice. Subjective experience alone is too little, pure evidence based only on HbM-based medicine that builds upon the principles of EbM and which focuses on the individual will make it possible to provide treatment that is designed for people. Since the chief focus of HbM is no longer a pathological construct but rather a human being suffering from an illness, the multidimensional diagnostics of HbM as an extension of traditional categorical diagnostics (the domain of EbM) must be primarily oriented towards individual phenomena. The aim is to analyse the phenomenon itself and above all the underlying mechanisms from different perspectives (e.g. psychological, biological, interactional, economic and social etc.) in order to create a basis for a pathogenesis-oriented therapy (4).

Physical and mental disorders are not concrete constructs, which simply emerge and then continue to exist merely because they have been emerged. Rather they are dynamic processes subject to a certain patho-plasticity whose course is determined by disease-preserving factors. Hence multidimensional diagnostics of this kind must likewise always be process-oriented. Illnesses arise not only as natural phenomena but also in the narratives associated with them (17). These narratives not only provide meaning that is intertwined with the pathological process but actually interfere in the pathological process as disease-preserving factors and thus themselves become elements determining the illness. Understanding pathological events and the narratives connected with them thus has a special role to play in a differential process of diagnosis.

Probably the most important difference between EbM and HbM is in the treatment aims. In HbM the goal is no longer simply to make illnesses disappear but rather to allow the patient to return to a life that is as autonomous and happy as possible. In other words: the human being with all his or her potential and limitations once again becomes the measure of all things. This also implies, however, that the multidimensional diagnostics of HbM are oriented not only towards symptoms, pathogenesis, process and understanding but also to a greater degree towards the patient’s resources. HbM treatment above all involves a completely different therapist–patient relationship. The former diagnostic and therapeutic monologue (18) directed at medical analysis should be replaced by a warm-hearted dialogue; where “psychoeducation” used to play a primary role, a more profound understanding must now evolve based on the principle of reciprocity. The patient is no longer viewed as a person on the opposite side of the table who simply has to be treated according to the latest therapeutic guidelines, but as an Other who is met in the diagnostic and therapeutic process on an equal footing in a genuine dialogue. A psychosomatic treatment unit can thus become a meeting place that is characterised by lived reciprocal hospitality (19).

The treatment of the individual is not now focused exclusively on his or her deficiencies but instead on resource-oriented strategies. The idea is to create the space and the atmosphere in which all that can be done for the individuum afflicted by mental illness becomes possible. In contrast to earlier moralising approaches to therapy, in which the therapist, like a kind of coloniser or missionary, told the patient, what was right or wrong with his life, HbM therapy focuses on patients’ wishes and potential for development, which the therapist strives to discover in the course of real dialogue.

SOCIAL AESTHETICS

Such a human-centred treatment also requires the development of a new aesthetic in psychiatry to create an appropriate basis for this kind of therapeutic process. Berleant (20), one of the fathers of social aesthetics, defines social aesthetics as “... an aesthetic of the situation...”. Like every aesthetic order, social aesthetics is contextual. It is also highly perceptual, for intense perceptual awareness is the foundation of aesthetics. Furthermore factors similar to those in every aesthetic field are at work in social aesthetics, although their specific identity may be different ... creative processes are at work in its participants, who emphasize and shape the perceptual features.” The main components of social aesthetics are full acceptance of others (esteem), heightened perception (perception of all sensuous qualities), freshness and excitement of discovery (fascination), recognition of the uniqueness (person/situation), full personal involvement (engagement/opening), relinquishment of restrictions

and exclusivity, abandonment of separateness (places/atmospheres), and mutual responsiveness.

A social aesthetic for psychosomatics, which has already begun to take shape but must be further developed (21). It has the task of cultivating interaction between the patient and the therapist – in particular the initial contact, which is so important for the further progress of treatment – to fill empty rituals and modes of behaviour in the therapeutic setting with humanity, to create a fruitful atmosphere in the treatment room and to incorporate genuine friendliness in the day-to-day hospital environment, to deconstruct barriers and to open up boundaries and to facilitate enjoyable situations and relationships despite the suffering caused by illness in order to open to the patient aesthetically agreeable perspectives for the future (21). Treatment options and forms of therapy that have been and can continue to be developed from such a social aesthetic do not, as in EbM, put the disease construct at the centre of the diagnostic and therapeutic interest, but aim primarily to reopen possibilities for the patient. The goal of such a HbM that is based on the premise of social-aesthetics and, which on account of its pretension to totality, must always be human-based psychosomatic medicine, cannot just be to restore physical function, it must always include psychological health. However, mental health, as defined in the WHO-criteria of 1949 as not just the absence of mental disorders or disabilities but as a state of complete mental well-being (22, 23), is only achieved when the patient is once more able to live an autonomous and largely happy life (15, 24). The main task of HbM, (also within the meaning of comprehensive psychosomatics, as formulated by Emiliano Panconesi (25, 26) at the beginning of the 21st century), is therefore to open up possibilities for individuals suffering from any kind of illness to exercise personal autonomy and live a happy and thus healthy life (27). This kind of humanistic approach to therapy, in which the human being once again becomes the measure of all things, can only be realised in clinical practice via multi-dimensional diagnosis methods and treatment within the scope of inter-disciplinary cooperation.

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REVIEW ARTICLE

Countertransference in Dermatology

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The doctor–patient relationship in dermatology, as in all the fields of medicine, is not a neutral relationship, removed from affects. These affects take root in the sociocultural, professional, family and personal history of both persons in the relationship. They underpin the psychic reality of the patients, along with a variety of representations, preconceived ideas, and fantasies concerning dermatology, the dermatologists or the psychiatrists. Practitioners call these “countertransference feelings”, with reference to the psychoanalytical concept of “countertransference”. These feelings come forward in a more or less conscious way and are active during the follow-up of any patient: in fact they can facilitate or hinder such a follow-up. Our purpose in focusing on this issue is to sensitize the dermatologists to recognizing these countertransference feelings in themselves (and the attitudes generated by them), in order to allow the patients and doctors to build a dynamic, creative, trustful and effective relationship. Key words: doctor–patient relationship; countertransference; dermatology.

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From their first encounter, doctor and patient each bring along with them their family, professional and personal histories, as well as their personalities, character traits, reserves of narcissism and representations of health, beauty, youth, old age, love, life, disease, death and their preconceptions about the patient, medicine and doctors, medical vocation, etc.

The doctor–patient relationship that is subsequently established consists of mutual expectations and hopes. The patient expects relief and, if possible, recovery; the doctor expects gratitude from his patient and confirmation of his therapeutic powers. Such a relationship closely resembles that between teacher and pupil or parent and child, and it is thus likely to awaken memories of other important encounters, in both the doctors and patients, but also of former conflicts and disappointed expectations.

The doctor–patient relationship is a relationship marked by idealization and thus prone to disappoint-

ment. The patient is always hoping to meet the ideal doctor and the doctor, similarly, would like his patient to be an ideal patient (for example an always compliant patient).

The doctor–patient relationship is an unequal relationship, the starting point of which is the request addressed by a suffering subject to a subject who possesses a particular expertise. Expressing a request makes patients passive and dependent on the response of others and their suffering constitutes an *a priori* handicap. In fact, things are actually much more complex than this, because suffering also confers rights and allows the person who is a victim to exert an influence on his physician.

In the end the doctor–patient relationship is a paradoxical relationship, because although the object is the body, it generally passes through the medium of speech, and this can lead to incomprehension and much misunderstanding.

These universal characteristics of the doctor–patient relationship take on a particular hue in dermatology, because skin diseases are visible, sometimes even glaringly obvious, and any word proffered is likely to be short-circuited: the dermatologist very often diagnoses the lesions displayed by the patient at a single glance. Many skin diseases are chronic, harmful to quality of life and jeopardize patient compliance, thus carrying the risk of wearing down the doctor–patient relationship. Several disorders are also labelled “psychosomatic”, since psychological factors are believed to contribute to their occurrence or their evolution. Thus the dermatologists will very often be challenged by their patient in their scientific or personal convictions – whether they be rational or irrational – and their convictions and beliefs will be questioned. They will experience, consciously or unconsciously, different emotions caused by this challenge and by the resonances brought about by each encounter with each particular patient, according to the personal story of each one. Certain elements of reality, such as age, gender, physical appearance, but also intonation of voice and character traits, may trigger these resonances, but it is important to stress that these “resemblances” very often operate without the person experiencing them being aware of it. This phenomenon is known and referred to as “countertransference” (1). Freud defined countertransference as the result, within the framework of a psychoanalytical cure, of the influence of the patient on the unconscious feelings of the

doctor. The concept of countertransference thus indicates the doctor's emotional, conscious and unconscious movements, in reaction to those of his patient and according to the way he has experienced his own family, and his personal and professional history. The concept of "transference", on the other hand, refers to the patient and consists of the repetition, in adulthood, of modes of relating to others that were formed in infancy during early bonding. Each actor in the doctor-patient relationship thus projects figures from his childhood onto the other. However, within any doctor-patient relationship it is possible to speak of the "countertransference feelings of the doctor" by extrapolating the feelings that emerge in the psychoanalyst within a psychoanalytical cure (2). It should be remembered, in this regard, that psychoanalysis is, at the same time, a theory of mind, a therapeutic practice, a method of research, and a way of viewing cultural and social phenomena (3). The range of these feelings is very broad, from love to hatred, through sympathy, tenderness, sorrow, irritation or rejection. These feelings can follow on one from another or be combined in various ways, testifying to the wealth and complexity of any psychic life.

Some of these feelings, such as sympathy, the act of being moved by a patient, of feeling curiosity, interest, or even admiration for a patient, may be useful and can be put to service within the doctor-patient relationship. However they can also ensnare the doctor who experiences them without being in control of them, with the resultant risk of a "loss of distance" and of unwanted interference with a rigorous diagnostic and therapeutic approach. It is important not to confuse sympathy or being moved by a patient with empathic skills (4). The latter are a frame of mind which makes it possible for an individual to understand and recognize what the patient feels, without necessarily adhering to it entirely, i.e. retaining the critical faculties and the requisite freedom for shedding a different light on a situation. To express one's empathy towards a patient helps the latter to feel listened to and understood, but also supported and less lonely. This is all the more fundamental for good communication between patient and doctor when the relationship comprises different points of view and there is a conflicting component as a consequence, in which each is tempted to become entrenched in his own position for as long as each partner (or adversary) does not recognize the legitimacy of the other's experience.

Empathy can allow the doctors to tolerate and accept the patient's doubts and fears, and their moments of despondency or rebellion, without interpreting them as a lack of confidence in them or as a criticism of their therapeutic suggestions (« But doctor, how is it possible that in the 21st century we still have to use creams to treat skin diseases?! » or « Isn't it very dangerous to apply corticosteroids to the skin? »). Empathy differs from sympathy. Contrarily to the positive effects of

empathy, an impulse of sympathy or the feeling of being a privileged confidant of the patient or being considered "someone who listens better than anybody else" or "the person who has finally understood", who has been able to give hope back to a patient who had lost it, all have some common characteristics jeopardizing the doctor-patient relationship. The risk is the establishment of a relationship of seduction between the patient and his doctor, with its potential consequences: the swing, for the patients, from satisfaction to disappointment and the feeling, for the doctors, of having been cheated, leading them to blame patients who may not necessarily have tried deliberately to put them in a difficult situation.

Another sentiment-trap that dermatologists may fall into, particularly in the case of patients presenting with cutaneous lesions that are resistant to treatment, is that of pity and need to make amends, which often accompanies it (5). While such a need frequently lies at the very root of a caring vocation, it inevitably reminds the person of old conflicts with attachment figures, to feelings of guilt for having been capable of wanting to hurt or to harm them and then on into an often dizzying spiral of endless devotion that goes well beyond what the situation reasonably requires, spurred above all by the necessity of easing one's own conscience.

On the other hand, other countertransference feelings like disgust, rejection, irritation, and even exasperation will more obviously hinder the doctor-patient relationship, inducing inadequate attitudes in the doctor which can lead to a mistaken appraisal of patient's psychiatric and somatic condition and ultimately to a severing of the therapeutic bond (6). Below is a clinical example.

Mr. C. is a rather self-effacing and quiet man, suffering from alopecia areata universalis. He is accompanied by his wife, who is a talkative woman, who speaks very readily and who takes it upon herself to answer the questions addressed to her husband by the dermatologist. Depending on the moment, but also on the more or less repressed ups and downs of his own life, the dermatologist may feel irritated by the attitude of the patient's wife and sorry for the patient's situation. Alternatively he may feel irritated by the behaviour of such an inhibited and passive patient. The dermatologist may thus wish, without giving the matter much thought, to continue the dialogue with the woman, excluding her husband and thus reproducing the couple's habitual relational style. He will almost certainly be tempted to do this by a sense of weariness or a lack of time and by his wish to finish the consultation more quickly. However it is equally possible that he brusquely interrupts the interfering woman and defends the husband whom he perceives as a defenseless individual that has surrendered to the authority of an overbearing wife.

These extreme attitudes risk both weakening the doctor-patient relationship and jeopardizing the therapeutic bond. The question is ultimately for the dermatologist not to be blinded by what appears obvious to him and to come to terms with the way this couple functions as a fused entity. Their way of being together is long established: the dermatologist is certainly not going to change them. On the other hand, despite the irritating spectacle of coupledom that Mr C. and his wife present, both of them are clearly suffering and both

have addressed their request for assistance to the dermatologist, even if they have done so in an awkward way. Let us not forget that for certain patients who have difficulties in identifying and expressing their feelings the partner who accompanies them can be a true "spokesperson" for what they cannot or dare not think or say.

Faced with Mr C. and his wife, the dermatologist conscious of his countertransference feelings will be able to avoid acting impulsively or impatiently and will play the part of a tightrope walker: he will listen to and welcome the remarks of the wife, without disqualifying them, and he will solicit the husband's views wherever possible, at the same time turning to face him. Mr C. may perhaps come alone to his consultation one day and it will then be necessary for the dermatologist to welcome such change with benevolence and without triumphalism.

The countertransference of the dermatologist may also be required by the treatment plan itself, when this involves joint management by a dermatologist and a general practitioner or a dermatologist and a psychologist, psychiatrist, psychotherapist or psychoanalyst, or if the difficult decision has to be made whether to refer the patient to a mental health specialist and to present him with such a treatment plan. These are relatively common steps in various chronic dermatological diseases, regardless of whether a psychosomatic component is present.

The caring vocation of the dermatologists, which is frequently rooted in a desire for supreme power over illness and death, is likely to be defeated by contexts such as these and the dermatologists are likely to blame their patients for not showing sufficient willpower to recover or even for behaving in such a way as to defeat them personally. Feeling discouraged, dermatologists may seek to "get rid" of their patients. Conversely, they can second patients' reluctance to consult a psychotherapist, or they can arrange for a hasty referral which they know is futile, and thus create patients who will remain devoted to them.

Many dermatologists do not have the name of a psychiatrist to hand in their address book. The act of writing a letter to or calling a psychiatrist is difficult for them. It is also not unusual for them to share their patients' negative vision of psychiatry and psychotherapies and to have many preconceived ideas about these fields; for example concerning the cost of psychotherapy, the length of psychoanalytical psychotherapy, or the inflexible silence of psychoanalysts. Dermatologists should know and be able to explain to their patients that there are different types of psychotherapies (cognitive and behavioural therapies, psychoanalytical psychodynamic psychotherapies, etc.), that a psychoanalytical psychotherapy can be settled on a basis of one session per week or less, in a face-to-face, seated arrangement and that generally psychotherapists are used to adapt their technique to the psychological, socioeconomic and clinical peculiarities of their patients (7). For some patients, and maybe this is the case for many patients presenting with somatic symptoms, the visual relationship

matters as much as the verbal relation and participates in the emergence of transference feelings; reciprocally, the gazing relationship and health care practitioner's bodily responses to patients' presentations are potential sources for countertransference feelings (8, 9).

On the other hand, certain dermatologists idealize psychiatry and psychotherapy and devalue their own psychological competences. They consider themselves as helpless and not sufficiently trained to recognize the moment when, if there are no manifest psychiatric symptoms, it is justifiable to broach with their patient the subject of their psychological suffering or to identify, for example, depression in a patient who has been suffering from psoriasis for a long time. The risk then is to allow a true "collusion of silence" between dermatologist and patient: the latter may not be aware of his depression or may be ashamed of it; the dermatologist may consider it "normal" to be discouraged when one suffers from psoriasis or he may be afraid to hurt his patient by speaking about depression, or else not be able to contain his patient's sad feelings during the dermatological examination. To refer a patient suffering from a dermatological disease to a mental health specialist is a task not made easier, however, if the dermatologist believes that a particular psychotherapist has near magic therapeutic powers.

The dermatologist may also "believe in the psychosomatics" and be convinced of the psychogenesis, pure and simple, of a dermatological disease. When this happens, psychological linear causality is likely to replace somatic linear causality in the dermatologist's beliefs, at the expense of all that constitutes the complexity and riches of any human being.

Another, and by no means lesser danger is when a dermatologist lacking in rigorous training in psychotherapeutic techniques embarks on a treatment and "confuses the roles", or even embarks on interpretations of what he may have perceived of the unconscious conflicts from which his patient suffers, without clearly explaining the therapeutic treatment plan and without rigorously setting out a "framework" for his intervention.

Ultimately, one of the most fundamental contributions of psychoanalysis to the work of physicians, and thus also to that of dermatologists, is to have shown the importance of staying tuned not only to each one of their patients as they encounter them in their uniqueness and in their subjective trajectory, but also to themselves, to the feelings that patients induce in them and to the human, social and ethical values that will inevitably be called into question by each encounter. The encounter with a patient is undoubtedly an opportunity to get to know an individual beyond his disease, but it is also an opportunity to get to know oneself better and to re-examine one's theoretical reference-points.

By trusting the capacity of their patients to astonish them and stimulate them into producing new psychopathological hypotheses, doctors will best pre-

serve the vitality of the doctor–patient relationship and the therapeutic approach itself as well as the psychosomatic approach.

Transference and countertransference are highly subjective and rather old concepts. They can nevertheless be quantitatively assessed and submitted to an experimental approach (10–12). For example it has been shown in a sample of patients suffering from personality disorders and admitted to a day treatment program that at the beginning of treatment, higher levels of symptom distress were related to less negative countertransference reactions (11). At the end of treatment, the correlation pattern changed, and higher levels of symptoms were related to lower levels of positive countertransference feelings, i.e. feelings of being important and confident, and higher levels of negative countertransference feelings, i.e. feelings of being bored, on guard, overwhelmed and inadequate.

There are many opportunities offered to physicians, and more specifically to dermatologists, for training in the psychological dimensions of the doctor–patient relationship in order to be aware of the importance of transference and countertransference phenomena within any clinical follow-up. This ranges from teaching medical psychology and the foundations of the psychosomatic approach, or teaching narrative medicine (13) within the curriculum of medical school, to the participation in scientific societies dealing with psychosomatic medicine, psychosomatic dermatology, or the relationship between dermatology and psychiatry (as for example, in France, the Société Francophone de Dermatologie Psychosomatique and, at a European level, the European Association of Psychosomatic Medicine or the European Society of Dermatology and Psychiatry). Another route is the participation, with other physicians or health professionals, in groups animated by a trainer who has a psychoanalytical reference, as proposed by Michael Balint (14–17). The purpose of such groups is to evoke and analyse together the most uncomfortable or destabilizing doctor–patient situations experienced by the participants. The impact of such a training on the empathic abilities of doctors has already been tested, with encouraging results (18).

To conclude, we would like to stress that countertransference phenomena are universal and important to take into account in every doctor–patient relationship, in dermatology as in any other medical practice, and not specifically in a psychotherapeutic setting. This area was still little invested by psychosomatic research, justifying in the future rigorous and inventive investigation methods, which can be promising for psychosomatic dermatology.

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REVIEW ARTICLE

The Psychoanalytic Interpretation of Symptoms – Evidence and Benefits

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Dermatological symptoms are explained in medicine in biological terms. Nevertheless, exploring the life history of dermatological patients can lead to seductive, but non-rigorous scientific interpretations that are of associative, or even symbolic nature. Moreover, associations of physical signs and life events, suggest we consider our patients as subjects pervaded by the will to communicate not only through language, but also through their body and all its functions and malfunctions. Interpreting symptoms and eventually finding a meaning to the disease should not imply a causative attribution, because the very meaning of cause and effect is probably beyond our grasp. Hence, aware of our limits, we should know whether we wish to treat the disease as a whole, considering that the observer (the doctor, the patient or the medicine as a theoretical corpus) is not only an observer from outside, but also part of the disease that will be treated or described. Key words: interpretation; dermatological symptoms; psychoanalysis; symbolization; somatization.

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Dermatological symptoms are explained in medicine in terms of a change in the interplay of skin and blood cells, cytokines, neuropeptides, etc. in a previously homeostatic stage. The loss of homeostasis is thought as being caused by external stimuli like infections, UV radiations, or neurogenic inflammation produced by stress as co-source of inflammatory skin diseases.

Exploring the life history of dermatological patients leads more often than expected to seductive, but non-rigorous scientific interpretations of the aetiology of skin lesions, and these interpretations are often of associative, or even a symbolic nature. So, skin lesions can be seen as an overload of signals (for example psoriasis turning up in a genetically predisposed patient in a stress situation); but may also present as the unlikely result of associations of physical signs and life events, as if the skin (or “something behind it”) were a “thinking entity”

capable of symbolizing and elaborating concepts, thus producing symptoms as a function of language, thought, and mental abstractions.

We should therefore explore the life history of patients and feel free to develop our own creative and subjective thoughts as a consequence of their narratives.

Since we are used to the logics “*post hoc, ergo propter hoc*” (B happens after A, so A is the cause of B) we risk running into this usual psychogenic interpretation when we develop our thoughts.

We are thus bound to end up suggesting that life events, attributed meanings, fantasies and emotions are aetiologies of the disease. This is too restrictive, but we can achieve both aims: we can perform our physical examination, acknowledge somatic semiology and offer biochemical therapies, but can also consider our patients as subjects pervaded by the will to communicate not only through language, but also through their whole body and all its functions and malfunctions.

This multidimensional procedure is legitimate as diseases can be considered in terms of a higher entity, seen according to the discipline by which it is approached (classical biological medicine, psychoanalysis, biopsychosocial approach etc.). This entity has its own nature and the symptoms it produces will vary according to the theory through which it is modelled. Thus the single models are only projections of the complex entity and the complete nature cannot be grasped fully, it is only projected on the screen by different lamps from different angles.

Sometimes there are lesions that appear after a loved person’s death or a separation, or the patient’s name is unconsciously connected with the symptoms or the lesions: colour, shape, etc. Patient may talk about their disease using words that reflect their emotional status: a wound that does not heal, a stain that marks a significant body part, a drawing that clearly reflects an histological characteristic of the disease, etc.

These associations can also occur in therapy, as for example those therapeutic processes that include some meaningful objects, according to what Levi-Strauss called “savage thinking” (1). For example, native indigenous from Costa Rica call “naked Indian” a tree that continuously sheds its cortex to protect itself from some insects that try to grow on it. Its scientific name is *Bursera Simaruba*. This tree could evoke a scaly skin

disease. The indigenous use it to treat skin disorders, and it is reported to work!

The psychoanalyst Joyce Mc Dougall describes her own case (2). When she was a child, she developed urticaria each time she visited her grandmother in New Zealand. Although her family thought that it was an allergy to the milk from the Jersey cows, she became aware that she had allergy every time she faced her family environment, dominated by her grandmother, who had been imposing her will on everybody. When she separated from the grandmother's influence, the urticaria disappeared. This example suggests that a person could be "allergic" to another person, even when the allergens are not present.

There are many cases with close connections between diseases and life histories, but what about evidence?

Maybe some issues are not easily demonstrable, but we can build a theoretical fundament and progress in our knowledge of clinical facts. For example, biosemiotics is a discipline that could be a background from which we can say that there are symptoms working as a function of language, thought, mental abstractions or different levels of signs (3).

However, meanings do not always manifest themselves in the same way. Sometimes the quantitative factor is essential, and the level of stress or the strength of emotions does not allow the significant to play its role. Thus, inspired by Charles Peirce's semiotics (4), we can state 3 different forms of somatization: The *index somatizations* (they occur as a consequence of stimuli that are above a threshold), is a reaction to a high and unspecific stress; The *iconic somatizations* (they imitate the stimuli) may be influenced by the mirror neurons; The *symbolic somatizations* (they symbolize an idea, a feeling or a complex scene, imply a high range process, complex imitation, and an unconscious intention of the subject to communicate).

According to Steven Connor, "It is generally easy to agree with specialists in psychosomatic dermatology that, as the most important expressive organ of the body, the skin is a sensitive marker of different mental and physical states. *What is less easy to accept, or even perhaps to understand, is the claim that the skin allows the more or less direct picturing of those mental states, as images or allegories*" (5). The author mentions a woman with an eczema lesion in the same place where her mother had the tattoo of a concentration camp.

THE MIRROR NEURONS AND THE SKIN

Mirror neurons are brain cells that help us to understand the actions of other people simulating in the brain the same actions through the activation of motor plans. Reproducing face's motor movements during emotions, mirror neurons help us feel what other persons feel,

through some neuronal connections with the insula and the limbic system. These cells appear to create a sort of intimacy between the Ego and the other helping us to feel the same as others.

Mirror neurons discoveries explain the close bond between *perception and action*. For example, they activate themselves when a person kicks a ball, sees someone else kicking a ball, sees a ball prone to be kicked or hears the word "to kick". So, perception is very important even when it is only the word. By means of the mirror neurons, what a person perceives, prints his body via mirror neurons – Insula – Limbic system.

But, what will be printed? Where? With what ink? Could the skin be the paper?

Iacoboni (6) says that in an experiment with magnetic resonance imaging, when showing facial expressions of babies to a mother, they trigger a cascade of automatic brain answers of simulation that recreate real interactions between mother–baby.

Ramachandran (7) says that when someone is touched it is possible to empathize with the other person, activating one's own mirror neurons as if one were touched on the same place of one's body. *"But you do not actually experience the touch. There is a feedback signal from touch and pain receptor on your skin, preventing you from consciously experiencing the touch. But if you remove the arm you dissolve the barrier between you and the other human being and when he or she is touched you literally experience the touch. The only thing that is separating you from him is the skin. Remove the skin, and you dissolve the barrier between you and the other human being (...). If a person with a phantom leg sees another person who is touched, he feels his phantom leg to be touched. But the astonishing thing is that if he feels pain in his phantom leg, he sees another person who is being caressed and he feels pain relief in his phantom leg..."*

"The Ego and the other are melted in an inextricable way through mirror neurons" (7). What should be only a simulation performed by mirror neurons turns out to be a reaction of the skin's immune system. We could, inspired by Lévinas, see here the correlation of his assertion of the ego existing only when the "other" exists (8).

LEVELS OF SYMBOLISATION

Arcimboldo's paintings evoke different levels of objects. For example: Level 1: a pear, a carrot, an apple, etc.; Level 2: a face; Level 3: someone's known face; Level 4: the summertime.

The combination of insignificant elements produces the birth of the meaning. But the combination does not wear down the creation of the meaning: if you draw away your perception you can engender a new meaning. You can combine the elements at another level. The

author (or the interpreter) displacement takes part of the work's essence. A great example is the reversible head of "The Gardener" that becomes a bowl of vegetables when inverting the painting.

In the same way, the subject (the patient) or the doctor takes part of the disease status. But the disease is a composition (as Archimboldo's heads are) and the lesions are their parts. At the same time, each part is also a composition, and depending on the way that you compound the different parts, the result will be one disease or another. The skin as an organ and the location of the lesions are part of a composition too. In this way, "psoriasis" is an Archimboldo's head, and its treatment will be different if the patient's view is one or another. Moreover, Archimboldo's analogy and Barthes' theory (8) teach us that the observer (the doctor, the patient or the medicine as a theoretical corpus) is not only an observer from outside, but part of the disease that will be treated or described. In the same way, the perceiver, depending on the distance and on his culture, preferences, etc. is a part of the work of art.

Thus, there is a staggering of articulations making up our complex psyche and biology. Moreover, there is a "superarticulation" that merges psyche and soma and produces a sort of "thinking entity", as mentioned at the beginning of the article. This entity is not the final outcome or the subject itself, but the factory of meanings that works either with symbols (highest level), or signs (lowest level), and at the same time it combines the different levels with semantic short-circuits. Following these short-circuits, patient and doctor establish equivalences: sometimes, the equivalence of *being* and sometimes the equivalence of *making*.

In Connor's opinion (5), the argument that the daughter of a Holocaust survivor images her guilt at her family's survival by developing a patch of eczema in precisely the place where her mother had her identifying tattoo erased literalizes the idea of the mind's power to write on the skin, or the skin's power to change its own form. "(...) the skin literally change its form or appearance to *act out** this figures or beliefs. (...) And yet stories persist of marks forming on the skin which are not only tokens of a general excitation or suffering, such as the eczemas or erythemas affecting many people in states of anxiety, but specific visual representations or enactments of events".

Psychoanalysis is a psychotherapeutic method as well as a research one. With these aims, the psychoanalytic process encourages free associations as well as the search of a meaning linked to the personal life history and of unconscious fantasies. Thus, it implies a way of thinking and a way of linking thoughts, words, dreams and symptoms, that psychoanalysts call "working through". This way of thinking promotes associations and meaning related to the somatic symptoms that could be close to the deepest conflicts and wishes or imaginative in the same way as the pictures we can "see" looking at the clouds or at the mountains. So, a secondary association and meaning of a somatic symptom, discovered throughout the psychotherapeutic workout, can be part of the process as well. Nevertheless, we can conclude deeming it legitimate to interpret symptoms as symbols when the patient (and the doctor) are in need of finding a meaning for the disease. This does not (and must not) imply a causal attribution, because the meaning of cause and effect is probably beyond our grasp and the ultimate origin of things is still a mystery. Hence, aware of our limitations, we should know whether we wish to treat symptoms, causes, complications or the disease as a whole, remembering that: (i) cause is not the same as origin; (ii) symptom is not the same as the whole disease; (iii) the disease is not the person, and even less his/her family; (iv) boundaries are blurred and ever changing, the same as the skin throughout life; and (v) all these entities may change their role in the course of time.

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REVIEW ARTICLE

Patient–Doctor Relationship in Dermatology: From Compliance to Concordance

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The concept of what the doctor–patient relationship should be has changed increasingly in recent years. Previously, an asymmetric relationship was assumed. Compliance and adherence are terms used currently. The concordance model goes further and examines the effectiveness of the mutual process between the doctor and the patient. In this model the interaction is two-sided and involves finding a decision as partners. The origins of this approach are to be found in psychoanalytic theory. Key words: patient–doctor relationship; compliance; adherence; concordance.

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The subject of patient compliance has become increasingly important over the past decades. As early as 1994, Steiner & Vetter (1) determined that 200 publications per year appear on this subject. In the publications, the preferred term is compliance, which in translation means consent, agreement, but also submission. Instead, the new term concordance will be proposed. It implies, as will be discussed below, a close complicity between doctor and patient. Conversely, compliance implies that in the two-sided relationship between doctor and patient, the one gives instructions and the other is to follow these instructions. The instructions may consist of the prescription of a medication, the treatment regimen, behavioural rules with respect to certain diets, etc.

In practice, this means that compliance is the patient's willingness to follow a medical recommendation concerning diagnostic and/or therapeutic measures. The conception of what the doctor–patient relationship should be has changed increasingly in recent years. Whereas an asymmetric relationship between the doctor and the patient was originally assumed – the doctor knows best about the disease and treatment, the patient accepts this and follows instructions – nowadays, the opinion is that compliance is to be viewed as a communicative process. The realization has also arisen that compliance factors do not rest alone with the patient, but

that other factors, such as the doctor himself or the type of medication, may influence compliance behaviour. Basically, every patient has the right to accept or reject the recommended examinations or treatments. In this process, value must be placed on linguistic correctness: not “You must take this medication”, but “I suggest that we treat your high blood pressure/skin rash with this medication.” For this reason, it appears desirable that the doctor pay more attention to the problematics of close cooperation with the patient, similar to the high quality of current diagnostics or treatment.

This altered way of looking at things is reflected in the introduction of new terms in the literature. While the compliance model corresponds rather to a paternalistic approach – the doctor has the authority and the largely sole decisional sovereignty – an attempt is made these days to include the patient more strongly in the decisional process.

These new approaches are characterized by the terms *adherence* and *concordance*.

Adherence refers to the extent of behaviour with which the patient keeps to the rules that he accepted earlier (2, 3). Adherence means the patient participates in the decisional process of medical rules. This model corresponds more to an informative process, also called a “consumer model” and is strongly characterized by cognitive “interpretation of the doctor–patient relationship, which presumes a largely affect-neutral structure of the information exchange” (4, 5).

The *concordance* model goes further. Here, the basis is a complex idea, with the goal of improving the success or the “outcome” of prescriptions and medical advice. This model has a further reach, since it does not ask, “How much of what the doctor recommends to his patient is actually carried out?” but rather examines the effectiveness of the mutual process between the doctor and the patient.

This model refers in the consultation process not only to the patients and means not only participative decision making – “shared decision making” – but requires rather interaction and communication between the doctor and the patient, with the goal of attaining agreement on appropriate medical diagnostics/treatment as the shared responsibility of the patient and the doctor. The doctor should address emotional and sometimes hardly rational moments in the experience of disease. The interaction

examination is two-sided and requires finding a decision as partners (Fig. 1).

The following factors apply:

- Values and attitudes of the patient and the doctor,
- Medical evidence,
- Knowledge and experience of the doctor,
- Individual patient factors.

These factors illustrate the complex process and should finally lead to a decision. The reasons for a participative decision are numerous: the flood of information in the Internet, doctor's decisions, which are strongly influenced by personal preferences and values and which do not always correlate to the current state of research and knowledge. There is no adequately founded scientific proof for many of the methods established in school medicine. Are patient's questions and wishes sufficiently taken into account? Doing so results not only in increased effectiveness of diagnostics and therapy, but also has clear economic importance (2, 6, 7).

THE INTERSUBJECTIVE EXCHANGE: BACK TO PSYCHOANALYSIS?

The origins of this new approach have seldom been discussed to date in Psychodermatology, so the development over the past 20 years in psychology and especially in psychoanalysis is discussed here. No doubt that a series of more complex social and cultural changes are at play, from the 'democratization' of information in contemporary societies, to new role models and the media influence, the consumer society, new sociopolitical attitudes, etc. The point is that psychoanalysis becomes the main body of consolidated thought where the communicative phenomenon has been widely studied with medical purposes. More properly, the topic is intersubjective exchange (8).

In psychoanalysis, intersubjectivity, according to Stolorow et al. (9), was formulated as an experience-oriented form of psychoanalytical theory and treatment practice, including the self-psychology of Heinz Kohut. This theory differs in various points from the classical concept of Sigmund Freud. Stolorow and others are of the opinion that experience arises and occurs in reci-

procal exchange of subjectivities, in the concrete case for example that of the patient and that of the analyst. The observation position is thereby always within the shared context, that is the analyst attempts to understand the patient from the patient's perspective (empathy) and draws on his own biographical background in reflecting on his posture toward the patient (introspection). This has decisive consequences for psychoanalytical theory and practice, which become clear in central terms of psychoanalysis.

Freud defined, "analytical posture" as a form of "neutrality", closely coupled to the idea of abstinence: the analyst must not permit the patient any gratification which enables formation of a transfer neurosis, whereby "gratification" in this context means everything which the patient wants and desires.

The intersubjective approach is moving farther and farther away from Freud's basic scientific position and seeks the meaning of human behaviour in unconscious interpretations independent of any biological basis. Psychoanalysis understands these directions as a purely psychological hermeneutic science. It looks at intersubjectivity – that is the interpersonal relationship and relatedness as the matrix of the subjective psyche. The self is now understood as a construct arising from the construction of the relationship. In this way, purely interpersonal or intersubjective models of the psychoanalytical processes have arisen.

Intersubjectivity thus means concretely that the participants exert reciprocal influence in their thinking, feeling and acting, consciously or unconsciously. The term intersubjectivism is meant in this sense. The idea of a self as a bundle of capabilities then fades into the background. The self as experience arises where two (or more) experiencing and acting beings meet. The analyst can follow this process in the treatment by means of empathy. He is co-experiencer in a mutual context and not an observer on the side-lines. He shares his experience with the patient and takes a completely different posture than in classical analysis. In this light, the analyst is primarily concerned in treatment with grasping by feeling and self-observation that which promotes the development of the inner world.

This approach founds a new concept in psychoanalysis, which views the individual psyche as a fiction, independent of the relationship. The intersubjective approach turns the relationship between individual psyche and relationship around: in traditional thinking, the relationship arises in the meeting of two individuals. Contrary to this idea, the approach views the relationship as the basis and the individual as the result which is formed in the relationship: What the other person in the meeting and I negotiate as the reality of our relationship determines my self-experience.

As suggested above, other main sociocultural and economic forces have been strongly acting, but perhaps the

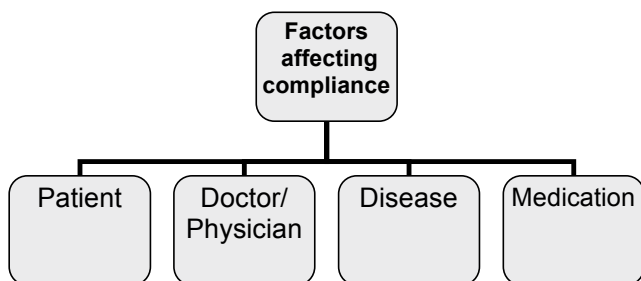


Fig. 1. Factors affecting compliance.

changes in the view of doctor-patient relationships have also taken place in light of this intellectual approach in psychoanalysis: from a neutral and determinative posture (compliance) toward a mutual strategy to combat the patient's disease (concordance). Similar considerations as those of intersubjectivity in psychodynamic therapies are used. Concordance also means picking up on the patient's wishes and ideas, clarifying them and including them in the cooperative treatment plan.

These new considerations, however, assume a type of patient who is intellectually capable and willing to follow the treatment strategy worked out together. In psycho-dermatological practice, we know "difficult" patients, who hardly ever want to or can follow such a treatment concept. As an example, the aggressive patient with his constant dissatisfaction, excessive demands and constant pressure, or the dependent patient, who shows no sign of active coping with disease. Emotionally remarkable patients with agitation, depressive mood and nervousness are unsuitable for a "concordant" treatment strategy. It can thus be noted that the doctor-patient relationship has changed in the direction of intersubjectivity, but a mutual treatment strategy must be selected individually. However, we will continue with the term compliance: on the one hand because the term has become established in the literature, and on the other hand to avoid confusion in terminology.

It is obvious that improvement in compliance leads to improved effectiveness in the diagnostics and therapy of disease, and that considerable economic factors can also be involved (10, 11). But how is the quality of compliance to be determined?

CONCORDANCE AND THE LIMITS OF COMPLIANCE

We are familiar with direct and indirect procedures to determine compliance, which cannot be discussed in detail here (5, 8). Table I presents a summary of these procedures.

Table I. *Methods to determine compliance*

Indirect procedures
1. Patient questioning
a. Subjective information from the patient
b. Patient questioning with standardized questionnaires
2. Calculation of tablets and ointments used
3. Keeping control appointments
4. Measuring effectiveness of therapy
a. Measuring various skin parameters (moisture, skin colour)
b. Questioning the patient about subjective rating (itching scale)
Direct procedures
1. Determination of blood levels of medications administered
2. Measuring medications in urine
3. Operative determination of skin parameters (skin moisture, skin colour)

FACTORS INFLUENCING COMPLIANCE AND NON-COMPLIANCE

Many studies have reported on factors influencing compliance and factors influencing non-compliance. The criteria gathered from various faculties cannot be transferred without reservation to the needs of dermatology, but they are essentially comparable. The following factors are decisive:

1. Factors in the person and behaviour of the doctor,
2. Factors in the person and behaviour of the patient,
3. Factors in doctor's instructions,
4. Factors in the type of treatment, and
5. Factors of the disease itself.

All of these factors must be taken into account in scientific investigations.

In examining the validity of the measured results obtained, it was proven that the subjective rating of compliance by medical personnel is often inaccurate. Compliance is usually overestimated. Direct observation of the patient requires great effort, can hardly be performed in outpatients and causes a change in the patient's behaviour. Check of medications or metabolites or the marker substances is an examination method that can be easily performed on the day of examination, but it says nothing about use on the other days. Moreover, the range for this test is very broad. This results in limited applicability.

Realizing that many publications have used a wide variety of measuring methods and definitions, that many studies involved patient groups which differed greatly from the norm, that bad news "sells better" than good news and that many published study results are only for those patients who attended control appointments, the extent of non-compliance with taking prescribed medications can be estimated as follows: errors in taking medication are registered on average by 50% of the patients.

The following differences in taking medications can be observed (10):

- 20% of the patients take their medication correctly
- 25% under good conditions (daily plan in place)
- 5% of the patients take too much medication
- 15% irregular taking
- 25% usually inaccurate dosing and
- 10% not at all

These results do not, however, take into account that the instructions may not have been understood. They thus also do not reflect a patient's conscious rejection of therapy. Not understanding the therapy instructions is, however, the most common reason for incorrect and missing use. Moreover, only a mean value is recorded in this connection. In individual cases, compliance is situation-dependent and the interindividual differences are far too great to enable such a simple categorization.

Above we have defined the performances of compliance. To what extent could the new term concordance develop a more advanced way of thinking on the relationship between patient and doctor? That's the essential question. To answer it we will take Dermatology as a defining arena.

Taking special compliance issues in dermatology into account

In various studies, some extensive, more than 250 interacting variables could be identified which may influence compliance or non-compliance, and subsequently concordance as well. This illustrates the fact that the process is extremely complex, which may appear obvious in the individual case, but which may lead to differing statements in a group assessment.

INFLUENCING FACTORS WITH RESPECT TO PERSONALITY AND SOCIAL ENVIRONMENT

There is as yet apparently no definite proof that certain personality characteristics of the patient enable prognosis of compliance behaviour. Neither the patient's sex, family status, educational level, intelligence, religion, income nor knowledge appears to have clear influence on compliance behaviour. Sociobiographical data may, however, give hints concerning the necessity of special treatment or communication strategies (10).

The patient's need for information remains high; it can in most cases rarely be satisfied, at least by the doctor alone, simply for lack of time. Nonetheless, the doctor is of course obliged to adequately inform the patient about the diagnostics and therapy. Patients deal ever more critically with recommendations and instructions from doctors. It has become the general custom to seek a second, or even third, opinion from doctors or health facilities. Moreover, the patient these days often seeks his own information. This is obtained especially in the Internet, but also from self-help groups or from the lay press.

Compliance is negatively influenced if the doctor brusquely rejects the sometimes unscientific or alternative procedures. This does not promote trust and it is better to discuss the advantages and disadvantages of alternative medicine with the patient.

The patient may obtain additional information from relatives, friends, at work, or in the pharmacy, which may have an unrealistic effect on the expectations or feared side effects of the medication.

The personality structure probably plays a role in the quality of the doctor-patient relationship. Is the patient readily willing to follow the doctor's advice, or does he want to be involved in the decision, or perhaps even make the decision alone?

For me, the following question has proven valuable in practice: "What do you think is behind your disease and what makes it worse?"

Patients who answer, "I'm not the doctor", "I don't know" are likely people who want the decision made for them. On the other hand, there are patients who propagate unrealistic theories with the greatest conviction: "This little bump on my cheek (diagnosis: basal cell carcinoma) was caused by a branch that hit my face." In dealing with self-assured, responsible patients, the doctor still has to be careful not to be talked into unjustified treatment. In the final analysis, the doctor is still held responsible for failure. The broad dissemination of irrational concepts about diseases or medication side effects is also – or perhaps especially – known in dermatology.

The so-called cortisone fear is typical. The special worry about side effects is not entirely unjustified, since cortisone, whether taken internally or applied externally, is not always prescribed with the required care and necessary knowledge.

Thanks to economic constellations, the doctor feels sometimes compelled to exaggerate the effects of medications or to play down side effects. This should be avoided, since it has a negative influence on compliance, at least for a time.

With respect to the disease and especially skin disease, it can be noted that compliance with the treatment of acute diseases is better than that in chronic diseases. It is also known that compliance decreases more, the longer a certain therapy scheme is applied. Compliance in long-term medication, such as is often required in chronic skin diseases (e.g. psoriasis or neurodermitis), is about 50%, even for cooperative patients. Dermatoses on visible parts of the body or associated with severe subjective complaints (itching, burning of the skin) are in a class by themselves. In these cases, compliance is considerably higher. However, it has not yet been clearly proven that compliance increases with the severity of the course of disease (10).

In dermatology, there are certainly special factors for non-compliance. Unlike, say, a diseased liver, skin diseases are usually easily visible, can be felt, and are recognizable as a disease for the patient. Skin diseases on visible parts of the body may also have a stigmatizing effect. Topical treatment usually requires a lot of time and energy from the patient. Possibly there are also tensions in the social environment, if the patient spends an hour in the bathroom, for example. Many patients say they would prefer to have a tablet or injection prescribed to treat the skin disease. Care should be taken that the most-easily used external preparations are prescribed (such as shampoo, sprays or body lotion). As with internally administered medication, topical medications may lead to contact dermatitis due to ir-

ritation or allergy. Patients then usually terminate the treatment quickly on their own (10, 12).

WHAT APPROACHES ARE AVAILABLE TO IMPROVE PATIENT CONCORDANCE IN DERMATOLOGY?

Compliance improves when the patient is offered “structured structures“. Among these are doctor’s appointments, visits, provision of information, and type of therapy. How can this be realized in practice?

- Appointments and follow-up appointments should be made in writing.
- Written instructions of how treatment is to be applied (ointment A in the morning, ointment B in the evening) increases correct application from 20–30% to more than 70% in our opinion.
- At the initial appointment of the patient in the practice, confidence is created by a thorough anamnesis and careful physical examination.
- The patient’s own competence should always be strengthened. If the patient has the positive impression that he will be successfully treated, the probability of successful treatment increases.
- If it appears difficult to reach the patient, it is reasonable to include family members in the treatment strategy in many cases.

In discussions during appointments, we have noted that the explanation to the patient about the necessary diagnostic and therapeutic measures is very important and promotes compliance. Written instructions have proven valuable as a support. Also, questioning the patient to be sure he has understood the instructions and recommendations is helpful and promotes concordance. In this connection, mention should be made about patient training, such as that known for patients with diabetes mellitus. In dermatology, patient training for neurodermitis patients has become increasingly established over the past 10 years. The training program for patients with neurodermitis (atopic dermatitis) represents a preventive-medical model for the prophylaxis of this chronic skin disease, which includes multifactorial somatic and emotional influencing factors (5).

The program consists of two components: an intensive dermatological training program, developed for performance in the dermatological practice, and psychological training developed especially for patients with neurodermitis. It has been found that patients can be better motiva-

ted to cooperation through neurodermitis training, so that improved compliance can also be expected as a result.

In conclusion, concordance is offered as a basis of a complex idea, with the goal of improving the success or the “outcome” of prescriptions and medical advice. It implies a close complicity between doctor and patient. This model, historically developed by psychoanalysis, goes further as it does not ask, “how much of what the doctor recommends to his patient is actually carried out?” but rather examines the effectiveness of the mutual process between the doctor and the patient. It is the power of communication, of mutual understanding, playing in favour of the healing process.

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REVIEW ARTICLE

Psychodermatology in Clinical Practice: Main Principles

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Psychodermatology is a newer and emerging subspecialty of dermatology, which bridges psychiatry, psychology, paediatrics and dermatology. It has become increasingly recognised that the best outcomes for patients with psychodermatological disease is via a multidisciplinary psychodermatology team. The exact configuration of the multidisciplinary team is, to some extent, determined by local expertise. In addition, there is a growing body of evidence that it is much more cost-effective to manage patients with psychodermatological disease in dedicated psychodermatology clinics. Even so, despite this evidence, and the demand from patients (and patient advocacy groups), the delivery and establishment of psychodermatology services is very sporadic globally. Clinical and academic expertise in psychodermatology is emerging in dermatology and other (often peer-reviewed) literature. Organisations such as the European Society for Dermatology and Psychiatry (ESDaP) champion clinical and academic advances in psychodermatology, whilst also enabling training of health care professionals in psychodermatology. Emiliano Panconesi, to whom this supplement is dedicated, was at the forefront of psychodermatology research and was a founding member of ESDaP. Key words: psychodermatology; multidisciplinary team; cost-effective.

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The skin is the largest organ of the body, the most visible and acts as our interface with the world. As such the skin has a major impact on personal perceptions and psychological well-being. Psychocutaneous medicine is the study of the complex interaction between psychiatry, psychology and dermatology.

In this emerging speciality, patients present with either: 1) a primary psychiatric condition which presents to dermatologists (e.g. dermatitis artefacta); 2) a primary dermatological disorder with secondary psychosocial comorbidities (e.g. acne with body dysmorphic disorder); 3) those who require psychosocial support with their skin disease (e.g. rosacea and low

self-esteem); or 4) those who have a skin condition secondary to their psychotropic medication (e.g. lithium may be associated with psoriasis), or those who develop psychiatric disease following initiation of medication for dermatological disease (e.g. isotretinoin may be associated with suicidal ideation) (1).

The most common conditions seen in psychodermatology clinics include patients with delusional infestations, dermatitis artefacta, trichotillomania, dysaesthesias (such as peno-scrotodynia, vulvodinia), body dysmorphic disorder, social anxiety disorder, depression and suicidal ideation. Synonyms for psychodermatology include: Psychocutaneous medicine; Mind and skin (or skin and mind) medicine; Sensory-neuronal dermatology; Psycho-somatic dermatology (or medicine); and Cutaneo-somatic dermatology (or medicine).

Most dermatologists refer to this subspecialty of dermatology as psychodermatology or psycho-cutaneous medicine. There is a debate about whether naming the speciality ‘psychodermatology’ or that the very prefix ‘psycho’ is stigmatising for patients. Whilst most dermatologists are respectful of maximising patient engagement and minimising patient stigmatisation, most will hold to the term ‘psychodermatology’ or ‘psycho-cutaneous medicine’ as that clearly and uniformly delineates the nature of the speciality.

THE NEED OF (RATHER THAN DESIRE FOR, OR WANT OF) PSYCHODERMATOLOGY CLINICS

A recent British Association of Dermatologists’ working party report (2) published the results of a nationwide survey by dermatologists, highlighting the urgent need for (at least) regional psychodermatology services. Results found that 3% of dermatology patients have a primary psychiatric disorder, 8% of dermatology patients present with worsening psychiatric problems due to concomitant skin disorders, 14% of dermatology patients have a psychological condition exacerbating their skin disease and 17% of dermatology patients need psychological support to help with psychological distress secondary to a skin condition. Overwhelmingly 85% of dermatology patients have indicated that the psychological aspects of their skin disease are a major component of their illness.

A population-based cohort looking at depression, anxiety and suicidality in 149,998 psoriasis patients and 766,950 patients without psoriasis showed an increased risk of all these diagnoses amongst those patients with psoriasis (3). The timing of flares of psoriasis to emotional stress indicates a relationship between the nervous and immune systems. For patients who live with cutaneous diseases such as psoriasis, psychological stress is known to act via the hypothalamic-pituitary-adrenal axes causing an increase in inflammatory mediators, activation of the sympathetic nervous system causing a dysfunctional adrenergic response and distribution of leucocytes, stimulation of neuronal growth and changes in neuropeptide and neurotrophin expression (4).

Patients with chronic inflammatory diseases such as psoriasis process facial expressions such as disgust which differs for age-matched controls. In this study functional magnetic resonance imaging (fMRI) showed smaller signal responses in the bilateral insular cortex in those with psoriasis and this was not confined to those with the most treatment-resistant psoriasis. It is theorised that patients have adapted this coping mechanism to protect themselves from disgusted facial expressions of others, related to their psoriasis (5). Having an inflammatory skin disorder such as atopic dermatitis or psoriasis in childhood with high systemic levels of IL-6 is associated with an increased risk of developing depression and psychosis as a young adult (6). A recent systematic review of 14 trials looking at the use of non-steroidal anti-inflammatory drugs and cytokine inhibitors showed that anti-inflammatory treatment reduces depressive symptoms compared to placebo (7). Therefore, it is not surprising that treatment of an inflammatory disorder such as psoriasis with an anti-TNF alpha blocker such as adalimumab, positively affects the psychosocial aspects and quality of life of a patient (8).

THE PSYCHODERMATOLOGY MULTIDISCIPLINARY TEAM

In a general dermatology clinic, an untrained dermatologist is usually unequipped to manage patients with psychocutaneous disease without a psychodermatology team. The psychodermatology multi-disciplinary team (pMDT) has been identified as a successful (and cost-effective) way to manage this group of patients (9). The pMDT includes a dermatologist, a psychiatrist and/or a psychologist, with additional support from dermatology specialist nurses, child and adolescent mental health specialists, paediatricians, geriatricians and older age psychiatrists, social workers, trichologists, primary care physicians, child and/or vulnerable adult protection teams, patient advocacy and support groups.

PSYCHODERMATOLOGY CONSULTATIONS

Patients who present to a psychodermatology clinic usually believe they have a primary skin problem (though this is not always the case). A clinician must approach the patient in the same way as they approach all patients they see in a dermatology clinic. Active listening is crucial with an in-depth comprehensive medical history (including substance misuse) and a full examination of the skin, ensuring a willingness to “lay on hands”. By performing a detailed skin examination patients are reassured that their condition is being considered seriously, which will enhance engagement of the patient with the clinician. Physical findings can include excoriation/excessive scratching (seen in skin picking disorder, delusional infestations), linear or geometric erosions/burns (seen in factitious lesions or signs of abuse) and a general dishevelled appearance (seen in patients with poor self care) (1).

During the discussion with the patient the concept of skin disease having an impact on a person’s psychosocial well-being can be introduced. This then gently establishes the acceptability of carrying out a more detailed psychiatric assessment and structured management plan. There are 3 types of psychiatric or psychosocial risk that dermatologists should be alert to include: (i) Risk of suicide or other self injury; (ii) Risk to others, including clinicians staff and family, and (iii) Risk of child or vulnerable adult abuse or neglect.

For most dermatologists assessing suicide risk can be uncomfortable as it is not a routine part of their clinical practice, however it is vital to practice these skills in order to manage and prioritise those at risk. Screening for suicide risk should include: (i) Assessing the emotional impact of the patient’s dermatologic condition. (ii) Directly asking about suicide and other psychiatric issues. (iii) Clinically examine any reassurances from patients with substantial risk factors. (iv) Knowing that major risk factors are rarely counter-balanced by the so-called presence of “protective factors.” Protective factors include supportive measures that neutralise patient’s suicidal thoughts and behaviours to reduce the likelihood of suicide. (v) Understanding the concept of “suicide attempt.

Table I. *The mental state examination (1)*

• Appearance and behaviour
• Speech
• Mood; subjective and objective
• Thought: form and content
• Perception (e.g. auditory, visual, olfactory, hallucinations).
• Cognitive assessment, including orientation, attention and concentration, registration, and short term memory recent memory, remote memory, intelligence, abstraction
• Insight

Dermatologists should aim to cover all aspects of a psychocutaneous history and perform a mental state examination for each patient. This may take several clinic visits (1). Patients must be re-assured that discussions are confidential and that only when necessary do we share information with other health-care providers (Table I).

Engaging patients with psychocutaneous disease is crucial. It is also important to fully involve the primary care physician so that everyone in the pMDT is fully informed in order to reinforce treatment choices and instil confidence in the patient.

The extent of skin disease does not necessarily relate to the extent of psychosocial co-morbidities. A patient's quality of life is increasingly understood as essential to a clinician's management of patients with dermatological disease. Health-related quality of life is therefore the patient's assessment of the effect of their skin disease and treatment on their physical, psychological, social position and overall well-being. Quality of life tools can be: adult dermatology specific (e.g. the Dermatology Life Quality Index, DLQI) (10) or child dermatology specific (e.g. The Children's Dermatology Life Quality Index CDLQI) (11), psychiatry or psychology specific (eg. the Person Centred Dermatology Self-Care Index, PeDeSI (12)) or disease specific (eg. Psoriasis Disability Index) (13). Increasingly it is recognised that quality of life changes are not confined to the patient and this is recognised through the use of the family specific Dermatitis Family Impact (DFI) questionnaire (14).

Patients with a primary psychiatric disorder may not have insight and therefore will usually not engage with mental health specialities without the engagement of a dermatologist. Therefore there is a definite need for dermatology departments to have a specialist trained in psychocutaneous medicine for this population of patients. The cohort of patients with psychosocial impairment due to skin disease also need specialist multi-disciplinary team input, often requiring involvement from psychology and psychiatric colleagues. By providing psychological support within a dermatology department this care is "normalised" within a "normal" healthcare setting. There is also mounting evidence that an early identification of patients with a primary psychiatric condition, by primary care physicians and/or dermatologists is a cost effective way of utilising resources, by direct referral to specialist psychodermatology services. The savings are largely due to the reduction in extensive and often unnecessary investigations, specialist referrals and 'doctor shopping' (15). A study looking at the cost-effectiveness of managing patients with dermatitis artefacta in a dedicated psychodermatology clinic compared to costs incurred prior to referral found on average a saving of £6,853 per patient per year (16). Despite this currently only 8 trusts in the United Kingdom have a lead consultant with an interest in psychodermatology (15, 17).

PSYCHODERMATOLOGY CLINIC MODELS

There are different working models in which a psychodermatology service can be implemented including: (i) A dermatologist who refers a patient to a psychiatrist or psychologist who is in an adjacent room. (ii) A dermatologist who refers a patient to a psychiatrist or psychologist who is in a remote clinic. (iii) A dermatologist who has a psychiatrist sitting in clinic at the same time and a patient is seen by both specialists concurrently (1, 15).

Factors influencing the type of model delivered include finance and keenness of colleagues. Practically to set up a service we recommend the following:

- *Financial investment*: It may be mistakenly perceived by hospital managers to be a costly clinic as can involve more than one health care professional and consultation times per patient need to be longer. Evidence is emerging of the cost-effectiveness of running these clinics as there is often a hidden layer of resources used prior to them been successfully treated in psychodermatology clinics.
- *Psychodermatology multi-disciplinary team*: Access to training is essential to ensure expertise in this area is gained and disseminated for the training of colleagues.
- *Consultation times*: Due to the nature of the complexity of the conditions seen in these clinics 45 min is often required to see new referrals and 20 min for follow-up patients. Psychology colleagues often require hour appointments to see patients.
- *Multi-disciplinary team discussions* are vital to co-ordinating care for these patients between health professionals. Time needs to be set aside for this.
- *Facilities*: Consultation and counselling rooms are well suited for the dermatology outpatient setting. Ideally a quiet room which is not disturbed is necessary for psychological interventions. Joint healthcare clinics need to be in a room big enough for clinicians and the patient and next of kin (1, 2).

Psychological interventions include basic therapies such as psychoeducation, self-help treatments, relaxation, social skills training and more complex therapies such as habit reversal and cognitive behavioural therapy (CBT) (1). Habit reversal therapy initially draws the patient's attention to a habit they may not be aware of. Therapy then focuses on developing alternative strategies. Treatment in CBT is centred around challenging negative automatic thoughts and developing alternative responses. CBT has been shown to be a tool that can be used for conditions encountered in psychodermatology clinics, such as body dysmorphic disorder (18).

TRAINING IN PSYCHODERMATOLOGY

Training in, and updating, clinical psychodermatology practice is crucial. In the UK there has been clear deli-

neation of the need for trainee dermatologists to train in psychodermatology, but, until recently, very little by way of formalised training. Training has been, until recently, largely from case-based discussions with general dermatologists together with experience from undergraduate psychiatry training. Because psychodermatology includes expertise from dermatology, psychiatry and psychology, basic training in all these disciplines is important in fully training a dermatologist. In addition, advanced training schools for dermatologists with a special interest in psychodermatology are being developed across Europe. Current training available for those interested in psychodermatology include:

- The annual UK Specialist Registrar and Newer Consultant Psychodermatology training course. (anthony.bewley@bartshealth.nhs.uk).
- Courses by the British Dermatological Nursing Group (BDNG). (www.bdng.org.uk/about/).
- The European Society for Dermatology and Psychiatry (ESDaP). (www.eadv.org).
- The mind and the skin course at the University of Hertfordshire. (m.flanagan@herts.ac.uk).
- There is also an annual psychodermatology UK meeting. (www.bad.org.uk/Events) (2).

PSYCHOPHARMACOLOGY

Psychopharmacology may relate to psychodermatology in the following ways. It may be necessary to prescribe psychiatric medication for psychodermatological conditions, or medications used to treat dermatological conditions may have psychiatric consequences. Finally medications used in for psychiatric disease may lead to dermatological consequences (Tables II and III).

Table II. *A few examples of medications used in both psychiatric and dermatological practice and their possible dermatological and psychiatric consequences, respectively*

Patients with skin condition secondary to their psychotropic medication (both adults and children):
<ul style="list-style-type: none"> • <i>Lithium</i> can cause hair loss, folliculitis, acne, nail pigmentation, precipitation or exacerbation of psoriasis • <i>Lamotrigine</i> can cause Stevens-Johnson syndrome, toxic epidermal necrolysis, angioedema • <i>Tricyclic antidepressants</i> can cause photosensitivity • <i>Antipsychotics</i> can cause photosensitivity, urticarial, maculopapular rash, petechiae, oedema
Medications for skin disease causing psychiatric consequences (both adults and children):
<ul style="list-style-type: none"> • <i>Antihistamines</i> can cause depression, extrapyramidal symptoms, confusion • <i>Antimalarials such as hydroxychloroquine</i> can cause affective disorders and psychosis • <i>Dapsone</i> can cause psychotic disorders • <i>Dianette</i> used in acne can cause depression and anxiety • <i>Isotretinoin</i> can cause affective disorders including depression and suicidal ideation

Table III. *Specific areas within psychodermatology*

Primary psychiatric conditions that present with skin disease (both adults and children):
<ul style="list-style-type: none"> • Delusional infestation • Dermatitis artefacta • Trichotillomania • Body dysmorphic disorder • Neurotic excoriation • Anxiety and depression in dermatology
A primary dermatological condition with secondary psychosocial comorbidities or who require psychological support with their skin disease (both adults and children):
<ul style="list-style-type: none"> • Inflammatory skin conditions, e.g. psoriasis, atopic dermatitis, acne • Hair disorders, e.g. alopecia areata, male pattern balding, female pattern balding and chemotherapy-related hair loss • Psychodermato-oncology (looking at psychosocial, emotional and behavioural factors associated with a diagnosis of a skin cancer and its treatment) • Anxiety and depression in dermatology

Clinicians need to become familiar and comfortable with prescribing anti-depressants and antipsychotics, as these two classes of drugs are used to treat many of the conditions seen in psychodermatology clinics (1).

Folie a deux/en famille is a well-documented phenomenon seen in patients with delusional infestations where the belief is shared with family members or friends. A recent case published describe the case of a mother with delusional infestation whose children shared her belief and explored the child protection issues associated with it (19).

RESEARCH

Happily there is a growing body of research in psychodermatology. Until recently research in psychodermatology has largely been observational. But there are centres who are actively researching the basic science of psychodermatological disease (5), as well as clinical research. There is only one randomised controlled clinical trial on delusional infestations in psychodermatology, and there are a host of reasons why such research is difficult. But Cochrane reviews of such research are beginning to emerge (20). Perhaps the focus of future research should centre on the overall management and treatment of psychodermatology patients and establishing national guidelines (1).

Data is required to inform future provision of psychological services for patients who are currently unsupported as well as providing evidence for the efficacy of interventions not only for patients with psoriasis shown by Moon et al. (21) but would also be helpful for the holistic management of our patients.

CONCLUSION

Psychodermatology is an emerging, exciting field within dermatology. There is both a need for research

and specialists within this field in order for us to better manage our patients.

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REVIEW ARTICLE

Psychodermatology: Basics Concepts

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Psychodermatology is a relatively new field of medicine. It encompasses the interaction of mind and skin. The role of psychoneuroimmunology in the causation of psychocutaneous disorders and psychosocial aspects of skin disease have gained momentum lately. The treatment of psychodermatological disorders focus on improving function, reducing physical distress, diagnosing and treating depression and anxiety associated with skin disease, managing social isolation and improving self esteem of the patient. Both pharmacological and psychological interventions are used in treating psychocutaneous disorders. The interest in Psychodermatology around the world is increasing and there are several organizations holding their regular meetings. Key words: psychocutaneous disorders; skin & psyche; dermatopsychiatry; behavioral dermatology.

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Psychodermatology is a field that results from the merging of two important medical specialties, psychiatry and dermatology (1, 2) (Fig. 1). It addresses the complex

interaction between the skin and mind. Although the existence of Psychodermatology is old, the field has become popular only in the past 20 years (1, 3). Since ancient times, philosophers reported the existence of Psychocutaneous diseases. Hippocrates (460–377 BC), in his writings, mentioned the effects of stress on skin. He cited cases of people who tore their hair out in response to emotional stress (3). While Aristotle (384–322 BC) suggested that the mind and body were two complementary entities and not separate, as suggested before (3).

The skin and the nervous system share the same embryogenic origin. Both are originated from the same germ layer. The ectodermis differentiates to form the nervous system (brain, spine and peripheral nerves), tooth enamel and epidermis. It also forms the sweat glands, hair and nails (4).

There is also an interplay between the immune and neuroendocrine systems and the skin. The skin transmits intrinsic conditions to the external world after sensing and integrating environmental cues (5). The skin serves as a protective interface between the internal organs and the external environment. It is considered an active immune organ and functions as a physical barrier to combat pathogens, physical stress and diverse types of toxins. Their immune responses involve immune-competent cells and soluble biologic response modifiers including cytokines. Skin cells also produce neurotransmitters and neuropeptides, hormones and

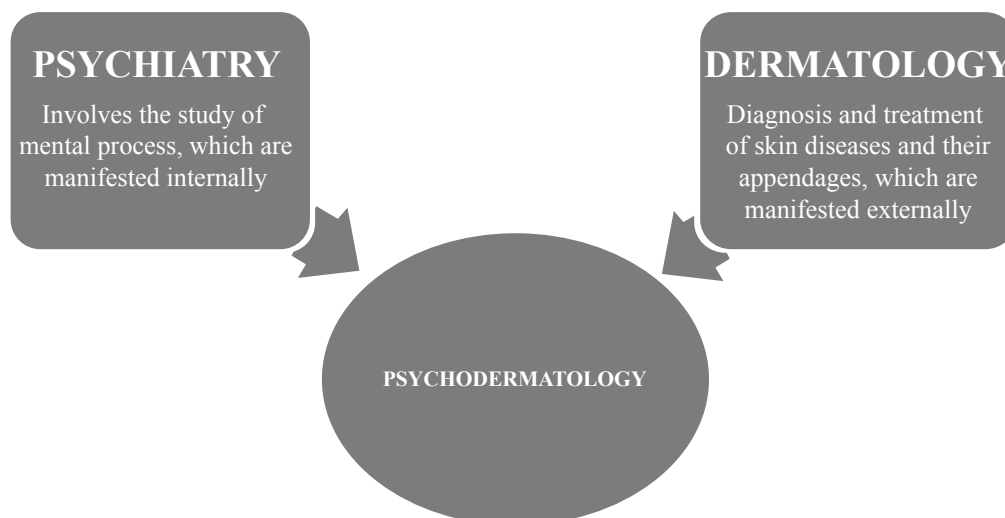


Fig. 1. Psychodermatology: A field that results from the merging of two important medical specialties: psychiatry and dermatology.

corresponding functional receptors (6). The epidermis, dermal and adnexal cells produce neurotransmitters and hormones. They can also be released from cutaneous nervous endings. Hair follicles, eccrine, apocrine and sebaceous glands have exocrine activities that serve to strengthen epidermal barrier, in the defense against external pathogens and regulate thermoregulation (6, 7).

CLASSIFICATION OF PSYCHODERMATOLOGICAL DISEASES

There are several types of classification of psychodermatological diseases. The most commonly used is presented in the Table I.

TREATMENT APPROACHES

The treatment approaches for psychodermatological disorders starts with a good doctor–patient relationship to develop empathy and increase patient adherence and satisfaction (9). A multidisciplinary team, including dermatologists, psychiatrists, psychologists and social services are also very important for a holistic treatment (10). Table II presents some goals that should be targeted when treating a patient with a psychodermatological disorder.

Both non-pharmacological and pharmacological treatments have been successfully used to treat psychocutaneous disorders. These treatments can be used alone or in combination, depending on the medical evaluation and needs of each patient. Psychotherapy, cognitive

Table II. Goals that should be targeted when treating a patient with a psychodermatological disorder (10)

Improve functioning
Detect and improve sleep disturbances
Reduce physical distress
Detect and treat psychiatric symptoms such as depression and anxiety
Manage social isolation/withdrawal
Improve self-esteem

behavioural therapy, hypnosis, stress management techniques, relaxation training, biofeedback and guided imagery are some examples of nonpharmacological approaches that have been successfully employed.

Pharmacologically treatments include antidepressants, anxiolytics, antipsychotics, antihistamines, and oral corticosteroids, topical medications among others. The choice of a psychopharmacological treatment is based on the nature of the psychopathology that can be compulsion, psychosis, anxiety or depression. The most commonly used are selective serotonin reuptake inhibitors (SSRIs), Serotonin Norepinephrine reuptake inhibitors (SNRIs), Mood stabilizers and antipsychotics. Antipsychotics can be used to augment the efficacy of other medication effects or as monotherapy in patients in certain conditions such as delusions of parasitosis and trichotillomania. Other commonly used psychiatric medications include pimozide to treat delusion of parasitosis, gabapentin to treat postherpetic neuralgia, naltrexone to treat pruritus and lamotrigine and topiramate to treat skin picking. Although there is limited evidence and few controlled trials have been conducted with above-mentioned pharmacological agents with variable results.

Table I. Classification of Psychodermatological disorders (8)

Classification	Definition	Examples
Psychophysiological disorders	Skin diseases are precipitated or exacerbated by psychological stress. Patients experience a clear and chronological association between stress and exacerbation	<ul style="list-style-type: none"> • Acne • Alopecia areata • Atopic dermatitis • Psoriasis • Psychogenic purpura • Rosacea • Seborrheic dermatitis • Urticaria (hives)
Psychiatric disorders with dermatological symptoms	There is no skin condition and everything seen on the skin is self-inflicted. These disorders are always associated with underlying psychopathology and are known as stereotypes of psychodermatological diseases	<ul style="list-style-type: none"> • Body dysmorphic disorder • Delusions of parasitosis • Eating Disorders • Factitial dermatitis • Neurotic excoriations • Obsessive Compulsive Disorders • Trichotillomania
Dermatological disorders with psychiatric symptoms	Emotional problems are more prominent as a result of having skin disease, and the psychological consequences are more severe than the physical symptoms	<ul style="list-style-type: none"> • Alopecia areata • Albinism • Chronic eczema • Hemangiomas • Ichthyosis • Psoriasis • Rhinophyma • Vitiligo
Miscellaneous	Several other disorders have been described and grouped under miscellaneous conditions. The medication-related adverse effects of both psychiatric and dermatological medications have also been included in the broad classification of psychodermatological disorders	<ul style="list-style-type: none"> • Psychogenic Purpura Syndrome • Cutaneous Sensory Syndrome

Psychodermatology is gaining momentum and the interest in the mind-skin connection is increasing. The role of psychoneuroimmunology in the causation of psychodermatological disorders is the hot topic of research in psychodermatology nowadays.

PSYCHODERMATOLOGY AROUND THE WORLD

Psychodermatology is a subspecialty that is becoming more and more known around the world. Although it is well established as a subspecialty of dermatology and psychiatry, it has been increasingly studied by health professionals worldwide over the past two decades. The understanding of the existence of a cycle, whereby psychological disturbances cause skin diseases and skin diseases cause psychological disorders, is the basis for

good dermatologic practice. There are few organizations in charge of the clinical and academic excellence of psychodermatology (11). Fig. 2. presents 4 important organizations of Psychodermatology around the world.

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	Association for Psychoneurocutaneous Medicine of North America	www.psychodermatology.us
	The European Society for Dermatology and Psychiatry	www.psychodermatology.net
	Psychodermatology UK	www.psychodermatology.co.uk
	Japanese Society of Psychosomatic Dermatology	www.jpds-ac.org

Fig. 2. Psychodermatology organizations around the world.

REVIEW ARTICLE

Psychoneuroimmunology and the Skin

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The nervous, immune, endocrine and integumentary systems are closely related and interact in a number of normal and pathological conditions. Nervous system mediators may bring about direct changes to the skin or may induce the release of immunological or hormonal mediators that cause pathological changes to the skin. This article reviews the psychological mechanisms involved in the development of skin diseases. Key words: melanocyte-stimulating hormones (MSH).

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The nervous and immune systems reciprocally regulate each other through different cross-reaction mechanisms. The link between the central nervous system (CNS) and the immune system is represented by the hypothalamic-hypophyseal-adrenal (HPA) axis, which secretes the corticotrophin releasing hormone (CRH) and the autonomous nervous system. The CNS and the immune system intercommunicate via neurotransmitters, cytokines and endocrine neurotransmitter hormones (adrenalin and corticoids). The interconnection between the two systems is complex and the interactions between them are bidirectional.

Neurons use many different chemical signals to communicate information. They release neuropeptides, neurotransmitters, cannabinoids and even some gases like nitric oxide. Neurons often produce a conventional neurotransmitter (glutamate, glutamate gamma-aminobutyric acid (GABA) or dopamine) and one or more neuropeptides.

The small protein-like molecules generated by neurons function in different ways; they modulate neuronal communication by acting on the cell-surface specific receptors of other neurons and this can have a number of effects on human behaviour. They can also have a biological impact on gene expression, local blood flow, synaptogenesis and glial cell morphology.

Most immune cells have surface membrane receptors for neurotransmitters, neuropeptides and hormones and they can be directly influenced by these receptors or, in the event of CNS activation, they can be indirectly

influenced by cytokine actions. Several psychiatric conditions (depression, schizophrenia, psychosomatic disorders) can cause immunological alteration whilst behavioural disturbances such as aggression and mood swings are associated with immunological changes. Furthermore, they may play a significant role in allergies and autoimmune collagen ailments, for example, systemic lupus erythematosus, systemic sclerosis, rheumatoid arthritis, Sjögren's syndrome and mixed connective tissue disease. Feelings of helplessness or the suppression of negative emotions can stimulate the growth or spread of cancer.

It is worth noting that hypnosis, psychological relaxation, and classical conditioning treatments have had positive results with immune system disorders; relaxation techniques and the placebo effect have been found to stimulate Th-1 lymphocytes (1, 2).

ACTION MECHANISMS OF THE SMALL PROTEIN-LIKE MOLECULES EXPRESSED AND PRODUCED BY NEURONS

Neuropeptides, neurotrophins, neurotransmitters and catecholamines play a significant role in modulating the immune response (2, 3).

Neuropeptides

The human genome contains about 90 genes that encode precursors of neuropeptides. About 100 different peptides are known to be released by different populations of neurons in the mammalian brain (1–4).

There are 3 groups of hormones that act as neuropeptides: (i) Hypothalamic hormones (somatostatin, corticotropin-releasing hormone, gonadotropin-releasing hormone, GHRH, orexins, thyrotropin-releasing hormone, and proopiomelanocortin [ACTH, MSH, lipotropin]). (ii) Gastrointestinal hormones (cholecystokinin, gastric inhibitory polypeptide, gastrin, motilin, secretin and vasoactive intestinal peptide. Other hormones acting as neuropeptides are calcitonin, oxytocin and vasopressin and (iii) protein-like compounds with neuropeptide activity [angiotensin, neuropeptide Y, neuropeptide S, neurotensin, calcitonin gene-related peptide, and kinins (bradykinin, tachykinins)].

Neuropeptides induce the release of hormones (corticotropin, ACTH and glucocorticosteroids), monoa-

mine neurotransmitters (epinephrine, norepinephrine, dopamine), free radicals, cytokins (IL-1, IL-6, TNF), opioids, peptides, endogenous opiates and endocannabinoid antimicrobial peptides (proenkephalin, chromogranin B).

Lymphocytes have receptors for neuropeptides released by the peripheral nervous system; examples would be substance P, somatostatin, VIP and opioids. They also have catecholamine receptors. The activation of α_1 , α_2 and β_2 catecholamine receptors are able to induce humoral immunity stimulation and can increase specific IgM antibodies.

Neuropeptides also activate cell-mediated immunity, stimulating the release of T lymphocytes cytokines (e.g. IL-2), macrophage proliferation, natural killer (NK) cell activity and the endothelial adhesion of lymphocytes (4).

Along with the autonomous nervous system, opioid and antimicrobial peptides are important for regulating immune responses.

Opioid peptides. Opioid peptides are neuropeptides of short sequences of amino acids that mimic the effect of opiates in the brain (1–3). Depending on the type of peptide, the concentration, the peptide receptor and the contact time of the peptide with the immune cell, they regulate immune responses. Brain opioid peptide systems are known to have a significant influence on motivation, emotions, attachment behaviour, the response to stress and pain and the control of food intake.

Examples of opioid peptides are: dynorphin; endomorphin; endorphin; enkephalin; nociceptin; VGF, (non-acronymic genes generated *in vivo* by neurotrophins – nerve growth factor (NGF), brain derived growth factor and glial-derived growth factor).

Opioid peptides that act as neuropeptides are: cocaine and amphetamine-regulated transcript; bombesin, gastrin releasing peptide, carnosine, delta sleep-inducing peptide, FMRF amide, neurophysins, galanin, galanin-like peptide, neuromedin (B,N,S,U), pancreatic polypeptide, opiorphin, and the pituitary adenylate cyclase activating peptide.

Opioid peptides may be produced by the body or digested in food. Some endogenous opioid peptides (with more than 8 amino acids) are: β -endorphin; enkephalins; dinorphins (originally enkephalin B); and, probably, endomorphin. The human genome contains 3 homologous genes that code the endogenous opioid peptides.

The human gene for proopiomelanocortin codes for endorphins such as β -endorphin and gamma-endorphin. Enkephalins have a specific gene. Opiorphin (human saliva) is an enkephalinase inhibitor, i.e. it prevents the metabolism of enkephalins.

Exogenous opioid food peptides are: casomorphin (in milk), gluten exorphin (in gluten), gliadorphin/gliu-teomorphin (in gluten), rubiscolin (in spinach). There are also microbial opioid peptides – deltorphin I and II (fungal) and dermorphin (from an unknown microbe).

Antimicrobial peptides. Monocytes can release the antimicrobial peptides proenkephalin and chromogranin B that are able to stimulate immune cells (1, 2). They stimulate the chemotaxis and phagocytosis of the macrophages and provoke the release of pro-inflammatory cytokines (IL-1, IL-6, etc.).

These peptides can also activate T lymphocytes that induce cytotoxic cell proliferation and the secretion of immunoglobulins by the plasmacells. They are also able to activate NK cell cytotoxicity.

Proenkephalin and chromogranin B can activate neutrophils and release antimicrobial peptides, for example, defensin. They also cause central nervous pain.

Autonomous nervous system (ANS) mediators. The autonomous nervous system is composed of the sympathetic (noradrenergic) and the parasympathetic (cholinergic) systems. Chronic stress stimulates ACTH secretion that activates the secretion of corticoids, adrenalin and noradrenalin that suppress the production of IL-12 by the antigen-presenting cells, the main Th1 cell response-inducing stimulus (1–3). Corticoids have a direct impact on Th2 cells, increasing the production of IL-4, IL-10 and IL-13. This gives rise to a Th1/Th2 imbalance in favour of a Th2-cell-mediated response with the deregulation of the neuroimmunologic homeostatic mechanisms that are secondary to chronic stress. This affects cytokine expression and favours an ‘allergic’ inflammatory response. In addition to the stimulation of immediate hypersensitivity reactions, chronic stress depresses cell-mediated immunity.

Neurotrophins

Neurotrophins are a family of proteins that act as NGFs that induce the survival, development and function of neurons (5, 6). They may be considered as new cytokines. Several cells have neurotrophin receptors and may be activated by these proteins.

One of the cell receptors is Pan-neurotrophine P75 that is of low affinity. Another receptor is Tyrosine Kinase (trkA trkB trkC of high affinity) which may act as receptor of the NGF, the brain-derived neurotrophic factor (BDNF) and neurotrophins-3 and -4. Other neurotrophins have different receptors: GDNF; neurturin; artemin; persephin (GDNF receptor); and Neuregulin (1–4), GMF, CNTF, PACAP (other receptors).

Neurotrophins with high affinity to tyrosine kinase cell receptors (trkA trkB trkC) are the BDNF, neurotrophins-3 and -4 and the NGF.

The BDNF and neurotrophins-3 and -4, are neurotrophins that increase the Th2-mediated response (production of IgE) and reduce the Th1 response.

The NGF released by the sympathetic or sensory neurons may cause: proliferation of T lymphocytes and cytokines release; activation of B lymphocytes and plasma cell antibody production; degranulation and

proliferation; and differentiation of mast cells. It further activates monocytes and macrophages, quimiotaxis and the survival of cytotoxicity of eosinophils and basophil differentiation and cytokines release (Table I).

A new neurotrophin-1(NNT-1), a cytokine of the interleukin-6 family, can produce B-cell activation via gp130 receptor stimulation.

Neurotransmitters

Neurotransmitters are endogenous chemicals that relay, amplify, and modulate signals between a neuron and another cell (3, 5, 6). Several chemicals and over 50 neuroactive peptides act as neurotransmitters. Not all neurotransmitters are equally important.

Monoamines that act as neurotransmitters are: acetylcholine; dopamine; norepinephrine; epinephrine; serotonin (5-HT); histamine; melatonin; adenosine; and anandamide. Other molecules with neurotransmitter activity are GABA, glycine and aspartate.

Neuroactive peptides also have neurotransmitter activity; examples are: bradykinin, beta-endorphin, bombesin, calcitonin, cholecystokinin, enkephalin, dynorphin, insulin, gastrin, substance P, neurotensin, glucagon, secretin, somatostatin, motilin, vasopressin, oxytocin, prolactin, thyrotropin, angiotensin II, sleep peptides, galanin, neuropeptide Y, thyrotropin-releasing hormone, gonadotropin-releasing hormone, growth hormone-releasing hormone, luteinizing hormone, and vasoactive intestinal peptide.

Soluble gases (nitric oxide, carbon monoxide and zinc single ions) are not neurotransmitters but can have neurotransmitter activity.

The vast majority of psychoactive drugs exert their effects by altering the actions of the neurotransmitter system and work through transmitters other than glutamate or GABA. For example, the addictive drugs, cocaine, amphetamine and heroin primarily affect the dopamine system.

The molecules that act as neurotransmitters can be removed from the synaptic cleft of the glial cells (astrocytes remove neurotransmitters).

In humans, the sympathetic nerve system can release catecholamins (epinephrine and norepinephrine). Their effect on immune regulation is different, depending on the organ and the concentrations; there are also differences in the effect on animal models and humans. In rats, the stimulation of β_2 adrenergic receptors and norepinephrine provokes predominant TH responses. In humans, the stimulation of β_2 adrenergic receptors provokes predominant TH-2 responses.

Acute exposure to β -adrenergic agonists in low concentrations increases NK cells (number and activity) and blood lymphocytes T CD8⁺ (number but not activity). Catecholamins also decrease lymphocytes T CD4⁺ but do not affect B lymphocytes. However, chronic exposure to high concentrations in the lymphoid organs (that are more sympathetic), lowers, or does not change, the number of lymphocytes and NK cells.

PSYCHO-PHYSIOLOGICAL DISORDERS

Psycho-physiological disorders (reactive emotional states) develop when an emotional or psychological condition causes or exacerbates the physical symptoms of a disease in a direct or an indirect form (1–11). They represent the relationship between mental (psyche) and physical (physiological) processes due to the interaction between the mind and the body.

There are two main types of psycho-physiological disorders, differentiated by the physical symptoms: in the first type, sometimes known as ‘somatoform disorders’, the physical symptoms have no physical cause; in the second type, the physical symptoms have a physical cause but they are made worse by psychological issues.

Specific emotional conflicts and specific personality structures could be related to a certain psychosomatic diseases.

There are psychological and physiological reactions to internal or external disturbances. They may be directly caused by psychological or psychological pathologies or by an alteration of the autonomic nervous system. Psycho-physiological disorders can also be caused indirectly, by a psychological condition, active hormones or mixed immunological reactions (1).

Some of the more common emotional states responsible for the development of illness are anxiety, stress, and fear. Common psychosomatic ailments are: migraines; attention deficit hyperactivity disorder; ulcerative colitis; and heart disease. Hypertension is made worse by stress and there are many other conditions that are either made worse or caused by psychological problems. Minor and major stress factors are very important in the onset and course of rheumatoid arthritis, juvenile chronic arthritis, and systemic lupus erythematosus.

Table I. Cells with neurotrophins receptors

Neurotrophins	NGF	BDNF	NT-3	P57	trkA	trkB	trkC
Neural cells							
Neurons	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Schwann cell	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Glial cell	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Keratinocytes	Yes				Yes		
Immune cells							
LTh-1		Yes			Yes	Yes	Yes
LTh-2	Yes	Yes			Yes		
Activated TL	Yes	Yes			Yes		
B cells	Yes	Yes			Yes		
Basophils							
Eosinophils	Yes						
Mast cells	Yes	Yes			Yes		
Macrophages	Yes	Yes			Yes	Yes	

NGF: nerve growth factor; BDNF: brain-derived neurotrophic factor; NT: neurotrophin; trk: tyrosine kinase.

Stress can also affect clotting and induce psychogenic purpura, ecchymosis and recurrent bruising (predominates in women). Clotting problems have been reported in cases of: emotional lability, depression, sexual problems, obsession, anxiety, aggression and hostility, hypochondria, feelings of guilt, masochism, and hysteria (1, 8, 9). Stress has been shown to retard wound healing by impairing immune responses (1).

Fibromyalgia syndrome (2) represents a failed attempt of the autonomic nervous system to adjust to a hostile environment. There is a sympathetic hypo-reactivity to stress that produces an allostatic load. It has been suggested that dorsal root ganglia are important sympathetic-nociceptive short-circuit sites (10).

Psychoneuroimmunology is the study of how psychological factors influence the immune system and immune functioning (1, 12–14). There is a physiological connection between the CNS and the immune system. For example, the sympathetic nervous system innervates the immune organs of the thymus, bone marrow, spleen, and even the lymph nodes.

There are 3 types of mental disorders that may affect the immune system: (i) psycho-physiological disorders or reactive emotional states; (ii) primary psychiatric disorders; and (iii) secondary psychiatric disorders (diseases of other organs that cause psychological psychiatric illnesses).

(i) *Stress* can suppress or dysregulate immune function and increase susceptibility to disease. Several factors influence the enhancing or suppressive effects of stress on immune function (15–17):

- *Duration*: Acute stress may activate an immune response and enhance innate and adaptive immune responses. Chronic stress can suppress or dysregulate immune function.
- *Leukocyte distribution*: During acute stress, tissues that are enriched with immune cells (e.g. the skin) show immuno-enhancement; endogenous stress hormones enhance skin immunity by increasing leukocyte trafficking and cytokine gene expression at the site of antigen entry. On the other hand, depletion of leukocytes (e.g. in the blood) leads to immuno-suppression.
- *Physiological and pharmacological stress hormones*: Endogenous hormones in physiological concentrations can have immuno-enhancing effects. Synthetic hormones and endogenous stress hormones released during HPA axis activation at pharmacological concentrations are immuno-suppressive. They inhibit the production of lymphocytes, the white blood cells that circulate in the body's fluids and are important for the immune response. Chronic exposure to corticosterone or acute exposure to dexamethasone significantly suppresses skin delayed-type hypersensitivity reactions.

- *Timing*: Immuno-enhancement is observed when acute stress is experienced during the early stages of an immune response while immuno-suppression may be observed at late stages. The type of immune response (protective, regulatory/inhibitory, or pathological) that is affected determines whether the effects of stress are ultimately beneficial or harmful for the organism.

Negative emotional states produce several immunological alterations that may cause other pathologies. Alcohol, cigarette smoking, lack of physical activity and sleep disturbances exacerbate immunological changes.

Mitogen tests have shown that discussing marital difficulties can result in a decrease in NK activity, macrophages, immunity levels and can increase some T cells and blood levels of Epstein-Barr virus (EBV). Marital problems, divorce and separation have been shown to decrease lymphocyte function, T-cell effectiveness and to increase virus levels in the blood. Internal or external difficulties that alter or lead to personal problems and failure to resolve them are all causes of stress.

General adaptation syndrome (7). There is an association between a natural stressor and alterations of immunity levels that may be due to the effect of neurotransmitters and hormones secreted during stress or due to indirect causes: poor nutrition, consumption of (legal or illegal) drugs, poor personal care, etc.

Stress provokes neuronal activation of the CNS and the paraventricular nucleus; it releases the corticotrophin hormone (CHR) that inhibits T- and B-cell responses, NKT cells and causes periphery inflammation. Stress also produces adrenalin and noradrenalin that increase white blood cells and depress cell mediated immunity (Th1 responses).

Adrenergic and cholinergic neurons release vasoactive intestinal peptide (VIP), somatostatin and other hormones that decrease cell-mediated immunity and NK cells. Somatostatin also inhibits antibody production.

The activation of the hypothalamus-hypophysis-adrenal axis releases opioid peptides that decrease or increase immunological responses, depending on the receptors, the tissue and the amount. Activation of this axis induces ACTH and the release of glucocorticoids that decrease cellular and humoral immunity and have anti-inflammatory effects. ACTH also decreases antibody production and IFN and increases numbers of B and NK cells. Low amounts of ACTH regulate immunity.

Corticotrophin and glucocorticosteroids chronically affect the hypophysis-thyroid axis, resulting in lower T3 and T4 production and reduced secretion of the growth hormone that activates immune responses (7).

There are 3 categories of stressors: (i) Physical (electric shocks, swimming in cold water, physical exercise, loss of sleep, hunger, dehydration, surgical intervention, immobility etc.); (ii) Social (parental separation, isolation,

the presence of an intruder etc.); and (iii) Psychological (emotional responses, electric shocks etc.).

Stress can trigger a number of immunological reactions. Depending on the duration and intensity, stress can be described as acute or chronic. Acute stress may augment the immune system through a moderate rise in the number and activity of NK cells, an increase in lymphocytes, cytotoxic T lymphocytes, neutrophils, leucocytes, salivary IgA, IL-6 and IFN γ .

Short-term, natural stress can bring about a moderate increase in IL-6, IL-10, leucocytes and anti EBV antibodies. On the other hand, there may be a moderate decrease in NK-cell activity, mitogen induced lymphocyte proliferation (Phytohemagglutinin, concavalin A), cytotoxic T lymphocytes, neutrophils, leucocytes, salivary IgA and IFN γ .

An acutely stressful event (e.g. death of a family member) can cause a mild to moderate decrease of IL-6, IL-10, leucocytes and anti EBV antibodies; there may also be a moderate decrease in NK-cell activity. The body reacts to natural disasters, for example, earthquakes, with a moderate increase in NK cell activity, mitogen induced lymphocyte proliferation (Phytohemagglutinin) and a moderate decrease in T lymphocytes (CD4⁺ and CD8⁺).

Chronic stress increases Th2 responses but decreases T cells, Th1 reactions, NK cells, B cells and raises blood levels of EBV. Pessimistic psychological states can lower lymphocyte reactivity and T-cell effectiveness. Loneliness has been shown to reduce NK activity. Certain forms of chronic stress are associated with an increased frequency of infections of the upper respiratory tract (colds, flu, etc.). Stress related to academic demands (e.g. exams) can decrease NK cell and T-cell activity, IgA levels and increase susceptibility to the herpes virus. A psychological need for power and control can result in reduced NK activity and a lower number of lymphocytes.

Chronic physical stress (cardiac arrest, disability, etc.) causes a mild to moderate reduction in NK-cell activity, mitogen-induced lymphocyte proliferation (phytohemagglutinin, cytokines production) and there is a humoral response to viral vaccines.

In people over 55 years old, chronic stress results in a decrease in NK-cell activity and mitogen-induced lymphocyte proliferation. In people younger than 55 there is only a decrease in NK-cell activity.

Based on NK-cell activity, hypersensitive reactions and cell-mediated immunity, an evaluation of the effects of stress on the immune systems of people who are optimists and pessimists showed that optimists manage acute stress better than pessimists. However, in situations of chronic or unmanageable stress, pessimists have stronger levels of immunity than optimists. Positive life conditions: satisfying personal relationships, a solid social support network etc. can increase lymphocyte function, NK activity, immunity (mitogen tests) and the immune system response to the hepatitis B

vaccine. Good humour, happiness and laughter increase IgA, the lymphocyte count and lymphocyte activity. Hypnosis and relaxation techniques have been found to improve cell effectiveness and NK-cell activity whilst lowering stress hormone levels in blood and retarding herpes virus activity.

Physical and aerobic exercise stimulates production of white blood cells, endorphins, NK and T cells although it can decrease lymphocyte function (T-cell effectiveness). Similarly, feelings of good group and peer support can result in an increase NK-cell numbers and activity and the number of lymphocytes but can reduce T-helper cells.

People with an optimistic, practical disposition are more likely to be able to counteract the decrease of immunity (NK and T lymphocytes activity) induced by stressful events and situations.

Neurogenic stimulation of the autonomous nerve system and certain drugs (neuroleptics, antihypertensive treatments, psychotropics, anti-histamine H2 and opioids) lead to higher levels of dopamine that inhibits the production of ACTH (11).

(ii) *Primary psychiatric disorders* are rare and should be treated in conjunction with psychiatrists and psychologists. Many mental and emotional disorders involve physical manifestations that are often the first definitive sign of disease; some examples are obsessive-compulsive disorders, control impulses, depression and anxiety.

Immunological changes that have been reported in patients suffering from depression are (14–16): a moderate increase of circulating neutrophils leucocytes and activated T CD8 lymphocytes; a decrease in the number and activity of T cells and NK cells (mainly in men); an increase of IL-6 (Th-2 cytokine); a higher number of acute phase proteins (α 1-glicoprotein, α 1-antitripsin, and haptoglobin); c-reactive proteins and the expression of soluble intercellular adhesion molecules that increase endothelial activation (mainly in patients with cardiovascular disease).

A further alteration observed in depressive patients was a Th1 and Th2 cytokine imbalance. TGF-beta1 seems to influence the pathophysiology of depression. Melancholic depressed patients release less IL-1 β than those that are not melancholic.

Depression also affects the autonomous nervous system and hormonal release. There is an activation of the peripheral sympathetic nervous system and elevated levels of catecholamines and neuropeptide-Y. Immunity against viral infections inside the cells is reduced. Cell mediated immunity decreases but humeral responses to bacterial infections outside the cells increases.

Hormonal changes are characterised by inhibition of the effects of the corticotrophin-releasing hormone (CRH) and the corticoids do not function, due to a defect of the glucocorticoids receptors.

Depression is associated with lower levels of serotonin: a decrease of tryptophan, the precursor of 5-hydroxi-

triptamine (serotonin) correlates with the severity of the depression. Cytokine (IFN- γ) activation induces indoleamine 2 and 3-dioxygenase, a tryptophan degradation enzyme that leads to tryptophan catabolism and reduces the availability of tryptophan for serotonin synthesis.

Antidepressant treatment associated with clinical improvement alters the Th1/Th2 balance through the action of TGF β 1. Tricyclic antidepressants that are associated with clinical improvements increase NK cells and decrease IL-6 (Th-2 cytokine), causing a shift in Th-1 responses. There are several studies on the treatment of depression; they include the use of IL-1 receptor antagonists, anakinra (an IL-1 receptor antagonist), anti-TNF antibodies (infliximab) and receptors (etanercept) and anti-inflammatory cytokines (IL-10). Other options are the antidepressant targeting of the corticotrophin releasing factor, therapies targeting monoamine neurotransmission with anti depressants inhibitors of indoleamine 2,3-dioxygenase, the inhibition of inflammatory signals with enhancement of glucocorticoid signalling and the use of type 4 phosphodiesterase inhibitors (14, 15).

Schizophrenia is frequently associated with autoimmune diseases such as rheumatoid arthritis – patients produce less IL-2 and IFN- γ , there is a switch Th1 to Th2 that alters the availability of tryptophan and serotonin and there is a disturbance of the kynurenine metabolism with an imbalance in favour of the production of the N-methyl d-aspartate receptor antagonist, kynurenic acid (16).

(iii) *Secondary psychiatric disorders* (disease of organs, causing psychological, psychiatric illnesses) (15–19) are rare and should be treated in conjunction with psychiatrists and psychologists. These diseases affect appearance and/or alter the quality of life of the patient; they may cause feelings of shame, depression, anxiety, low self-esteem, and suicidal ideation. Patients may have to deal with discrimination and social isolation. They sometimes have difficulty obtaining work.

Many psychological and emotional disorders have physical manifestations that are often the first definitive sign of disease: obsessive compulsive disorders, impulse control, depression, anxiety, body dysmorphic disorder, anorexia nervosa, and tobacco dependence (19).

Dysmorphophobia is an abnormal preoccupation with a real or imagined body image defect. The most common eating disorders are anorexia nervosa, bulimia, and compulsive eating. Burning mouth syndrome (glossalgia/glossodynia) is associated with depression and anxiety (62% of cases) and cancer phobia (20–30% of cases). It is also symptomatic in personality disorders, mood swings, anxiety, etc.

Stress can affect clotting and lead to psychogenic purpura, ecchymosis or recurrent bruising (predominates in women). Clotting problems have been associated with: emotional lability; depression; sexual problems; obses-

sion; anxiety, aggression and hostility, hypochondria, feelings of guilt, masochism, and hysteria.

INTERACTION OF THE NERVOUS SYSTEM AND THE SKIN

Recent studies have highlighted the role of emotion dysregulation in several skin diseases. There is a considerable amount of published scientific literature concerning psychological distress and dermatological diseases. Psychocutaneous diseases are common.

The skin and the CNS have a similar embryological origin. They both release common neuromodulators, peptides and biochemical systems. For this reason, the skin is an organ that is strongly reactive to psychiatric and psychological conditions and this interaction may be significant in the pathogenesis of several skin diseases (16, 17).

Psycho-physiological disorders (18)

Psychological illness may alter the evolution of a skin disease, precipitating its appearance or exacerbating an injury. Some examples of psycho-physiological skin manifestations are flushing, facial pallor and hyperhidrosis; a number of dermatoses can be aggravated by stress and psychological disorders: skin infections (herpes virus, warts, fungi), tumours, allergies, atopy, urticaria, angioedema, psoriasis, vitiligo, alopecia, acne, seborrhoea, seborrhoeic dermatitis, and rosacea.

Atopic dermatitis is associated with stress (70% of cases), anxiety, depression and neurosis. Psoriasis is associated with stress (39% of cases), anxiety, depression, obsession, and alcoholism. Hives and angioedema are associated with stress (51–77% of cases), hostility, rage and depression. Alopecia areata is associated with stress (23% of cases), anxiety, depression and paranoia. Chronic stress also weakens the immune system and this may affect the incidence of virus-associated cancers, for example, Kaposi's sarcoma and some lymphomas.

Cutaneous primary psychiatric disorders (19, 20)

These refer to skin conditions that have been self-inflicted by patients with psychiatric disorders. Examples are self-inflicted dermatoses (trichotillomania and onicofagia), factitious injury or neurotic abrasion/excoriation (skin-picking), dermatillomania, acne excoriée, neurotic excoriatio, and psychogenic excoriation.

Secondary psychiatric disorders (21)

Skin conditions that affect the psyche may cause depression, frustration and social phobias. They may occur in patients with psychological problems and have a negative impact on their self-esteem and body image. They include the disfiguring skin disorders:

severe acne, big lips, rosacea, rhinophyma, angiomas and giant hairy pigmentary naevus.

THE NERVOUS SYSTEM AND SKIN DISEASE

Pruritus (22, 23)

Itching is an unpleasant sensation, similar to pain, that can be local or generalised. It is a complex sensory and emotional experience produced by primary psychiatric disorders or psycho-physiological disorders such as itching of the scalp and trichotillomania, prurigo, and anal itching.

Pruritus may be caused by: medication, allergies, pregnancy, dry skin, poor nutrition, cancer, infection, psoriasis, diabetes, aging, collagen diseases, and gastrointestinal disorders. It can also occur in association with other conditions like Crohn's and Behçet's disease

There is a need to define psychogenic pruritus and its diagnostic criteria. Nerve diseases can cause neurological itching as with neuropathies, or disorders of psychic mania, anxiety, sexual problems, psychiatric conditions, etc. (23).

Functional brain imaging studies have identified brain regions associated with pruritus and found that several regions are activated by itch stimuli. The possible roles of these regions in itch perception and differences in the cerebral mechanisms of healthy subjects and chronic itch patients have been discussed. The central itch modulation system and cerebral mechanisms of contagious itch and the pleasurable sensation evoked by scratching have also been investigated.

Several nervous system mechanisms might be responsible for itching. Cholinergic fibres release acetylcholine and produce VIP which causes the eosinophil to release histamine and activate the peripheral itching receptors located in the epidermis. The histamine stimulates the H₂ and H₃ brain receptors and activates the neurons of the CNS which secrete opioid peptides that also stimulate the peripheral itching receptors. Moreover, type C sensory nerve fibres, are also activated, they release the neuropeptides, Neurokinin A, substance P and the NGF that activates the pruritus receptors. Itch receptors can also be indirectly stimulated by the IL-2 and prostaglandins.

Vitiligo (24–26)

In cases of vitiligo, melanocyte damage is produced by immunological and neurogenic factors and self-destruction. The disease is mediated by T cells and accelerates with stress, personal trauma, exposure to UVR and mechanical injury.

The shock protein, caloric HSP70, is released by the CNS and damages melanocytes, releasing antigenic proteins that activate dendritic cells, inducing a T₄ and T₈-cell immune response and further releasing

pro-inflammatory cytokines and nitric oxide that cause destruction of melanocytes, accelerating the depigmentation. Melanocyte damage can also be caused by the release, by the brain, of the peptide associated with calcitonin (CGRP), which stimulates the neuropeptide and harms the melanocyte. The activated adrenergic fibres release norepinephrine, epinephrine, dopamine, metanephrine, and H-indol acetic acid that increase in cases of vitiligo and damaged melanocytes. This is added to by the fact that type C nerve fibres release neuropeptides (NGF) that also harm the melanocytes.

Alopecia areata (26, 27)

Stress is an important factor, especially when the disease itself produces psychological stress. Psychiatric disorders are observed in 67% of cases (1).

The high level of psychiatric morbidity plays a pathogenic role. Problems of adaptability have been detected in 43.2% of cases; dependent personality (66% of cases); antisocial personality (39%); anxiety (41.1%); and depression (32%). In contrast, generalised anxiety and a depressive personality are noted in less than 1% of patients.

Alopecia areata is an autoimmune disease mediated by T and B cells. There are immune responses to the antigens of the hair follicles. The auto-antigens of the hair follicle are the peptides associated with melanogenesis (trichohyaline and specific keratin). The condition is associated with HLA or immunogenic and neuroendocrine factors.

The hair follicle has a natural protection against immuno-allergic reactions that can cause damage (immune privilege). The hair follicle contains immunosuppressive factors (TGF- β 1 and β 2, ACTH and MSH α). There is a small presence of NK cells, lymphocytes CD4⁺ and CD8⁺, and an absence of Langerhans cells and lymph vessels. Immune privilege prevents allergic reactions to hair follicle melanocytes and keratinocytes that do not express MHC I by inhibition of activating molecules.

Immune privilege may fail due to micro-trauma, follicular damage, bacterial superantigens, viral infections and psychological alterations. The loss of immune privilege stimulates allergic reactions and the recognition of autoantigens, T lymphocytes and NK cells which release inflammatory cytokines. Stress inhibits the production of ACTH, α -MSH and the ACTH-releasing hormone, resulting in follicle damage and alopecia areata

Another psycho-immunological mechanism that can cause alopecia areata is the release of the peptide associated with the calcitonin gene (CGRP) by type C and sympathetic fibres. This peptide stimulates the immune response Th-1 (lymphocytes CD4 helper) and inhibits Th2 lymphocytes. Stimulation of B lymphocytes that produce IgG antibodies originates an immune complex which induces apoptosis in keratinocytes of the hair follicles, causing alopecia.

Psoriasis (28, 29)

Both internal factors (heredity, hormone metabolism, the nervous and immune systems) and external factors (trauma, infections, cutaneous flora, antigens, ultraviolet radiation, drugs, alcohol, tobacco, etc.) can trigger the condition, which is caused by an increase in the proliferation of epidermal keratinocytes. Psychological itching and sleep disturbances may occur in 80% of psoriatic patients. Depression is common in severe cases. There is also a direct relationship between stress, the severity of cutaneous manifestations and joint commitment in psoriatic arthritis. The prevalence of depression in patients with psoriasis is estimated to be between 10 and 62%.

Several psycho-neural mechanisms may cause psoriasis; sensory nerves release neuropeptides (neurotensin, somatostatin, substance P and NGF) which activate the proliferation of keratinocytes. Sensory nerves and C-fibres also release CGRP (α -calcitonin gene-related peptide), which directly activates keratinocyte proliferation and stimulates the endothelial cells. The C-fibres further release nitric oxide and cholinergic fibres produce acetylcholine and the vasoactive intestinal peptide (VIP); all of them are linked to vasodilatation.

Neuropeptides activate granulocyte and macrophage (GM-CSF) which attract the macrophages and monocytes that secrete prostaglandin PGE₂ and interleukin IL-10. In addition to producing increased proliferation of keratinocytes, these neurotransmitters stimulate T cells and vasodilation.

The Koebner phenomenon occurs when scratching causes the release of neurotransmitters.

Hyperhidrosis (excessive sweating) (30, 31)

Sweating is a multifunctional response that aids locomotion, thermal regulation, self-protection and the communication of the psychological state. The primary stimulus is heat. Secondary stimuli may include emotions and certain foods (seasoning and spices).

Normal sweating is caused by the activation of the CNS and an effector or peripheral system. The amygdala, cingulate cortex, and medulla participate via efferent fibres that descend the spinal cord and connect to preganglionic sympathetic neurons in the nucleus intermediolateralis. In the brain, there is a temperature controller, located in the pre-optic area of the anterior hypothalamus, which has thermoreceptors with neurons sensitive to temperature changes. When these receptors are activated, a signal passes through the spinal cord and connects to preganglionic 12 and 13 sympathetic neurons, which release acetylcholine that stimulates the sweat glands through gland eccrine-capillary interaction.

Excessive sweating can be located in the feet, the sacral region, axillae, trunk, face and scalp. When it

affects an area > 100 cm² it is considered as widespread. Hyperhidrosis can be primary or secondary. Primary hyperhidrosis (or hyperhidrosis of unknown origin) is more frequent, and usually has a social impact. The condition may start in childhood or adolescence it can become more severe in puberty and persist throughout life. Secondary hyperhidrosis (or diaphoresis) is associated with febrile infections, drugs, endocrine problems and psychological disorders. Psychiatric or psychosomatic conditions that can accompany hyperhidrosis include: migraine, emotional problems, nervous agitation, night sweats, hysteria, panic, and depression.

To date, the central pathways of emotional sweating have not been elucidated. The limbic system, including the amygdala and cingulate cortex, is critical for emotional processing and many cognitive functions. Measurement of sweat output on the palm or sole is useful for evaluating sympathetic function and limbic activity in autonomic and psychiatric disorders.

Acne (3, 32, 33)

Acne involves skin, hormonal, immunological and psychological factors. Stress can induce and exacerbate acne lesions. Cutaneous lesions can have a psychosocial impact and alter the nervous system. Both the peripheral and CNS are associated with cutaneous factors and the action of androgens in the formation of comedones.

Acne and seborrhoeic dermatitis may be caused by a neurogenic stimulation of sebaceous secretion. Sensory nerves release neuropeptides (neurotensin, somatostatin, substance P, NGF, hormone melanocyte, and PPAR- γ) stimulant- α and the peptide derived from the proopiomelanocortin, all of which stimulate sebaceous gland sebocytes, increasing secretion. The activated sebocytes also secrete cytokines (IL-1 α , IL-6, TNF- α , INF- γ and PPAR- γ) that produce inflammation.

Seborrhoea or excessive sebaceous secretion and seborrhoeic dermatitis may increase sebum production through a neurogenic mechanism similar to acne.

Rosacea and red face syndrome (flushing) (34, 35)

The nervous system can instigate vasomotor reactions. Shock may result in vasoconstriction, causing facial pallor. Psychological reactions can cause vasodilation which is clinically manifested as blushing, facial redness, erythrosis or persistent or chronic blushing that can lead to rosacea.

Vasodilatation can be produced by neuropeptides (released by the sensory nerves), nitric oxide (released by nerve C-fibres) and acetylcholine and vasoactive intestinal peptide (released by the cholinergic fibres).

Vasodilation induced skin diseases of psychological origin include vasomotor rosacea, vasomotor instability, and facial erythroaesthesia. A rosacea inductor

would be a single gene that controls enzyme mediators, neurotransmitters and cytokines.

In cases of rosacea, the nervous system, physical and chemical agents, keratinocytes and some microorganisms produce inflammation that cause vasodilation and increased vascularity. Vasodilation can produce repeated and persistent erythema which can change tonality and intensity.

Persistent vasodilatation generates angiogenesis and originates telangiectasia and dermo-hypodermic alterations. Psychological factors that aggravate rosacea are emotions, stress, an accelerated lifestyle and neurovegetative disorders.

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REVIEW ARTICLE

Body Image and Body Dysmorphic Concerns

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Most people would like to change something about their bodies and the way that they look, but for some it becomes an obsession. A healthy skin plays an important role in a person's physical and mental wellbeing, whereas a disfiguring appearance is associated with body image concerns. Skin diseases such as acne, psoriasis and vitiligo produce cosmetic disfigurement and patients suffering these and other visible skin conditions have an increased risk of depression, anxiety, feelings of stigmatization and self-harm ideation. Body image affects our emotions, thoughts, and behaviours in everyday life, but, above all, it influences our relationships. Furthermore, it has the potential to influence our quality of life. Promotion of positive body image is highly recommended, as it is important in improving people's quality of life, physical health, and health-related behaviours. Dermatologists have a key role in identifying body image concerns and offering patients possible treatment options. *Key words: body image; skin; body dysmorphic concerns; body dysmorphic disorder; appearance; self-esteem.*

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Interest in body image (BI) has increased in recent years, and researchers from different disciplines have started studying factors that affect people's experiences of embodiment, as well as the impact of BI on behaviour.

There is no simple link between people's subjective experience of their bodies and what the outside observer perceives. The image the individual has of his or her body is largely determined by social experience. Research has suggested that most people have key reference groups that furnish social information relevant to BI (friends, family, media). Hence, as BI is socially constructed, it must be investigated and analyzed within its cultural context (1).

Most people wish to change something about their bodies and the way they look, but for some people it becomes an obsession. A freckle, a mole, the size of their nose, the symmetry of their ears, the size of their breasts, whatever the flaw or flaws, major or minor, real or misperceived, noticeable or not, they are life-consuming for people with body dysmorphic disorder (BDD) (2).

Where does normal stop and abnormal begin? Is there a normal? Ancient Mayans flattened infants' foreheads to make them prettier. In parts of China foot binding was practiced for almost a thousand years. For ages some cultures have valued stretched earlobes and necks. Not so long ago women permanently modified their waistslines and ribcages with corsets.

BI is something that impacts everyone's daily lives, whether in extreme ways, like those who have BDD, or in more subtle ways. BI is the subjective evaluation of one's appearance, and BI disturbance is an umbrella term that consists of several dimensions, including affective, cognitive, behavioural, and perceptual components. The ideal self-image may be considered as either an internal ideal or a social ideal, resulting from the dictates of the surrounding cultural and social environment as to what constitutes the perfect body (2).

THE SKIN

The skin is the largest organ of the body and serves as an important function in communicating with the world throughout the lifespan: attachment in the first years of life, self-image and self-esteem as we grow into adolescents and accepting its aging process as we get older. All these functions are highly influenced by emotional, social and psychological issues.

Metaphorically speaking, the skin is a door to physical and psychological problems and processes, and in order to understand the psychological consequences of cutaneous illness and to treat these effectively, there is a need to view the patient holistically, and to address the reciprocity between body and mind (3). Although it is said that "beauty is only skin deep", people respond positively to those who are attractive and negatively to those who are unattractive (4).

Skin diseases such as acne, psoriasis and vitiligo produce cosmetic disfigurement and patients suffering these and other visible skin conditions have an increased risk of depression, anxiety, BDD, feelings of stigmatization and self-harm ideation.

BODY IMAGE

BI development is a lifelong process, inevitably influenced by the significant others who play the most central roles at different times in our lives. Thus young

children may be most influenced by parents, whereas adolescents' BIs may be more affected by interactions with peers. Adults' BIs are likely to be influenced by romantic partners, who are often important sources of feedback and support (5).

A person's perception of his or her attractiveness is largely determined by social experience, and by prevailing cultural values (6). Western cultures prize smooth, unblemished skin and skin blemishes can lead to negative reactions from others which can impact on how people experience and evaluate their own attractiveness (7, 8). These effects can be more marked for women than for men due to greater social pressure on women to have flawless complexions. Negative impact would be expected to be greater on people with skin conditions in parts of the body that are more clearly visible in general social encounters (9).

Shame is central to the experience of BI and stigma, yet the concept of body shame has received less attention than BI. Some patients comment that although they know that other people do not notice or respond to their appearance, they have strong feelings of revulsion or disgust about themselves (internal shame). Others may feel that although other people have issues about their appearance, personally they are not ashamed of their appearance, but they maybe nevertheless worried by anticipated negative reactions of others (10).

BODY IMAGE AND SELF-ESTEEM

BI is defined as "a multidimensional construct encompassing self perceptions and attitudes regarding one's physical appearance". It is important for understanding fundamental issues of identity. BI concerns are significant to self-esteem. In fact, of all the personal attributes that influence the development of BI, self-esteem may be the most important. Self-esteem is an essential component of mental health, rising gradually until the age of 65 years and usually declining sharply after the age of 70 (11).

A positive self-concept may facilitate development of a positive evaluation of one's body and serve as a buffer against events that threaten one's BI. Conversely, poor self-esteem may heighten one's BI vulnerability. Perfectionism is another potentially influential personality trait that may lead the individual to invest self-worth in lofty or exacting physical ideals (5).

BODY DYSMORPHIC CONCERNS

Appearance concerns may relate to any part of the body, but often include the skin. Insight is sometimes poor and beliefs about appearance may be accompanied by delusional ideas. Visits to a dermatologist, a surgeon, or other medical specialist are common in people with body dysmorphic concerns (12).

Appearance concerns in acne patients

Acne is often un-aesthetic and can increase an individual's self-consciousness and lead to social stigmatization, resulting in social withdrawal, underachievement at school or work, and even serious psychological problems (13).

Teenagers are at high risk for BI impairments and the resulting loss of self-esteem. Healthcare providers should strive to identify patients whose quality of life (QoL) impairments are out of proportion with the severity of the disease. This will help to improve treatment adherence and QoL, to identify patients at high risk for depression and/or suicidal behaviours and, perhaps to minimize social avoidance behaviours in the long term (14).

Cutaneous body image dissatisfaction

Gupta & Gupta (15) refer to cutaneous body image (CBI) to describe an individual's mental perception of the appearance of his or her integumentary system. CBI dissatisfaction can contribute to significant morbidity in dermatologic disorders and is often the primary consideration in deciding whether to proceed with some cosmetic procedures. Assessment of CBI has important clinical implications because it can significantly affect the patient's QoL. CBI dissatisfaction can increase the overall morbidity in dermatologic disease and has been associated with intentional self-injury, such as self-induced dermatoses and suicide.

Aging and ageism

In the process of aging, we begin to lose strength, agility, speed, health, wit and beauty. Large doses of adaptation and acceptance are required to assimilate these changes, and coming to terms with a changed BI, can be rather traumatic for some individuals.

The social and cultural meanings of growing old are constantly changing in time, and being old nowadays has negative connotations. Old age is viewed as a medical and social problem that needs to be addressed. There is a high value placed by society on the maintenance of a youthful appearance and even the reversal of some of the aging-related bodily changes (16).

Aging lies within the spectrum of normal human experience, however aging of the appearance can adversely affect the QoL. Some of the psychosocial factors associated with aging skin include the effect of an aging appearance upon interpersonal interactions, which can lead to social anxiety, and social isolation. Excessive concerns about an aging appearance may be associated with BI disorders (16).

Ageism is socially constructed and reproduced at all levels of the society. Ageist practices harm everyone, not just elders. Currently, women of all ages receive anti-aging messages just by turning the pages of fashion magazines. These messages fuel a fear of natural pro-

cesses of aging, damage female self-esteem, and compel women to hide their true self behind extensive beauty work or engage in unhealthy dietary practices (17).

BODY DYSMORPHIC DISORDER

BDD is characterized by excessive concern and preoccupation with an imagined or a slight defect in bodily appearance that is not better accounted for by another mental disorder. The skin and the hair are common body areas of concern. The preoccupations caused by the appearance are intrusive, unwanted, time-consuming and difficult to resist or control. Time-consuming rituals include mirror gazing and constant comparing of their imagined ugliness with others. These patients often seek unnecessary dermatologic treatment and cosmetic surgery.

The newly published DSM-5 (18) classifies BDD in the obsessive-compulsive and related disorders (OCRDs) category. BDD has been included in this category due to similarities with obsessive-compulsive disorder (OCD), including repetitive behaviours, although BDD is characterized by poorer insight than OCD.

Insight, considered the degree of an individual's conviction in his or her disorder-relevant belief, is an important dimension of psychopathology across many mental health disorders. Insight regarding BDD beliefs can range from good to absent/delusional. On average, insight is poor; one third or more of individuals have delusional BDD beliefs. The risk of suicide is higher in patients with delusional beliefs (18). BDD patients hold their beliefs to a degree that they become delusional, however, the delusional intensity may vary and fluctuate significantly.

Rates of suicidal ideation and suicide attempts are high in individuals with BDD. Consequently, a risk assessment is always necessary. Suicide risk increases vastly if the patient considers to have come to the end of the line as far as possible treatment options are concerned. Explore patients' suicide ideation, as well as risk of self-harm.

Patients with BDD typically describe themselves as looking ugly, abnormal, deformed, or disfigured. Those with a delusional form of BDD are completely convinced that their view of their appearance is accurate, and the ones with a non-delusional type may recognize that their perceived deformities may not be accurate (19).

As appearance is believed to be very important, people with BDD perceive themselves as unattractive and they evaluate themselves negatively. These negative beliefs about their appearance often lead to anxiety, shame and sadness, which in turn lead to maladaptive coping strategies, such as excessive mirror gazing and/or avoidance behaviours. Sufferers of BDD often perceive themselves as vain when admitting how much importance they place on physical appearance, and the feeling of shame keeps them from talking about their worries (2).

INTERVENTION

Helping patients to define their problem

It is important not to make assumptions about the nature of the patient's problem and the way that it affects them. In doing this, there is a danger of over-emphasizing certain issues while ignoring others that may be more pertinent to the patient. In order to avoid making assumptions, the healthcare giver should allow the patient to explain what issues that are worrying him/her, and not assume that patients will be able to "open up" and discuss their feelings immediately; be patient and let them "set the pace".

Cognitive-behavioural therapy

Cognitive-behavioural therapy (CBT) is a treatment grounded in the idea that our perception influences how we think and behave, and that psychological problems are acquired and altered through learning processes. Patients are helped to identify, challenge and modify the problematic thoughts and behaviour patterns that maintain their symptoms. CBT is adapted for each person and for his or her specific problem. This psychological intervention can be effective in reducing symptom severity, reducing psychological distress and increasing the ability to control and adjust to the skin condition (20).

Psychoeducation

Programs providing patients with detailed information about their skin disease, including aetiology, therapeutic options, and prognosis, can be helpful in enhancing compliance with treatment regimen. Additionally, psychoeducation directed at educating the patient with regard to common emotional reactions to their skin disease can be helpful in reducing the patient's sense of isolation (21).

Screening for body dysmorphic disorder in a dermatology setting

Generally speaking, there is a low level of awareness about BDD among health care professionals, and BDD is, thus, often overlooked. Direct questioning about appearance satisfaction is needed for the diagnosis, as these patients are often too ashamed to reveal the true nature of their problem. When they do seek help, they either consult a dermatologist or a cosmetic surgeon, and if they visit a doctor or a mental health care professional, they usually consult for other symptoms, such as depression or social phobia (21).

We need to bear in mind that people with BDD are often ashamed and embarrassed by their condition and may find it very difficult to discuss their symptoms. Therefore, health care professionals should be especially sensitive when exploring the hidden distress and disability commonly associated with this disorder (22).

Clinicians should ask appearance-specific questions in order to identify patients who are suffering from BDD symptoms and to be able to offer information about their difficulties as well as treatment options.

Management of body dysmorphic disorder

Little research has been performed on the outcome of dermatologic treatment in patients with BDD. The dermatology literature informs that these patients can be difficult to treat and are often dissatisfied with and have a poor response to dermatologic treatment. In addition, these patients consult numerous physicians and pressure dermatologists to prescribe unsuitable and ineffective treatments (23).

One approach to treating patients with BDD is to change their appearance. However, this is not recommended as the altered appearance may fall short of patient expectations and fail to relieve the underlying problem. Consequently, the most important management is to help these patients to avoid surgical “corrections” (24).

In general, a physician who is empathetic and non-judgemental should not encounter difficulties in fostering a relationship with BDD patients.

With regards to psychological treatment, cognitive behavioural strategies have demonstrated efficacy. Wilhelm et al. (25), have recently published a modular cognitive-behavioural treatment manual specifically for BDD.

CONCLUSIONS

BI is a topic that has fascinated psychologists and neurologists for many years. It concern not only external and objective attributes but also subjective representations of physical appearance. Our image of our body plays a major role in how we feel, what we do, whom we meet, whom we marry, and what career path we choose.

Promotion of positive BI is highly recommended, as it is important in improving people’s QoL, physical health, and health-related behaviours. Dermatologists have a key role in identifying BI concerns and offering patients possible treatment options.

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REVIEW ARTICLE

The Importance of a Biopsychosocial Approach in Melanoma Research Experiences from a Single-center Multidisciplinary Melanoma Working Group in Middle-Europe

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The biopsychosocial model represents a very important theoretical framework developed in the 21st century. According to a body mind unity theory, it postulates that research must focus not only on biomedical but also on other aspects in order to understand complex interactions occurring on different system levels. With regard to the occurrence of melanoma, both immunologic surveillance and a lack of cancerogenic factors are crucial in the suppression of tumor development. In addition, a reduction in mental stress (employing effective strategies for coping with stress) in cases of malignant disease seems to prolong life. Focusing on these theories, examples of studies that followed an interdisciplinary, biopsychosocial approach to melanoma research conducted at one center are given to emphasize the multi-dimensional and interdisciplinary aspects of the biopsychosocial model. Key words: melanoma; stress; biopsychosocial melanoma research.

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Stimulation of the immune system is widely used in melanoma treatment, capitalizing on aspects of immunogenicity. After a long period where only interferons or interleukin 2 were available, novel therapies such as ipilimumab, nivolumab and pembrolizumab and combinations thereof have yielded impressive results, even in patients with widespread metastatic disease (1–4). The immune system, however, is sensitive and involves both humoral and cellular defense mechanisms. Interactions among cytokines, chemokines, and lymphocytes result in complex reactions and counter-reactions within the system. Cytokines (Greek κύτταρο “cell” and κινειν “creep”) are substances that are produced by different cells that have pro- and/or anti-inflammatory effects. Chemokines (Greek χημεία “chemistry” and κινειν “creep”) are cytokines that exert chemotactic effects on a variety of cells. Subsets of lymphocytes vary in multiple diseases and lead to enhanced or suppressed immunologic responses. Thus,

the cytokines, chemokines and immune cells of the innate and adaptive immune system have been shown to influence tumorigenesis and tumor progression, but are also susceptible to modulation by melanoma cells (5–7). Hallmarks of the carcinogenic process include the sustenance of proliferative signaling, evasion of apoptosis and acquisition of the ability to invade tissues and evoke metastasis (8). The work by Cavallo et al. (9) highlights the immune hallmarks of cancer by stating “immune hallmarks consist of the ability of cancer cells to thrive in a chronically inflamed micro-environment, ability to evade immune recognition and ability to suppress immune reactivity”. However, the immune system is not only influenced by pathogenic organisms or tumors but also by stress (10) and thus, is an important focus of biopsychosocial research.

THE BIOPSYCHOSOCIAL MODEL

The biopsychosocial model may be considered as the most significant theoretical framework in human medicine (11). Georg Engel pointed out the need for a new medical model in human medicine. In the year 1977, he published “The Need for a New Medical Model: A Challenge for Biomedicine” (12, 13). In his article he criticized the biomedical model, arguing that it leaves no room for the complex dimensions of illness (13). Engel pointed out the limitations of the biomedical model and, instead, recommended the biopsychosocial model as a new model that “*is based on a systems approach, a development in biology hardly more than 50 years old, the origin and elaboration of which may be credited chiefly to the biologists Paul Weiss and Ludwig von Bertalanffy*” (14, p. 535). In the same article he emphasized the importance of the understanding of hierarchy and the nature of a continuum in natural systems. Thus, “*each level in the hierarchy represents an organized dynamic whole, a system of sufficient persistence and identity to justify being named*” (14, p. 536). Furthermore, he revealed another important aspect by considering complex interactions among system levels: “*Each system is at the same time a component of higher systems...In the continuity of natural systems every unit is at the very same time both a whole and a part*” (14, p. 537).

The biopsychosocial model can now be described as a “body mind unity theory” and should not be considered as acting in opposition to the biomedical model (15). According to J.W. Egger “*Every event runs – due to the vertical and horizontal networks – more or less simultaneously on the different system levels. This phenomenon may be technically described as parallel interface*” (15, p. 46). Thus, taking the biopsychosocial approach, encourages us to focus on interdisciplinary and multidimensional research (International Society of Biopsychosocial Medicine: Venice Declaration) (16).

Based on the theories expressed in these models, our interdisciplinary team of experts, consisting of dermatologists, psychologists, psychiatrists, immunologists and sport scientists from the Medical University of Graz, in Austria, conducted biopsychosocial melanoma research with support from Austrian Cancer Aid/Styria. Results of this research are summarized here.

EXERCISE-INDUCED MELANOMA IN MARATHON RUNNERS

Endurance exercise such as marathon running may be associated with an increased risk of severe illness (17). Based on observations made at the Department of Dermatology (Medical University of Graz) of 8 young- to middle-aged ultra-marathon runners with high, weekly training intensities and with malignant melanoma, a study on marathon runners was consequently carried out to investigate this type of coincidence. Two-hundred and ten marathon runners were included in this observational study, conducted during an annual Graz marathon. Subjects were recruited at random voluntarily on the day before the race and compared to age- and sex-matched control subjects, who were not marathon runners and were recruited during the skin cancer screening campaign “sun.watch.” run by Austrian Cancer Aid/Styria (18). In this study, marathon runners were shown to present significantly more atypical nevi, which were particularly pronounced in the subgroup of runners with the highest training intensity, as compared to the controls. The authors speculated that an association might exist between exercise-induced immunosuppression and the occurrence of melanoma.

In a subsequent study conducted by the same group, the investigation focused on the influence of training parameters on the development of nevi and lentigines, which are known as melanoma markers (19). One-hundred and 50 white volunteers were enrolled in this study. For each volunteer, physiological parameters such as the basic heart rate, training heart rate, training velocity, and physical strain index (defined as velocity multiplied by mean training heart rate) were assessed and combined with data from a total body skin examination that was performed by experienced dermatologists. During the total body skin examination, volunteers

were screened for melanoma, atypical melanocytic nevi and lentigines. Runners who reported higher training heart rates had significantly more nevi, as did runners exercising with a higher training velocity and a higher physical strain index. These findings were found to be independent of the weekly running time. No statistically significant correlations could be drawn between physiologic parameters and the numbers of lentigines. Again, the authors speculated that sun exposure and lifetime sunburn history alone could not explain the increased melanoma risk observed for marathon runners, but that immunosuppressive effects due to excessive exercise might play a key role (19).

STRESS AND MELANOMA

Immunologic parameters are not only influenced by physical stress factors such as marathons, but also by psychological stress factors. Studies on this topic contain conflicting data on the effects of stress on the immune system. Both up-regulations of cytokines and down-regulations of various cellular components have been observed (20, 21). In a recent study, psychophysiological parameters such as heart rate and heart rate variability were used to assess psychological and psychovegetative strain in adolescents with atypical pigment nevi (22). Fifty-one students from a secondary school in Graz, Austria, completed a defined test procedure consisting of a standardized mental stress task, a questionnaire and intermittent periods of rest. Psycho-physiological data were recorded continuously, and the number of atypical nevi was assessed by dermatologists. With regard to the physiological and psychological parameters, adolescents with atypical nevi displayed higher levels of vegetative strain and more stress-related symptoms. Thus, the authors concluded that stress might be a confounding factor for the early onset of atypical nevi, which are a known risk factor for melanoma. Subsequently, a pilot study was performed to examine the immunological response of 19 patients with early-stage melanoma and a matched control group that underwent a stress test before surgery. Cytokine and chemokine levels as well as numbers of lymphocyte subpopulations were measured at baseline and at post-stress test time-points. The authors demonstrated that, when exposed to stress, melanoma patients (even in the early stages of the disease) had different immunological reaction patterns than members of the control group (23).

COPING STRATEGIES IN MELANOMA PATIENTS

Higher levels of social support seem to be associated with a higher quality of life, better prognosis and better

outcome in patients with malignant diseases. A positive correlation between coping styles and quality of emotional adjustment has been described in patients with melanoma in terms that high social support and active coping strategies seem to be associated not only with positive adjustments (24, 25), but also with better outcomes (26). On the basis of these findings Trapp et al. (27) investigated coping strategies among melanoma patients. Twenty-five melanoma patients and 21 control patients were recruited, and their coping strategies were assessed using the German stress-coping questionnaire SVF 120 (Stressverarbeitungsfragebogen 120). The item "situation control" was significantly associated with a decrease in the risk of a melanoma diagnosis, whereas the items "resignation" and "trivialization" were associated with increased risk. Patients with higher levels of education showed a tendency towards greater resignation, leading the authors to speculate that such patients might feel more helpless when facing the diagnosis of malignancy. Interestingly, higher values for positive coping strategies were associated with reductions in melanoma thickness and, thus, with a better prognosis. The authors concluded that "the possibility of an early intervention, focused on psychological risk factors of coping profiles of patients with melanoma suggests a beneficial effect on further disease development, if such interventions are able to provide sufficient "relief" for the immune system" (27).

CONCLUSION

Following the biopsychosocial model, illness and health are considered to be dynamic processes and health must consciously be "created" in every second of our lives (28). Pathogenic and constitutional hereditary dispositions influence the wellbeing of the individual as do environmental influences and lifestyles. Immunosuppression is not only caused by drugs (e.g. after organ transplantation), but can also be caused by a number of physical or psychological stressors, which seem to be co-factors in the development of illness. For this reason, every intervention that leads to an enhancement of the immune system can potentially benefit the patient. The development of resilience may lead to suppression and modification or even remission of an illness, but risk factors may contribute to development, progression and perpetuation of pathologic processes (29). The examples of studies given, conducted by the biopsychosocial melanoma working group of the Medical University of Graz, may contribute to small pieces of knowledge that can help to solve the huge puzzle of cancerogenesis and immunologic surveillance. It would seem to be beneficial for the patient not only to take into account the mutational status of the tumor, but also to focus on possible resilience factors that can enhance the immune system, even during an early stage of disease. In

2007, based on the knowledge that physical activity can influence inflammatory diseases, Schedlowski (30) postulated that interventional programs that focus on inducing behavioral changes after the diagnosis of such diseases should be implemented. It is necessary to consider salutogenic approaches and the influences of the working environment, as well as help patients build and maintain psychosocial networks. Additionally, the individual stress tolerance level of each person needs to be considered. In recent decades, changes in patients' behavioral patterns have been observed: the "domineered patient" of the 1960s has given way to the "informed patient" and, gradually, the "mature patient" of today. Shared decision-making, which can only be effected by an "autonomous type of patient", has led to the presence of the "competent patient" type, currently well known (31). Physicians are considering increasing numbers of personalized treatment options for melanoma patients and should focus not only on the patient's tumor and immune system but also helping their patients develop empowerment strategies. It is necessary to take interdisciplinary and multidimensional approaches to reach this goal, and these should be implemented as early as possible, and ideally when primary tumor is diagnosed. There is excessive demand of individual coping strategies and therapy should include the enhancement of positive coping strategies that is consistent with a reduction in the number of risk factors.

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REVIEW ARTICLE

Interplay of Itch and Psyche in Psoriasis: An Update

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Itch or pruritus is defined as an unpleasant subjective sensation leading to the need or to the idea of scratching. A number of studies have shown that pruritus is often responsible for marked morbidity, quality of life impairment, and even for increased mortality. Patients suffering from chronic pruritus had also decreased self-esteem, suffer from anxiety or depression and have problems to cope with negative feelings. Several studies documented that itching is a very prevalent symptom of psoriasis affecting more than 70% of individuals and for many patient it is the most bothersome symptom of the disease. While assessing various aspects of itch in psoriatic patients it was found that individuals with pruritus had a significantly lower health-related QoL; patients with pruritus, moreover, were more depressed than those without itching. In conclusion, pruritus is closely related to decreased psychosocial well-being of patients with chronic pruritic skin diseases, including psoriasis. It is important to underscore that itch may interfere with various aspects of patient functioning, emotions and social status and should therefore be adequately addressed while treating patients with psoriasis. Key words: pruritus; quality of life; anxiety; depression.

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Itch or pruritus is defined as an unpleasant subjective sensation which is causing an urge to scratch (1). It can be localized or generalized, acute (i.e. lasting less than 6 weeks) or chronic (i.e. lasting more than 6 weeks). Pruritus is a very common symptom in dermatology accompanying a number of skin disorders; scabies, atopic dermatitis, eczema, urticaria, psoriasis, pemphigoid, dermatitis herpetiformis or lichen planus being the most commonly mentioned (2). However, itching may also be present in a long list of primary non-dermatological conditions, such as polycythaemia vera, Hodgkin disease, chronic renal failure, cholestasis, hypothyroidism and many others (1, 2). A number of studies have shown that pruritus is often responsible for marked morbidity, quality of life (QoL) impairment, and, in some patient population, even for increased mortality (3, 4). Patients

suffering from chronic pruritus develop also poor self-esteem, shame, often demonstrating symptoms of anxiety and depression and having problems to cope with aggression and other negative feelings (4–6). In the following, we have reviewed current literature data on the relationship between itching and psychosocial well-being in patients suffering from psoriasis.

THE BURDEN OF ITCH IN PSORIASIS

For a long time psoriasis was considered as a chronic dermatosis which typically does not itch. However, several more recent studies documented that itch is a frequent phenomenon in plaque type psoriasis affecting about 70–80% of individuals (7–10). Such discrepancy might be explained by changes in the lifestyle, higher stress or greater exposure to pollutants in our daily life, which possibly might modulate perception of pruritus. Furthermore, pruritus in psoriasis is usually less severe than in atopic dermatitis or lichen planus, thus, it is possible that physicians were less likely to focus their attention on this symptom of psoriasis in the past. However, in a recently performed study we observed that pruritus was considered by the majority of patients as the most bothersome symptom accompanying psoriasis (11). Indeed, pruritus was seen as more important than skin redness, skin burning, dandruff and nail abnormalities, pain, joint stiffness or sleeping difficulties. Only intense skin flakeing rated slightly higher than pruritus as the most disturbing psoriasis symptom (11). The relevance of itch in psoriasis has also been pointed by other authors, even though its intensity seems to be lower than in other dermatological conditions with itch-like e.g. atopic dermatitis (10, 12–14). However, it is difficult to directly compare itch intensity between different conditions, as itch is a purely subjective sensation and may be perceived differently in different dermatoses. Furthermore, comparing the intensity of itch among various dermatological diseases raises significant methodological questions (e.g. differences regarding the duration of itch episodes, location, concomitant sensations, etc.) making any analyses even more challenging. It was also shown that itch correlated with QoL to greater extent ($R=0.55$) than pain ($R=0.46$) or fatigue ($R=0.38$) (10). Importantly, Amatyia et al. (15) documented that a majority of patients with psoriasis shared the opinion that pruritus negatively affected their QoL, with a major impact on mood, concentration, sleep, sexual desire and appetite. In a very

recent study, Bundy et al. (16) analysed patients' personal models of the disease by inviting psoriatic individuals to 'Write a letter to their psoriasis describing how it makes them feel and think, and how it has impacted their life'. Remarkably, postcards were often dominated by the word 'itch', despite people being told by clinicians that itch is not a symptom of psoriasis. This finding underlines again, how important itch is for psoriatic subjects.

When assessing various aspects of itch in psoriasis patients we have found that individuals with pruritus had significantly lower health-related QoL (HRQoL) compared to patients without pruritus – mean DLQI scoring for patients with itch was 12.2 ± 7.0 points (on average, very large effect on patient's life) and for patients without itching 6.8 ± 7.1 points (on average, moderate effect on patient's life) ($p=0.02$) (4). Pruritus intensity significantly correlated with QoL impairment ($R=0.43$, $p<0.0001$) and with the feelings of stigmatization ($R=0.37$, $p<0.001$) and such domains like "feeling of being flawed" and "secretiveness" seemed to be first of all influenced by itching (4).

Patients with pruritus were also more depressed than those without itching and, accordingly, depressive symptoms significantly correlated with itch intensity ($R=0.43$, $p<0.001$). However, as demonstrated by Gupta et al. (12, 16), depression seems to be rather predictive of, than a consequence of pruritus in psoriasis. The presence of depression in psoriasis modulates itch perception, exacerbates pruritus, and leads to difficulties with initiating and maintaining sleep (17). Prospectively, the change in depression scores correlates with the change of pruritus in psoriatic individuals (12). In a study involving 38 individuals it was shown that adding an anti-depressive drug (escitalopram) to the standard anti-psoriatic therapy, caused significant reduction of depressive and anxiety symptoms which was accompanied by the improvement of pruritus (18). Hence, psychological interventions and antidepressant medications are likely to improve perceived symptom severity and QoL of patients with psoriasis (18), but it must be underlined, that antidepressants may also directly modulate production of cytokines and thus act on the course of psoriasis (19).

Not only depression may influence pruritus severity, but also emotional stress seems to be of relevance. In one of our studies, pruritus intensity correlated with the degree of emotional stress prior to disease exacerbation ($R=0.32$, $p<0.01$) (4). Those who experienced severe or very severe stress before disease outbreak significantly more often suffered from pruritus than those who did not reported any stressful life event prior to psoriasis exacerbation (20). Similarly, Vorhoeven et al. (21) found, that patients experienced not only more severe disease, but also more itch when they reported the highest level of daily stressors and the level of daily stressors correlated with scratching behaviour. Four personality traits were significantly associated with severe pruritus: "somatic

trait anxiety", "embitterment", "mistrust" and "physical trait aggression" (22). In another study, psoriasis patients with most frequent pruritus have been found to appraise their underlying disease significantly more frequently in terms of a threat, obstacle/loss, and harm, as compared with the patients with less frequent pruritus (23). In addition, patients with psoriasis who experienced pruritus all the time more often developed "resignation" and "self-blame" as coping strategies with the disease (23). As a consequence, patients suffering from itch may withdraw from activities (24). We have also shown that itch interferes with work ability and nearly a half of the observed individuals indicated pruritus as representing the most vexing symptom during their work (25). In addition, vulvar itching associated with psoriasis frequently causes problems in sexual life, another important aspect of QoL (26). Patients with vulvar itching were also more depressed than those without itch (26). As reported by other authors, pruritus caused 35% of patients to be more agitated, 24% to be depressed, 30% to have difficulties in concentrating due to pruritus, 23% changed their eating habits and 35% of patients reported their sexual functioning to be impaired or even non-existent due to pruritus (7).

The importance of itch in psoriasis is confirmed not only by observational studies, but also from data from clinical trials showing significant improvement of patients' well-being upon pruritus reduction. Mrowietz et al. (26), when performing a *post-hoc* sub-analysis of PRISTINE study, showed that itch was significantly associated with all analysed patient reported outcomes, namely with QoL impairment, anxiety, sleep and fatigue. Even more importantly, patients with clinically meaningful lowering of their pruritus scores at week 24 reported significant improvement of all measures of patients' psychic status (27). Similarly, Zhu et al. (27) after adjusting for improvement in disease severity and performing multiple hierarchical linear regression analyses found association between the improvement in pruritus and the improvement in DLQI total score and each of the 6 QoL domain scores. Interestingly, as they observed, pruritus had a significant modulating effect on the association of disease severity improvement with improvement in QoL (27). Our group also observed that treatment benefits assessed according to Patient Benefit Index for Pruritus (PBI-P) (28) was linked with marked anxiety and depression reduction as well as with QoL recovery (unpublished observations, data on file).

FUTURE PERSPECTIVES

Future studies should put more efforts to further explore the pathogenesis of itch in psoriasis, as this is the best way to develop better treatment strategies to control this symptom. In addition, it is necessary to further characterise the influence of itch reduction on the improvement

of psoriatic patients' wellbeing irrespective of the improvement of psoriatic lesions. Psoriatic patients should also receive more assistance and education how to cope with daily stressors to reduce the intensity of pruritus, not only because of better controlling of skin lesions but also because of psychosocial support.

CONCLUSIONS

Pruritus is closely related to decreased psychosocial well-being of patients with chronic pruritic skin diseases, including psoriasis. Itch may interfere with various aspects of patient functioning, emotions and social status. An adequate treatment of any chronic dermatosis which is accompanied by significant subjective symptoms, requires focusing not only on the improvement of the skin lesions, but also on the effective controlling of all itching and burning sensations. Thus, any future clinical trials on psoriasis should include pruritus reduction as one of the important end points supporting the efficacy of any tested therapy.

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REVIEW ARTICLE

Delusional Infestation: State of the Art

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Patients with a delusional infestation (DI) have an overwhelming conviction that they are being infested with (non) pathogens without any medical proof. The patients need a systematic psychiatric and dermatological evaluation to assess any possible underlying cause that could be treated. Because they avoid psychiatrists, a close collaboration of dermatologists and psychiatrists, who examine the patient together, seems to be a promising solution. It helps to start a trustful doctor–patient relationship and motivates the patient for psychiatric treatment. We here review diagnostic criteria, classification of symptoms, pathophysiology and treatment options of DI. Antipsychotic medication is the treatment of choice when any other underlying cause or disorder is excluded. Further research is needed to assess the pathophysiology, and other treatment options for patients with DI.
Key words: *delusional infestation; delusional parasitosis; somatic delusional disorder.*

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Patients with delusional infestations (DI) are totally convinced that some living or non-living organism or fibres have infested their body (1, 2). Like any other delusional disorder, patients do not have insight into the psychiatric origin of their beliefs and do not doubt reality of their convictions. The obsessionality or involuntary engagement with their symptoms causes a great deal of suffering. There is a high burden of disease and many patients consult multiple doctors during the same illness period (3) (Box).

Box. *A representative case history of delusional infestation*

A 38-year-old man, visited our psychodermatology outpatient clinic at the Department of Dermatology of the Academic Medical Center in Amsterdam, with severe symptoms. For the previous 8 years he had been suffering from the sensation of little animals continuously crawling under his skin. He sometimes saw them coming out of his skin as little black fibers. With little tweezers he tried to get the animals out of his body and he showed elaborate skin defects on his arms, back, and legs. He needed to take a shower for at least two hours every day to become clean and get rid of his symptoms. He was unable to continue work for the last 4 years and was socially isolated.

Originally, patients with DI believed that they were infested by parasites or other pathogens like bacteria, viruses, or worms. However, other patients are convinced that they are infested with materials like fibres, filaments, threads, and particles (4). Patients describe associated tactile hallucinations like continuously biting or stinging and itching at one or several spots in or under their skin, or auditory hallucinations like buzzing (5). To get rid of the symptoms they use all kinds of creams, but also needles, knives, or toxic cleaning agents. As a consequence, patients show large excoriations, prurigo nodularis, ulcerations, or secondary infections (6, 7). Many patients, varying between 25–75%, will bring the pathogen to the clinician to prove their conviction, which is known as the “specimen sign” (8–10). Other terms for the specimen sign are “matchbox sign” or “baggies sign”, because patients will use different types of containers to transport the specimen. When one examining the brought sample with a microscope one normally finds cutaneous debris or strings, lint, plant material, or insects (10). Many patients are desperate because of the chronicity of their symptoms (11), and the misunderstanding within their social context and with many physicians. A recent report in patients with delusional disorders shows suicidal behaviours in 8–21% of the patients, which is similar to patients with schizophrenia (12). Patients not only visit dermatologists but also veterinarians, pest control specialists, or entomologists (13).

HISTORY AND DIAGNOSTIC CRITERIA

The initial description of patients with this disease was by Thibierge (14) in 1894 with the name “les acarophobes”. Les acarophobes had the false conviction that they had scabies, although some of them never had it and others were cured.

During the following years other acronyms were used, including “Dermatozoenwahn” (Ekbom’s syndrome), delusion of infestation and parasitophobia. Delusional parasitosis (DP) was the term introduced in 1946 by Wilson & Miller (15) to describe patients who were convinced they were infected by parasites. Because an increasing number of patients did not believe they were infested by parasites but by another living or non-living material, Bewley et al. (4) proposed the term delusional infestation (DI) in 2010. The term DI

includes patients with a delusional belief that they are infested with any kind of living or inanimate pathogen. It could include patients with the so-called “Morgellons disease” (16). Patients with Morgellons disease have similar symptoms like patients with DI including crawling sensations under the skin; spontaneously appearing, slow-healing lesions; hyperpigmented scars when lesions heal; intense pruritus; seed-like objects, black specks, or “fuzz balls” in lesions or on intact skin; fine thread-like fibres of varying colours in lesions and intact skin; lesions containing thick, tough, translucent fibres that are highly resistant to extraction; and a sensation of something trying to penetrate the skin from inside out. However, there is an ongoing discussion about the aetiology of Morgellons disease. According to some authors, patients with Morgellons disease do show signs of dermatitis and the presence of microscopic subcutaneous factors (17). These authors are convinced that Morgellons disease is not a delusional disorder and they present arguments why earlier studies included not the appropriate study subjects and were not able to exclude a physiologic cause of dermatopathy in their patients (18).

Morgellons is not included into the Internal Classification of Diseases 10th Revision (ICD-10). Within psychiatry, DP/ DI is diagnosed as a somatic delusional disorder (DSM-IV/5) (19).

The original description suggests similarities with a phobia, which is an anxiety disorder consisting of irrational fear for heights, animals, or small rooms, but Thibierge (14) already described patients with DI who have overvalued ideas or are completely convinced they are infested by pathogens without having panic attacks or insight into the irrational.

Diagnostic criteria for DI according to the review of Feudenmann & Lepping (1) are: (i) conviction (from overvalued idea to delusion) of being infested by animate or inanimate pathogens without any medical or microbiological evidence of a true infestation, and (ii) abnormal cutaneous sensations explained by the first criterion. Additional symptoms are visual illusions or hallucinations. Location is on, in, or under the skin and any part of the body can be affected.

PREVALENCE

The prevalence of DI is unknown in the general population because of a lack of population-based epidemiological research. However, one recent paper showed results of a population-based study in Olmsted county, USA. The age- and sex-adjusted incidence was 1.9 (95% confidence interval (CI): 1.5–2.4) per 100,000 person-years. Mean age at diagnosis was 61.4 years (range 9–92 years). The incidence of DI increased over 4 decades from 1.6 (75% CI 0.6–2.6) per 100,000 person-years to 2.6 (95% CI 1.4–3.8) per 100,000

person-years between 1976 and 2010. Three surveys and another population-based study (6, 19–21) showed prevalence estimates of 0.148–4.225 per 100,000 person-years, and only one other survey study found an incidence estimate of 0.845 per 100,000 person-years (22). In patients aged less than 50 years there is an equal distribution between males and females but above 50 years 2.5 times more females are affected (4). Moreover, around 8–14% of the patients have a family member or close friend with similar symptoms, which is called *folie à deux* or shared psychotic disorder (23–26). If the patient believes that a close family member is suffering rather than him – or herself, then it is called DI by proxy. A recent paper showed that in a survey to 32,663 veterinary clinicians, 2.3% of them reported that they had seen a case of DI by proxy among pet owners presenting mainly their dogs or cats infested by arthropods or worms to veterinary clinics. One third of the pet owners claimed to be infested themselves, which Lepping et al. called “double delusional disorder” (27).

DIAGNOSTICS AND COMORBIDITY

Within the literature on DI one often sees the distinction between primary and secondary psychosis (see Box, (28)). Patients are diagnosed with “secondary psychosis” when they have DI symptoms with any underlying disorder or drug/ medication that is causing the psychotic symptoms and with “primary psychosis” when there is no underlying cause.

Therefore, when a patient presents with symptoms of DI, it is important to start with ruling out any other underlying disorder, cause, or medication that is causing the symptoms. The main underlying disorders or causes are: (i) true infestation; (ii) medical condition with pruritus like endocrine, renal, hepatic, malignant, rheumatoid, and neurological disorders; (iii) pregnancy; (iv) schizophrenia; (v) psychotic depression; (vi) dementia; (vii) obsessive-compulsive disorder; (viii) skin picking; (ix) trichotillomania; (x) hypochondriasis; (xi) dermatitis artefacta; (xii) psychosis elicited by drugs like cocaine, amphetamines, and cannabinoids; (xiii) medication that enhances dopamine: direct agonists (piribedil, ropinidrol, carbegoline, pramipexol) or NMDA antagonists: amantadine, topiramate; (xiv) drugs which cause pruritus; and (xv) bacterial skin superinfection caused by self-therapy.

The elaborate differential diagnosis requires a thorough history taken by both a dermatologist and psychiatrist to exclude any other underlying cause or disorder, which is easily facilitated within a psychodermatology outpatient clinic where both medical specialists see the patient together. After history taking, a general and dermatological skin examination is required followed by laboratory testing (Table I) and a

Table I. Laboratory testing in patients with suspected delusional infestation

Inflammation markers
Complete blood cell count
Erythrocyte sedimentation rate
Glucose
C-reactive protein
Serum creatine
Electrolytes
Liver function, hepatitis serologies
Thyroid Stimulating Hormone
B vitamins
Folate
Pregnancy test
Borrelia serologies
Human Immunodeficiency virus (HIV) serologies
Vasculitis screening
Allergy testing

skin biopsy. Furthermore, an MRI brain scan is needed to exclude any brain abnormality such as ischaemic lesions or brain tumours.

One of the major limitations in scientific literature on DI up till now is the shortage of standardized, elaborate psychiatric and dermatological testing of large cohorts of these patients. Therefore, we do not know in detail how many patients have primary or secondary DI or any combination of disorders causing secondary DI.

In one meta-analysis of DI case reports, Trabert (25) concluded that 60% of the DI patients have underlying psychiatric disorders. In a more recent review of 107 DI patients from the Mayo clinic, 40 of the 54 patients (76%) who were willing to participate in structured psychiatric evaluation had additional psychiatric diagnoses. The most prevalent diagnoses were depressive disorders (24%), anxiety disorders (19%), and drug use disorders (19%). Only, a minority had personality disorders (4%) (10).

Many DI patients do not want to acknowledge a psychiatric disorder or accept psychiatric medication; dermatologists use their therapeutic privilege and do not disclose the diagnosis before sending a patient to a psychiatrist or starting psychiatric medication. A recent ethical paper discussed this issue and concluded, however, that disclosure of the diagnosis itself is not known to have immediate negative results, so the risk consists of non-improvement and not of worsening. Furthermore, convincing a patient to start treatment or avoiding the risk of them refusing treatment is not considered enough justification for therapeutic privilege. Patients have the right to refuse treatment, even if the results are severe (19).

To improve clinical care and knowledge about DI patients and reduce dropout of patients sent to a psychiatrist, we need a close collaboration between dermatologists and psychiatrists to structurally evaluate all DI patients and collect elaborate clinical information together. At the Academic Medical Center in Amster-

dam (AMC) we have a psychodermatology outpatient clinic where a dermatologist and psychiatrist screen all patients with symptoms of DI and when necessary send the patients to our Psychiatry-Medical Unit for a more elaborate psychiatric and/or somatic screening.

NEUROBIOLOGICAL FINDINGS

As discussed in the last paragraph on Diagnostics; within the literature on DI one often sees the distinction between primary and secondary psychosis. Patients are diagnosed with “secondary psychosis” when they have DI symptoms as a consequence of any underlying disorder or use of drug/medication that is causing the psychotic symptoms and with “primary psychosis” when there is no underlying cause. However, in primary DI, which is one of the psychotic disorders, we nowadays have increased neuroscience-based knowledge showing mainly functional distortions in related networks of the brain that may be responsible for the symptoms. Interestingly, Huber et al. (28) hypothesized a decreased striatal dopamine transporter (DAT)-functioning (corresponding with an increased extracellular dopamine-level) as an aetiologic condition for DI. The DAT is a key regulator of the dopamine-reuptake in the brain, especially in the striatum. The association between DAT and DI is supported by many case reports showing that medication that inhibits the DAT (methylphenidate, cocaine, and amphetamines) can induce DI. Furthermore, many disorders associated with DI (such as schizophrenia, major depressive disorder, Parkinson, Huntington, multiple system atrophy, diabetes, traumatic brain injury, cerebrovascular diseases, hyperuricemia, human immunodeficiency virus, and iron deficiency) do show a decreased striatal DAT-functioning (28). The first small structural MRI (sMRI) study in patients ($n=9$) with DP pointed to distortions in the dopaminergic innervated dorsal striatum/putamen, especially in patients with DP secondary to another (non-psychiatric) medical disorder. Furthermore, most of these patients also showed generalized brain atrophy (29). In 2011, Huber et al. (30) extended their DI sample to 17 patients and summarized results from sMRI/cerebral computed tomography (cCT). All 8 patients with DI secondary to a non-psychiatric brain disorder or another medical condition showed lesions in the basal ganglia, mainly the striatum, and 4 of these cases also showed generalized brain atrophy. Moreover, all 5 cases with DI without another (non) psychiatric medical condition showed no striatal lesions, but all of them showed generalized brain atrophy. A more recent sMRI and source-based morphometry (SBM) study suggested prefrontal, temporal, parietal, insular, thalamic, and striatal dysfunction in 16 DI patients versus 16 controls. Grey matter volume abnormalities

were similar between different causes of DI, but white matter volume abnormalities were restricted to patients with another (non-psychiatric) medical disorder (31).

To date, a few other studies have assessed neural correlates of DI. The only autopsy study in a patient with DI secondary to a hypophyseal tumour suggested a thalamo-cortical disconnection that was responsible for the symptoms (32). The first cCT study in 7 DI patients suggested cortical or subcortical atrophy (33). A review of case reports suggested frontal, temporo-parietal, striato-thalamal dysfunction (1).

Interestingly, one voxel-based morphometry MRI paper assessed neural correlates of somatic delusions and hallucinations in 75 patients with schizophrenia compared to 75 healthy controls, and confirmed structural differences in grey and white matter of the fronto-thalamic region in schizophrenia patients with somatic delusions compared to schizophrenia patients without somatic delusions and controls (34). Furthermore, neuro-imaging studies in patients with itching and skin manipulation because of chronic skin diseases also show abnormal activity of striato-thalamo-orbitofrontal regions (35, 36). Therefore, the proposed neurobiological model of DI consists of a disrupted medial prefrontal control over somato-sensory representations (9, 37).

TREATMENT

The optimal treatment for DI is: (i) building a trustful therapeutic relationship, and (ii) antipsychotic medication. It is a challenge in many cases of DI to develop a trustful patient–doctor relationship. Most of the patients have bad experiences with other doctors in their medical history, do not feel that they are taken seriously about their suffering, and reject any psychiatric diagnosis or treatment.

From the literature a few strategies are suggested for approaching DI patients. When seeing the patient for the first time, it is essential to accept that one will not be able to convince the patient that he or she does not have any animals or pathogens within their skin. Avoid any discussion about the reality of the cause of the symptoms. Moreover, it is essential that a patient can talk freely and that the severity of suffering is acknowledged. The patient also wants a decrease of his or her suffering. Part of building a therapeutic relationship is offering a standard set of diagnostic research including a skin biopsy (see paragraph on Diagnostics). It is still not common sense among dermatologists to systematically offer these diagnostics to exclude any other (treatable) underlying cause of DI. The patient then feels taken seriously, and when any other (treatable) cause is excluded, he or she will more easily accept antipsychotic treatment. Two recently published papers reviewed treatment options of DI and confirmed the importance of building a therapeutic relationship (38, 39).

The next step is prescribing antipsychotics, which needs to be accepted by the patient. Reduction of stress or preoccupation and the itch relieving properties of antipsychotics are medical arguments to convince the patient (38, 40). Interestingly, one study showed reduced growth of parasites by antipsychotics (41). Up till now, only limited evidence confirms effectiveness of antipsychotics in DI patients. Mostly open-label trials and case series/reports do show partial or complete remission in 50–90% of DI patients treated with antipsychotic medication. So far, only one double-blind randomized, placebo-controlled crossover trial, which was poorly designed, assessed effects of antipsychotic medication (pimozide) in 11 DI patients. Pimozide (1–5 mg daily), which is a high-potency first-generation (or typical) antipsychotic agent, was superior compared to placebo for itch delusions, but not for feelings of vermin or excoriations (42). In addition, case series and case reports show improvement of DI symptoms with pimozide (see overview by Generali & Cada [43]) and it has been the drug of choice for years. According to a more recent survey, results show that British dermatologists still prefer pimozide, and prescribe neuroleptics to one third of their DI patients (20). On the other hand, two systematic reviews suggest that the claim that pimozide is a particularly useful treatment for delusional disorder is not based on trial-derived evidence (44, 45). Moreover, pimozide is associated with a higher risk of extrapyramidal side effects, neuroleptic malignant treatment syndrome, and prolongation of the QT-interval compared to atypical or second generation antipsychotics (1).

Therefore, patients with movement disorders should be treated with second-generation antipsychotics. Also, only case reports/series with second-generation antipsychotics (risperidone, olanzapine, quetiapine, sertindole, and paliperidone) in DI patients have been published so far (5, 44, 46). No studies have evaluated any possible differences in effectiveness between typical and atypical antipsychotics in DI patients (44, 47).

One study used several dopaminergic neuroimaging techniques in two DI patients before and after treatment with second-generation antipsychotic medication, and showed that effective treatment was associated with blocking of 63 to 78% of striatal D₂ receptors as well as glucose metabolism changes in the thalamus (9).

There is also limited evidence to guide dose and duration of antipsychotic agents. One small follow-up study with pimozide showed that half of the 14 patients remained in remission 19–48 months after termination of treatment with pimozide. Four patients did not respond at all, and 3 patients (21%) relapsed (48). Another more recent study concluded that prolonged treatment with antipsychotic agents is required because 25% of the patients relapsed within 4 months after cessation of medication (49).

In a few patients with DI, electroconvulsive therapy shows beneficial result (50). One case report showed beneficial results of addition of citalopram to clozapine in a woman with DI and refractory schizophrenia (51).

Besides pharmacological treatment, cognitive behavioural therapy (CBT) could be a treatment option, because patients with schizophrenia show encouraging improvements when treated with CBT with respect to hallucinations and delusions, medication adherence, distress, and relapse. CBT interventions can help the patient to question their fixed beliefs, make connections between their thoughts, emotions, and behaviours, and furthermore help in building an alliance with the patient or improving their social functioning (52–54).

In conclusion, patients with DI suffer severely from their overwhelming conviction of being infested with (non)pathogens without any medical proof. Thorough medical and psychiatric examination is needed to diagnose any contributing cause of symptoms. To improve clinical care and knowledge about DI patients and reduce dropout of patients sent to a psychiatrist, we need a close collaboration between dermatologists and psychiatrists to structurally evaluate all DI patients and collect elaborate clinical information together. Knowledge regarding neurobiological underpinnings of DI is growing and the proposed neurobiological model of DI consists of a disrupted medial prefrontal control over somato-sensory representations. Antipsychotic treatment is the treatment of choice when any other underlying cause or disorder is excluded. Other treatment options like selective serotonin reuptake inhibitors, electroconvulsive therapy and CBT shows promising results. Further research is needed to assess the pathophysiology, and other (long-term) treatment options for patients with DI.

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INVESTIGATIVE REPORT

Hypochondriasis Circumscripta: A Neglected Concept with Important Implications in Psychodermatology

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This article is devoted to a psychodermatological disorder with self-destructive behaviour – hypochondriasis circumscripta. Presented data are based on a clinical analysis of 22 consecutive cases (15 women; mean age 56.1 ± 12.6 years) observed in the dermatologic department of First Moscow State Medical University and managed in a multidisciplinary approach by dermatologists and a consultation-liaison psychiatrist. Psychopathology, clinical presentations, historical aspects and treatment options are discussed. The self-inflicted skin lesions result from a severe repetitive autodestruction of focal skin loci primarily affected with heterogeneous sensations associated with a hypochondrically over-valued idea. Hypochondriasis circumscripta is a serious diagnostic and treatment challenge and should be distinguished from dermatitis artefacta, skin picking disorder and delusional infestation. Key words: hypochondriasis circumscripta; autodestructive behaviour; self-destructive behaviour; dermatitis artefacta; factitial dermatitis; dermatitis factitia; psychodermatology.

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In dermatology, skin-focused autodestructive or self-destructive behaviour (1, 2) in general is attributed to dermatitis artefacta (factitial dermatitis, dermatitis factitia – L98.1, ICD-10 (3)) or neurotic excoriations (skin picking disorder – 698.4, DSM-5 (4)), which are classified as primarily psychiatric conditions (5) that cause self-inflicted skin lesions (6). Unconscious or semi-conscious motivating factors due to dissociation, e.g. la belle indifference (7), linked with assuming the role of the sick are typically mentioned as a psychological base for skin self-mutilation in dermatitis artefacta (5, 8, 9). Similarly, obsessive-compulsive and/or impulse-control disorders are considered as a mental cause for conscious self-destruction in neurotic excoriations (10–12). It is generally accepted that psychotic con-

ditions (e.g. delusional infestation (13), that may also present with skin lesions due to skin picking in a search for non-existing parasites) are excluded from dermatitis artefacta and skin picking disorder group and contribute to a separate clinical entity (delusional disorder, somatic type – F22, ICD-10 (3)). However, there is an evidence of casuistic cases of autodestructive skin lesions that do not correspond to above-mentioned conditions. They differ from dermatitis artefacta as being conscious; from skin-picking disorder as lacking compulsive/impulsive signs; and from delusional parasitosis as being non-delusional (no believe in parasite infestation). In these cases recalcitrant self-inflicted skin lesions (typically local ulcers) result from a conscious repetitive autodestruction of focal skin loci primarily affected with intensive and unbearable pain/dysaesthesia in order to relieve pathological sensations. There are anecdotal case reports in recent publications that designate these cases with different terms, e.g. “nummular headache” or “coin-shaped cephalgia” (only some cases, e.g. (14)) and “trigeminal trophic syndrome” (also only some cases, e.g. (15)) or contribute to atypical dermatitis artefacta, e.g. due to schizophrenia (16). However, there are definition (hypochondriasis circumscripta (17)) and psychopathological concepts (18–24) of the disorder that are generally neglected. Thus, the purpose of the present article is to summarize cases of hypochondriasis circumscripta observed in the dermatologic department of First Moscow State Medical University and to re-establish the clinical identity of the disorder.

METHODS

The methodological approach included precise dermatological, general somatic, neurologic, and psychiatric evaluation performed in an interdisciplinary paradigm. Psychiatric assessment was based on a phenomenological psychopathology of Karl Jaspers (25) and pointed on precise description of signs, symptoms, and syndromes, i.e. mental states (26), their interrelations and their transformation in time. The approach is typical for Russian clinical psychiatry, has been developed for decades, and has been adopted for consultation-liaison practice in general medicine and dermatology as well. The study methodology comprised initial examination of patients by a consultation-liaison psychiatrist (D.V.R.) with the following council of multidisciplinary case management team with supervising clinicians (A.B.S., A.N.L.) for the consensus diagnosis.

Study sample

The study sample included 22 subjects (15 women; mean age 56.1 ± 12.6 years) consecutively observed in the Dermatological Department of the I.M. Sechenov First Moscow State Medical University, consulted by a psychiatrists of Department of Psychiatry and Psychosomatics and diagnosed with hypochondriasis circumscripta in 2008–2014. Occasional frequency of hypochondriasis circumscripta (22 cases in a period of 6 years) in dermatology reflects as casuistic nature of the disorder, as associated diagnostic difficulties. Thus, patients with hypochondriasis circumscripta as a rule were referred to the Dermatological Department for another primary diagnosis (pyoderma ulcerosa chronica, actinomyces, lupus vulgaris, necrotizing vasculitis, necrotizing fasciitis, furunculosis, dermatitis artefacta etc.). See sociodemographic and clinical characteristics of the study sample in Table I.

RESULTS

According to obtained data psychopathological structure of hypochondriasis circumscripta in 22 examined subjects comprise basic/primary and secondary/derived components, that corresponds to conceptual binary model of psychodermatological syndromes (27, 28). “Basic” or primary symptoms are represented by different coenaesthesiopathic/sensory phenomena, while secondary, derived symptoms include corresponding cognitive psychopathological symptoms. The term “coenaesthesiopathic” is used here to define somatoperceptive disturbances in a form of medically unexplained pathological skin

Table I. Sociodemographic and clinical characteristics of patients diagnosed with hypochondriasis circumscripta (n = 22)

Characteristics	Values
Female, n (%)	15 (68.2)
Male, n (%)	7 (31.8)
Age, years, mean \pm SD	56.1 ± 12.6
Marital status, n (%)	
Divorced	8 (36.4)
Married	7 (31.8)
Single	4 (18.2)
Widowed	3 (13.6)
Employment, n (%)	
Retiree	10 (45.5)
Unemployed	7 (31.8)
Employed	5 (22.7)
Disease duration, years, mean \pm SD	4.7 ± 4.8
Median disease duration, years	3.0
Disease duration range	4 months–18 years
Unifocal lesions, n (%)	8 (36.4)
Head	4 (18.2)
Neck	1 (4.5)
Hand	1 (4.5)
Foot	1 (4.5)
Umbilical area	1 (4.5)
Multifocal lesions, n (%)	14 (63.6)
Head	8 (36.4)
Arms	7 (31.8)
Scalp	4 (18.2)
Trunk	4 (18.2)
Legs	3 (13.6)
Feet	3 (13.6)
Hands	1 (4.5)

sensations “Coenaesthesiopathy” (Greek: *coen* – common, shared; *aesthesia* – feeling, sensation, perception; *pathy* – disorder, disturbance) is a term derived from the proposed by J. Ch. Reil expression “coenaesthesia”. Coenaesthesia is the general feeling of one’s body that arises from multiple stimuli from various bodily organs.

The summary of the most important data on the psychopathological picture of hypochondriasis circumscripta is discussed below in a corresponding successive manner, i.e. summary description of basic sensory phenomena are followed by secondary cognitive symptoms.

Coenaesthesiopathic or basic sensory phenomena in hypochondriasis circumscripta are diverse and complex, but are circumscribed by a local skin area (or in some cases areas [Table I]). Sensations include (i) intradermal dysaesthesia, (ii) idiopathic pain, (iii) tactile illusions, and (iv) body fantasies.

Intradermal dysaesthesia (27) (Greek: “*dys*” – not-normal, “*aesthesia*” – sensation; i.e. “abnormal sensation”) is a kind of pathological skin sensation described metaphorically and characterized by penetrating pattern as piercing or prickling of skin (“like needles dig in”, “like insect stings”, “like under-skin nodules swelling and rupturing outside”). Sensations are presented with a nuance of violation of skin integrity, solution of continuity and homogeneity of skin, and sense of pervasion through the skin layer. Thus, the term “intradermal” (“intra” – inside, “derma” – skin, i.e. “inside the skin”) emphasizes spatial localization of sensations in a depth of skin.

Idiopathic pain is an extremely severe and intensive algopathic sensation that emerges abruptly, has a chronic course and insular (“circumscribed”) localization, and has features of possessive sensations (29, 30): perception of a corresponding dermal locus as an “alien part of skin” and an urge to discard from it. The sensation is characterized with unbearable affective pressure of pain, predominance in patient’s consciousness, inability to prescind from pain.

Tactile illusions are defined here as haptic sensations: minimal skin irregularities or inspissations on a skin surface are erroneously perceived as pathological lesions – “papules”, “tubercles”, “pustules”, “furuncles”, etc.

Body (or somatic) fantasies (31) are pathological sensations of fantastic character, described in terms of symbolic or vivid comparisons with a conditional “as if” modality and properties of uncommon configuration and location formations, situated in/under the skin. Body fantasies have florid, intrinsic for an objects descriptions, e.g. “branchy, under-the-skin ducts and tunnels” or growing out the skin “roots of pathological tissue”. Simultaneously, patients complain about volumetric, uncommon for human skin static formations or particles: “white fibres or creamy particles, resembling grit”, “capsules”, “vesicles with a colourless fluid”, “grains like a spawn”, “tiny balls connected in chaplets”). Those “particles” are

perceived primarily by patients in palpation and then after extraction of own tissue fragments are visualized like foreign bodies, i.e. represent “fantastic visual phenomena” (phantastischen Gesichterscheinungen (32). The phenomenon is in accordance to Jaspers estimations on disorders of perception that often correspond simultaneously to several sensory modalities (tactile, visual, visceral etc.), supplying each other, but not to a single “isolated” sensory modality.

At the same time, body fantasies lack the basic features of tactile hallucinations, observed in delusional parasitosis. Namely, lifeless “particles”, e.g. “little balls” (16), do not resolve into arthropods, and remain in patients’ perceptions just “pathological presentation of an undiagnosed disease”, but not a kind of a living creature. So there is no phenomenon of “animation” (28). The term “animation” is introduced by us to define a key clinical criterion of delusional parasitosis, that allows to differ it from circumscripta hypochondriasis: sense of living beings, which have “vital activities” (crawling, biting, etc.) and “die” after “appropriate measures are taken” (squashed by fingers or poisoned by insecticides).

As a secondary or derived from sensory (coenaesthesiopathic) phenomena hypochondriasis circumscripta comprise over-valued ideas (33, 34). Over-valued ideas content is determined by hypochondriacally over-valued possession phenomenon (35). Possession phenomenon here is not referred to delusions of possession (demonic or spirit (36)), but is based on experience of skin fragment or “particles” as alien ones and associated with desire to eliminate (“exorcise”) it from the skin.

Coenaesthesiopathic/sensory phenomena (intra-dermal dysaesthesia, idiopathic pain, tactile illusions, body fantasies) have a property of foreign, alien to own skin tissue sensations, associated with pathological activity, resembling paranoiac actions. The latter includes insistent, obstinate, unflinching, non-dissuasive urge to eliminate “necrotic”, “splinter-like” pathological skin loci or alien/foreign formations/objects/particles. At that, pieces of own epidermis and derma are perceived as alien/foreign/pathological formations/objects/particles. Patients use for their extraction not only nails, but also additional instruments, including needles, scissors, knives, pincers, scalpels. About one third of patients ($n=8$) apply

for surgery – indirect delegated self-harm. Herewith, they easily overcome pain, caused by self-destruction, that they perceive as milder than tormenting sensations (e.g. idiopathic pain), and pay no or minimal attention to cosmetic consequences of self-mutilation.

Self-injuries in hypochondriasis circumscripta are represented with artificial open, deep, ulcerous skin defects with sharp borders, surrounded by unaffected skin. At first sight they could resemble self-inflicted lesions in a skin picking disorder. In contrast, self-injuries are more focal, than scattered, and differ in distinctly circumscribed localization with a tendency to affect a single skin region with a solitary ulcer (left angle of an upper eyelid, central region of a right cheek, etc.) (Fig. 1). However, there are also cases with multifocal self-inflicted ulcers (Fig. 2). Typically injuries are deep and may affect also dermis and subdermal tissues. Persistent chronic ulcers with massive necrotic crusts, linear and oval deforming scars are typically observed.

The clinical course of hypochondriasis circumscripta is typically chronic. Median illness duration at the diagnosis establishment is 3.0 years, mean disease duration is 4.7 ± 4.8 years (see Table I). However the disease range in the study sample varies from 4 months to 18 years, that reflects a clinical course tendency. In most cases ($n=18$) the syndrome starts with a prodromal stage defined by intradermal dysaesthesia and idiopathic pain, associated with a skin picking behaviour. Tactile illusions and body fantasies with an over-valued hypochondriacal idea are supplemented later after months or even 1.5–2 years (gradual onset). In other cases ($n=4$) tactile illusions, body fantasies and over-valued hypochondriacal idea persist initially from the onset of disorder and become the most prominent presentations of the syndrome from the very beginning (acute onset). The latter patients could be diagnosed with hypochondriasis circumscripta even in first weeks of their illness. So the shortest disease duration in some patients just reflects quicker diagnosis establishment as a result of acute onset.

TREATMENT

Patients with hypochondriasis circumscripta were managed with a holistic interdisciplinary psychodermatologic approach by a dermatologists and a consultation-liaison psychiatrist (D.V.R.) in a naturalistic treatment manner. Psychotropic medications were combined with psychotherapy (cognitive behaviour therapy; CBT) and topical dermatologic medications. Treatment data were analysed for 17 subjects (77.3%) who gave their consent and took at least a single dose of psychotropic medication. Mean number of treatment courses per patient was 5.2, mean treatment duration (until



Fig. 1. Unifocal hypochondriasis circumscripta. Chronic solitary ulcer on a locus of idiopathic pain/dysaesthesia persisting for 3 years in a patient who refused psychiatric treatment.



Fig. 2. Multifocal hypochondriasis circumscripta (multiple self-inflicted ulcers are situated on forearms, neck and head).

discontinuation or lost to follow-up) was 20.8 weeks. Treatment course was defined as at least 4 weeks period of an unchanged psychotropic medication modality. After each period of efficiency and tolerability were assessed (clinically, as well as psychometrically with VAS-S). VAS-S is a visual analogue scale for skin sensations intensity (intra-dermal dysaesthesia, idiopathic pain, tactile illusions, body fantasies). It was chosen for the efficiency measure, as skin sensations had been considered as basic phenomena and it has been previously reported that reduction of skin sensations preceded improvement of cognitive (secondary) component (27, 29). So coenaesthesiopathic or basic sensory phenomena could be considered as a sensitive treatment efficiency marker. If acceptable efficiency (clinical improvement and mean VAS-S score reduction > 50%) and good tolerability were achieved, treatment modality was continued (doses could be adjusted) and the course considered as successful. If there was no acceptable effect after 4 weeks or there were intolerable side effects (unsuccessful course), a new treatment course was started. The procedure was repeated till the effective course or lost for follow-up. Treatment results were modest: only 8 (47.2%) subjects achieved full remission (VAS-S=0), 5 (29.4%) improved (partial remission – $0 < \text{VAS-S} < 50\%$), and 4 (23.5%) were resistant to treatment (VAS-S > 50%). Antipsychotics (haloperidol 7.5–15 mg, chlorpromazine 25–75 mg, risperidone 2–6 mg, sulpiride 400–600 mg) and antidepressant amitriptyline (50–100 mg) were psychotropic drugs associated with a better outcome as defined by assessment of course results (Fig. 3). Thus, hypochondriasis circumscripta seems to be a serious treatment challenge. Further treatment studies are required.

DISCUSSION

The interpretation of the term “hypochondriasis circumscripta” in psychiatry is ambiguous. The term was developed by Bonhoeffer’s colleague Schwarz (17). He considered hypochondriasis circumscripta as a psychiatric disorder with presentations circumscribed by skin. This is why the adjective “circumscripta” was used. However, initially Schwarz used the term to define delusional parasitosis. Later, Bonhoeffer gave another interpretation of the term, which became conventional

(19–24). Bonhoeffer defined circumscripta hypochondriasis as a syndrome peculiar for particular pathological body sensations, namely idiopathic pain. However, he observed projections of idiopathic pain not only in skin, but also in internal organs. Simultaneously, he has modified the meaning of the adjective “circumscripta”. Bonhoeffer implied “circumscribed or isolated locus of sensations”. As a key feature distinctive from other types of hypochondriasis, he identified a sense of foreignness or extraneity of pathological focus, contraposed by patients to other healthy tissues. He also noted that idiopathic pain had been associated with seeking for extraction of “pathological focus” with surgery (Operationsucht).

Our interpretation of the term “circumscripta” differs from the mentioned conventional one and shares characteristics of both concepts, i.e. proposed by Schwarz and Bonhoeffer. Thus, according to our data “circumscripta” hypochondriasis in dermatology includes as properties described by Schwarz, that are (i) exclusive skin involvement and (ii) persistence of sensations other than idiopathic pain (dysaesthesia, tactile illusions, body fantasies), as characteristics proposed by Bonhoeffer, i.e. (i) sense of foreignness of a sensation locus and (ii) seeking for its extraction that leads to self-destructive behaviour.

Thus, the autodestructive non-delusional psychodermatological disorder, described previously as

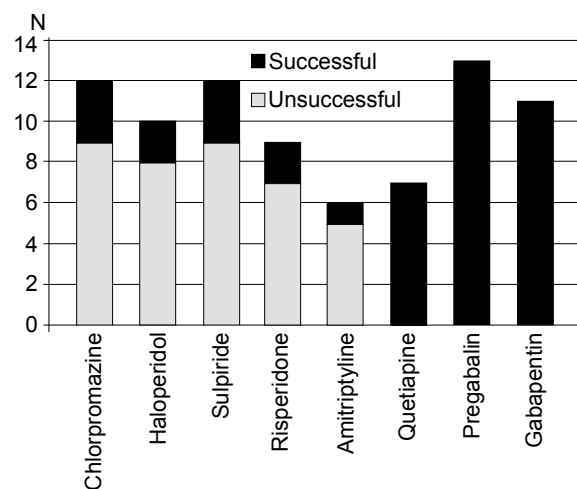


Fig. 3. “Successful” and “unsuccessful” courses of treatment in hypochondriasis circumscripta by medication (Y-axis N – absolute number of treatment courses).

“hypochondriasis circumscripta” is a syndrome with self-inflicted skin lesions (typically local ulcers) that result from a conscious repetitive autodestruction of focal skin loci primarily affected with intensive and unbearable sensations associated with a hypochondriacal over-valued idea. Hypochondriasis circumscripta is a serious treatment challenge. It is important to distinguish it from dermatitis artefacta, skin picking disorder and delusional infestation.

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INVESTIGATIVE REPORT

Discriminating the Presence of Psychological Distress in Patients Suffering from Psoriasis: An Application of the Clinimetric Approach in Dermatology

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Psoriasis is a chronic dermatologic disease that negatively impacts physical and mental health of patients as well as their social and work life. The aim of this study is to illustrate, by a clinimetric approach, the differences in psychological distress and well-being between patients with mild and moderate to severe psoriasis. Seventy patients with psoriasis were evaluated using the Structured Clinical Interview for DSM-IV (SCID-I), the Diagnostic Criteria for Psychosomatic Research (DCPR), along with the following self-report instruments: the Symptoms Questionnaire (SQ), the Psychological Well-being scales (PWB) and the Temperament and Character Inventory (TCI). Illness severity was evaluated using the Psoriasis Area and Severity Index (PASI). While no differences were reported between groups in terms of psychiatric diagnoses, patients with greater severity (PASI >10) presented higher rates of demoralization (61.5%) and Type A behaviour (53.8%) than subjects with mild severity (17.5% and 21.1%, respectively). Patients with moderate/severe psoriasis also reported impaired levels of psychological well-being in terms of lower autonomy, environmental mastery, personal growth and purpose in life. Furthermore, according to TCI, patients with severe psoriasis reported greater harm avoidance and lower self-directness than individuals with milder psoriasis levels. Overall results highlighted the need in psoriasis care of a more comprehensive psychological and psychosomatic assessment not limited to the customary psychiatric diagnostic criteria. *Key words: dermatological diseases; psoriasis; well-being; personality; distress.*

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The term *clinimetric* was introduced by Feinstein in 1982 (1). He noticed that despite all the improvements in assessment methods, a number of clinical phenomena were still unconsidered during the evaluation process. Feinstein argued that, even though many indexes have

been used to classify diseases, most are inadequate to evaluate clinical phenomena. Thus, he highlighted the need of new indexes to deal with clinical information which do not find room in the customary diagnostic taxonomy. Such information includes those factors that dermatologists and, more in general physicians, pay attention to in clinical practice. For example, severity is often determined by the number of symptoms which are mostly assessed according to a cross-sectional prospective. Clinimetric indexes instead add information such as types of symptoms and sequence of presentation, that are clinically relevant especially when treatment decisions are involved. Similar considerations apply to the longitudinal course of the disease. For instance, the rate of progression of an illness (staging) is important not only because it defines the clinical state of patients in a certain point in time (evaluation), but also because it gives information about their current position on the continuum of the course of illness. Staging thus plays a key role in managing chronic diseases such as psoriasis which is characterized by attention and worsening phases. Again, gathering information about comorbidity (number and severity of comorbid medical and mental conditions), response to previous treatments (onset of side effects, resistance, tolerance, etc), as well as patients' general functioning in their daily life, occurrence of life events, and psychological and social well-being, is crucial when physicians are pondering treatment choices.

According to clinimetrics, indexes should not only have psychometric properties such as validity and reliability, but they should provide a standard of *responsiveness*. This last criterion refers to aspects such as: clinical pertinence, instruction comprehensibility, discriminant validity and ease of use. Another essential requisite for a clinimetric measure is sensibility, namely the ability to detect clinically relevant changes in health status over time (2). Likewise, the clinimetric concept of incremental validity, that refers to the unique contribution (or incremental increase) in predictive power associated with a particular assessment procedure, is an essential aspect of the clinical decision process (2). Accordingly, each distinct aspect of a measurement should deliver a unique increase in information to qualify for inclusion.

All these characteristics are essential, because a tool can be valid and reliable but not clinically relevant (2). However, current formal strategies of assessment fail to capture most of this information.

The use of clinimetric criteria to evaluate psychological distress in dermatology

The Diagnostic and Statistical Manual (DSM) of Mental Disorders appeared almost 3 decades ago and revolutionized the ways psychiatrists and psychologists diagnosed psychopathology. It resulted in impressive gains in decreased variance due to different assessors. However, the use of diagnostic criteria to identify psychiatric disorders has notably reduced the ability to collect some clinically relevant information. The DSM has been criticized for the lack of homogeneity of the clinical syndromes it defines. There could be many combinations of symptoms resulting in many clinical case conceptualizations. A DSM diagnosis may thus encompass a wide range of manifestations, seriousness and prognosis and also miss the individual patient's treatment history such as responses to previous treatments: the patient's current symptomatology may have developed over the years and may reflect previous treatments. The clinical taxonomy misses these distinctions in its classification which are able to demarcate major prognostic and therapeutic differences among patients who otherwise seem to be deceptively similar since they share the same diagnosis. Missing this data may contribute to partial or complete therapy failures.

The need to evaluate such information is even more relevant when treating patients with chronic illnesses. Several dermatologic diseases present a chronic course and are usually associated with a number of medical and psychiatric comorbidities (3, 4). Indeed, it has been estimated that at least 30% of dermatologic patients present significant psychiatric comorbidities.

Psychiatric disease and psychological distress may have a profound effect on quality of life, psychological well-being and how the disease process is experienced. This is particularly true for psoriasis. Psoriasis is a chronic dermatologic disease that may exert a negative impact on patients' physical, social, and psychological health to the same extent as other chronic health conditions, including cancer, heart disease, and diabetes (3). A number of studies have found a correlation between the occurrence of psoriasis and psychiatric disorders such as depression and anxiety (5). However, major psychiatric disorders and life dissatisfaction have been proved to not differ across severity levels of the illness (5). Moreover, most investigations have conducted their evaluation using mainly constructs such as those adopted by the customary psychiatric classification (6). As a result, several aspects of emotional distress and psychological impairment have not been considered, even

though minor psychological distress has been proved to affect about half of the patients with psoriasis (5, 6).

In cardiac patients the use of an assessment procedure based on the clinimetric approach has been proved to be suitable in identifying psychological impairment (7, 8). The aim of this investigation is to illustrate the feasibility and the incremental clinical validity of a clinimetric assessment in dermatologic patients suffering from psoriasis. Specifically, our study is going to demonstrate how a clinimetric assessment approach may help in discriminating psoriasis patients with different severity of illness in terms of the presence of psychological distress.

METHOD

Seventy patients with a clinical diagnosis of documented psoriasis were recruited at Dermatology Clinic of Florence, Italy from April 2011 to September 2011. Patients were recruited during routine follow-up. Psoriasis severity was evaluated by the dermatologist. A clinical psychologist who was blind to the illness severity conducted the psychological evaluation the same day of the medical assessment.

Psoriasis assessment

The Psoriasis Area and Severity Index (PASI) was used to establish severity of psoriasis. The human body is divided into 4 sections scored separately (head (H) (10% of a person's skin); arms (A) (20%); trunk (T) (30%); legs (L) (40%)). The 4 scores are then combined into the final PASI score. Also, within each body area, the severity is estimated by 3 clinical signs: erythema (redness), induration (thickness) and desquamation (scaling). Severity is evaluated on a scale of 0 (none) to 4 (maximum). The sum of all 3 severity parameters is then calculated for each section of skin, multiplied by the area score for that area and multiplied by the weight of the respective section. Accordingly, patients were divided into two groups: mild psoriasis (PASI < 10), and moderate to severe psoriasis (PASI ≥ 10).

Psychological assessment

The Structured Clinical Interview for DSM-IV (SCID-I) (9) was used in accord with the standard psychiatric assessment and was used to evaluate the presence of mood and anxiety disorders.

The clinimetric assessment encompassed both self-rated and clinician rated instruments. Specifically, the presence of psychosomatic syndromes was evaluated using the interview for the Diagnostic Criteria for Psychosomatic Research (DCPR) (10). Subjects were also asked to complete the following self-rated questionnaires: Kellner's Symptom Questionnaire (SQ) (11), a widely used 92-item instrument for the measurement of 4 scales of distress (anxiety, depression, somatization and hostility-irritability); Ryff's Psychological Well-Being scales (PWB) (12) consisting of 6 scales for the assessment of psychological well-being dimensions according to the Ryff's theoretical model (autonomy, environmental mastery, personal growth, purpose in life, positive relations, and self-acceptance); the Temperament and Character Inventory (TCI) to assess individual differences according to the Cloninger's biosocial model of personality defined as constituted by 4 temperamental traits (Harm Avoidance-HA, Novelty Seeking-NS, Reward Dependence-RD and Persistence-P) and 3 character dimensions (Self-Directedness-SD, Cooperativeness-C and Self-Transcendence-ST) (13).

Statistical analyses

Two tailed Student's *t*- and Fisher's tests were used to compare severity groups in sociodemographic and psychiatric variables as appropriate. The General Linear Model was used to evaluate differences in questionnaire scores between PASI groups. Age, social and work status along with illness duration were also included in the model as covariates. Due to the exploratory nature of the study the Bonferroni's correction was not applied. All analyses were performed using the software SPSS 22.0 for windows. All significance levels were set at $\alpha=0.05$.

RESULTS

Sample description

The sample consisted of 70 psoriasis patients with a mean age of 47.87 years (SD 14.67). The majority of the sample was male (67.1%), married (55.7%) and employed (60%) (Table I). About 4.3% of patients were diagnosed with major depression and 8.6% with anxiety disorders (generalized anxiety disorder and panic disorder). 84.2% reported at least one DCPR syndrome with demoralization (25.7%) and Type A behaviour (27.1%) as the most commonly reported. Patients diagnosed with DCRP somatic symptoms were more likely to also report depression ($\chi^2 = 16.74; p=0.012$) and anxiety ($\chi^2 = 6.79; p=0.05$). Actually, demoralized patients scored below the 25th percentile in the PWB scales of environmental mastery ($\chi^2 = 22.62; p<0.001$), positive relations with others ($\chi^2 = 4.39; p=0.049$) and self-acceptance ($\chi^2 = 6.37; p=0.002$). Similarly, Type A behaviour and irritable mood were associated respectively with low levels of environmental mastery ($\chi^2 = 4.52; p=0.042$) and purpose in life ($\chi^2 = 6.37; p=0.020$). As for personality traits, patients reporting demoralization presented higher persistence ($t=2.10; p=0.038$) and harm avoidance ($t=5.10; p<0.001$), and lower self-directness ($t=4.46; p<0.001$) than individuals without demoralization. In a similar manner, those who reported Type A behaviour scored higher in persistence ($t=2.75; p=0.008$) and lower in self-directness ($t=2.32; p=0.023$) than patients without Type A behaviour syndrome. A diagnosis of health anxiety was associated with higher levels of harm av-

oidance ($t=2.32; p=0.029$) and lower self-directness ($t=2.25; p=0.028$), while alexithymia was associated with low reward dependence ($t=2.36; p=0.021$) and self-transcendence ($t=2.75; p=0.008$).

Differences in illness severity

Of the patients 18.6% had a PASI score ≥ 10 ($n=13$). No differences emerged in sociodemographic variable between patients with a PASI score ≥ 10 and those with lower scores (Table I).

Concerning the psychiatric diagnoses, patients of different severity groups did not significantly differ in rates of anxiety and depressive disorders (Table II). As to the psychosomatic syndromes, patients with moderate to severe psoriasis were more likely to report Type A behaviour and demoralization than subjects with mild severity. Specifically, 53.8% ($n=7$) of the participants with a PASI score ≥ 10 , reported Type A behaviour and 61.5% ($n=8$) were diagnosed with demoralization, versus, 21.1% ($n=12$) and 17.5% ($n=10$) of patients with a PASI < 10 . Both differences were statistically significant (Table II).

Significant differences also emerged in SQ ($F_{(59,4)} = 2.521; p=0.05$) and PWB ($F_{(57,6)} = 2.512; p=0.032$) scores. Precisely, individuals with moderate to severe psoriasis scored significantly lower in the PWB scales of Autonomy, Environmental mastery, Personal growth and Purpose in life than patients with mild psoriasis (Table II). Such patients also reported significantly higher levels of anxiety, depression and somatic symptoms than subjects with less illness severity (Table II). The PASI groups also differed in TCI scores ($F_{(56,7)} = 2.378; p=0.033$), with patients with greater severity of illness showed higher harm avoidance and lower self-directness compared to patients with mild psoriasis (Table II).

DISCUSSION

This study presents obvious limitations (absence of a control group, cross sectional design. However, this preliminary study is the first to evaluate dermatological patients by using instruments such as the Psychological Well-being Scales (12) and the Temperament and Character Inventory (13) according to a clinimetric approach.

Overall the findings are consistent with previously reported results showing the frequent occurrence of psychological distress in dermatological patients (6). Our results indicated that evaluating patients only according to the customary diagnostic criteria may not be enough to discriminate individuals suffering from psychological distress. Indeed, patients

Table I. Sociodemographic characteristics of the two PASI groups

	Total sample ($n=70$)	PASI <10 ($n=57$)	PASI ≥ 10 ($n=13$)	t	χ^2	p
Age, years, mean \pm SD	47.87 \pm 14.67	48.68 \pm 14.15	44.31 \pm 16.95	0.970		0.336
Sex: female, % (n)	32.9 (23)	35.1 (20)	23.1 (3)		0.692	0.523
Civil status: married	55.7 (39)	59.6 (34)	38.5 (5)		1.926	0.220
Working status, % (n)					3.614	0.159
Working	65.7 (46)	64.9 (37)	62.9 (9)			
Unemployed	5.7 (4)	3.5 (2)	15.4 (2)			
Retired	28.6 (20)	31.6 (18)	15.4 (2)			
Illness length, % (n)					3.302	0.230
≤ 1 year	8.6 (6)	10.5 (6)	–			
≤ 5 years	28.6 (20)	24.6 (14)	46.2 (6)			
>5 years	62.9 (44)	64.9 (37)	53.8 (7)			

Table II. Psychological assessment in the two PASI groups

	PASI < 10	PASI ≥ 10	χ^2/F	<i>p</i>
	(<i>n</i> = 57)	(<i>n</i> = 13)		
	% (<i>n</i>)	% (<i>n</i>)		
<i>Psychiatric assessment</i>				
Depression	3.7 (2)	7.7 (1)	0.452	0.465
Anxiety	7 (4)	15.4 (2)	0.946	0.308
<i>Clinimetric assessment</i>				
<i>Psychosomatic syndromes</i>				
Health anxiety	19.3 (11)	21.1 (3)	0.094	0.715
Nosophobia	3.5 (2)	–	0.470	>0.999
Thanatophobia	1.8 (1)	7.7 (1)	1.345	0.339
Illness denial	19.3 (11)	38.5 (5)	2.205	0.156
Somatic symptoms	5.3 (3)	15.4 (2)	1.635	0.230
Persistent somatization	8.8 (5)	–	1.228	0.576
Conversion	1.8 (1)	7.7 (1)	1.345	0.339
Anniversary reaction	7 (4)	23.1 (3)	3.033	0.113
Type A behavior	21.1 (12)	53.8 (7)	5.757	0.033
Irritable mood	17.5 (10)	–	2.661	0.190
Demoralization	17.5 (10)	61.5 (8)	10.726	0.003
Alexithymia	45.6 (26)	46.2 (6)	0.001	>0.999
	Mean ± SD	Mean ± SD		
<i>Psychological well-being</i>				
Autonomy	64.58 ± 2.53	54.20 ± 3.46	9.618	0.003
Environmental mastery	61.70 ± 2.62	50.92 ± 3.58	9.665	0.003
Personal growth	61.19 ± 2.32	53.33 ± 3.17	6.184	0.016
Positive relations with others	62.95 ± 2.39	57.11 ± 3.27	3.418	0.069
Purpose in life	58.72 ± 2.34	52.38 ± 3.20	4.195	0.045
Self-acceptance	57.14 ± 2.74	52.92 ± 3.74	1.358	0.248
<i>Psychological distress</i>				
Anxiety	6.73 ± 1.26	11.87 ± 1.72	9.580	0.003
Depression	5.76 ± 1.07	9.56 ± 1.47	7.211	0.009
Somatic symptoms	8.61 ± 1.32	12.41 ± 1.80	4.738	0.033
Hostility-irritability	6.37 ± 1.11	8.41 ± 1.52	1.924	0.170
<i>Personality traits</i>				
Novelty seeking	54.00 ± 1.73	54.06 ± 2.36	0.001	0.979
Harm avoidance	57.98 ± 2.92	65.83 ± 4.00	4.120	0.047
Reward dependence	64.27 ± 2.34	63.32 ± 3.20	0.093	0.762
Persistence	67.57 ± 3.24	66.53 ± 4.43	0.059	0.809
Self directness	70.11 ± 2.71	58.60 ± 3.70	10.317	0.002
Cooperativeness	73.42 ± 2.20	68.31 ± 3.01	3.087	0.084
Self transcendence	41.48 ± 2.83	48.17 ± 3.87	3.187	0.079

with severe psoriasis, while not differing in rates of psychiatric disorders from those with milder severity of disease, presented greater psychological impairment in terms of personal achievement and satisfaction (low autonomy, personal growth and purposes in life) and higher psychological distress. Furthermore, most of patients with severe psoriasis reported experiencing feelings of demoralization. The term demoralization refers to a condition characterized by feelings of helplessness due to the belief of having failed to meet one's expectations and goals. Demoralized individuals are thus unable to cope with pressing problems or stressful life situations which are then experienced as overwhelming (14). Demoralization, which was found to be distinct from depression, has been frequently reported in various medical settings (cardiology, endocrinology, oncology) in patients suffering from greater illness severity (15).

Consistently with what was found by Picardi et al. (6), patients with severe dermatological illnesses also repor-

ted high rates of Type A behaviour. Type A behaviour characterizes competitive individuals overcommitted to work or other activities, who tend to experience a steady and pervasive sense of urgency when subject to deadlines and to feeling under time pressure (16). Similarly to demoralization, Type A behaviour has been found to frequently occur in medical setting (17). The presence of such a high rate of Type A behaviour may be an attempt to overcompensate feelings of helplessness that are work-related. Indeed, especially in work settings, patients' inability to succeed in accomplishing their ambitions, may trigger a number of unadaptive behaviours aimed at regaining some control over their unsatisfying situation.

Findings on personality traits are also consistent with such psychological patterns. Similarly to Kilic et al. (18), patients with greater illness severity scored lower in the TCI dimension of self-directness and higher in the TCI dimension of harm avoidance than participants with mild psoriasis. Individuals high in harm avoidance are described as cautious, doubtful, discouraged, insecure, passive, negativistic, or pessimistic even in situations that do not normally worry other people. These individuals tend to be inhibited and shy in most social situations (13). Furthermore, individuals who are low in self-directedness are described as blaming, ineffective, poorly integrated in social ties and unable to define, set, and pursue meaningful goals. They tend to experience minor, short term aims, none of which can be developed to the point of long-lasting personal significance and realization (13).

Such impaired psychological functioning may refer to the concept of cumulative life course impairment recently introduced in psoriasis patients by Kimball et al. (19). According to this model, psoriasis results in significant psychological burden that negatively influences several aspects of the patient's life (relationships, social activities, work and wellbeing). The concept of cumulative life course impairment entails the cumulative effect of stigma, medical and psychological comorbidities, along with the economic and social consequences that may ultimately result in a failure to achieve "full life potential" in some patients (19, 20). Chronic skin conditions have been reported to negatively influence job decisions, relationships, level of education, self-confidence and well-being (20). Thus, once a chronic medical condition develops, environmental, social and psychological factors influence illness progression as well as overall life conditions of the patients. Conversely, illness exerts its influence on all other factors, which are all mutually interacting (21). Thus, identifying patients at risk of developing a cumulative disease-related impairment may be a significant contribution to understand the real impact of psoriasis (3, 19). Such a multidimensional approach aims to provide a comprehensive model to explain the

“cumulative disease-related impairment” experienced by patients throughout their life (22). As pointed out by Picardi et al. (6), psychiatric diagnostic criteria alone may not provide a comprehensive description of psychological distress arising in patients with skin diseases. A clinimetric approach may help physicians in detecting clinically relevant information such as the presence of Type A behaviour, demoralization or allostatic overload (23) not otherwise assessed by the customary taxonomy (24). Indeed, the presence of such conditions may worsen the course of psoriasis leading to the accumulation of progressive physical and psychological impairment.

These results stressed the need of a more comprehensive assessment of the psychosocial features in chronic disease such as psoriasis. In clinical settings, the use of psychometric indexes and diagnostic criteria may provide only limited information on clinical phenomena. The clinimetric approach, being more sensitive in detecting clinically relevant information than diagnostic criteria, may thus respond to these emerging needs and may play an important role in supporting the caring process. Such a clinimetric approach may thus guide the clinical decision process by incrementally increasing the predictive power of the assessment procedure. The fulfillment of clinimetric criteria may detect conditions that may develop before an underlying psychiatric disorder becomes noticeable. Thus, clinimetric indexes more than diagnostic criteria, may help the physician to identify important information and clinically relevant differences which may be helpful in managing difficult doctor-patient relationships or partial response to treatment (25). Indeed, the ultimate goal of clinicians working with chronic illnesses should be to prevent or decrease the negative impact of excessive distress on patients' health.

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INVESTIGATIVE REPORT

Association of Stress Coping Strategies with Immunological Parameters in Melanoma Patients

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In this exploratory case control study the association between stress coping strategies and lymphocyte subpopulations was calculated in 18 non-metastatic melanoma patients and 18 controls with benign skin diseases. Coping strategies were assessed using the German version of the stress-coping questionnaire (SVF 120). While in the control group patients showed significant negative correlations of lymphocyte subpopulations (CD3⁺, CD4⁺, CD8⁺, CD19⁺, CD45⁺ cells) with coping strategies that refer to defence, in melanoma patients significant positive correlations between lymphocyte subpopulations (CD3⁺, CD4⁺, CD19⁺, CD45⁺ cells) were found with regard to coping strategies that are characterized by diversion from stress and focusing on stress-compensating situations. The present data, in melanoma patients and controls, show contrary correlations between stress coping strategies and lymphocyte subpopulations. The interconnection between stress coping and immunologic alterations in malignant melanoma is a field deserving further multiprofessional investigation in order to provide new therapeutical approaches in the treatment and understanding of melanoma patients. Key words: melanoma; immune system; stress coping.

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The incidence rate of cutaneous malignant melanoma has shown a significant increase in the past decades, whereas mortality rates seem to be stable in Europe (1, 2).

As a potentially lethal disease melanoma causes the majority of skin cancer-related deaths. When discovered at early stages, a high proportion of melanoma is curable with surgery and other treatment options but when detected after regional and systemic dissemination the prognosis becomes poorer (3). As cancer is essentially a life-threatening disease, its diagnosis and treatment is frequently accompanied by emotional distress (4, 5), which has a strong impact on physiological and immu-

nological processes (6). Perceived psychosocial stress chronically stimulates the autonomic nervous system and the hypothalamic-pituitary-adrenal (HPA) axis resulting in elevated salivary cortisol levels (7). These neuroendocrine processes also play an important role in the regulation of our immune system (8, 9). Several studies in humans as well as in animals show an interconnection between chronic and acute stress and the reactivity of the immune system, namely a significant change in cellular immune parameters such as natural killer (NK) cell cytotoxicity and T-cell activity (10–12).

In animal models the influence of chronic stress and UV radiation on the increase of susceptibility to squamous skin carcinoma was investigated, showing that stressed mice had a shorter median time to first tumour. In addition, subjects showed lower numbers of infiltrating CD4⁺ cells, more regulatory/suppressor CD25⁺ cells infiltrating tumours and more CD4⁺ CD25⁺ cells in the circulation (13), among other changes. Stress itself has effects on melanoma-relevant immunological parameters such as CD3⁺, CD4⁺ or CD19⁺ cells. An analysis of the correlation between coping skills (Primary Appraisal Secondary Appraisal [PASA-] scale) and the expression of tumour necrosis factor- α (TNF- α) and interleukin-6 (IL-6) showed higher expression of TNF- α and IL-6 between baseline and one hour post stress in subjects with a higher PASA “stress index”. Hence one may conclude that an improvement in coping strategies and coping skills might influence the immunological response to stress in a positive way (14). Psychosocial stress contributes to a heightened vegetative load that is assumed to be associated with immunosuppression and cancer development and progression (7, 15, 16). To date very little is known regarding the reactivity of immunological parameters depending on social stress factors and psychological coping in persons who suffer from malignant melanoma. A few studies focused on the influence of psychosocial stress on tumour progression (15). It is not known to what extent stress-coping strategies are involved in immunological alterations. Recently, we were able to demonstrate, with parts of the present exploratory pilot study, that melanoma patients show an altered immunological reactivity to a standardi-

zed mental stressor (17). The aim of the present analysis was to determine correlations between coping strategies and immunological parameters in melanoma patients compared to an age- and gender-matched control group of patients with benign skin diseases.

MATERIAL AND METHODS

Patients

Out of 38 outpatients, who were contacted between February and August 2011 and agreed orally and by written informed consent to participate in the study, we analysed 36 patients at the Department of Dermatology (Medical University of Graz). The patients were assigned either to a melanoma group (9 women and 9 men) with a mean age of 50.2 ± 13.3 years or an age- and gender-matched control group (9 women and 9 men) of benign skin lesions with a mean age of 50.3 ± 13.8 years. Because incomplete questionnaire data in one melanoma patient the latter and the corresponding control were excluded.

Melanoma patients attended an excision of the primary tumour or a re-excision after small excision of the primary tumour. All melanomas were primary, non-metastatic tumours with tumour thicknesses between 0.1 and 1.3 mm. The control group consisted of 18 patients with benign processes, i.e. naevi, epidermal and tricholemmal cysts, angioleiomyoma, scar, fibroma/neurofibroma, lipoma, sebaceous gland hyperplasia and condyloma acuminata. All patients participated in a defined test procedure in the morning of the planned surgery. Inclusion criteria: age from 18–75 years, approval to participation and written informed consent, sufficient compliance, and a good command of the German language. Insufficient compliance was a reason for exclusion.

The study was conducted in accordance with the human medical experimentation ethics document (Declaration of Helsinki 1964 and subsequent revisions). Approval was obtained from the ethics committee at Medical University of Graz, Austria. Anonymity was guaranteed by identifying each participant with an ID number.

Test procedure

All patients completed a defined test procedure including a mental standardized stress task with a period of rest before and after the stress task (17). Additionally, blood samples were taken before (baseline) and after the mental stress task.

The present paper particularly focuses on the immunological parameters at baseline (after a period of rest; duration: 10 min) and its association with stress-coping strategies in melanoma patients and benign controls.

Immunological parameters

The following immunological parameters were analysed: Lymphocyte subpopulations: CD3⁺ cells, CD4⁺ cells, CD8⁺ cells, CD16/CD56⁺ NK cells, CD19⁺ cells and CD4⁺/CD8⁺ ratio.

Psychometric methods

German Stress-Coping Questionnaire (SVF 120). We used the German stress-coping questionnaire (SVF 120) to assess the coping strategies of melanoma patients and controls. The easily understandable SVF 120 evaluates coping strategies that are used during and after stressful situations. It consists of 120 items that are divided in 20 subtests. Each item offers the possibility to select the adequate answer within a 5-level rating

scale. The questionnaire measures both positive and negative coping strategies. Positive strategies (POS_total) (trivialization, disparagement, defence from feeling of guilt, diversion from situation, substitute gratification, self-affirmation, relaxation, situation control, reaction control, positive self-instruction) effect efficient stress reduction and can be described as adequate coping strategies. Negative strategies (NEG_total) (escape, social withdrawal, intrusive thoughts, resignation, self-pity, self-blame) are associated with a stress-enhancing behaviour. Positive strategies can be divided in three subcategories: POS1, POS2 POS3. POS1 subsume subtests trivialization, disparagement, defence from guilt – strategies that refer to defence. POS2 include the strategies diversion from situation, substitute gratification, self-affirmation, and relaxation. This subcategory is characterized by diversion from stress and focusing on stress-incompatible situations. Subcategory POS3 (situation control, reaction control, positive self-instruction) focuses on the control of the stressor, the stress-associated reaction and the self-attribution of required competencies (18). Internal consistency coefficients (Cronbachs alpha) for the subtests vary between 0.66 and 0.92. The test is widely used and quality criteria are fulfilled (19). The SVF-120 takes 10–15 min to fill in and was presented as a paper pencil version.

Statistical methods

Associations between lymphocyte subpopulations (CD3⁺ cells, CD4⁺ cells, CD8⁺ cells, CD16/CD56⁺ NK cells, CD19⁺ cells, CD45⁺ cells, and CD4/CD8) and SVF 120 parameters were analysed for each group (melanoma group and control group) separately. These analyses were performed using nonparametric analysis (Spearman's correlation), since most of the parameters were not normally distributed and transformation (log) did not result in a normal distribution. Due to the exploratory nature of this pilot study alpha-adjusting was not undertaken.

RESULTS

Correlations between immunological parameters and stress coping strategies

While in the control group significant correlations were found with regard to lymphocyte subpopulations with POS1, in melanoma patients significant correlations were found with POS2. Only in melanoma patients these correlations resulted in significant correlations with POS_total. In the control group all analysed lymphocytes except CD16/CD56⁺ NK cells and CD4/CD8 ratio showed negative associations with POS1 ranging from $\rho = -0.694$ ($p = 0.001$) to $\rho = -0.538$ ($p = 0.021$). In the melanoma group all analysed lymphocytes except CD8⁺ cells, CD16/CD56⁺ NK cells and CD4/CD8 Ratio showed positive associations with POS2 ranging from $\rho = 0.685$ ($p = 0.002$) to $\rho = 0.629$ ($p = 0.005$) and POS_total ranging from $\rho = 0.608$ ($p = 0.007$) to $\rho = 0.559$ ($p = 0.016$). In both groups no significant correlations could be observed between lymphocyte subpopulations and NEG_total. Table I lists the correlation of stress-coping strategies with immunological parameters within the melanoma group and controls.

Table I. Correlation between immunological parameters and stress-coping strategies shown using Spearman correlation coefficients

	Control group					Melanoma group				
	POS1	POS2	POS3	POS_total	NEG_total	POS1	POS2	POS3	POS_total	NEG_total
CD3 ⁺ cells	-0.638**	0.155	-0.197	-0.281	0.075	0.193	0.629**	0.38	0.562*	-0.098
CD4 ⁺ cells	-0.552*	0.302	-0.144	-0.176	0.104	0.198	0.685**	0.365	0.559*	-0.011
CD8 ⁺ cells	-0.655**	0.040	-0.287	-0.348	0.057	0.135	0.237	0.236	0.364	-0.119
CD16/CD56 ⁺ NK cells	-0.412	-0.108	-0.199	-0.328	-0.205	0.044	0.192	0.032	0.027	-0.224
CD19 ⁺ cells	-0.538*	0.26	-0.203	-0.214	0.056	0.373	0.634**	0.394	0.608**	0.005
CD45 ⁺ cells	-0.694**	0.076	-0.205	-0.353	0.240	0.196	0.665**	0.376	0.570*	-0.086
CD4/CD8 ratio	0.213	0.114	0.179	0.176	0.084	0.037	0.234	-0.051	-0.008	0.079

* $p < 0.05$; ** $p < 0.001$. POS1, POS2, POS3: Subcategories of positive strategies; POS_total: positive strategies; NEG_total: negative strategies.

DISCUSSION

In melanoma as well as in control patients we found correlations between different lymphocyte subpopulations and stress-coping strategies. Positive, stress reducing coping strategies correlated positively with CD3⁺, CD4⁺, CD19⁺ and CD45⁺ cells at baseline. This effect was found in the melanoma group, but not in controls. In controls however, negative correlations between positive stress-coping strategies and CD3⁺, CD4⁺, CD8⁺, CD19⁺ and CD45⁺ cells were observed. Thus, we can notice that in benign controls high values of coping strategies that focus on diversion from stress and generating stress-incompatible situations are associated with lower counts in specific lymphocyte subpopulations. In contrast, melanoma patients who predominantly cope with stress using coping strategies that focus on defence, have lower values in certain lymphocyte subpopulations. In our analysis melanoma patients show divergent correlations of positive stress-coping subcategories than controls. Regarding the influence of coping strategies on disease progression previous studies showed that the course of disease is determined and influenced by neuroendocrine and psychological factors, health behaviour, and compliance, which ultimately have an impact on the immune system (5). There is strong evidence deriving from the existing literature that chronic and acute psychosocial stress contribute to disturbances within the neuroendocrine, the immune and the autonomic nervous system of the human body (9, 20). Acute and chronic psychosocial stress can induce considerable changes in innate and adaptive immune responses. These changes are predominantly provided via neuroendocrine mediators from the HPA and the sympathetic-adrenal axis (6, 21). Besides the ability to signal to the brain to induce neurochemical and neuroendocrine changes, specific cytokines, also called the "hormones" of the immune system, play an important role in various activities of the central nervous system such as neuro-immunological and behavioural changes (22). With regard to IL-1, IL-6 and TNF- α studies in humans and in animals revealed an association with the activation of the HPA axis (23–25) and a possible modulation of the hypothalamic-pituitary thyroid and the hypothalamic-pituitary-gonadal axis, findings, which support the hypothesis of an existing correlation

between the immune system and the endocrine system (26). Thus it is conceivable that psychosocial stress and unfavourable stress coping might influence these systems in an adverse way (22). Strong scientific-based evidence is given that an equivalent to the HPA axis using the same signalling molecules exists in the skin. This local skin-stress-response system also employs corticotropin releasing hormone (CRH) acting on locally expressed CRH receptors, which supports the hypothesis of an existing skin-related neuroendocrine pathway (27, 28). In a recently published article, Kim and colleagues (29) reviewed the functioning of the central and the peripheral, skin-associated HPA axis in different stress-related skin diseases. Besides the fact that the HPA axis hormones are mainly involved in the carcinogenesis, tumour development and tumour progression, chronic stress leads to suppression of skin-related cell-mediated immunity and to a reduction of circulating leukocytes counts due to an HPA axis activation. In melanoma cell lines, the stress hormones CRH, adrenocorticotrophic hormone (ACTH) and alpha-melanocyte-stimulating hormone (alpha-MSH) were found to be strongly expressed, in contrast to normal and haematological malignant cells (30). Furthermore it was shown that notably melanoma and squamous cell carcinoma revealed strong immune reactivity for CRH, as well as strong expression of ACTH and alpha-MSH (30). One may conclude that an accompanying intervention on a psychosocial level in terms of psychotherapy or concomitant behavioural therapy (31, 32) such as improvement of coping styles may be beneficial for the disease outcome and the well-being of cancer patients (33–36).

A limitation of the present study is that the small sample size does not allow the creation of subcategories (e.g. tumour thickness or subtype of melanoma) that could eventually detect further aspects that explain the inverse association of positive strategies and immunological parameters.

In terms of biopsychosocial medicine, besides surgical and pharmacological interventions, the improvement of stress-coping strategies is a possible key to modulate the autonomic nervous tone and consequently the endocrine and immune system. The interconnection between stress coping and immunologic alterations in malignant melanoma is a field deserving further investi-

gation in order to provide new therapeutical approaches in the treatment of melanoma patients.

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INVESTIGATIVE REPORT

Differences Between Psoriasis Patients and Skin-healthy Controls Concerning Appraisal of Touching, Shame and Disgust

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Psoriasis is a chronic skin disease associated with high levels of psychological distress and considerable life impact. Feelings of shame and stigmatization can lead to avoidance of social activity and intimacy. In this study, the Touch-Shame-Disgust questionnaire (TSD-Q) was used to evaluate pleasure in touching oneself and in a partnership, parental touching during childhood and (skin-related) shame and disgust. Skin-related disgust and shame were significantly higher in psoriasis patients than in healthy controls. Moreover, psoriasis patients scored significantly lower than skin-healthy controls concerning appraisal of self-touching and parental touching. In contrast, psoriatic patients scored higher concerning appraisal of touching in a partnership. Due to the fact that low self-esteem might enhance the negative evaluation of touch and the feelings of shame and disgust, psychological interventions should be integrated in the treatment of psoriasis. Key words: psoriasis; shame; disgust; touching.

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Psoriasis is a chronic inflammatory skin disease affecting 1–3% of the general world-wide population. It is characterized by keratinocyte hyperproliferation and neutrophil and lymphocytic infiltration of the skin and epidermis (1–3) and is described as a polygenic caused disease, which is triggered by a complex interaction of keratinocytes, dendritic cells and T cells (4, 5). The aetiopathogenesis of psoriasis is still not fully understood (6). The course is influenced both by endogenous and exogenous factors. In addition to mechanical stress of the skin, infectious diseases, certain medications such as beta-blockers and stress are the best-known trigger factors (7). Psoriasis can further be described as a chronic disease whose course is difficult to predict. Thus, the patients often feel helpless, so that quality of life can be severely limited (8). Additionally, psoriasis occurs on visible parts of the body like scalp, hands and nails and might provoke unpleasant reactions of others (9, 10).

Psoriasis can affect social aspects like sexual function, intimacy, partnership and social distress, which means an additional burden and leads to important clinical implications (11, 12). There are hints in the literature that patients suffering from affected skin often feel shame or the fear that the partner might be disgusted when noticing the affected skin, and the physical pleasure of being touched in an interpersonal partnership might be smaller because of feeling uncomfortable (13, 14). It can be assumed that physical pleasure being associated with touching oneself and/or being touched by someone else is decreased in patients suffering from a skin disease (13). The aim of the present study was to evaluate differences between psoriasis patients and skin healthy controls concerning appraisal of touching behaviour, skin-related shame and disgust.

METHODS

Sample characteristics

One hundred and seventy-one patients with psoriasis and 171 skin healthy controls were included in the study. Sex was stratified in both groups. Psoriasis patients were recruited at the TOMESA clinic in Bad Salzschlirf, Germany. They were asked at the beginning of their stay at the rehabilitation clinic whether they were willing to take part in the study and if accepting they then received the questionnaire. Out of 255 patients who were at the clinic during the time of the study, 171 were consecutively included in the study. The patients were diagnosed by their doctors and referred to the clinic in case they suffered from psoriasis. Their mean illness duration was 22.6 ± 14.2 years.

Healthy controls were selected from a representative sample of Germans, who took part in the validation study of the Touch-Shame-Disgust-Questionnaire (TSD-Q). During the study, they were visited by interviewers and were handed out the questionnaires personally. The representative study was conducted by the USUMA institute, which is an independent research institute conducting research.

Touch-Shame-Disgust-Questionnaire

The TSD-Q (13, 15) includes 30 items, which can be categorized into 5 scales measuring the appraisal of touching (3 scales) and (skin-related) shame and disgust. It can be used in healthy controls as well as in skin patients. Here are sample items of the 5 different scales:

1. Touching oneself: “I find it very pleasant to caress myself.”
2. Touching in a partnership: “When my partner touches me gently, I often feel a pleasant tingle inside my skin.”
3. Parental touching: “My parents often cuddled with me.”

4. Skin-related shame: "Sometimes I would rather not be in my own skin."
5. Skin-related disgust: "When I look at dirty things, I get goose bumps."

It is important to recognize that the scale "parental touching" assesses the remembered touching of the parents during childhood and not the appraisal of current parental touching. All items are answered on a 5-point Likert scale, which ranges from 0 ("absolutely disagree") to 4 ("absolutely agree").

Socio-demographic data

Besides the TSD-Q, all subjects also filled in a questionnaire assessing the socio-demographic variables age, sex, education and family status. Concerning the education, the subjects were asked to report whether they attended school for 9 or 10 years or whether they received a university entrance diploma. The family status was measured by asking the subjects whether they were married, single, engaged/with a partner, divorced, widowed. For the regression analyses, the family status was dichotomized into two categories "with partner" (married, engaged/with a partner) and "without partner" (all other possible answer categories).

Psoriasis Area and Severity Index

Severity of psoriasis was assessed by the widely used Psoriasis Area and Severity Index (PASI; 16). This instrument takes into consideration the affected area as well as the intensity of the symptoms (erythema, thickness and scaling). The PASI can range from 0–72, whereby higher scores indicate a more severe psoriasis.

Ethics

The sample survey of healthy controls was approved by the local ethics committee of the University of Leipzig, Germany. The study including the psoriasis patients was approved by the local ethics committee of the University of Gießen, Germany.

Statistical analyses

The statistical analyses were conducted using SPSS version 21.

Before the statistical analyses of the data were done, an analysis of missing data was conducted. This analysis showed that in 29 of the psoriasis patients, the PASI-score was missing. Moreover, two of the psoriasis patients did not report the beginning of their skin disease and their illness-duration. Additionally, 4 did not report their education level and their family status. The number of patients for whom the TSD-Q scores were missing was below 5 for all scales. In healthy controls, there was no missing data concerning the socio-demographic data. Besides, the number of missing data in healthy controls concerning the TSD-Q scales was also below 5 for all scales. Thus, there was a similar percentage of missing data for healthy controls and skin patients.

In order to compare psoriasis patients and healthy controls regarding age, education level and family status, *t*-tests for independent samples and χ^2 -tests were computed. To compare the groups concerning their appraisal of touching behaviour, skin-related shame and disgust, *t*-tests for independent samples were used in case the scores for the TSD-Q were normally distributed. This was the case for every scale (all $p \geq 0.05$) except for one: The Kolmogorov-Smirnov Goodness of Fit Test indicated a violation of the normal distribution for the TSD-Q scale "skin-related shame" ($p = 0.004$). Therefore, in this case the non-parametric Mann-Whitney *U*-test was used. In all cases a *p*-value of ≤ 0.05 was considered as statistically significant.

In order to analyse the relationship between socio-demographic data and the appraisal of touching behaviour, skin-related shame and disgust linear regression analyses were conducted using age,

sex and family status as predictor variables and the TSD-Q scales as criterion variables. The regression analyses were conducted separately for psoriasis patients and skin-healthy controls. Moreover, for patients with psoriasis correlation analyses were conducted in order to investigate whether the PASI was related to appraisal of touching, skin-related shame and disgust.

RESULTS

In each group 96 (56.1%) of the participants were male and 75 (43.9%) were female. The mean age in the group of psoriasis patients was 50.6 (SD 13.3), while the mean age in the group of skin-healthy participants was 48.0 (SD 15.9). The age of the patients ranged from 18 to 83, and the age in the group of healthy controls ranged from 18 to 89 years. Groups did not differ concerning age [$t(340) = -1.649$; $p = 0.100$], education level [$\chi^2(2) = 2.798$; $p = 0.299$] or family status [$\chi^2(4) = 6.452$; $p = 0.616$]. 59.6% of the patients and 57.9% of the skin-healthy controls were married, while 16.4% of the patients and 20.5% of the controls were single. The mean illness-duration in patients was 22.6 years (SD 14.2; range: 0–62 years). The mean PASI was 16.3 (SD 11.2; range: 0–50.2; $n = 142$).

Differences between psoriasis patients and skin-healthy controls concerning appraisal of touching

The *t*-tests indicated highly significant differences between psoriasis patients and skin-healthy controls concerning the first 3 scales of the TSD-Q. Psoriasis patients scored significantly lower than skin-healthy controls concerning appraisal of self-touching [$t(332) = 3.782$; $p \leq 0.001$] and parental touching [$t(324.427) = 3.970$; $p \leq 0.001$]. In contrast, patients suffering from psoriasis scored higher concerning appraisal of touching in a partnership [$t(317.626) = -4.955$; $p \leq 0.001$]. The means and SD for these 3 scales are illustrated in Fig. 1.

Differences between psoriasis patients and skin-healthy controls concerning disgust and shame

The *t*-test for independent samples indicated that patients with psoriasis and skin-healthy controls significantly differed in skin-related disgust in that the patients with psoriasis scored higher on this scale than skin-healthy controls [$t(336) = -2.297$; $p = 0.022$] (Fig. 2). Also, skin-related shame in patients with psoriasis (median 2.00) significantly differed from skin-related shame in controls (median 1.50; $U = 11216.000$; $z = -3.574$; $p \leq 0.001$).

Relationship between socio-demographic data and appraisal of touching, skin-related disgust and shame

The regression analyses revealed that in skin-healthy controls, age was a significant predictor of the apprai-

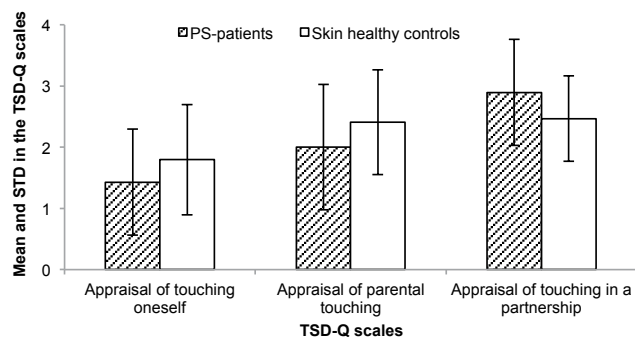


Fig. 1. Differences in the appraisal of touching behaviour between psoriasis patients and skin-healthy controls (means ± SD). The number of participants per group ranged from 167–169. These sample sizes occurred because of some missing data.

sal of touching oneself accounting for 8.8 % of the variance in this scale [F (3/166) = 6.356; $p \leq 0.001$]. Furthermore, age was also a significant predictor of the appraisal of parental touching [F (3/168) = 6.282; $p \leq 0.001$] and touching in a partnership [F (3/166) = 3.360; $p = 0.020$]. Age accounted for 8.6% of the variance in the scale “appraisal of parental touching” and for 4.1% of the variance in the scale “appraisal of touching in a partnership”. In all 3 cases, being younger was associated with a more positive appraisal of touching. In contrast, the family status and gender were not significantly related to sex appraisal of touching oneself, parental touching or touching in a partnership in skin-healthy controls. Moreover, in skin-healthy controls, age and sex were found to be significant predictors of skin-related disgust [F (3/168) = 6.342; $p \leq 0.001$] accounting for 8.7% of the variance

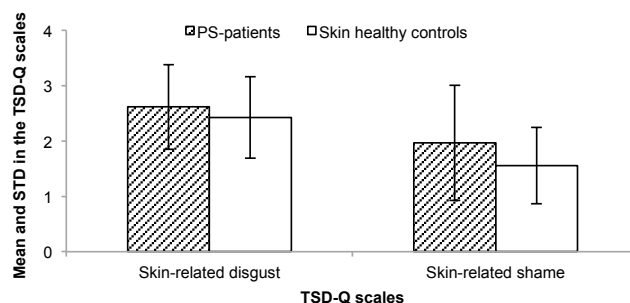


Fig. 2. Differences in skin-related disgust and shame between psoriasis patients and skin-healthy controls (means ± SD). The number of participants per group differed between 169–171. These sample sizes occurred because of some missing data.

in this scale: Being female and younger was linked to scoring higher on this scale. In addition, gender was a significant predictor of skin-related shame in this group [F (3/168) = 5.232; $p = 0.002$]. It accounted for 7.0% of the variance in skin-related shame: Being female was associated with higher scores on this scale (Table I).

Interestingly, in psoriasis-patients the scores of the TSD-Q scales were not significantly related to age, sex and family status (Table I for results). Moreover, also the PASI score was not significantly related to appraisal of touching, skin-related shame and disgust (all $p > 0.05$).

DISCUSSION

The results of the current study indicate that patients with psoriasis score significantly lower than healthy controls concerning the appraisal of touching oneself

Table I. Results of the linear regression analyses for healthy controls and psoriasis patients

Criteria	Model	Healthy controls				Psoriasis patients			
		Unstandardized B	Standardized B	p-value	95 % CI for B	Unstandardized B	Standardized B	p-value	95 % CI for B
Appraisal of touching oneself	Constant	2.656		<0.001	1.871 to 3.441	2.152		<0.001	1.187–3.117
	Age	-0.020	-0.342	<0.001	-0.029 to -0.010	-0.011	-0.164	0.073	-0.022–0.001
	Sex	0.184	0.102	0.175	-0.083 to 0.451	-0.055	-0.031	0.709	-0.343–0.234
	Family status	-0.196	-0.142	0.104	-0.434 to 0.041	-0.109	-0.076	0.418	-0.375–0.157
Appraisal of parental touching	Constant	3.277		<0.001	2.528 to 4.025	1.900		0.001	0.783–3.018
	Age	-0.019	-0.346	<0.001	-0.028 to -0.010	-0.005	-0.072	0.426	-0.019–0.008
	Sex	0.116	0.067	0.369	-0.138 to 0.369	0.155	0.075	0.361	-0.180–0.491
	Family status	-0.135	-0.102	0.240	-0.361 to 0.091	0.167	0.098	0.293	-0.146–0.480
Appraisal of touching in a partnership	Constant	2.876		<0.001	2.251 to 3.500	3.500		<0.001	2.534–4.465
	Age	-0.011	-0.240	0.008	-0.018 to -0.003	-0.005	-0.083	0.365	-0.017–0.006
	Sex	0.088	0.062	0.417	-0.125 to 0.300	-0.163	-0.093	0.263	-0.449–0.124
	Family status	-0.029	-0.027	0.764	-0.218 to 0.160	-0.091	-0.063	0.502	-0.359–0.176
Skin related shame	Constant	0.914		0.003	0.308 to 1.521	1.689		0.004	0.544–2.835
	Age	0.002	0.050	0.572	-0.005 to 0.010	0.005	0.059	0.511	-0.009–0.018
	Sex	0.398	0.287	0.000	0.193 to 0.603	0.039	0.018	0.823	-0.304–0.382
	Family status	-0.034	-0.032	0.715	-0.217 to 0.149	-0.012	-0.007	0.943	-0.331–0.308
Skin related disgust	Constant	2.711		<0.001	2.069 to 3.354	2.637		<0.001	1.798–3.475
	Age	-0.012	-0.258	0.003	-0.020 to -0.004	-0.001	-0.019	0.830	-0.011–0.009
	Sex	0.308	0.208	0.006	0.091 to 0.526	0.109	0.070	0.395	-0.143–0.360
	Family status	-0.153	-0.135	0.122	-0.347 to 0.041	-0.135	-0.107	0.253	-0.368–0.098

CI: confidence interval.

and parental touching. In addition, this study showed that patients with psoriasis scored significantly higher than healthy controls concerning skin-related shame and disgust. These findings are not only in line with our assumptions, but also in line with the literature on stigmatization feelings in patients with psoriasis: There are hints that psoriasis patients feel stigmatized because of their visible lesions and have feelings of social exclusion and devaluation (17, 18). Moreover, it is known that patients with psoriasis avoid certain social activities such as swimming or using a sauna to restrict potentially stigmatizing situations (19). This avoidance behavior might result from skin-related shame and disgust. According to the literature (20,21) and also the results of this study, skin-related disgust and shame are significantly higher in psoriasis patients than in healthy controls. It is reasonable to postulate that a more negative evaluation of touching oneself and parental touching is linked to skin-related shame and disgust. Supporting this idea, a significant negative relationship between the appraisal of parental touching and skin-related disgust occurred in this study: The more the patients felt disgusted, the less positive they evaluated being touched by their parents as a child. Of course, at this point one has to keep in mind that the TSD-Q measures the appraisal of “remembered” parental touching and thus might be biased by the current relationship with the parents.

It should also be emphasized that touching oneself and other people, is more than just establishing contact. Touching represents a very special kind of communication, which can be used to show feelings and thoughts (13, 22). It is e.g. possible to distinguish between different emotions just by the way someone touches one's own skin (13, 23). Keeping this in mind, it is necessary for psoriasis patients to learn a ‘normal’ handling of their skin disease in order to be able to communicate in an unrestricted way. If a normal handling of one's own skin and others' skin is not possible, conflicts could occur and make the communication with others difficult. We suppose that patients with psoriasis could profit from psychological exercises like role-plays, which might help to strengthen their self-confidence.

Interestingly, this study also revealed that patients with psoriasis evaluated touching in a partnership as more pleasant than healthy controls. Due to the fact that patients suffering from affected skin often feel shame or are afraid that the partner might be disgusted when noticing the affected skin (14), our assumption was that patients with psoriasis compared to healthy controls would score lower on the scale “appraisal of touching in a partnership”. The opposite was the case. One explanation for this unexpected result might be that psoriasis patients, who are in a relationship, tend to idealize their relationship, because they are thankful for having found a partner, who accepts him/her despite

the affected skin. Future studies should investigate this interesting finding more deeply and consider being in a partnership as important influencing factor.

Moreover, this study also investigated the relationship between socio-demographic variables and appraisal of touching, shame and disgust. Here, it turned out that in psoriasis patients, age, sex and family status were no significant predictors of the TSD-Q scores, while in healthy controls several correlations occurred: Being younger was associated with a more positive evaluation of touching; being female was related to more feelings of shame and being younger and female was associated with more feelings of disgust in healthy controls. The findings regarding shame and disgust support what has already been shown in other studies (e.g. 24, 25). It is remarkable though that in psoriasis patients not even the PASI was related to appraisal of touching. It is possible that in the group of skin patients, other psychological factors are related to the appraisal of touching. Future studies could e.g. test whether the acceptance of the skin disease and self-rated skin impairment are linked to skin satisfaction. Here, it is important to keep in mind that self-rated impairment due to the skin disease and the severity of the skin disease measured by the doctor, are not always significantly associated (e.g. 26). Moreover, the self-esteem might also play an important role for the appraisal of touching in skin patients. It would therefore be of interest to explore appraisal of touching, shame and disgust, before and after a psychological intervention aiming to improve patients' self-esteem and acceptance of the skin disease.

In the last 15 years, the treatment of psoriasis could be revolutionized by the introduction of biologic therapy for moderate and severe forms of psoriasis (27). Despite the development of drug interventions in the last years, the psychosocial aspects of the disease must not be underestimated. The results of the present study emphasize the importance of an individualized biopsychosocial therapy. Thus we should focus on a multidimensional therapy including a broad focus on pharmaceutical and psychotherapeutical interventions. According to the present results we should also consider aspects of touching and being touched as well as skin-related shame and disgust in the treatment of psoriasis in order to improve the quality of life in psoriasis patients.

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INVESTIGATIVE REPORT

Shadows of Beauty – Prevalence of Body Dysmorphic Concerns in Germany is Increasing: Data from Two Representative Samples from 2002 and 2013

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Body dysmorphic disorder (BDD) is a psychosomatic disease associated with reduced quality of life and suicidal ideations. Increasing attention to beauty and the development of beauty industries lead to the hypothesis that BDD is increasing. The aim of this study was to test this hypothesis in two representative samples of Germans, assessed in 2002 and 2013. In 2002, $n=2,066$ and in 2013, $n=2,508$ Germans were asked to fill in the Dysmorphic Concern Questionnaire (DCQ), which assesses dysmorphic concerns. Subclinical and clinical dysmorphic concerns increased from 2002 to 2013 (subclinical from 0.5% to 2.6%, OR=5.16 (CI95%=2.64; 10.06); clinical from 0.5% to 1.0%, OR=2.20 (CI95%=1.03; 4.73). Women reported more dysmorphic concerns than men, with rates of 0.7% subclinical and 0.8% clinical BDD in women and 0.3% subclinical and 0.1% clinical BDD in men in 2002. In 2013, 2.8% subclinical and 1.2% clinical BDD were found in women and 2.4% subclinical and 0.8% clinical BDD in men. Further studies should assess predictors for developing a BDD and evaluate factors determining the efficacy of disease-specific psychotherapeutic and psychotropic drug treatments. Key words: cognitive behavior therapy; psychodynamic psychotherapy; body scheme; body image; dermatology.

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The psychiatrist Morselli described body dysmorphic disorder (BDD) and introduced the term Dysmorphophobia as early as 1886 (1). Subsequently, other psychiatrists also described young women who feared, because of their imagined ugliness, they would not find a lover (2). There are now increasingly frequent publications on this phenomenon (3–6). In 1987, the clinical picture of BDD was included in the DSM-IV as an official disorder diagnosis in the USA (7). Meanwhile, BDD is accepted as an independent syndrome in the DSM-IV-R and also

in the ICD-10 (8). In the ICD-10, BDD is assigned to somatoform disorders (9). In the DSM-5, it is newly included in the compulsive disorders category (10). Delineation from compulsive disorders, hypochondriacal disorders as well as dysmorphic disorders in anorexia nervosa or bulimia must be differential-diagnostically determined (11).

BDD is a chronic emotional disorder, in which the afflicted cannot stop brooding over a minimal or imagined flaw (12–15). They experience their appearance as so disfigured that they are ashamed and prevent others from seeing them. These patients spend several hours a day checking themselves and their appearance in the mirror (mirror-checking), or they avoid mirrors and mirroring surfaces (12). Moreover, the patients use cosmetic products to cover up the imagined flaw, or they excessively manipulate their skin (12, 13, 15–17). However, they are rarely satisfied with the result or in harmony with their self-image. This emotional disorder, projected to the skin surface, affects especially the face, nose, ears and secondary sex characteristics (15). Objective observers usually cannot see the flaw (DSM 5 criterion A). People with BDD show a need to constantly assure themselves that everything looks “as it should”. Often, however, they avoid social contacts, public places, work and school. Many only leave the house at night (12, 17).

The BDD correlates with social withdrawal to an extent greatly exceeding normal shyness and may reach a clinical expression of social phobia (14, 18). The withdrawal can result in that the afflicted person no longer engage in or make new interpersonal contacts, are socially excluded, and become unable to work (19). Other comorbidities are eating disorders (20), anxiety and affective disorders (15, 21, 22). In this context, there is usually weight gain with subsequent diets. Suicidal reactions occur in about 15% of the cases in this vicious circle (23). The desire and implementation of cosmetic-dermatological and plastic-surgical interventions bring the corresponding risk of subsequent adverse events or lead to addiction to surgery (24, 25).

Various instruments are recommended for the diagnostic recording of BDD, some of which are used for

clinical diagnostics or as screening questionnaires. There are two forms of interviews suitable to identify BDD. The structured Interview Diagnostic Module for BDD by Philipps et al. (17) (BDDDM) is recommended for clinical use. It is based on the DSM-4, and DSM-5 criteria, respectively and was also used in the representative studies by Rief et al. (26) and Buhlmann et al. (27). Moreover, there are semi-structured interviews, the so-called Yale-Brown Obsessive-Compulsive Scale (BDD-YBOCS) (28). The severity of the emotional symptoms and information for behaviour analysis can be obtained using these procedures. There are also questionnaires to record BDD: The DCQ was validated in Germany by Stangier et al. (29) and enables distinguishing between patients with a subclinical and clinical degree of BDD. It contains only 7 items and thus can be easily used as a screening instrument (see the Methods section for a precise description). In addition to the DCQ, two other questionnaires are used in the German-speaking region. The KDS-F (Körperdysmorpher Störungs-Fragebogen/Body Dysmorphic Disorder Questionnaire) with 43 items that can be categorized into 3 main scales and the KDS-K (short form of the KDS-F) (30). Buhlmann et al. (31) developed a questionnaire on BDD according to the criteria of the DSM-4 and validated it in 45 patients with BDD and control persons.

EPIDEMIOLOGY OF BODY DYSMORPHIC DISORDER

Some studies investigated the point-prevalence of BDD in the general population. In Germany, Rief et al. (26) found a frequency of 1.7%, whereas Stangier (32) reported a point-prevalence of 0.9%. Buhlmann et al. (27) found a point-prevalence of 1.8%. The differing data could be related to the different recording instruments that were used. Faravelli et al. (33) studied the prevalence exclusively in Florence, identifying 0.7% of the population, and Otto et al. (34) studied only women in the US in 7 US-American cities where data were recorded in a case-control study. Here, a prevalence of 0.7% was determined using structured interviews. In a North-American sample, Koran et al. (35) found a prevalence of 2.4%, using computer-assisted interviews meeting the criteria of the DSM-IV. Thus, BDD appears to be more frequent than, for example, hidradenitis suppurativa, which has a presumed prevalence of approximately 1% of the population (36).

Considerably higher prevalences were found in specific settings. For example, it could be shown that in dermatological outpatient offices between 6.4 and 11.9% (29, 37–42) of the patients were affected, and also 5.7–7.0% of the plastic-surgery patients (43). In cosmetic-dermatological settings, BDD occurred

Table I. Prevalences of body dysmorphic disorder (BDD) in various settings

Setting	Prevalence	Instruments	n	Authors (ref)
General population	1.7% (Germany)	DSM-IV-criteria	2,552 national survey	Rief et al. 2006 (26)
	0.9% (Germany)	Dysmorphic Concern Questionnaire		Stangier 2007 (32)
	0.7% (only Florence)	Personal interview by general practitioner	2,066 national survey	Faravelli et al. 1997 (33)
	2.4% (USA- 1 City)	Computer-assisted structured interviews	673 interviews	Koran et al. 2008 (35)
	1.8% (Germany)	DSM-4 criteria	2,048 telephone interview	Buhlmann et al. 2010 (27)
	2.1% (only women)	BDD Questionnaire (BDDQ)	2,891 Swedish women	Brohede et al. 2014 (59)
Dermatological offices	0.8% (Germany)	BDD criteria DSM-V	2,129 national survey	Schieber et al. 2015 (5)
	11.9%	Self-report questionnaire	268 dermatological patients	Phillips et al. 2000 (39)
	8.7%	Dysmorphic Concern Questionnaire	126 dermatological patients	Stangier et al. 2003 (41)
	9.0%	Dysmorphic Concern Questionnaire	156 patients	Stangier et al. 2003 (29)
	7.9%	Dysmorphic Concern Questionnaire	61	Ritter et al. 2013 (40)
	6.6%	Dysmorphic Concern Questionnaire	300	Wiedersich 2010 (42)
	6.7%	BDD Questionnaire + DSM-IV Interview		Conrado et al. 2010 (37)
	4.2%	Self-report BDD screening	200	Dogruk Kacar et al. 2014 (38)
	7.0%	2 body image measures	100 women	Sarwer et al. 1998 (63)
	5.7%	Dysmorphic Concern Questionnaire	36	Wiedersich 2010 (42)
Cosmetic dermatology	6.3%	BDD-YBOCS + SCID-I	487	Altamura et al. 2001 (44)
	15.2%	Brief self-report questionnaire	46	Dufresne et al. 2001 (45)
	11.5%	Dysmorphic Concern Questionnaire	54	Wiedersich 2010 (42)
	14.0%	BDD Questionnaire + DSM-IV Interview	300	Conrado et al. 2010 (37)
	8.6%	Self-report BDD screening	200	Dogruk Kacar et al. 2014 (38)
	13.1%	BDD Structured Clinical Interview for DSM-IV (BDD SCID)	234	Dey et al. 2015 (64)
Patients with mental disorders	10%	Psychiatric interview	255 psychiatric patients	Brawman-Mintzer et al. 1995 (46)
	1.8% (Germany)	Self report DSM-IV criteria	318 depressed and 658 non-depressed	Otto et al. 2001 (34)
	10%	BDD module DSM-IV	350 psychiatric patients	Nierenberg et al. 2002 (48)
	1.9%	BDD module DSM-IV	155 German psychiatric patients	Kollei et al. 2011 (47)
Student population	5.3%	DSM-IV module criteria	133 German students	Bohne et al. 2002 (50)
	4.9%	Cross-sectional study	1,041 US students	Boroughs et al. 2010 (65)

in 6.3–15.2% of the patients (37, 38, 42, 44, 45). In psychiatric populations, between 0.5 and 10% of the patients are affected, (46–49), whereas a prevalence of about 4% has been reported in students (50, 51).

Table I presents an overview of studies to date on the prevalence of BDD in various settings.

So far, there are no studies on the prevalence of BDD which have answered the question of the extent to which the disorder has increased in frequency over the past years. Attractiveness seems increasingly important for professional and social integration. This makes it plausible that rejection in everyday life is more frequently attributed to personal appearance and physical flaws and more intensively perceived or assumed. For this reason, the present study is intended to check whether dysmorphic concerns and the tendency to BDD have increased. The DCQ, as a validated instrument, was used to determine the prevalence of BDD in two large representative samples in Germany.

METHODS

Representative sample

As part of a survey conducted by a professional institute (USUMA GmbH Berlin), persons in all parts of Germany were visited at home in the period of November to December 2002, and February to April 2013, respectively. The DCQ was used in this survey with a series of other psychosocial questionnaires. The data from the other questionnaires are being processed by the pertinent authors and are not part of the present study.

To obtain a representative sample of the population, a customary procedure in market research for sampling (random route) was used. First, the households to be questioned were selected. The target household in a certain region was selected by a randomization procedure using a multistep process (52). Within the target households, the person to be questioned was then determined using another randomized selection procedure (Schwedenschlüssel or Kish-Selection-Grid (53)). In this procedure, each member of a household had the same chance of being selected for questioning. Target persons who were not reached on first contact had to be visited two more times at various times a day before they could be assigned to a drop-out reason. Differentiation was made between quality-neutral drop-outs, for example untenanted dwelling, and systematic drop-outs, when the person was not reached despite triple attempts. For the present study in 2013, 3,855 households were visited by trained interviewers (evaluable data from 2,508), while in 2002, 3,194 households were visited (evaluable data from 2,066). The selected sample corresponds to information from the Federal Bureau of Statistics (Statistisches Bundesamt (54, 55)). Table II compares the samples of the years 2002 and 2013, in which the DCQ data were evaluable.

Questionnaires

Dysmorphic Concern Questionnaire (DCQ). The DCQ in the German validation (29) was used in order to screen for BDD. The DCQ was developed from the General Health Questionnaire according to Goldberg (56) by Oosthuizen et al. (57). The DCQ consists of 7 items, which have to be rated on a 4-point scale from 0–3 (not at all, like most people, more than other

Table II. Characteristics of the representative samples in 2002 and 2013*

	2002 n=2,066 % (n)	2013 n=2,508 % (n)
Evaluable Dysmorphic Concern Questionnaire-Data	93.5 (1,934)	99.8 (2,504)
Women	53.4 (1,032)	53.2 (1,331)
Highest educational degree (MD=10)		
School education without university entrance diploma	86.7 (1,677)	81.8 (2,040)
University entrance diploma or higher	13.3 (257)	18.2 (454)
Employment		
Without job	8.5 (165)	5.7 (142)
Working	43.5 (842)	52.1 (1,304)
Not working	47.9 (927)	42.3 (1,058)
Partnership		
Living with partner	55.6 (1,076)	52.5 (1,314)
Without partner	44.4 (858)	47.5 (1,190)
Age		
<24 years	12.0 (232)	10.2 (256)
25–34 years	13.1 (253)	14.3 (359)
35–44 years	17.6 (340)	15.2 (381)
45–54 years	16.3 (315)	17.8 (445)
55–64 years	17.8 (345)	18.1 (453)
65–74 years	14.9 (289)	15.2 (381)
>75 years	8.3 (160)	9.1 (229)

*Self-reported by participants of the study.

people, much more than other people) (Example item: “been told by others/doctor that you are normal in spite of your strongly believing that something is wrong with your appearance or bodily functioning”).

Stangier et al. (29) validated the DCQ in an unselected sample of 156 dermatological patients, additionally in 22 patients with clinically-proven BDD, 22 patients with disfiguring skin diseases and 21 patients with non-disfiguring skin diseases. A Cronbach’s α of 0.85 was calculated for the German version of the DCQ. The one extracted factor in the factor analysis explained 53.8% of the variance.

The convergent validity was determined by correlations with depression ($r=0.33$) and compulsive disorders ($r=0.57-0.74$). Moreover, a discriminative validity could be examined across the various samples. A cut-off value of ≥ 14 represented the best compromise between sensitivity and specificity. Seventy-two percent of the BDD patients could be correctly assigned to the diagnosis of BDD using this value. DCQ values between ≥ 11 points and < 14 points indicate a possible BDD and are termed a subclinical form. These two cut-off values were also used in this study to differentiate between a subclinical or clinical form of BDD.

Statistical data analysis

Statistical analyses were performed using IBM SPSS Statistic (SPSS Version 22 for Windows 2013 (58)). χ^2 -tests were performed to compare the frequency distributions. Afterwards, changes in the prevalence from 2002 compared to 2013 were determined by means of Odds ratios (OR; with confidence interval 95%). Moreover, the OR were determined for the comparison of degrees of the test variables (men/women; without university entrance diploma/ with university entrance diploma; with partner/without partner). Analyses of variance were used to compare differences between the two sample groups. Main differences were calculated at $\alpha = 0.05$, with η^2 as effect size.

RESULTS

A first evaluation was made using descriptive statistics regarding the point prevalence of BDD in the two representative samples. For this, the two cut-off values of the DCQ of ≥ 11 – < 14 for subclinical disfiguration and ≥ 14 as clinically-relevant disfiguration in the sense of a BDD were used. Comparison of the data from 2002 and 2013 revealed an increase in the presence of dysmorphic concerns.

While in 2002 0.5% of the subjects reported subclinical symptoms, 2.6% of the subjects in 2013 did (OR=5.16; CI95%=2.64; 10.06). An increase from 0.5% to 1% of those questioned could also be observed with respect to the frequency of clinically-relevant symptoms (OR=2.20; CI95%=1.03; 4.73). The frequency distribution of no, subclinical and clinical BDD differs significantly between the years 2002 and 2013 ($\chi^2(2)=32.71$; $p<0.001$).

The increase in prevalence of BDD is seen both in the subclinical and clinical form of BDD according to DCQ diagnostics in the entire sample. Both women and men more often reported subclinical symptoms in 2013 than in 2002 (women: OR=4.21 CI95%=1.87; 9.47; men: OR=7.38; CI95%=2.24; 24.35).

The subgroup without university entrance diploma also showed a higher prevalence of subclinical BDD in 2013 (OR=9.49; CI95%=3.79; 23.76), as did the

subgroups with (OR=5.38; CI95%=2.09; 13.86) and without partner (OR=4.89; CI95%=1.90; 12.57).

Since the numbers regarding the prevalence in the individual age groups were small, no OR were determined in that case. Overall, however, it was observed that a more marked increase in prevalence is seen in the younger age groups (up to 54 years) than in the older groups.

With one exception, all comparisons between the degrees of the variables (men vs. women; without university entrance diploma/ with university entrance diploma; with partner/without partner) showed no noteworthy ORs. No statements can be made concerning an increase from 2002 to 2013 with respect to age because of the small sample size. In 2013, dysmorphic concerns appeared to be more important in the younger age group up to 54 years.

The two samples (2002 and 2013) are compared in Table III with respect to the frequency of subclinical and clinically-relevant body dysmorphic concerns.

In order to present changes in the scale values in the DCQ, independent of an increased prevalence of BDD, the DCQ means of the study group excluding subjects in the subclinical and clinical group are presented in Table IV. The main effects for sex (higher value for women: $F(1; 4,301)=123.86$; $p<0.001$) and age ($F(6; 4,301)=5.80$; $p<0.001$) and the interaction effect sex \times age ($F(6; 4,301)=2.33$, $p<0.05$) were significant.

Table III. Results of the study 2002 and 2013 of subclinical (≥ 11 – < 14) and clinical (≥ 14) body dysmorphic disorder (BDD) with regard to gender, education, partnership and age

	2002		2013		OR (95% CI) 2013/2002
	Subclinical BDD	Clinical BDD	Subclinical BDD	Clinical BDD	
Total sample, n (%)	10 (0.5)	9 (0.5)	65 (2.6)	25 (1.0)	$\chi^2(2)=32.71$; $p<0.001$; Subclinical: 5.16 (2.64; 10.06) Clinical: 2.20 (1.03; 4.73)
Women	7 (0.7)	8 (0.8)	37 (2.8)	16 (1.2)	$\chi^2(2)=15.21$; $p<0.001$; Subclinical: 4.21 (1.87; 9.47) Clinical: 1.59 (0.68; 3.73)
Men	3 (0.3)	1 (0.1)	28 (2.4)	9 (0.8)	$\chi^2(2)=19.35$; $p<0.001$; Subclinical: 7.38 (2.24; 24.35) Clinical: 7.11 (0.90; 56.26)
OR (95% CI) women/men	2.06 (0.53; 7.99)	7.06 (0.88; 56.59)	1.18 (0.71; 1.93)	1.58 (0.70; 3.59)	
University entrance diploma, n (%)					
Without	5 (0.3)	8 (0.5)	56 (2.7)	21 (1.0)	$\chi^2(2)=38.03$; $p<0.001$; Subclinical: 9.49 (3.79; 23.76) Clinical: 2.23 (0.98; 5.04)
With	5 (1.9)	1 (0.4)	8 (1.8)	4 (0.9)	$\chi^2(2)=0.60$; ns; Subclinical: 0.91 (0.29; 2.81) Clinical: 2.27 (0.25; 20.43)
OR (95% CI) with/without	6.63 (1.91; 23.06)	0.83 (0.10; 6.65)	0.63 (0.30; 1.34)	0.85 (0.29; 2.48)	
Partner, n (%)					
With	5 (0.5)	4 (0.4)	32 (2.5)	13 (1.0)	$\chi^2(2)=18.42$; $p<0.001$; Subclinical: 5.38 (2.09; 13.86) Clinical: 2.73 (0.89; 8.41)
Without	5 (0.6)	5 (0.6)	33 (2.8)	12 (1.0)	$\chi^2(2)=14.33$; $p<0.001$; Subclinical: 4.89 (1.90; 12.57) Clinical: 1.78 (0.62; 5.06)
OR (95% CI) without/with	1.26 (0.36; 4.36)	1.57 (0.42; 5.88)	1.14 (0.70; 1.87)	1.02 (0.47; 2.25)	
Age, n (%)					
<24 years	0 (0.00)	2 (0.9)	11 (4.3)	2 (0.8)	
25–34 years	4 (1.6)	0 (0.0)	19 (5.3)	3 (0.8)	
35–44 years	3 (0.9)	0 (0.0)	11 (2.9)	3 (0.8)	
45–54 years	3 (1.0)	0 (0.0)	14 (3.2)	5 (1.1)	
55–64 years	3 (0.9)	1 (0.3)	7 (1.5)	1 (0.2)	
65–74 years	1 (0.3)	0 (0.0)	9 (2.4)	1 (0.3)	
>75 years	2 (1.3)	0 (0.0)	3 (1.3)	1 (0.4)	

Odds ratio (OR) were not calculated due to the small numbers of participants in the age-subgroups.

Table IV. Dysmorphic Concern Questionnaire score in the total sample without subclinical and clinical cases, illustrated separately for men and women and age groups

	2002 (n=1,915) Mean ± SD	2013 (n=2,414) Mean ± SD
Total sample	0.99 ± 1.94	2.24 ± 2.54
Women	1.24 ± 2.16	2.74 ± 2.65
Men	0.72 ± 1.63	1.68 ± 2.28
Age		
<24 years	1.20 ± 2.21	2.52 ± 2.80
25–34 years	1.20 ± 2.10	2.56 ± 2.74
35–44 years	1.19 ± 2.10	2.10 ± 2.42
45–54 years	1.14 ± 2.17	2.36 ± 2.60
55–64 years	0.77 ± 1.56	2.18 ± 2.39
65–74 years	0.75 ± 1.68	2.05 ± 2.43
>75 years	0.66 ± 1.49	1.90 ± 2.39
Age – Women		
<24 years	1.87 ± 2.69	3.07 ± 2.82
25–34 years	1.49 ± 2.28	3.11 ± 2.80
35–44 years	1.48 ± 2.29	2.82 ± 2.62
45–54 years	1.47 ± 2.41	2.95 ± 2.73
55–64 years	0.89 ± 1.75	2.62 ± 2.52
65–74 years	0.84 ± 1.77	2.38 ± 2.46
>75 years	0.75 ± 1.62	2.19 ± 2.50
Age – Men		
<24 years	0.66 ± 1.54	2.02 ± 2.69
25–34 years	0.87 ± 1.81	1.82 ± 2.49
35–44 years	0.84 ± 1.81	1.32 ± 1.90
45–54 years	0.81 ± 1.83	1.69 ± 2.26
55–64 years	0.64 ± 1.34	1.72 ± 2.17
65–74 years	0.65 ± 1.57	1.69 ± 2.36
>75 years	0.32 ± 0.81	1.48 ± 2.16

But the primary interest in this study is the change value. As in Table III, a more marked increase in value from 2002 to 2013 is seen ($F(1; 4,301) = 285.06; p < 0.001$) and a significant interaction effect for sex \times examination time ($F(1; 4,301) = 10.97; p < 0.001$) which in content shows a greater increase in DCQ values in women than in men. The other interaction effects (age \times examination time and age \times sex \times examination time) were not significant.

DISCUSSION

The assumption that the prevalence of dysmorphic concerns increased in the years from 2002 to 2013 could be verified by this questionnaire study in which the data of two representative samples were compared. The point prevalence for subclinical or clinically-relevant BDD show an increase in dysmorphic concerns in the German population. The number of those affected subclinically according to the DCQ (≥ 11 – < 14) increased from 0.5% to 2.6% in 2013. This means that the risk of developing at least a subclinical BDD was increased by about a factor 5 (OR = 5.16). Clinical BDD according to DCQ (≥ 14) increased from 0.5% in 2002 to 1.0%, corresponding to a doubling of the risk (OR = 2.2).

In addition to the subclinical and clinical prevalence, the means of the subjects not assigned to these groups were compared. The means of these subjects have also more than doubled within the last about 10 years. Over-

all, thus, there is a marked increase in BDD symptoms at all examined levels. This corresponds to the hypothesis.

The prevalence rates of clinical BDD found in similar representative studies range between 0.7–2.4% (33, 35). The method of diagnostics used differed considerably in the studies so that a direct comparison is hardly possible. Some studies only recorded a selected sample. Faravelli et al. (33), for example, recorded the prevalence by means of personal interviews done by general practitioners in the geographic area of Florence, which is probably not representative for all of Italy. Moreover, recordings by general practitioners does not necessarily represent specialist-specific knowledge of the diagnostics. Koran et al. (35) performed their prevalence study in a computer-assisted survey in only one city in the US, so that here, too, no representativeness for the USA is to be assumed. Brohede et al. (59) included only women in their study and found clinically-relevant BDD in 2.1% of the subjects, applying the Body Dysmorphic Disorder Questionnaire (BDDQ) in structured clinical interviews. When the symptoms of BDD according to DSM-4 (26) or DSM-5 (5) were examined, in a representative sample similar to the one in this study, the authors found prevalence of 1.7% (26), or 0.8%, respectively (5). Since the fluctuations in the prevalence figures did not show considerable difference and ranged from 0.7–2.4% (see Table I), the values obtained in our study appear to correspond to those of similar studies and the differences attributable simply to the various methodological approaches in the recording.

Apart from total values, there were differences between men and women. In women, subclinical BDD increased from 0.7% in 2002 to 2.8% in 2013, while the clinical form increased from 0.8% to 1.2% in women, the ORs for the subclinical form was 4.21, while it was 1.59 for the clinical form. The ORs in the group of men were 7.38 for subclinical and 7.11 for clinical BDD. The prevalence increased for the subclinical group from 0.3% to 2.4% and for the clinical form from 0.1% to 0.8%. Only the increase (ORs) for the subclinical form was significant for both sexes. Apparently, more women than men with BDD are identified by the DCQ. On the other hand, men appear to have a greater increase in prevalence than women. With regard to the literature there is an equal frequency of BDD in women and men (27, 45, 60). In contradiction to this, in our study we found higher prevalence in women than in men in the samples of 2013 (2.8% in women vs. 0.8% in men). The differences between women and men are, however, not significant. Since the difference between women and men slightly decreased from 2002 to 2013, it must be assumed that men are increasingly affected. Contrary to this, the means of the DCQ increased more for women than for men, see Table IV.

Contrary to the primary expectations, there was an increase in the representative sample of BDD preva-

lence in the group of persons without University Entrance diploma. Persons without University Entrance diploma showed an increase in subclinical BDD from 0.3% in 2002 to 2.7% in 2013 and regarding the clinical form from 0.5% in 2002 to 1.0% in 2013. This result corresponds to an OR of 9.49 in the subclinical group, which is significant. The extent to which social developments in ideal beauty among people without University Entrance diploma may be a possible explanation, can only be hypothetically discussed.

The variable “Partnership” was also important when looking at the prevalence rates of BDD. A clear increase of BDD symptoms occurred in the group “With partner”: Regarding the subclinical form there was an increase from 0.5% in 2002 to 2.5% in 2013 (OR 5.38) and regarding the clinical form we observed an increase from 0.4% in 2002 to 1.0% in 2013 (OR 2.73), but in the group “Without partner”, the values regarding the subclinical form also increased from 0.6% in 2002 to 2.8% in 2013 (OR 4.89), regarding the clinical form from 0.6% in 2002 to 1.0% in 2013 (OR 1.78). However, here again, only the increases regarding the subclinical form became significant.

Different changes in the individual age groups were not statistically calculated due to the low number of cases. Apparently, however, dysmorphic concerns are possible in all age groups.

The DCQ means excluding subclinical and clinical subjects increased from 0.99 in 2002 to 2.24 in 2013. That means that dysmorphic concerns have apparently increased in the general population (see Table IV).

One limitation of the representative survey might be the use of the screening questionnaire DCQ, since no personal interviews according to DSM-5 criteria could be performed. As already mentioned in the introduction, established questionnaires for recording BDD are the Dysmorphic Concern Questionnaire (DCQ; 57), the BDD Diagnostic Module (BDDDM) and the BDD Modification of the Yale-Brown Obsessive Compulsive Scale (BDD-YBOCS) (28, 30). The DCQ is easy to use with 7 questions and a cut-off value. The last two instruments are more detailed, semi-structured clinical interviews, which are not suitable for questionnaire studies. The FKS (31) is based on the criteria of the DSM-4 and must be re-validated according to the new classification in the DSM-5.

Since there were several missing data in the DCQ (2002 median 132; 2013 median 4), data analyses refer to sample sizes of $n=1,934$ for 2002 and $n=2,504$ for 2013. Due to the very different numbers of missing data in the two groups, a check was made whether the drop-outs were selective in 2002: essential sociodemographic data from subjects with and without missing DCQ values were compared. There were no differences between the groups with respect to sex ($\chi^2(1)=2.03$, ns) and age ($t(2,064)=0.004$, ns). Regarding the variable “Highest

education level completed” ($\chi^2(1)=4.61$, $p<0.05$), there were more with lower education and less with university entrance diploma or higher educational level in the groups with missing DCQ values. Regarding the variable “Partnership” ($\chi^2(1)=6.11$, $p<0.05$) there were more subjects living with a partner than living alone in the group with missing DCQ values. The participants of the study mentioned their variables self-reported, there was no possibility for proofing their statements.

The study was conducted as a point prevalence study. At both times (2002 and 2013), the BDD was recorded with identical standardized questionnaires. The aim was primarily to identify differences between the years 2002 and 2013. One advantage of this comparison is that the same questionnaire was used twice at an interval of 11 years and thus the changes are largely independent of the method. For reasons of practicability, it was not possible to perform a clinical interview according to the criteria of the DSM-5 in our study. To this extent it remains questionable whether BDD was actually present in those subjects who reported relevant dysmorphic concerns, or whether some objectively disfigured individuals were among the subjects.

The increase in dysmorphic concerns in the German population apparently reflects a trend in the development of the frequency of BDD. This should lead to paying more attention to the clinical picture of BDD. The DCQ proved valuable as a screening instrument in this study, since comparable prevalence rates were found in other studies using other instruments. A clinical use appears sensible, since it can be assumed that prompt diagnostics and initiation of psychotherapy enables the doctor to secure greater effectiveness in relief of symptoms and of psychosocial consequences (24, 61, 62). The goal should therefore be to develop specific disorder-oriented therapeutic measures, which of course need to be examined in prospective therapy-comparative studies.

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INVESTIGATIVE REPORT

Efficacy of Biofeedback and Cognitive-behavioural Therapy in Psoriatic Patients

A Single-blind, Randomized and Controlled Study with Added Narrow-band Ultraviolet B Therapy

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Increasing data suggests that there is a connection between stress and the appearance of psoriasis symptoms. We therefore performed a clinical trial enrolling 40 participants who were randomly allocated to either an 8-week cognitive-behavioural therapy (CBT) (treatment group) plus narrow-band UVB phototherapy or to an 8-week course of only narrow-band UVB phototherapy (control group). We evaluated the clinical severity of psoriasis (PASI), General Health Questionnaire (GHQ)-12, Skindex-29 and State-Trait Anxiety Inventory (STAI) at baseline and by the end of the study. Sixty-five percent of patients in the treatment group achieved PASI75 compared with 15% of standard UVB patients ($p=0.007$). GHQ-12 cases were reduced from 45% to 10% in the treatment group and from 30% to 20% in the control group ($p=0.05$). The Skindex-29 emotional domain showed a significant improvement in the CBT/biofeedback group compared with control patients (-2.8 points, $p=0.04$). This study shows that an adjunctive 8-week intervention with CBT combined with biofeedback increases the beneficial effect of UVB therapy in the overall management of psoriasis, reduces the clinical severity of psoriasis, improving quality of life and decreases the number of minor psychiatric disorders. *Key words: psoriasis; stress; UVB; cognitive-behavioural therapy; biofeedback.*

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There is increasing evidence that stress or distress may influence psoriasis to such an extent that a significant proportion of patients report stress as one of the principal agents of causation or relapse (1, 2). Additionally, indirect evidence exists that stress may impair the efficacy of systemic treatment (3, 4).

The utility of adjunctive psychological or psychosocial interventions has been investigated in a range of chronic diseases, with varying results. Cognitive-behavioural approaches have been most successfully applied in rheumatic diseases (5), with subsequent

improvement in psychosocial variables and clinical indices of disease activity.

However, only a few prospective randomized clinical trials have studied the efficacy of such psychological interventions for psoriasis (3, 6, 7), showing that adjunctive cognitive-behavioural approaches can result in a reduction of clinical psoriasis severity.

We therefore investigated whether patients who underwent a multi-disciplinary management approach that included cognitive-behavioural therapy (CBT) combined with biofeedback plus narrow-band UVB therapy would show improvements in clinical severity of their psoriasis, psychological distress and quality of life (QoL), compared to patients receiving standard narrow-band UVB therapy alone.

PATIENTS AND METHODS

Patients attending a psoriasis specialty clinic at University Hospital of Padova, Italy, were invited to participate in the study. Inclusion criteria were: moderate-severe plaque psoriasis, clinically eligible for narrow-band UVB (TL-01) phototherapy and willing to undergo treatment according to randomisation.

In total, 55 patients (21 males) were recruited by referring dermatologists between October 2013 and February 2015. To minimize the effect of seasonal variation, we did not enrol patients from April to October. Ten declined participation (6 males), citing reluctance to be part of a research protocol. The sex-specific acceptance rate was 88% for female patients and 71% for male patients ($p=ns$). Overall rates of attrition from the CBT/biofeedback + UVB group were 13% (3 patients). Attrition from the control group was similar (10%, two patients). Forty subjects completed the study.

Baseline descriptive data obtained on all subjects included age, sex, education, years with psoriasis, degree of body surface involvement.

Participants were randomly allocated by an independent researcher to either an 8-week CBT (treatment group) plus concomitant narrow-band UVB phototherapy or to an 8-week course of only narrow-band UVB phototherapy (control group). Order of randomization was determined according to a standard table of random numbers. All assessment were administered and scored by a physician (E.M.) blind to the group to which each participant had been allocated. Patients were asked not to divulge what treatment they were receiving to their study physicians.

While in the study, patients were instructed to avoid any oral or topical psoriasis treatments not specifically prescribed by the physicians, except emollients for skinfold areas not exposed to the light, and this was reinforced by the clinic nurses throughout the study period. Participants were again evaluated at 1-month after the end of the 8-week treatment in order to

assess maintenance of gains. There was no attrition from the trial between post-treatment and follow-up.

All patients gave informed consent and the study was approved by the local research ethics committee.

Intervention

All subjects were treated with narrow-band UVB 3 times/week for 8 weeks according to standard phototherapy treatment protocols (8). UVB dosage was increased linearly from session to session (by 5 to 15% increments according to skin type). Dosage increases were delayed only if there were signs of burning.

The psychological treatment consisted of weekly one-to-one cognitive-behavioural stress-management assisted with biofeedback. After initial baseline measurements (week 0) the patients participated in 8 individual psychotherapy sessions, each lasting 60 min. The sessions were scheduled to take place on the same weekday and on the same time of day. Treatment sessions were carried out by 2 psychologists (D.C. and A.D.) with post-doctoral training in CBT and biofeedback.

CBT is based on the theory that negative thoughts and behaviours can affect a person's symptoms and be an obstacle to recovery. Where specific fears or negative thoughts can be identified, behavioural fear reduction techniques, such as desensitization, modelling or flooding, may be used. Concomitant use of biofeedback may enhance the therapeutic effectiveness of this technique. Discussions based on the biofeedback imagery aimed at improving the patients' stress-management skills and learning to cope with the particular stressors in the daily life of the patient. With biofeedback, information about the body such as breathing patterns, heart rate and rhythms, muscle tension, sweat gland activity and other measures are seen and heard through colourful graphs, video games and musical tones. The physical measures also reflect emotional states and can help transform anxiety or worry into calm.

We used the following feedback modalities: Electromyographic (EMG); Frontalis, masseter and sternocleidomastoid muscle tension were monitored. Skin Conductance Level (SCL): finger electrodes register sweat gland activity. Thermal: finger thermistors measure vasoconstriction by minute changes in peripheral blood flow. Respiratory: strain gauges measure abdominal and thoracic excursions; a capnometer monitors exhaled CO₂. Heart rate (HR): finger photoplethysmography registers rate and pulse volume.

Outcomes

The severity of psoriasis was evaluated at 4 time-points: baseline (induction to the study), at week 4, at week 8 (end of treatment) and at 1-month follow-up after the end of treatment.

Severity of disease was assessed by a blinded physician (E.M.) experienced in using the Psoriasis Area Severity Index (PASI). The PASI incorporates the clinical extent of psoriasis (surface area of skin affected) and clinical severity of its manifestations (erythema, desquamation and infiltration) using a formula that yields a value between 0 and 72 (9). A 75% reduction in the PASI score was considered a clinically meaningful success (PASI 75). Relapse was defined as loss of 50% of PASI improvement from baseline in patients who achieve a clinically meaningful response.

Moreover, each participant also completed the following, validated, self-report assessments: General Health Questionnaire (GHQ)-12, Skindex-29 and State-Trait Anxiety Inventory (STAI).

The GHQ-12 is a self-administered questionnaire consisting of 12 items, designed to measure psychological distress and to detect current non-psychotic psychiatric disorders, usually depressive or anxiety disorders. The reliability and validity of the Italian version have been documented in many types of patients, including those with dermatological conditions. Answers are given on a 4-point scale. For instance, the answers to the

item "in the last weeks, did you feel under strain?" are "no", "no more than usual", "more than usual", and "much more than usual" (10). When scored with the binary method (0-0-1-1), the GHQ-12 can be used as a screening tool to detect minor non-psychotic psychiatric disorders. For instance, to receive a score of 1 on the previously described item, a subject should answer "more than usual" or "much more than usual". In this way, each subject obtains a score from 0 to 12, based on a previous validation study operationally, patients scoring ≥ 4 were considered as "GHQ-12 positive". Thus, for the purpose of this study, patients scoring ≥ 4 have been defined as "cases", while the others have been defined as "noncases" (11).

The Skindex-29 is a reliable and valid instrument that has been specifically designed for measuring health-related QoL in dermatological patients. Skindex-29 consists of 30 items divided in 3 scales, assessing burden of symptoms, social functioning and emotional state. The questions refer to the previous 4-week period, and scores are given on a 5-point scale, from "never" to "all the time" (12). The score of each scale ranges from 0 to 100 (as a percentage of the maximum score obtainable on that scale), and higher scores reflect a worse QoL.

The STAI (Form-Y) is a well-established self-rating scale with high stability and validity, often used in clinical research (13). The first 20 statements assess state anxiety, i.e. anxiety at a particular moment or at a chosen period of time. (The subjects were asked to rate their state anxiety during the last week). The subsequent 20 statements assess trait anxiety, i.e. the relatively stable anxiety proneness. Answers are given on a 4-point Likert scale, and scores on the state and trait scales, respectively, range from 20 to 80 points.

All measures were administered at two time-points: before the intervention and at 8 weeks (end of the UVB and CBT/biofeedback treatment).

Statistical analysis

Means, 95% confidence intervals and descriptive measures were computed for each continuous variable as well as frequencies for categorical variables. Independent *t*-tests and chi-square tests, as appropriate, were used to investigate potential differences between groups at induction of the study or at different time-points. The treatment effect for each outcome was estimated using analysis of covariance (ANCOVA) within a regression framework, controlling for baseline values of the outcome. Significance levels for multiple comparisons were corrected with the Bonferroni method. All analyses were conducted using SPSS software, version 22.0 (SPSS, Chicago, IL, USA) and an α level of 5% was used throughout.

RESULTS

Forty patients completed the study; 20 patients in the interventional arm and 20 patients in the control arm (Table I); their mean age was 49.7 (range 20–76 years), and they had had psoriasis for a mean of 17.7 ± 12.4 years. There were no significant differences in baseline characteristics between the treatment group and the control group.

Psoriasis severity

Patients in the treatment group showed a significant reduction in mean clinical severity of psoriasis (PASI) from 9 at baseline to 3.8 and 2.5 at 4 and 8 weeks, respectively (Fig. 1). The clinical improvement was maintained at one

Table I. Baseline and post-treatment variables for patients according to the trial arm (20 patients in each group)

Variables	Trial arm	Baseline	End of treatment	<i>p</i> -value
Age, years, mean (95% CI)	Int.	46.4 (38–54.8)		
	C	56.7 (45.7–67.7)		
Duration of psoriasis, years, mean (95% CI)	Int.	12.4 (9.1–15.8)		
	C	21.8 (9.6–33.9)		
Males, <i>n</i> (%)	Int.	7 (35)		
	C	5 (25)		
Family history of psoriasis, <i>n</i> (%)	Int.	12 (60)		
	C	15 (75)		
PASI, mean (95% CI)	Int.	9 (7.6–10.4)	2.5 (1.6–3.3)	<0.0001
	C	9.1 (7.6–10.7)	3.9 (3–4.8)	0.003
GHQ-12, mean (95% CI)	Int.	14.8 (6.6–21)	7.6 (3.5–10.3)	0.028
	C	10 (6.3–12.5)	6.8 (1–10.8)	0.104
Skindex-29				
Symptoms, mean (95% CI)	Int.	43.2 (35.6–50.3)	30.6 (20.7–40.4)	0.059
	C	39 (27–49.7)	23.5 (2–45.1)	0.715
Emotions, mean (95% CI)	Int.	41.7 (30–58.4)	26.9 (15.6–38.3)	0.015
	C	39.5 (29.3–49.6)	31 (14–46.7)	0.225
Functioning, mean (95% CI)	Int.	28.7 (18–42.4)	18 (6.4–29.5)	0.064
	C	33.5 (20.7–44.8)	23.7 (6.1–42.3)	0.714
STAI-I, mean (95% CI)	Int.	39.7 (34.8–44.6)	34.6 (29.5–39.7)	0.023
	C	39.2 (32.7–45.8)	33.8 (27.4–40.1)	0.225
STAI-II, mean (95% CI)	Int.	43.5 (38.4–48.6)	42.3 (36.2–48.4)	0.366
	C	41.6 (35.8–47.3)	43 (37.1–49)	0.893

Int.: intervention group; C.: control group; STAI: State/Trait Anxiety Index.

month after the end of the treatment (PASI 2.4). Also standard UVB therapy caused a significant reduction in mean PASI values from 9.1 to 5.4 and 3.9 after 4 and 8 weeks, respectively. However, at one month after the end of the treatment, the mean PASI increased to 6.1.

Similarly, 65% of patients in the treatment group achieved PASI75 compared with 15% of standard UVB patients at 8 weeks (*p*=0.007). Only one patient (out of 13 achieving PASI75 in the treatment group) relapsed at one month after the end of the therapy, while 2 out of 3 patients in the control group did so (*p*=0.01).

Repeated-measures ANCOVA with baseline scores showed statistically significant effects of the CBT/biofeedback + UVB intervention compared with standard UVB treatment on PASI score at the end of the 8-week period (–1.47 points, 95% confidence interval (CI) –2.65 to 0.29; *p*=0.016) (Table II).

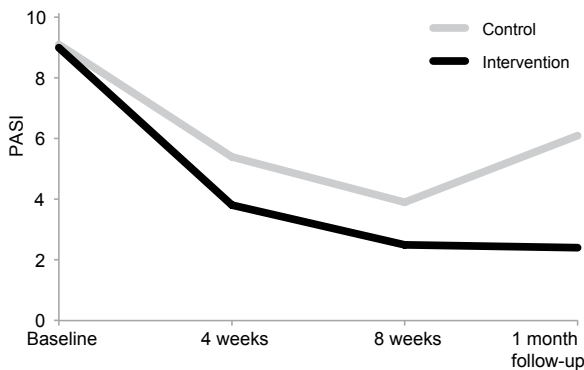


Fig. 1. Efficacy of biofeedback and cognitive-behavioural therapy plus narrow-band UVB phototherapy versus UVB alone (mean PASI values).

Table II. Estimated treatment effects from ANCOVA analyses

Outcome	Treatment effect 95% CI	<i>p</i> -value
Psoriasis severity (PASI)	–1.47 (–2.65 to –0.29)	0.016
Minor psychiatric disorders (GHQ-12)	–1.8 (–4.34 to 0.81)	0.082
Quality of life		
Skindex-29/Symptoms	–4.9 (–17.283 to 7.451)	0.355
Skindex-29/Emotions	–2.8 (–5.1 to –0.5)	0.041
Skindex-29/Functioning	–1.3 (–10.2 to 7.6)	0.416
Anxiety state (STAI-I)	–0.8 (–6.4 to 7.9)	0.822
Anxiety trait (STAI-II)	–1.8 (–9.1 to 5.3)	0.608

GHQ-12

Both the intervention and the control groups had significant reductions in mean GHQ-12 values (Table I). However, the CBT/biofeedback group showed greater improvement, approaching the statistical significance (*p*=0.08) (Table II). GHQ-12 cases were reduced from 45% to 10% in the treatment group and from 30% to 20% in the control group (*p*=0.05).

Quality of life

All 3 scales of Skindex-29 (burden of symptoms, social functioning, and emotional state) reduced significantly both in the treatment and in the control group (Table I). The only domain that showed a significant improvement in the CBT/biofeedback group compared with control patients was the emotional domain (–2.8 points, 95% CI –5.1 to –0.5; *p*=0.04) (Table II).

Anxiety

STAI-I scores showed significant reductions in both groups by the end of the study, with no significant differences between the psychological intervention and the control groups (Table II). Conversely, STAI-II mean values did not change significantly by the end of the study.

DISCUSSION

This study has shown that an adjunctive cognitive-behavioural symptom management therapy combined with biofeedback is beneficial in the management of psoriasis. Patients who underwent this psychological intervention, in addition to their standard narrow-band UVB treatment, showed significantly greater reductions, in the clinical severity of their psoriasis (PASI), in QoL (emotional domain of Skindex-29) and in number of minor psychiatric disorders (GHQ-12 cases) at 8 weeks, with continued improvement at 1-month follow-up.

The positive effect of the CBT and biofeedback intervention was pronounced, in spite of a small study size, suggesting that the effect is robust and attainable in a significant number of psoriasis patients undergoing the psychological therapy. The lack of differences between the group treated with the psychological intervention and

the control group at baseline indicates that the differences found after intervention are unlikely to stem from differences between the two groups in psoriasis activity or psychological measures before the investigation. Interestingly, the difference between mean PASI values of the two study groups increased one month after the end of treatment. This phenomenon has been previously reported in a similar study by Paradisi et al. (14). In this study, they showed that patients undergoing an emotional writing disclosure short-term protocol had persistent clinical and psychological benefits even after the end of a 2-months course of narrow-band UVB phototherapy, while patients only treated with phototherapy rapidly relapsed. The observation that skills learnt during participation in the cognitive-behavioural programme can continue to have a significant and beneficial clinical effect for at least one month after the end of the programme underscores the advantage of such an approach.

Our finding that psychological intervention can have important effects on clinical extent of psoriasis, as assessed by the PASI, as well as on QoL and psychiatric morbidity, offers new perspectives on the management of this disease.

This data is in agreement with some previous studies suggesting that psychological interventions including stress-reduction relaxation methods and CBT may reduce psoriasis severity in the absence of systemic treatment (6) or as a complement to it (3, 4).

Moreover, there is some evidence that psychological distress, in particular excessive worrying, is able to significantly reduce the rate of clearance of psoriasis in patients receiving standard phototherapy. Fortune et al. (4) showed that patients with high levels of worry are almost twice as likely not to achieve clearance of their psoriasis within a similar length of time as those with low levels of worry.

Biofeedback combined with CBT has proven effective in improving self-efficacy in people with various disorders and symptoms (15, 16).

Biofeedback characteristically enables a patient to gain voluntary control over covert physiological responses by making these responses explicit through real-time visual or auditory feedback. Patients are typically able to learn how to modify these physiological processes volitionally. Therefore, biofeedback may be able to increase the effectiveness of CBT, making the changes believable and increasing motivation.

The results of this study suggest that the effective management of psoriasis requires that we move beyond simple notions of chronic illness as somatic or functional. Indeed, a substantial number of psychologically distressed patients were identified in the current study. Up to 45% of our study patients had a GHQ-12 ≥ 4 , indicating minor psychiatric suffering.

Previous studies showed similar data, with a prevalence of psychological distress, as detected by GHQ-12, in 33–46% of psoriatic patients (17, 18). Interestingly,

both groups showed a significant reduction in psychiatric morbidity by the end of the study, although this was more apparent in the CBT/biofeedback+UVB group (from 45% to 10%) than the UVB group (from 30% to 20%).

Moreover, we observed that both the intervention and the control groups reported an improvement in all dimensions explored by Skindex-29, indicating better overall health-related QoL, better functioning, lower level of negative emotions. Only the emotional domain, probably more influenced by the psychological intervention, showed a greater improvement in the CBT/biofeedback group. The QoL scores reduction reported in patients only treated with conventional UVB therapy is in agreement with previous study showing that an improvement of psoriasis is associated with a concomitant improvement of QoL (19, 20).

Several factors could have contributed to the significant improvement in the CBT/biofeedback group in clinical severity of psoriasis, measured by the PASI score. Coping with situations that may lead to distress may be associated over time with greater clinical improvement.

There is good evidence that stressful life events can trigger or aggravate psoriasis in a significant number of patients. A clear distinction is made today between two types of stress, acute and chronic stress. From an evolutionary point of view, the acute component is beneficial in that it provides organisms with the mechanisms of the protection from the changeable and threatening environment (21). Both the immune response and the fight-or-flight response provide an adequate protection against infection after the injury occurs. In that context, the relationship between acute stress and immune up-regulation can be viewed as an adaptive trait. In response to acute stressors, T cells in the rat react by redistributing into the skin, which is the organ that is the most likely to be affected in a life-threatening situation when fighting the attackers (22).

This can be beneficial in cases when increased immune-protection is needed, but could also mediate stress-induced exacerbation of inflammatory and auto-immune skin disorders and may also be of relevance to psychodermatology (23).

Despite its relatively promising results, the present study had some limitations. Most importantly, although the sample size was average for CBT intervention studies, a larger sample may have yielded more consistent results across variables.

Furthermore, our study population was unusually composed mostly by women (62%). This differs from the typical sex ratio found in several registries on psoriatic patients. A possible explanation for this disparity might be the reluctance of young male patients to accept to undergo a complete phototherapy course, eventually including a 1-hour weekly session of psychotherapy intervention. Moreover, as a recent study by Hägg et al. (24) demonstrated, although as many women as men are believed to suffer from psoriasis, men seem to be

more severely affected by psoriasis. The asymmetry in allocation of biologic therapy and in international registries thereby probably reflects the differing disease activity between the sexes. In our cohort of patients, mean psoriasis severity was not extremely high (mean PASI 9). So it seems likely that our study was not affected by this phenomenon, showing a more balanced sex ratio (40% of enrolled patients were male).

Another limitation may be an inadequate evaluation of the type and degree of psychological changes induced by the cognitive-behavioural programme. A comprehensive assessment of the psychological impact of this intervention may therefore require further investigation.

Until further studies are performed to control for additional variables, we cannot rule out the possibility that expectancy effects (i.e. enthusiasm and/or disappointment about psychological group assignment) may have played a role in the observed differences.

Since the group of patients in the intervention had received 8 h more attention, a Hawthorne effect may also be present (25). Nevertheless, the results of this study suggest an important psychological influence on the rate of skin clearing related to assignment to the cognitive-behavioural intervention group.

A confirmation of these findings in larger samples, possibly also assessing the cost-effectiveness of this multidisciplinary approach, is warranted to further substantiate the usefulness of a cognitive-behavioural treatment in clinical practice. Finally, future research could usefully investigate the maintenance of psychological intervention effects at longer term and evaluate whether follow-up sessions might help to sustain gains.

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INVESTIGATIVE REPORT

Validation and Field Performance of the Italian Version of the Psoriatic Arthritis Screening and Evaluation (PASE) Questionnaire

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Psoriatic arthritis (PsA) is a potentially severe inflammatory condition (entheso-arthro-osteopathy), and early diagnosis is important to guide treatment choices in patients with psoriasis. The objective of this study is to further validate the PsA Screening and Evaluation (PASE) questionnaire, and to assess its field performance. Data were collected in 10 Italian centres, and the PASE was administered at baseline, after 3 days and after 3 months. The Skindex-29 was also administered. To determine the best cut-off value to identify patients with PsA we produced receiver operating characteristic (ROC) curves using the rheumatologist's diagnosis as outcome. Of the 298 patients that were enrolled, 28% were classified as having PsA according to the CASPAR criteria, while 19% had received a diagnosis of PsA from a rheumatologist. PASE score were always significantly different in patients with or without PsA, while Skindex-29 scores never were. The internal consistency of the PASE was very good (Cronbach's α of 0.90–0.95), the test–retest reliability was also very high (intraclass correlation coefficients 0.91–0.93), and the PASE scores showed good responsiveness to clinical change over time. The optimal cut-off identified through the ROC curves was ≥ 48 on the total PASE score, which was able to distinguish PsA from non-PsA patients with a 73.2% sensitivity and a 76.1% specificity. Our results confirm the good psychometric properties of the PASE, and indicate that it may be a useful tool for the dermatologists, both to screen for PsA and to obtain a standardized patient-reported measure to monitor and evaluate the health status of the patients with PsA. Key words: psoriasis; psoriatic arthritis; PASE; questionnaire: Italian version.

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Psoriatic arthritis (PsA) is an inflammatory entheso-arthro-osteopathy occurring in subjects with psoriasis, which may involve both peripheral and axial osteo-articular compartment (1). PsA mostly affects patients between 30 and 50 years of age, and the highest prevalence is reported from Northern Europe. The reported prevalence of PsA in patients with psoriasis ranges from 6% to 42% according to different studies (1, 2). Dermatologists are in a strategic position for the early recognition of PsA, because in most instances skin symptoms may precede joint symptoms (3). Ideally, every psoriasis patient with musculoskeletal pain should be evaluated by a rheumatologist, but this is not really practical and cost-effective. Accordingly, screening questionnaires to be used in the dermatology or general practice setting to identify psoriatic patients who refer symptoms suggestive for PsA have been developed (4–7). These include the Toronto Psoriatic Arthritis Screen (ToPAS) screening questionnaire, the Psoriatic Arthritis Screening and Evaluation (PASE) questionnaire, the Psoriasis Epidemiology Screening Tool (PEST) questionnaire and the early PsA-screening questionnaire. The use of a validated questionnaire is a simple and fast tool for the identification of those patients who are more likely to need a rheumatologic referral because of suspicious PsA. The PASE questionnaire is a self-administered tool that can be used to screen for PsA among patients with psoriasis. PASE has proven to be able to distinguish between symptoms of PsA and osteoarthritis. The purpose of this study is to validate the PASE in the Italian language, and to investigate whether it may be used not only as a screening tool but also as an evaluative instrument to monitor the effectiveness of treatment.

MATERIALS AND METHODS

Population

This multicentre study was conducted in the dermatological outpatient clinics of 9 Italian universities: Three from Northern Italy, i.e., Modena, Padova and Verona; 4 from Central Italy,

i.e., Ancona, Chieti, Tor Vergata in Rome, and the Catholic University also in Rome; and 3 from Southern Italy, i.e., Catania, Catanzaro, and Messina. The study was approved by the Ethical Committee of each participating centre.

The *inclusion criteria* were: age ≥ 18 years, diagnosis of plaque psoriasis according to the Italian Guidelines, ability to read and understand the Italian language, signed written informed consent. The *exclusion criteria* were: major psychiatric morbidity (e.g., depression, schizophrenia, bipolar disorders), previously diagnosed autoimmune disorders (e.g., ankylosing spondylitis, rheumatoid arthritis, systemic sclerosis, coeliac disease, multiple sclerosis), positivity for the rheumatoid factor confirmed by positivity for anti-citrullinated protein antibodies; present treatment since over 3 weeks with non-steroid anti-inflammatory drugs, cortison, disease-modifying antirheumatic drugs, or systemic drugs for psoriasis; presence of pustular or erythrodermic psoriasis.

Data collection

At baseline, patients who signed the informed consent were asked to complete the following questionnaires: the PASE, the Skindex-29 – from which the scores of the two scales of the Skindex-17 were also derived – and the 12-item General Health Questionnaire (GHQ-12).

The dermatologists collected socio-demographic and clinical information, scored the clinical severity at baseline according to the 7-point Physician Global Assessment (PGA), ranging from 0 (no skin involvement) to 6 (very severe involvement), and calculated the Psoriasis Area and Severity Index (PASI). They also completed the Psoriasis Epidemiology Screening Tool (PEST) (5) and recorded whether a diagnosis of PsA had already been made by a rheumatologist.

Three to 7 days after baseline the PASE was re-administered to the same patients, in order to evaluate the test-retest reliability. After 3 months, the PASE, the Skindex-29, and the GHQ-12 were administered again. The dermatologist completed again the PASI, and recorded a general evaluation of the patients' clinical improvement/worsening on an 8-point scale, from -3 (very much worsened) to +4 (cleared), with 0 meaning no clinical change. The same scale was used by the patients to record their impression of the clinical change.

Diagnostic criteria for psoriatic arthritis

The *Classification Criteria for Psoriatic Arthritis (CASPAR) criteria* for PsA consist of inflammatory articular disease (joint, spine, or enthesal) with ≥ 3 points from the above categories. The sensitivity is 98.7% and the specificity is 91.4%. Evidence of current psoriasis, a personal history of psoriasis, or a family history of psoriasis (2 points). Current psoriasis is defined as psoriatic skin or scalp disease present today as judged by a rheumatologist or dermatologist. A personal history of psoriasis is defined as a history of psoriasis that may be obtained from a patient, family physician, dermatologist, rheumatologist, or other qualified health care provider. A family history of psoriasis is defined as a history of psoriasis in a first- or second-degree relative according to patient report. Typical psoriatic nail dystrophy including onycholysis, pitting, and hyperkeratosis observed on current physical examination (1 point). A negative test result for the presence of rheumatoid factor (1 point). Either current dactylitis, defined as swelling of an entire digit, or a history of dactylitis recorded by a rheumatologist (1 point). Radiographic evidence of juxta-articular new bone formation appearing as ill-defined ossification near joint margins (but excluding osteophyte formation) on plain radiographs of the hand or foot (1 point).

PASE

The PASE questionnaire has been proposed as a self-administered tool that can be used to screen for PsA among patients with psoriasis (6, 8). In principle, it can also measure the level of impairment that PsA causes to patients. It consists of 15 items, with possible answers on 5 levels, scored from 1 to 5: "strongly disagree", "disagree", "neutral", "agree", "strongly agree". It is subdivided into two scales: the symptoms scale includes 7 items (possible range 7 to 35), and the Function scale includes 8 items (possible range 8 to 40). The sum of the two subscales yields the total PASE score, with a possible range of 15 to 75. Higher scores indicate a higher probability of PsA, and a higher level of impairment.

To obtain a valid Italian version of the PASE, we followed the guidelines for the cross-cultural adaptation of health-related quality of life (QoL) measures (9). The first translation was produced by one of the authors (DA) and a second one was produced by another author (SP). The two versions were compared and discussed during a meeting of all authors, who agreed on a single version incorporating aspects of both preliminary translations. This version was back translated by an English mother tongue expert who was not otherwise involved with this study. The back translation was reviewed by DA and a final Italian version was created.

Skindex-29 and Skindex-17

The Skindex-29 (10, 11) is a dermatological QoL instrument which consists of 29 items, with possible answers on a 5-point scale, from "never" to "all the time". It is constituted by 3 subscales, measuring symptoms, emotions and functioning. Higher scores indicate a higher burden on QoL.

The Skindex-17 was derived from the Skindex-29 using Rasch analysis (12, 13). It is composed of 17 items subdivided into the symptoms and the psychosocial subscales, and answers are given on a 3-point scale instead of a 5-point scale.

GHQ-12

The GHQ-12 is a self-administered questionnaire designed to measure psychological distress and to detect current non-psychotic psychiatric disorders, such as anxiety or depression (14). It has been extensively validated in dermatological settings (15). Answers are given on a 4-point scale and scored as 0-0-1-1. A score of 4 or more indicates the possible presence of anxiety or depression.

Statistical analyses

Descriptive data were reported using percentages and means. Mean values were compared using the *t*-test or ANOVA. The internal consistency of the PASE was assessed by means of Cronbach's α . The test-retest reliability was measured by the correlation between the scores at baseline and after 3–7 days, using the intraclass correlation coefficient which is equivalent to the Kappa statistic for continuous values. It has the advantage over the Pearson's or Spearman's correlation coefficient in that it is a true measure of agreement, combining information on both the correlation and the systematic differences between the readings (16).

Construct validity was assessed hypothesising that patients with a more severe joint involvement would score higher than patients with a mild disease.

The convergent validity was assessed by examining the correlation between the PEST and the symptoms, function, and total PASE scores. The correlations with the scales of the Skindex-29, Skindex-17, and of the GHQ-12, as well as the

one with the PASI and the visual analogue scale (VAS) for pain, were also studied.

The responsiveness was studied comparing the differences of the PASE score at baseline and after 3 months in relation to the clinical change perceived by the patient. The evaluation of clinical change by the patients was grouped into 4 categories: “no or slight improvement”, “moderate improvement”, “substantial improvement”, and “healed”. The score variations were evaluated by the Wilcoxon test for dependent data.

The cut-off for the dichotomization of the PASE scores was determined using receiver operating characteristics (ROC) curve, using as an outcome the rheumatologist’s diagnosis.

All statistical analyses were performed using the statistical package IBM SPSS Statistics, version 21 (SPSS, Chicago, IL, USA).

RESULTS

A total of 298 patients were enrolled in the study centres. The distribution of the study population for the main variables of interest is described in the first two columns of Table I. Typically for psoriasis studies, most patients were male (56.4%). Over 50% had a PASI score of ≥ 10 , and 28% were classified as having PsA according to the CASPAR criteria, while 19% had received a diagnosis of PsA from a rheumatologist. Over half of the study population was either overweight (34.5%) or obese (20.7%). Also of note is the proportion of patients classified as GHQ-12 positive (35.4%), indicating that over one third of the study sample had a probable minor non-psychotic psychiatric disorder, such as a tendency to depression and anxiety.

Table I also summarizes the mean scores of PASE and Skindex-29 for the different levels of the main variables of interest. First of all, construct validity seems to be supported by highly statistically significant differences in PASE scores between patients with and without both a CASPAR or a rheumatologist’s diagnosis of PsA. It is interesting to note that such difference does not appear to be significant for the generic dermatological instrument. Also, the PASE score are significantly elevated for older patients, for obese individuals, and for those classified as “severe” by the GPA. On the other hand, it is also interesting to point out that the PASE scores are only marginally affected by the PASI, while the Skindex-29 shows large, and statistically significant differences, between the different levels of PASI score.

The internal consistency of the PASE was very good, as indicated by the Cronbach’s α of 0.90 for the symptoms subscale, 0.93 for the function subscale, and 0.95 for the total score. The test–retest reliability was also very high: the intraclass correlation coefficient between the baseline PASE score and the score observed a few days after was 0.91 for the symptoms subscale, 0.92 for the function subscale, and 0.93 for the total score.

The convergent validity was measured comparing the PASE scores with those of the PEST, the VAS for pain and the other study questionnaires (Table II). Con-

Table I. Composition of the study population, and mean Psoriatic arthritis Screening and Evaluation (PASE) and Skindex-29 scores for all the levels of the main variables of interest

Variable	n (%)	PASE			Skindex-29		
		Sym	Func	Tot	Sym	Emot	Func
Overall	298 (100)	19.6	21.3	40.9	50.3	45.7	36.4
Gender							
Female	130 (43.6)	20.8	22.2	43.0	53.1	49.1	38.1
Male	168 (56.4)	18.6	20.4	39.4	48.2	43.0	35.1
p-values		0.007	0.122	0.032	0.051	0.026	0.312
Age, years							
<40	103 (35.0)	17.3	18.6	36.0	50.4	46.3	33.1
40–59	106 (36.1)	20.6	22.7	43.3	50.4	46.0	38.8
>60	85 (28.9)	21.2	23.2	44.4	49.9	44.6	37.8
p-values		<0.001	<0.001	<0.001	0.986	0.874	0.212
Body mass index							
<25	130 (44.8)	18.9	20.2	39.1	48.3	44.6	34.7
25–29	100 (34.5)	19.7	21.4	41.2	51.9	47.4	39.8
>30	60 (20.7)	20.7	23.6	44.3	51.2	44.1	34.0
p-values		0.221	0.034	0.073	0.411	0.584	0.210
Psoriasis Area and Severity Index (PASI)							
<10	131 (45.2)	19.8	21.0	40.8	46.4	39.6	29.7
10–14	67 (23.1)	18.9	21.2	40.1	53.3	47.5	38.1
>15	92 (31.7)	19.9	22.0	41.9	54.0	53.5	45.2
p-values		0.657	0.642	0.723	0.017	<0.001	<0.001
Physician Global Assessment (PGA)							
Mild	63 (21.2)	19.6	21.2	40.8	43.5	35.5	22.2
Moderate	134 (45.1)	18.6	20.2	38.8	49.6	43.7	34.8
Severe	100 (33.7)	21.0	23.1	44.1	55.4	54.9	47.7
p-values		0.031	0.028	0.022	0.003	<0.001	<0.001
PsA (Rheumatologist) ^a							
No	240 (81.1)	18.2	19.7	37.9	49.9	45.3	35.3
Yes	56 (18.9)	25.8	28.9	54.7	51.8	47.5	41.7
p-values		<0.001	<0.001	<0.001	0.566	0.532	0.087
PsA (CASPAR) ^b							
No	212 (71.9)	17.6	19.1	36.7	49.2	44.7	34.7
Yes	83 (28.1)	24.8	27.3	52.1	53.5	48.2	41.2
p-values		<0.001	<0.001	<0.001	0.130	0.250	0.045
12-item General Health Questionnaire (GHQ-12)							
Neg.	192 (64.6)	17.8	19.2	37.0	44.1	37.9	27.6
Pos.	105 (35.4)	22.8	25.2	48.0	61.7	60.2	52.9
p-values		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

^aPresence of psoriatic arthritis (PsA) according to a diagnosis by a rheumatologist. ^bPresence of PsA according to the Classification Criteria for Psoriatic Arthritis.

Sym: symptoms; Func: functioning; Tot: total; Emot: emotions.

sistently with the results summarized in Table I, there is a moderate–high correlation with the PEST (0.63, 0.58, and 0.62 for the symptoms, function and total score, respectively) and the VAS for pain (0.52, 0.51, and 0.53 for the symptoms, function and total score, respectively). Interestingly, the correlation with the Skindex scores, although statistically significant, was low, and practically no correlation with the PASI scores was observed (0.04, 0.09, and 0.07 for the symptoms, function and total score, respectively).

The PASE scores showed good responsiveness to clinical change over time.

Fig. 1A shows the mean differences (and 95% confidence intervals) between baseline and the 3-month follow-up scores, by evaluation of clinical change by the patients. A clear significant trend is observed with

Table II. Convergent validity: correlation between Psoriatic arthritis Screening and Evaluation (PASE) scores and other clinical and quality of life measures

	PASE_SYM	PASE_FUNC	PASE_TOT
PASE_SYM	1		
PASE_FUNC	0.86**	1	
PASE_TOT	0.96**	0.97**	1
PEST	0.63**	0.58**	0.62**
SKINDEX_29_SYM	0.36**	0.37**	0.38**
SKINDEX_29_EMO	0.34**	0.32**	0.34**
SKINDEX_29_FUN	0.38**	0.39**	0.40**
SKINDEX_17_SYM	0.30**	0.32**	0.32**
SKINDEX_17_PSY	0.33**	0.33**	0.34**
GHQ_CONTINUOUS	0.38**	0.40**	0.41**
GHQ_DICHOTOMOUS	0.37**	0.39**	0.39**
PASI	0.04	0.09	0.07
Visual analogue scale pain	0.52**	0.51**	0.53**

SYM: symptoms; FUNC: function; FUN: social functioning; TOT: total; PASI: Psoriasis Area and Severity Score; PEST: Psoriasis Epidemiology Screening Tool; GHQ: General Health Questionnaire.

a 2.5 points improvement in the patients who reported they had “no or slight improvement”, a 3.2 improvement for those who reported “moderate improvement”, 7.3 for those who reported “substantial improvement”, and 14.2 for those who said they were “healed”. In Fig. 1B the mean changes over time for the 3 PASE scores are shown according to the presence of a diagnosis of PsA. For all 3 scales there is a highly statistically significant difference in the level of improvement according to whether the patients had or did not have PsA: 5.6 vs 1.6 for the Symptoms ($p < 0.001$); 4.5 vs 1.8 for the Function ($p = 0.004$); 10.2 vs 3.4 for the Total score ($p < 0.001$).

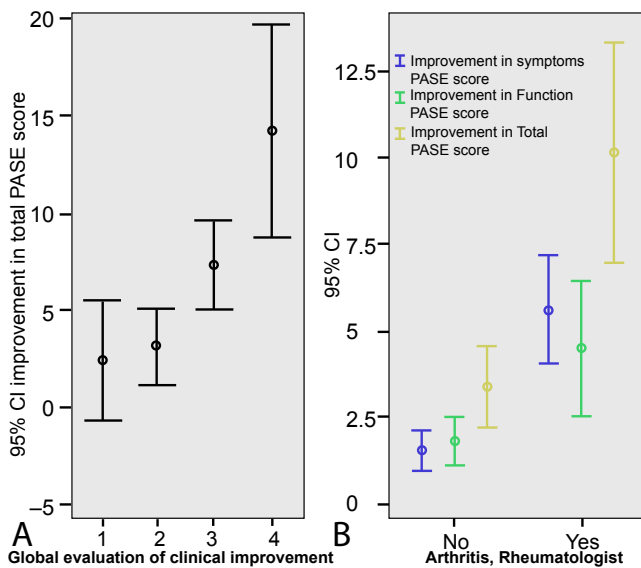


Fig. 1. Responsiveness of the Psoriatic arthritis Screening and Evaluation (PASE): mean differences (and 95% confidence intervals) between baseline and the 3-month follow-up. A: total PASE score by evaluation of clinical change by the patients. Clinical improvement scale: 1 = no/slight, 2 = moderate, 3 = good, 4 = very good/healed. B: Symptoms, Function, and Total PASE scores by presence of psoriasis arthritis.

A similar pattern was observed also both for the symptoms and the function subscale. All 3 scales had a p -value < 0.001 at the Wilcoxon test for paired samples.

To determine the best cut-off value to identify patients with PsA we produced ROC curves for the two subscales and the total score of the PASE, using the rheumatologist’s diagnosis as outcome (Fig. 2). The area under the curve was always greater than 80%, and in particular: 81.6% for the symptoms, 80.4% for the function, and 82.1% for the total score. The optimal cut-off was found to be ≥ 48 on the total score, which was able to distinguish PsA from non-PsA patients with a 73.2% sensitivity and a 76.1% specificity.

DISCUSSION

Our study shows that the PASE self-administered questionnaire may be a valid tool in helping dermatologists and other health care providers to screen for PsA. While this questionnaire is certainly not intended to establish by itself a diagnosis of PsA, we have found that using a cut-off of ≥ 48 on the total score it has good sensitivity and specificity in identifying patients with PsA who had been previously diagnosed by a rheumatologist. Such cut-off and such specificity and sensitivity values are surprisingly similar to those obtained by the authors of the original questionnaire (6). It is important to note that our study confirms a better performance of the PASE total score compared to the subscale scores (i.e., symptoms and function). These observations are particularly important because our Italian study population is certainly quite different, both in ethnic and cultural terms, from the population of the original studies.

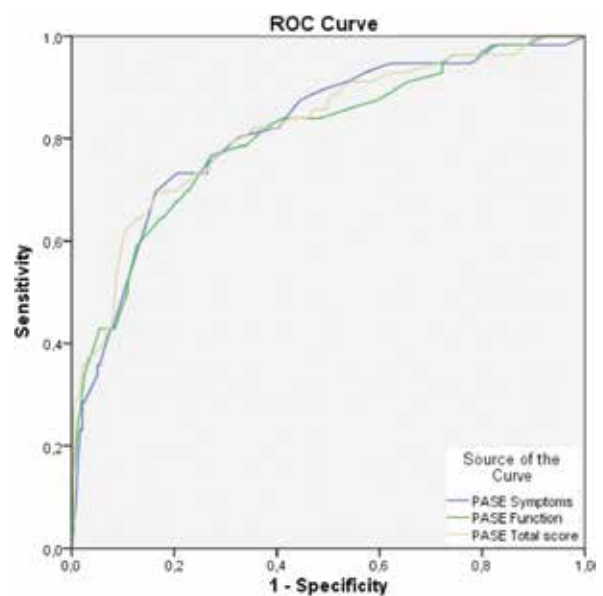


Fig. 2. Receiver operating characteristics (ROC) curves for the two subscales and the total score of the Psoriatic arthritis Screening and Evaluation (PASE).

The good field performance of the PASE questionnaire, in fact, is based on the solid results of the psychometric evaluation. The internal consistency was very satisfactory, with Cronbach's alpha values of 0.90 or higher, and as high as 0.95 for the total score.

The observed scores in Table I are always supportive of a substantial construct validity, as they are consistently and significantly higher exactly where they should be, i.e., in patients with a greater clinician-rated clinical severity of disease, with a positive GHQ-12 score, and most importantly with a diagnosis of PsA (both according to a rheumatologist and to the CASPAR criteria).

Of particular interest is the comparison with the generic dermatological Skindex-29 questionnaire. In fact, the Skindex-29 scores do not show any significant difference between patients who have either a rheumatologist or a CASPAR diagnosis of PsA and those who do not. Also importantly, in the three categories of PASI score we used (from < 10 to ≥ 15) the Skindex-29 scores significantly increased with increasing PASI on the symptoms, emotions, and functioning subscales of this questionnaire. On the contrary, there is no difference whatsoever in PASE scores – indicating that the degree of skin involvement has a weak association with the severity of the PsA, and thus does not affect the scores of this PsA-specific questionnaire.

These observations are very important because they highlight the difference between valid questionnaires designed with different purposes (e.g., the Skindex-29 intended to measure the burden deriving by the skin involvement in different dermatological conditions and the PASE designed to evaluate PsA), and they warn us to use appropriately each questionnaire according to its intended target, and not to use one as the surrogate of the other.

While the PASE was designed essentially to stress its discriminative properties, i.e., to be used as a screening tool, in a subsequent paper Dominguez et al. (17) reported high levels of responsiveness for the PASE scores, and concluded that they may be used as a marker of therapeutic response.

We have confirmed also these results on the evaluative properties of the PASE by administering it over time and by linking the observed changes in scores to an overall evaluation of clinical improvement provided by the patients on a standardized scale. As shown in Fig. 1A, the PASE in our study showed an excellent sensitivity to clinical change. It may also be worthwhile noting that for the patients with PsA the improvement on the Function scale is less marked than on the Symptoms scale. Though such difference in our study does not reach statistical significance, it may indicate that dermatologists should be aware that a given improvement in their patients' symptoms may not reflect directly in a functional improvement of the same magnitude.

As for most studies performed in a defined geocultural area, the main limitation of our study is that

the results may not be generalizable to all countries, since populations with different cultural values (e.g. on pain, or on physical limitations in general) may respond differently to the questionnaire items. However, this problem is built-in in most patient-reported outcomes instruments, and our results – very similar to those of the original validation even if performed in a very different area and environment – should encourage other dermatologists to provide valid versions for their own languages.

In conclusion, our project shows that the use of the PASE questionnaires is possible in busy clinical routine practices and that its properties are stable and valid even when administered to patients with a very different ethnic and cultural background. Taken together, our results confirm that the PASE may help doctors – both in specialist dermatology settings and in general practices – to identify psoriasis patients with PsA and that it may be useful to monitor the course of the disease and to evaluate the effects of the prescribed treatments.

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INVESTIGATIVE REPORT

Psoriasis – The Life Course Approach

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Over the last decades, Life Course Research (LCR), predominantly the domain of sociology, has been increasingly applied in health research, as Life Course Epidemiology (LCE). The latter is concerned with disease patterns over time, accumulation of exposures over time, critical time periods and patterns of risk. We argue that concepts from LCR and LCE could be widely applied in dermatology, in general, and, more precisely, in the study of chronic inflammatory skin diseases, e.g. atopic eczema and psoriasis. The life course approach can generally be applied in two different ways. It may be used in the more traditional manner, in which the disease and its patterns over time are examined as the outcome variable. Conversely, it can examine life course as the outcome variable, which is dependent on the disease course, the treatments administered, and other physical or psychosocial environmental exposures. In dermatology, this second application of the LCR concepts is both promising and relevant because of the notable impact of chronic skin diseases on the patients' quality of life. In particular, we argue how LCR may be conducive to a better understanding of the concept of 'Cumulative Life Course Impairment', which is increasingly gaining acceptance. This approach helps identifying not only individuals at risk and particularly vulnerable patients but also critical periods for optimising interventions in order to avoid life course impairment. It also may facilitate more appropriate treatment decisions in clinical practice. *Key words: cumulative life course impairment; dermatology; life course; life course epidemiology; psoriasis.*

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Through individual constellations of predisposition and exposure the life-time risk of any given disease varies in the population. Similarly, the development of a disease affects the subsequent life of the patients, thereby influ-

encing future risk. For many reasons, studies of these interactions in the medical field are often not long-term, and while such studies provide much important information, it is likely that as longer and more comprehensive view of the interactions between predisposition, behaviour and exposure may add significant depth to our understanding of the development and impact of diseases on the population as a whole.

Life Course Research (LCR), initially a sociological research area of the biopsychosocial interactions and events over lifetimes (or even over generations) has more recently become a topic of research within the behavioural and biological sciences (1). A life course approach in health care research and epidemiology is present in early studies (e.g. Dubos et al. [2]) focussing on factors in infancy, such as poor growth and adverse developmental conditions, which increase the risk of chronic disease in adulthood (3). The evidence that exposures influence health outcomes, beyond simple and direct biological correlations, is growing, but require further studies. For instance, while the adverse consequences of tobacco are well established, the complex mechanisms linking psoriasis, unemployment, psychosocial consequences and metabolic syndrome remain to date an important research focus in dermatology. Similar correlations constitute a great matter of interest for almost all fields in clinical medicine: the life course approach addresses a variety of potential processes where biological, social and psychological exposures that take place at different stages of life can influence risk of disease, disease pattern and disease course over time.

LCR is often performed using Life Course Epidemiology (LCE) which typically deals with concepts such as chronic disease patterns over time, consequences of accumulation of exposures over time, critical time periods, and patterns of risk (4).

Whereas the life course approach has been extensively implemented in some fields of medicine, e.g. diabetes, obesity and cardiovascular disease (CVD) (5–7), it has been applied only sporadically and non-systematically in other areas, e.g. in oral disease (8) and back pain (9). Although of particular interest and relevance to chronic disease the use of the life course

approach has been very limited in dermatology and it remains relatively uncommon in chronic skin diseases, such as psoriasis and atopic dermatitis (10–20). Issues like early exposures to triggers (e.g. streptococcal infections in childhood psoriasis [12]) or protective factors (e.g. varicella zoster virus infections in atopic eczema [13]) have occasionally been addressed; other models may yield interesting results if appropriately applied. For example, cumulative socioeconomic disadvantages and cumulative adversities have recently proven to be related to dyslipidaemia (14): it appears hence reasonable to investigate whether some cumulative biopsychosocial factors may result in psoriasis.

Also, life course methodology presents as a natural approach if one is interested in the life course as the outcome variable and one looks at the disease, its treatment and its course as the input parameters. Consistent with this, the cumulative burden of psoriasis as well as of other skin diseases, and its associated physical and psychological co-morbidities, over a patient's life, has been the subject of several publications exploring the concept of Cumulative Life Course Impairment (CLCI) (15–20).

The aim of the current article is to raise the profile of the life course approach in dermatology, and to evaluate how concepts and methods of LCE might improve our understanding of chronic skin diseases, with a particular focus on psoriasis. It is not within the scope of this paper to provide an extensive analysis of LCE; for a further understanding of this approach we direct readers to two excellent books on the subject (1, 3).

LIFE COURSE RESEARCH AND LIFE COURSE EPIDEMIOLOGY

The interest in life course approaches in medical research has grown steadily over the past two decades. Among academic publications that used “life course” as a key word in 2009, health-related publications were

ranked second only to the traditional arena of sociology (21). Furthermore, a review published in 2009 on advances in LCR identified > 100 papers published since 2000 with explicit references to health and the life course (22).

In recent years, there has been increasing interest in studying epidemiological aspects of diseases over the life course, and LCE has become well established in medicine. LCE may be defined as “the study of long-term biological, behavioural, and psychological processes that link adult health and disease risk to physical or social exposures acting during gestation, childhood, adolescence, earlier in adult life, or across generations” (3). It seeks to understand the causal links between exposures and outcomes, taking into consideration the duration and timing of such exposures in disease development, along with the social, psychological and behavioural dimensions of illness (3). Although LCE uses the research methodologies of traditional epidemiology, it is more than a collection of longitudinal data or the use of a particular study design. LCE is a theoretical model where hypotheses on the temporal ordering and interconnectedness of risk and exposure for health outcomes is examined using life course data (key features of LCE are presented in Table I). Chronic diseases by their very nature are particularly suitable for the life course approach, which has already greatly improved our understanding of mechanisms underlying CVD, and is now being applied to obesity, hypertension and diabetes (3).

In dermatology, epidemiological research from the life course perspective appeared at first to be scanty, at least until the first decade of this century, as suggested by a search (data on file) we performed in 2010 on the literature published from January 1995 to April 2010 cited in PubMed (Table II).

As from 2011, a whole volume (18) in the series “Current Problems in Dermatology”, as well as several

Table I. Key features of life course epidemiology (LCE) (1, 3, 4)

Features of life course theory

The purpose of LCE is to create and test theoretical models that hypothesize pathways, which link exposures across the life course. They often include:

- temporal ordering of exposures and their inter-relationships to later life health outcomes
- consequences of accumulation of exposures over time
- importance of critical time periods of exposure to risk, particularly key developmental phases
- incorporation of gene-environment interplay

LCE attempts to integrate biological and social risk processes rather than draw false dichotomies between them; interests overlap with social epidemiology

Features of life course methodology

Research questions commonly:

- have a developmental component concerned with identifying pathways that might involve precursor stages, mediating variables and chains of effect
- involve a profile of health outcomes (over time or over a set of outcomes)

Study designs are often time-related: e.g., longitudinal studies that capture certain time windows or significant features of the life course

As with traditional epidemiology, LCE uses a variety of study designs and data sources

- e.g., longitudinal studies, ecological studies, natural experiments, migration studies, genetic studies, birth cohort studies, historical cohort studies

Techniques for the analysis of time varying exposure and estimating causal relationships may move beyond those available in traditional epidemiology

Several analytical techniques or problems may be similar to traditional epidemiology, but are particularly relevant to LCE:

- e.g., analytical problems associated with modelling repeat observations, hierarchical data, latent exposures, or multiple interactive or small effects
- e.g., problems of missing data, omitted exposures, and measurement error associated with longitudinal studies
- e.g., use of multi-level models, latent growth models, graphical chain models

Table II. Main publications in dermatology with the life course perspective published within the first decade of the century^a

Studies with Life Events, Life Course as input variable and Disease Course as output variable	Ref	Studies with Disease course as the input variable and Life Events, Life Course as the observed outcome	Ref
Sun exposure in infancy and youth as a risk factor for melanoma and other skin cancers	Kennedy et al. (23)	Life course experience of Taiwanese women with leprosy	Shieh et al. (26)
Physical size at birth as a predicting factor for atopy in adulthood	Xu et al. (24)	Questionnaire-based study on the life course of children with atopic dermatitis, showing that patients with severe disease had difficulty in achieving developmental milestones compared with patients with moderate disease	Breninkmeijer et al. (10)
Chronic trauma over the mother's life course linked to increased IgE levels in infants at birth. ^b	Sternthal et al. (25)	Atopic dermatitis linked to increased sick leave and early retirements	Holm et al. (32)
Protective effect of varicella zoster virus infection against atopic eczema	Silverberg et al. (13)	Impact of childhood vitiligo on adult life	Linthorst Homan et al. (11)
Hygiene hypothesis for aetiology of atopic eczema	Björkstén (27)	Cumulative impairment of psoriasis and its associated co-morbidities and its social stigmatization over patients' life course	Kimball et al. (15)

^aAlthough each of the publication in the second column incorporates the concept of disease impact throughout the life course, the fundamental concepts in LCE (such as patterns of risk over time, accumulation of risk, timing of risk and mediating/modifying factors) are neither explicitly nor systematically applied.

papers published in dermatological journals have addressed the issue of cumulative life course impairment, or, more generally, of the life course perspective in dermatology, thus witnessing the growing interest of this perspective for our branch of medicine. In particular, an interesting new approach within the life course perspective is the study of how chronic disease may have an impact on "major life changing decisions" (MLCD), which in turn influences the life course (28–31).

More formally, applying a theoretical framework using the life course approach may help to gain better insight into the impact of chronic skin diseases over the course of a patient's life and may be also conducive to developing more accurate prediction models. Several of the main concepts of LCR are likely to be helpful in this respect (Table III) (for a detailed discussion, see Pickles et al. [4]).

APPLYING LIFE COURSE APPROACH IN DERMATOLOGY – A CLOSER LOOK AT PSORIASIS

Applying life course methodology in psoriasis

Given the nature of psoriasis – i.e. a chronically relapsing condition with multifactorial aetiology – the life course approach offers a framework by which to improve our understanding of the disease, both in terms of its pathogenesis (when the disease and its course are seen as an outcome) and in terms of its outcomes (when psoriasis is viewed as an exposure and impaired life course is seen as the outcome). To our knowledge, few authors have explored the biopsychosocial impact of psoriasis over the life course. In the already mentioned article on CLCI, the authors hypothesised that in psoriasis the cumulative effect of the significant physical and psychological burden affecting all facets of a

Table III. Main concepts of Life Course Research (LCR). (For a detailed discussion, see Pickles et al. [4]).

Patterns of risk over time – trajectories, transitions and turning points
Biological, behavioural and psychosocial pathways interact over the course of an individual's lifetime. Trajectories a long-term view of any one such pathway (e.g., employment status). Over time, the status of an individual within any trajectory undergoes short-term changes or transitions (e.g., promotion at work), which may progress an individual along the same trajectory. In addition, the status of an individual may undergo a marked change or turning point (e.g., loss of employment, death of a close relative), which significantly alters a person's life, placing them on a new trajectory.
Accumulation of risk
Risks gradually accumulate over the course of an individual's life (3). With an increase in the number, duration and severity of exposures, cumulative damage occurs. Risks emerging at different times may exert independent effects, clustered effects, or additive effects, where one exposure leads to the next in a chain of risk, e.g. childhood obesity as a risk factor for psoriasis (33). Also see, for instance, the model of allostatic load as a risk factor for metabolic syndrome (34).
Timing of risk
Time is a fundamental concept in LCE, which states that the effect exerted by exposures on a health outcome is dependent on the timing of the exposure. An exposure may result in an altered outcome (e.g., disease or life impairment) only during a specific time period – a critical period of development – and may not be significantly modified by later life experience (critical period model). For example, varicella zoster virus infections occurring in the critical period of age 0–10 years are possibly a protective factor against atopic eczema (13). Alternatively, an exposure may always exert an increased risk but may have a stronger effect during sensitive periods: sun exposure may be for instance more conducive to skin cancer in the sensitive period until adolescence (23).
Mediating and modifying factors
Risks or protective factors may either mediate or modify the association between the exposure and the outcome. Mediating factors chronologically follow the exposure and lie on the same causal pathway, whereas modifying factors interact across different levels of exposure. In dermatology, modifying factors, for example, may include gender acting on the risk factor of smoking in patients with palmoplantar pustulosis (35) or a strong sense of coherence improving the response of psoriasis patients to therapy (36).

patient's life may prevent some patients from achieving a 'full life potential' when coping strategies and other factors (i.e. social support networks) are not sufficient to prevent this impairment (18). Applying the life course approach to CLCI in psoriasis differs from traditional approaches in that life course impairment becomes the outcome and psoriasis is one of the exposures. Although this may appear a substantial difference, on closer examination it is clear that, independent of the outcome that we wish to observe, we are always looking at a system of factors (biopsychosocial parameters) that mutually influence each other over life-time.

The accumulation of risk model may be applied to chronic inflammatory conditions, where "wear and tear" adds up over time to negatively affect health (8), a mechanism explained by the concept of allostatic load in biology (37). This model certainly fits CLCI in psoriasis, which postulates that it is the cumulative effect of exposures (i.e. psoriasis, stigma, physical co-morbidities and psychological co-morbidities) that occur at different points over a person's life that add up to impair life potential. The concepts of critical and sensitive periods also apply, as it is reasonable to postulate that an early onset of psoriasis during adolescence (a critical period) and early adulthood (a sensitive period), when patients are consolidating their personality, establishing social contacts, initiating higher education and planning career paths, will have a greater impact on life course than later onset of psoriasis. Likewise, exposure to co-morbidities such as psoriatic arthritis during the sensitive period of early adulthood may result in lower income (e.g. through the need to change career or take early retirement), leading to other exposures, such as anxiety, social impairment, depression, poor compliance and worsening of the symptoms, all of which interact in a cumulative manner to produce CLCI. These exposures will be modifiable and risks can be reduced (i) via psychosocial interventions, such as patient education to improve coping behaviour and quality of life (QoL) (38), support networks to facilitate social contacts and coping with the disease, or potentially early therapeutic intervention respectively

(ii) by the patient, for instance by using effective coping strategies and by seeking social support, and, or (iii) by biomedical interventions. Modifying a model from Dunn (9), the elements that potentially influence life course over time through the onset of psoriasis are represented in Fig. 1, although the exact risk factors for CLCI and their relative contribution to impairment have yet to be established. Nonetheless, the interaction of risks over time can be observed on an individual patient level and have been described by Warren et al. (17); Fig. 2 demonstrates these interactions of risk factors in a single patient.

In LCR, the concept of cumulative advantage or disadvantage is used to describe patterns of diverging cohort trajectories. Formalised mathematically, the central idea is that in social systems under certain conditions, the 'advantage' of an individual (or group) over another 'naturally' grows over time. This concept can be more formally defined as a systemic tendency (hence resulting from the interaction of a complex of elements) for inter-individual divergence in a given characteristic (e.g., money, health or status) with the passage of time (39–41). If disadvantage has a 'natural' or 'intrinsic' (systemic) tendency to accumulate, lifetime exposures are likely to lead to divergence in life outcome (or cumulative disadvantage). This concept is consistent with the potential for diverging life trajectories in patients with chronic diseases, such as psoriasis, compared with those without the disease.

Theoretical and methodological challenges and advantages

The life course approach can be implemented using different study designs to better understand the aetiology and course of chronic disease on the one hand, and the impact of chronic disease on life course on the other hand. Longitudinal designs with repeated data collection are the most appropriate for studying accumulation of risk and testing causal hypotheses (3). However, such designs are expensive, take time to yield data, and may suffer from attrition and missing data (3). Studies



Fig. 1. Examples of risk factors for psoriasis over a lifetime. Some risk factors may be more important when they first occur, represented by a broader line at inception, which narrows over time. Other factors may build up and reduce during an 'episode', represented by broadening and narrowing of the lines. Some may be important only during certain developmental periods and not at other times, others may be less important in some periods (represented by dashed lines).

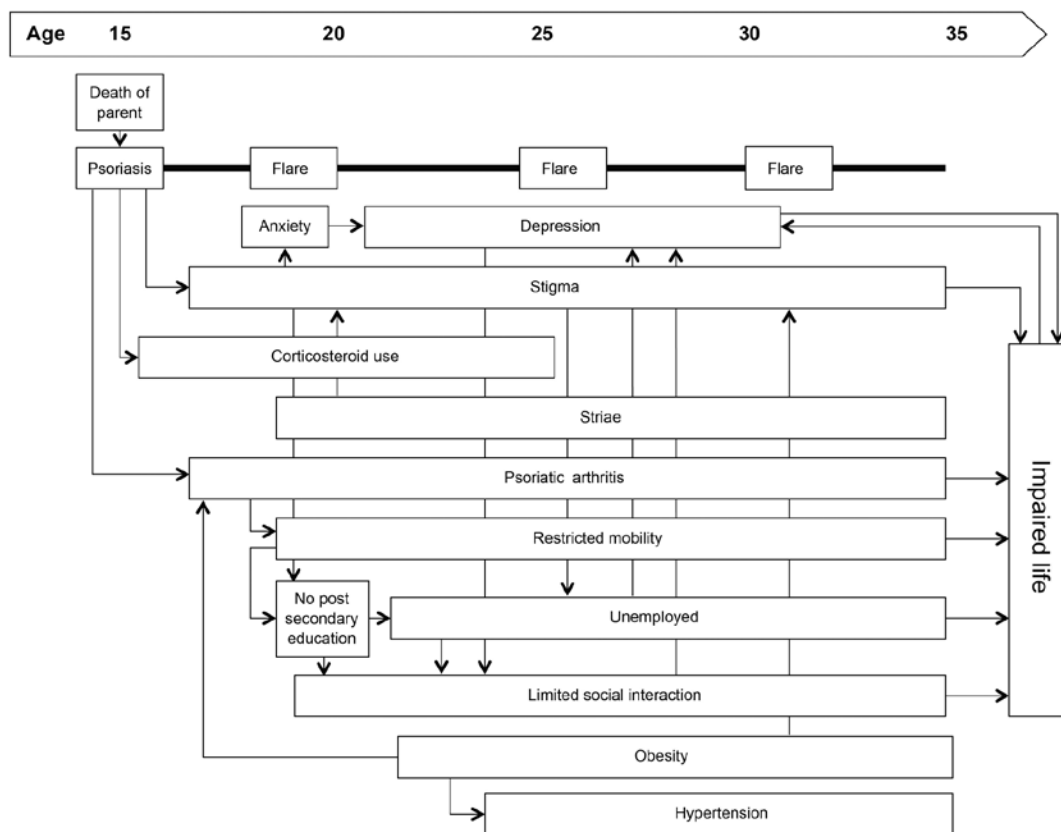


Fig. 2. An example of the interaction of risk factors in cumulative impairment in psoriasis from a single patient.

performed to date looking at the impact of psoriasis on physical, psychological, social and economic outcomes have been largely cross-sectional using point-in-time outcome measures (15). Such assessments are unlikely to adequately reflect the impact of psoriasis, and its co-morbidities and psychosocial disadvantages, over the life course of patients, and they do not allow any assessment of causal pathways¹.

Historical cohort studies using data on psoriasis patients that have been previously collected in a given population (perhaps for another purpose) are more cost effective than longitudinal, prospective studies, and provide a potential opportunity to examine the effects of psoriasis over time. In cohort studies evaluating general health psoriasis has however been seldom, if

ever, recorded, thus limiting any value of large existing epidemiological databases for evaluating the effect of psoriasis over the life course (45–51).

Disease-specific registries, such as the PsoCare registry along with other similar registries (52), may provide suitable populations for retrospective case-control studies. Purpose-designed ‘course-of-life’ questionnaires for use in such studies in psoriasis patients need to be developed and validated (53–55). Fundamental methodological problems, however, remain, as the results of retrospective studies in large populations may be weakened by recall bias.

Mathematical modelling (56) and subsequent computer simulations, which have been extensively applied in demography, may provide another potential solution in LCR in chronic disabling diseases, including psoriasis. Such models can be macro models (describing subpopulations over time in a given country) (57), micro models (58, 59) (where the life course of each individual is modelled, for instance being represented as a series of predefined states, time being assumed as a discrete unit) or combined macro–micro models (60). In these models, the known risk factors determined in cross-sectional studies (e.g., reduced employment or increased divorce rates) serve as input variables; the models then output life courses of patients and of healthy controls, thus providing an additional method to assess the impact of chronic diseases on life course.

¹One notable exception within psoriasis research is an 11-year prospective study by Unaeze et al. (42), which indicated that the impact of psoriasis on HR-QoL decreased over time, suggesting that patients with psoriasis may adjust their internal standards and values to accommodate the realities of their condition. These findings give further support to a theoretical model developed by Sprangers & Schwartz (43), explaining how internal standards, values and conceptualisation of QoL of a patient can change over the course of a disease trajectory and, as a result, may maintain or even improve a patient’s perception of QoL: retrospective assessment of QoL shows a similar pattern (44). These studies, however, primarily examine subjective perception of QoL rather than the objective outcomes of the cumulative effect of disease on patients’ lives, such as economic or employment status, or social advancement.

Increasingly sophisticated models and/or more detailed data from questionnaires used in retrospective case-control studies have the potential to provide additional data on the cumulative impact of chronic disabling diseases over a patient's life. Given the prevalence of psoriasis and the heavy economic impact of the disease on public health expenditures (61, 62), applying life course approaches to understand the accumulation of disadvantage and interconnectivity of exposures in patients with psoriasis may prove relevant in public health planning and management of this disease. Such an approach might eventually allow the assessment of critical periods for more invasive therapies, not only aiming for the best possible clinical outcome, but also at avoiding life course impairment, which might prove irrevocable.

CONCLUSIONS

In contrast with the ever increasing use of the life course approach in many other fields of medicine, this methodology appears to have been rarely adopted in dermatology and, when applied, it was more to address specific research questions rather than in a systematic manner. Still, the life course approach applied in the field of chronic inflammatory skin diseases may provide important new insights into the nature of disease, both from the 'classical' point of view of identifying early risk factors for later disease development or risks (which, cumulating, may constitute triggering or aggravating factors), as well as from the 'new' point of view of looking at the disease as an exposure and the life course as the outcome. Whether these new insights will be achieved by examining available cohort data, administering specially developed course-of-life questionnaires or mathematical modelling of known risk factors remains to be seen. Addressing the need to better understand the impact of chronic skin disease over the life course may help identify more vulnerable patients and facilitate more appropriate treatment decisions or earlier referrals for improved patient care.

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CLINICAL REPORT

How to Reach Emotions with Psychosomatic Patients: A Case Report

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Alopecia areata (patchy hairloss) often indicates to the dermatologist the existence of psychological disorders, mostly anxiety and depression. Psychosomatic conditions are usually associated with difficulty in expressing emotions, what is called alexithymia, and this difficulty is often seen in patients with alopecia areata. This case study aims to show how to help these patients connect with their emotions and how the somatic symptom can become meaningful by using a unifying approach, which challenges the beliefs, the rules and the interactions of both the individual and the family, as well as the emotions expressed or suppressed. In this particular case we used a systemic family therapy tool, “the Family Blazon” that helped to discover the unconscious myth of unity and the fear of family disaggregation that is involved in psychosomatic families. Key words: psychodermatology; psychosomatics; alopecia areata; family therapy; emotions; alexithymia; metaphoric tool.

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All health care professionals should take an interest in the complexity of the mind–body relationship. Psychosomatic disorders offer the opportunity of understanding some of the interactions between the psyche and the soma. However, psychosomatic patients rarely go to psychologists. Instead, the problem or difficulty is expressed through body language. The difficulty these patients have in identifying and verbalizing their emotions, feelings and fantasies is called alexithymia (1). It is therefore difficult to refer these patients to a mental health professional, and furthermore some of these professionals are not well experienced in treating this type of problem. This case illustrates the necessity of reinstating the symptom into a context and viewing it as a complex, multi-determined phenomenon. It also illustrates how a specific approach, the use of a non-verbal tool, can help to connect with the underlying emotions. According to the systemic family theory, families with past traumatic experiences who show psychosomatic symptoms, appear to be stuck in rigid states where individuality is impossible due to the unconscious myth of unity and fear of disaggregation of the family. So,

family members experience the conflict of being disloyal to their family if they express any wish of autonomy (2).

CASE REPORT

Raphael (invented name) is a 17-year-old boy suffering from alopecia areata from the age of 11, with instances of partial recovery and a period of alopecia totalis when he was 12. At present he has some level of patchy hair loss.

While conducting a study on psychosomatic disorders, the psychologist in our team interviewed Raphael. It was difficult to arrange an appointment for Raphael to come to the clinic, as messages were not being passed to him. They failed to keep the appointment and when they finally came, Raphael’s father indicated that they had little available time to spend in the consultation. This indicates that the family was apprehensive about their son being assessed. While answering questions, Raphael wanted his mother by his side. Together, they gave the appearance of being a couple, leaving the father as the outsider in this mother and son relationship.

Raphael is the youngest of 3 siblings. Raphael and his family have been to numerous physicians and therapists in hopes of “getting rid” of what they call “Raphael’s problem”. At our clinic, the dermatologist – who is also a family therapist – prescribed topical immunotherapy with diphenylcyclopropenone (DPCP) (3) and started a family therapy approach. Concerning the family’s history, we learned that Raphael’s birth was difficult and probably quite a traumatic event, the birth process taking over 14 h. During his early childhood, Raphael’s maternal grandfather died. The family tried to hide the body from Raphael but the boy managed to see it. This, according to his mother, was another traumatic event in her son’s life. Going to high school was reportedly another difficult experience. Currently Raphael has facial hair growth, but he shaves his head, as the hair there is not growing uniformly. He is currently a senior at high school and is faced with a decision on what to do next year. Raphael thinks that he would like to live on his own but this has not yet been discussed within the family.

Raphael’s sister worked abroad for a while but returned back home to Belgium because she missed her family. She is going to move into a house near her parents’ that belongs to her grandparents. Raphael’s brother is at university but comes home every weekend. It is very difficult for the children to move away from the family circle. Raphael’s mother is a teacher, and she is very involved with the lives of her children, especially with Raphael. According to Raphael and his mother, the father is never available, always working long hours.

The Family Blazon (Fig. 1) is a family therapy tool used to understand the family’s present situation and their past history. It also helps to describe the family’s emotions associated to those events and how the family members see themselves. With the use of this technique the family’s timeline is recreated, including past, present and future events, as well as the “mythical” events. According to Rey (4) this is a way to think about emotion within a systemic-constructivist framework in frozen situations. The Family Blazon (Fig. 1) is divided into 4 quarters plus a space at

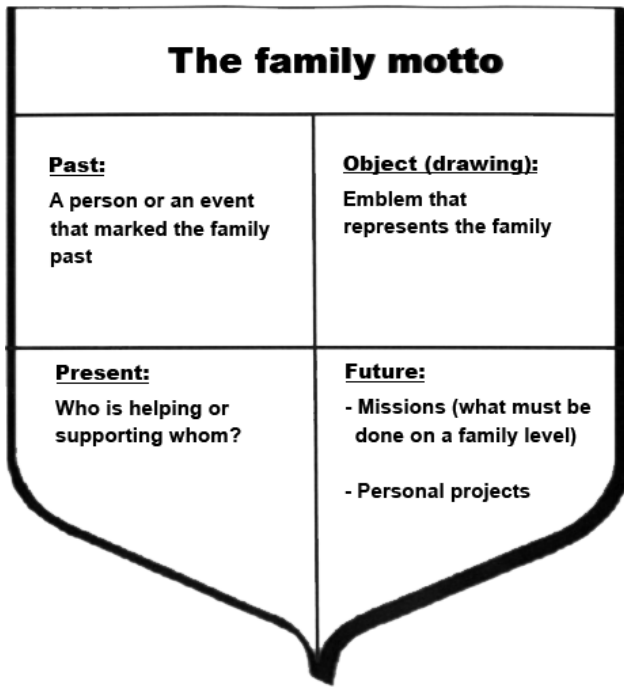


Fig. 1. The Family Blazon.

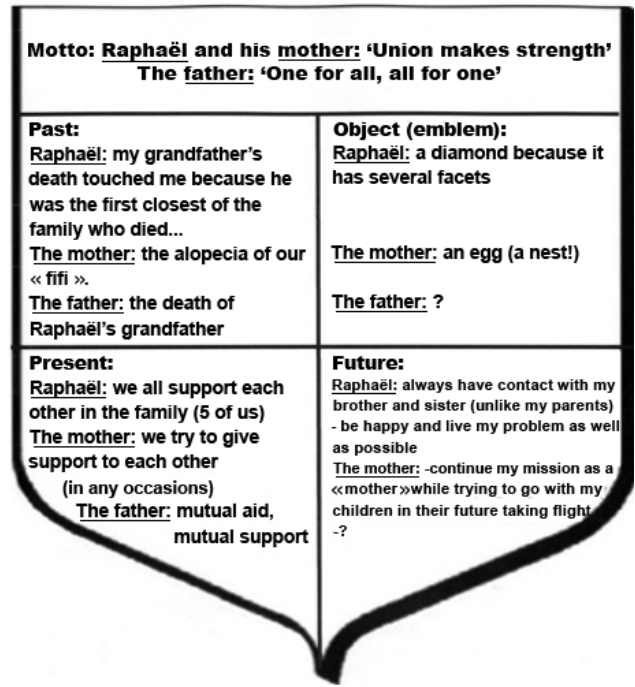


Fig. 2. Raphael's Family Blazon.

the top for the family motto. The 4 quarters are used to record the following: the past (a person or an event that marked the family's past), the present (alliances: which members help each other and which members are close to each other, etc.), the future (family aspirations and personal projects), and an emblem that represents the family.

Description of the Family Blazon of Raphaël's family (Fig. 2)

Raphael and his parents express similar beliefs about the family; unity is a predominant value. Both Raphael and his mother choose the same motto when asked to express a motto that defines their family. This seems to indicate that the members of this family share an idealistic point of view concerning their family identity. This would confirm the family's "myth" of unity.

In the square called "the past", the members are asked to write about a person or an event that was of significance at some time in the family's past. Raphael and his father identify Raphael's grandfather's death as the most important event in family past. Raphael emphasizes the fact that he lost an important person in his life. Surprisingly, Raphael's mother does not mention the death of her father on the blazon. Instead, she writes down: "the alopecia of our "fifi". We learned during the interview that Raphael's mother got along very well with her father but never could really have a discussion with her own mother. The death of her father must have been a difficult experience for her as she lost a confidant. That is why the information collected here about the past is very puzzling. Why does not she say anything about her father's death when other family members agree that it was the most important event in the family life? Is it interesting to see how "Raphael's problem", the alopecia, allows the mother to focus on something other than the death of her own father. In the quarter called The Present, the members are asked about who is helping or supporting whom. All of them talked about the cohesiveness of the family.

They deny any differences, preferences and conflicts. They seem to tell us that there are no flaws in their family support. Raphael reveals an important detail. We found out that the sup-

port does not exist with other relatives other than the 5 family members. During the whole interview, Raphael's mother draws our attention to the fact that there are "no problems" in her family. However, Raphael's father did not fill in the square related to an object symbolizing the family, though he mentioned something about it during the interview. When we asked him how he could describe the family, Raphael's father said: "like a block". This is a very strong symbol that illustrates the extreme cohesiveness between family members. Just like her husband, the object chosen by Raphael's mother contributes to reinforce the family myth of unity: an egg or a nest. Those images illustrate the deep cohesiveness, the little differentiation between members and the overprotectiveness that might probably be found in the family. As far as Raphael is concerned, he chooses a diamond because it has several facets (good and bad) and, as he told us, because the family is very precious to him. It is worthy of mention that all those objects symbolize a closed, strong and rigid system. In the portion of the blazon that represents the future, the members were asked to write about their personal projects and their family missions. This section shows a lack of interest in change and in individual evolution. Raphael's mother does not write anything concerning her personal projects. She is focused on her maternal mission. This raises a new question: how will she face to the future when her children will not need her any longer? "Raphael's problem", as they call it, might allow her to keep her function in the system forever. As long as he does not totally recover, his mother will have an important role to play in the system. Raphael's father does not mention any personal project either. He only talks about the decision that Raphael has to make to choose a college. Raphael formulates two "wishes". The first one is personal. He wishes to be happy and to cope with his problem as well as possible. What surprises us is that he seems to have accepted the disorder in his life and is not expecting a total recovery. The second wish is to keep in touch with his sister and brother unlike what his parents have done with their siblings. Raphael tells us here that they have few contacts with their relatives. We can feel Raphael's fear of losing touch with his own siblings. This would break the family unity.

Comments on Raphael's Family Blazon: together with the information gathered during the interview they demonstrate a strong myth of unity that seems to govern the family. The "family picture" drawn especially by Raphael and his mother is the picture of a "happy family", cohesive, not acknowledging any family problems. Their system of beliefs is rigidly dominated by the theme of unity. We can make two hypotheses about this: that the growing distance between the parents and their families led Raphael to fear the disaggregation of their family unity. The rule became to stay together forever, to avoid any conflicts, to suppress preferences and differences between members. We also think that the death of Raphael's maternal grandfather played a particular role in the construction of the myth. That dramatic event happened more than 10 years ago but is still very present in everybody's mind. At that time, Raphael's mother lost a very important person in her life, probably the only real "bond" with her family history. And it was the beginning of Raphael's hair loss.

The way the family history has been told by the 3 members interviewed reinforces the myth of unity. For example, special relationships between two members are constantly denied. Raphael's mother avoids talking about her mother with whom she never got along. Moreover, Raphael's father who only takes part in the interview a few minutes is the first one to tell us that Raphael's mother tries to be better than her own mother with the children. We are interested in the fact that the family seems to give certain roles and functions in harmony with the transmission of the myth of unity to Raphael and his mother. Unlike Raphael's father, they both try not to share with us any problems, any conflicts that could break the myth. Our first impression of a "happy family" is progressively replaced by a feeling that something is hidden from us, something we are not allowed to find out.

About the therapist's emotions

According to the works of Dessoy (5) on the concept of "contact" which is one of the communication modes in the family system, we chose to verbalize what we felt when we were in contact with the family members. With psychosomatic patients who do not express their feelings, we find it very important to focus on our own emotions in order to understand the emotions felt by the patient. When we met Raphael and his family we had a very nice, enjoyable time. Raphael and his mother drew a picture of a happy, cohesive family without any problems. The first emotions we felt were very positive. We felt closed out from the members. We thought that no conflict or difficulties were to be found within the family as they kept insisting on it. However, after analyzing our emotions more carefully we realized that another kind of emotion was present. We felt uncomfortable because Raphael's mother seemed not to allow us to look into family difficulties. She seemed very anxious whenever her son talked about differences between his siblings and kept denying any preferences or conflicts. We then felt more and more that we were in front of an "invisible problem". Seeking for information to contradict the myth, we learned about Raphael's fears to loose contact with his siblings in the future, comparing this situation with his parent's family situation. The topic of loss is present at this level also.

DISCUSSION

On the basis of the analysis made, we were able to confirm that Raphael's life had been dominated by the topic of loss. At the beginning, difficult circumstances around Raphael's birth might have contributed to the start of the psychosomatic disorder. Raphael's parents probably lived the event with the fear of losing their child. We can

assume that parental emotional reactions are to be considered in the understanding of this particular disorder. The theme of loss also appeared during the death of Raphael's grandfather. It is possible that Raphael's problem diverted his mother's attention from her own father's death. We also found out that the family's relationship with the parents' families are quite poor. Raphael fears the same family disaggregation with his own brother and sister. Thanks to his disorder, family members stay together. We can see how Raphael's alopecia arises in concordance with the family myth of unity. In the introduction, we mentioned metaphoric meanings in psychosomatic disorders. In this case, Raphael's alopecia seems to indicate, metaphorically speaking, that "fear of loss" is present in the family. On the one hand, the psychosomatic disorder strengthens the family unity but on the other hand, the symptom is also an attempt to eradicate the myth. In Raphael's case, "the problem" is impossible to hide. This peculiar symptom however, contradicts the family rules about not communicating what is going wrong in the family. Alopecia is probably one of the most visible psychosomatic disorder, and in Raphael's case, it becomes the only problem "expressed" in the family. That might be the reason why no problem, no flaw can be detected, none except one that chooses body language: Raphael's alopecia. Therefore, with such a visible disorder that makes him "different from others", Raphael reinstates a degree of differentiation in the system.

As Byng-Hall (6) stated, "the danger is that a family myth may become a closed belief system that cannot integrate new information. This is particularly likely to happen if the family feels that a challenge to its beliefs threatens family survival. If the myth becomes closed, family interaction loses some of the advantages of the beneficial stability gained from the myth, and becomes rigidly unable to change contexts".

That is why we choose to look at the problem through a family approach that considers the symptom in a context that gives it sense. Let us quote here Onnis et al. (7): "The symptom manifested by the patient is not the passive effect of the dysfunction of the interpersonal system in which it appears, but rather it takes on a communicative significance and plays an active (or retroactive) role in homeostatically maintaining the dysfunctional characteristics of the system. Thus, family dysfunction and the patient's symptom are so closely and circularly linked that they reinforce and perpetuate each other". Moreover, the symptom plays a "double" role in the family context that we cannot ignore. Onnis demonstrated the ambiguous position of the child or adolescent with the psychosomatic disorder in regard with the family myth. As therapists we should bear in mind that this supports both positions: the one that reinforces the myth by the cohesiveness found around the ill child and the other one according to which the symptom arises to reveal the inadequacy of the family's rigid organization.

Systemic family therapy literature emphasizes the existence of family dysfunction in psychosomatic families. One of the co-author published a study on family dysfunction in psoriasis, atopic dermatitis and alopecia areata (8). We also saw the need to analyze the health professional's emotions when meeting the family. This is especially important as each member contributes in reinforcing the myth and thus carefully avoids expressing their feelings. If we only focus on "what they say" about themselves, we miss an important source of information which could help us to understand the metaphoric meaning of the disorder. Moreover, we might take a position in the system that would reinforce the myth as well and thus prevent the family from looking to its necessary evolution. This is important for the dermatologist too: some information linked with deep, difficult emotions is carefully hidden. That is why analyzing the "contact" (emotions felt with the members) takes the caregivers to another "reality" which will help them in their task with psychosomatic patients. The metaphoric sense recovered when we analyzed the emotions felt when in contact with the family, contradicts the verbal message of the members. Siméon & Malvaux (9) in their work with obese patients also note the "heavy", "oppressive" environment felt in contact with those patients. Thus the emotions felt by the caregiver could reveal the metaphoric sense of the disorder.

CONCLUSION

Some ideas regarding the therapy of psychosomatic patients and their families are illustrated with this case. First of all, we have to bear in mind that psychosomatic disorders are to be understood as presenting at a crossroad between biological, psychological and social factors. Denying the biological vulnerability or taking care of the psychological difficulties without "healing" the body makes our therapeutic intentions doomed to failure. Cooperation between physicians and psychotherapists should be enhanced. Alexithymia, characteristic in psychosomatic patients, forces us to use different techniques in order to access those emotions not expressed in the patient's speech. In the present case we used the Family Blazon, however, the genogram (4), family sculptures (10) or other meta-

phoric tools are also useful with psychosomatic patients and their families. These techniques allow the family to get in contact with emotions linked to traumatic events, without threatening the family's unity. Using the healer's emotion, whether dermatologist or mental health professional, is also important to increase the perceptions of hidden problems. The difficulty when we meet these families is to enhance differentiation and individual development without disqualifying the love, protectiveness and unity found in the system, otherwise the family would raise resistances. The way to go further and to circumvent this difficulty is to work with the non-verbal and metaphoric images given by the family. We can then propose another way to be loyal to the family that gives more freedom to the individual.

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KEYNOTE LECTURES

KL1**SYSTEMATICS OF MENTAL DISORDERS IN DERMATOLOGY***Anatoliy Smulevich**I.M. Sechenov First Moscow State Medical University, Moscow, Russia*

Relevance of psychodermatological studies in order to elaborate systematics, exoteric as for dermatologists, as for psychiatrists, is based on a high prevalence of mental disorders in dermatology. The range for dermatological service is about 21–34% in outpatients and 31–60% in inpatients. There are several major systematics of mental disorders in dermatology [Koblentz C.S., 1987, 1992; Van Moffaert M., 1992; Koo J.Y., Lee C.S., 2003; Harth W. et al., 2007, 2009]. However a problem of classification of these disorders is still actual, as there is still a lot of controversy. The proposed classification summarizes results of studies based on about 15 year's research and consultation-liaison activities of psychiatrists of Department of Psychiatry and Psychosomatics in Dermatovenerological Clinic of the I.M. Sechenov First Moscow State Medical University. The classification is "dual" and ranges overlapping mental and dermatological presentations on the basis of a main principle – the principle of psychosomatic balancing and interrelation. Thus, the designated categories differ in contribution of corresponding constituents and are listed as follows: *I. Mental disorders with pseudodermatological presentations in a "space of skin"*. 1. Personality disorders (PD) with skin-oriented dimensions (cutaneous somatoperceptive traits): a) PD with an over-valued idea of skin beauty; b) PD self-defeating (the oppressed masochists); c) PD with skin neuropathia. 2. Neurotic psychodermatological mental disorders and distress: a) excoriation (skin-picking) disorder; b) trichotillomania/onychotillomania; c) somatoform itch (skin organ neurosis); d) formication (skin hysteralgia); e) transient psychogenic skin reactions/dysfunction in mental distress (psychogenic itch, erythrophobia/erytophobia/ereuthophobia, psychogenic acute urticaria). 3. Neurotic psychodermatological mental disorders mixed with dermatoses: a) amplifying itch (somatoform itch with a dermatosis); b) acne excoriée (skin-picking in acne). 4. Psychotic psychodermatological mental disorders: a) somatopsychosis (skin type); b) hypochondriasis circumscripta; c) tactile hallucinations; d) coenaesthesiopathic paranoia (dermatozoic delusions); e) coenaesthesiopathic paraphrenia (enterozoic delusions) and spectrum of disorders with delusional parasites infestation; f) dysmorphic delusions. 5. Artificial (factitious) disorders: a) Munchausen syndrome; b) dermatitis artefacta; c) pathomimia. *II. Nosogenic/ somatogenic provoked mental disorders and psychosomatic dermatoses*. 1. Nosogenic mental disorders provoked by dermatoses: a) psychogenic reactions (histrionic, depressive, anxious etc.); b) prolonged hypochondriac states triggered/sustained by dermatoses; c) endoform reactions in schizotypal disorder (endoform depressions, delusional/paranoiac reactions, reactions with sensitive ideas of reference etc). 2. Psychosomatic dermatoses – psychogenic (non-nosogenic) manifestations/exacerbations of dermatoses (recurrent herpes simplex, chronic urticaria, atopic eczema etc.). *III. Dermatoses provoked by mental disorders and psychotropic medications*: 1. Skin disorders provoked by neurotic mental disorders (e.g. contact dermatitis in mysophobia); 2. Skin disorders provoked by psychotic mental disorders (self-mutilation); 3. Skin adverse effects of psychotropic medications (photosensitization, skin pigmentation, allergic/contact dermatitis, toxic epidermal necrolysis etc). *Conclusion*: The proposed classification is of theoretical value, as based on psychopathological models of somatization, hypochondriasis, delusional formation. Practical value of the classification results from its relevance for differential diagnosis, prognosis and respective treatment approaches.

KL2**THE BIOPSYCHOSOCIAL MODEL IN DERMATOLOGY***Michael Dennis Linder**Medical University of Graz, Graz, Austria*

Physicians, independently on whether they practice research or clinical work (or both), require a sound theoretical model of health and illness in order to be able to make sense of their daily experiences, cope with difficulties arising out of the manifold – sometimes unforeseeable – manifestations of human nature and speculate about new concepts and mechanisms of disease. The classical biomedical model along with an essentially linear understanding of causality has served its purpose for more than two centuries and is still proving essential in research and in clinical applications. Nonetheless, we are now confronted with the growing importance of diseases which are often chronic and which cannot be managed any more by simple "one-time" medical interventions. Disease, nowadays, requires mostly a more complex approach, and one may even state, as Tinetti and Fried put it, that "time has come to abandon disease as the focus of medical care" (1). Dermatological conditions, which are not only often of chronic nature, but also deeply and inextricably rooted in a psychological and a social dimension, provide perhaps the best example of how the Biopsychosocial Model and both the scientific and the clinical approach related to it may in the future substantially improve the quality of medical care. The complex interaction of biological, psychological and social factors and the importance of non-linear causal relationships need to be taken in due consideration at all levels, from bench to bedside: from medical history taking and from the choice of the therapy to the planning of laboratory research but also to the planning of clinical studies, public health interventions and resource allotment. The field of Dermatology serves as an excellent example for the need of this change of paradigm.

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KL3**MULTIDISCIPLINARY APPROACH IN UNDERSTANDING AND TREATMENT OF MENTAL DISORDERS: MYTH OR REALITY?***Nikolay Neznanov, Anna Vasilëva**VM. Bekhterev Psychoneurological Research Institute, Saint-Petersburg, Russia*

Multidisciplinary approach became recently one of the most discussable topics among the mental health scientists. This is quite understandable because of the financial difficulties that to different extent are experiencing all over world and have their impact on the health care system, including mental health care services. The discrepancy between the costs of the every next generation of the medicines and their efficacy is constantly growing. We observe the regular appearance of the new very diverse approaches in the list of health care services. It is really difficult to define how valuable they are not comparing them with the already existing ones, especially when they belong to the different fields and specialties of the mental health care. At the same time national ministries of health care, insurance companies, patients themselves and their relatives make increasing demands and expectations to the quality of the provided mental health care services. All these mentioned above, brings about the challenge for the elaboration of the integrated therapeutic programs, encompassing the most effective approaches from the different fields of mental health care system. Their efficacy should be proved by the means of the evidence based medicine. It is quite

obvious that development of such programs can be successful only as a result of constructive discussion of the representatives of all disciplines of mental health system – psychiatrists-professionals of the in and out-patient and ambulance care units, psychotherapists, clinical psychologists, social workers and nurses. In the literature one can already easily find the calls for joining this movement. The reports about its successful appliance appear. Nevertheless

they are far away from becoming the standard of practical mental health service, where the managed care reigns. The complexity of the establishment of mutual understanding and common language among the participants of multi-professional teams is evident. This causes the doubts in realness of the determined goals and question multidisciplinary approach is a coming true reality or however is a myth?

PLENARY LECTURES

PL1

SKIN PICKING – THE ESDAP PROJECT

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Skin picking syndromes are not easy to manage. The new classification of the European Society of Dermatology and Psychiatry (ESDaP) suggests the skin picking syndromes as part of the self inflicted skin lesions. They are skin classified as a lack of impulse control with a high variance in symptoms and psychological diseases behind. There are often visible as manipulation of an existing specific dermatosis or coming up without any skin disease before. The treatment is in the meantime outlined by guidelines and one of the important features are the empathic communication to the mostly psychologically severely disturbed patients without confrontation (Eisendraht 1989). The knowledge of the underlying personality problems are the first step in the treatment. There are some habit reversal techniques which are indicated in some skin picking patients (Stein et al 2006, Teng et al 2006). This includes recognizing affect regulation, behavioral addiction and cognitive control. The differential diagnosis of the so called “skin picking” patients will be demonstrated. The ESDaP Self Inflicted Skin Lesions Task Force developed some proposals for the multidisciplinary treatment in skin picking syndromes. With regard to the severity and chronicity of the disorder there are some psychotherapeutic aspects which should be accepted in the treatment options of the skin picking syndromes.

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PL2

A HISTORY OF THE PROGRESS OF PSYCHODERMATOLOGY IN RUSSIA

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Psychodermatology is one of the most important areas of modern psychosomatic medicine, moreover it has a long history. The problem of correlation between mental disorders and skin diseases were developed in several directions in Russia. At the beginning of the last century, almost all non-communicable skin diseases were inevitably considered to be referred to the theory of Nervism (by I. M Sechenov) and Psychophysiological doctrine (by I. P. Pavlov). So, P. W. Nikolski was the first in the Russian science who has formulated the concept of «cutaneous neurosis» in 1901. Subsequently, with the discovery of new pathogenetic mechanisms of cutaneous pathology (genetic, immunological, metabolic, etc.), this approach in explaining the nature of a number of dermatoses receded into the background. Nevertheless, various psychocorrective activities were actively used by Russian dermatologists. So, Professor A. I. Kartamyshev published the first monograph «Hypnosis in dermatology» in 1936. Professor N. N. Zheltakov successfully worked for a long time on the problem of hypnosuggestive therapy. Among the studies of the '60s – 80s the work of Yu K. Skripkin in the pathogenesis of allergic dermatosis (in particular, the role of the CNS in these conditions) is worth to be noted. At the Department of Skin and Venereal Diseases of the Medical faculty (I.M. Sechenov Moscow Medical Academy) targeted research in the field of Psychodermatology occupied a priority position for a long time (1972–2013) (N. S. Potekaev, O. L. Ivanov, V. V. Ostrishko, A. N. Lvov). After the unification of efforts of experts from the Scientific school of Academician A.B.

Smulevich in 2003, the cooperation of dermatologists and psychiatrists reached a qualitatively new level. There were formulated the conceptual foundations of systematics of mental disorders in dermatology (Smulevich A., 2004–2015), was developed the theory of hypochondria circumscripta in dermatology as a basis for the emergence of dermatitis artefacta (Lvov A., 2006), were studied the psychosomatic aspects of acne, recurrent herpes simplex, psoriasis and atopic dermatitis (Michenko A., 2008), psychogenic itch (S. Bobko, 2013), were thoroughly studied the problems of neurotic excoriations, delusional parasitosis and related disorders (Romanov D., 2014). The large-scale epidemiological studies were carried out, the algorithm was developed to provide integrative medical care to patients with psychosomatic dermatoses and the schemes of rational pharmacotherapy in dermatological practice were developed as well. The most important Neuroimmunological and Neurophysiological studies that have received worldwide recognition has been continued. The pioneering works in the field of Trichology has been started. Currently, research in the field of Psychodermatology in Russia are most actively conducted in the Commonwealth of The Mental health Research center of RAMS and the Moscow Scientific and Practical Center of Dermatovenereology and Cosmetology of the Moscow Healthcare Department. There is a Psychodermatological group which is functioning as the part of both institutions. It has fully justified itself as the most effective form of joint scientific, diagnostic and treatment activities on an integrative front.

PL3 FROM EVIDENCE-BASED MEDICINE TO HUMAN-BASED MEDICINE IN PSYCHOSOMATICS

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Human-based Medicine (HbM), a form of psychiatry that focuses not only on fragments and constructs but on the whole person, no longer finds its theoretical basis in the positivism of the modern era, but rather owes its central maxims to the post-modernist ideal that ultimate truths or objectivity in identifying the final cause of illness remain hidden from us for theoretical reasons alone. Evidence-based Medicine (EbM) and HbM are thus not mutually exclusive opposites; rather, despite superficial differences in methods of diagnosis and treatment, EbM must be integrated into HbM as an indispensable component of the latter. Probably the most important difference between EbM and HbM lies in the aims and methods of treatment. In HbM the goal is no longer simply to make illnesses disappear but rather to allow the patient to return to a life that is as autonomous and happy as possible. The human being with all his or her potential and limitations once again becomes the measure of all things. This also implies, however, that the multidimensional diagnostics of HbM are oriented not only towards symptoms, pathogenesis, process and understanding but also to a greater degree towards the patient's resources. Treatment options and forms of therapy do not put the disease construct at the centre of the diagnostic and therapeutic interest, but have as their primary aim the reopening of the possibility of a largely autonomous and joyful life for the patient.

PL4 DERMATOLOGY AND PSYCHIATRY IN ISRAEL: PAST AND PRESENT

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The history of modern medicine in Israel began with the vision of Henrietta Szold (1860–1945). She was born in Baltimore, Maryland, USA as the eldest of 8 daughters of Rabbi Benjamin Szold the spiritual leader of Baltimore's temple "Ohev Shalom". In 1896, one month before Theodor Herzl published his magnum opus:

"Der Judenstaat" (The Jewish state) she described her vision of establishing a Jewish state Israel. In 1912 Henrietta Szold founded the Hadassah Organization – A women American Medical Zionist Organization dedicated to support health, education and welfare of the Jewish community in Israel (Palestine at that time).

In 1920 at age 60, Henrietta Szold immigrated to Israel. In 1921 The Meir Rothschild Hospital (Established in 1854 in Jerusalem by the Rothschild family of France) changed its name to Hadassah Hospital as the hospital of the Hadassah Medical Organization.

1913 – A clinic of dermatology was housed in a rented structure adjacent to Meir Rothschild Hospital.

1919 – The first department of dermatology in Israel was established and moved into the hospital.

1920 – Prof. Arye Dostrovsky was elected to be the first head of the department of dermatology. He was born in 1887 in Kiro (Crimea) in Russia. He studied medicine in Vienna graduating in 1914. In 1917 he completed residency in dermatology in Petrograd Immigrated to Palestine (Israel) in 1919. He was the first Chairman of the first Department of Dermatology in Israel opened in Hadassah Hospital on 1919. He was the first dean of the first Medical School opened in the Hebrew University in Jerusalem on 1949.

The first dermatologist and psychiatrist in Israel was Prof. Yakov Shanun. He was born in Mir Russia in 1911. He was a talent musician, pianist and graduated music at the academy of music in Bologna, Italy. Later he studied medicine and finished residency in dermatology in Italy in 1936. He immigrated to Israel in 1939 and settled in Jerusalem. For the first 10 years of his stay in Jerusalem, he worked as a musician and in 1949 he joined the Department of Dermatology at Hadassah Hospital. In 1956 he went to the US to study psychosomatic medicine and when he returned to Israel two years later, he founded the Clinic of Dermatology and Psychiatry at Hadassah first of its kind in the Middle East. A significant element in his activities at this clinic was his work with holocaust survivors. He noticed that many of them have dermatological problems and psychiatry disorders as well which he believed that they are connected. His works were published in international journal and the USA government funded his studies on this subject. He helped the survivors not only treating their illness but also the submission of claims to the German government in respect of their suffering. He conducted many studies on dermatology and psychiatry and in 1987 he got the medal of «Yakir Jerusalem» the highest medal of appreciation of the city of Jerusalem. He died in 1994. At present there are two clinics in Israel dedicated to dermatology and psychiatry: in the department of dermatology at Hadassah Hospital in Jerusalem and at the department of dermatology at the Ichilov-Municipal Hospital of Tel Aviv. Both are very active treating hundred of patients with dermatological and psychiatric disorders and performing many studies in this field.

PL5 ANNOUNCEMENT OF BAD NEWS IN PSYCHODERMATOLOGY

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Although they are usually not lethal, psychodermatological diseases are frequently bad news. Indeed, they are often repressed or are considered as shameful. The idea of being considered a fool is resented. The diagnosis overmuch concerns privacy. The therapeutic options (psychotherapy or drugs) are resented or frighten. Hence, the announcement of diagnosis and/or treatment of psychosomatic disease or psychiatric disease can be problematic. Paradoxical reactions of denial, excessive control, revolt, negotiation, displacement, regression or sublimation can occur.

After considering ethical, legal and psychological aspects, what to do is highly variable according to the patient and may

change over time. In any case, it is useful to announce as soon as possible that a disorder can be modulated or even be created by psychological context because the brain is the main organ of our body. Later, the speed of the announcement as well as the quantity and the quality of the data that are given to the patient vary according to each patient. The doctor must adapt. The success is not always the end of the road, especially with hysterical, psychotic or perverse patients.

PL6

PSYCHOIMMUNOLOGY IN CHRONIC INFLAMMATORY SKIN DISEASES: NEW ASPECTS IN A STIMULATING FIELD

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A growing body of evidence accumulates which shows, stress is not always stress. In particular, at the interfaces of the organism with its environment, a single acute inflammatory stimulus or an acute psychosocial stress experience can exert completely different neuroendocrine-immune reactions when compared to repeated, simultaneous or chronic challenge. In other words, is an acute psychosocial stress stimulus immediately followed by an inflammatory stimulus or vice versa, the stress-effects are additive. Under acute conditions, we observe a neurotrophin- and neuropeptide-dependent activation of innate immunity in mice both with noise-stress and with allergen provocation. If both challenges come together, a dramatically intensified inflammatory response can be observed. This exacerbation depends on neurotrophins, substance P and neurogenic inflammation. Stress-induced worsening thereby associates with a shift in the immune balance toward pro-allergic cytokine-production and also affects behavior of mice. We recently found that this process is likely to be further exacerbated by a lack of substance P-depleting mast cell proteases and a reduction of anti-inflammatory acetylcholine receptor activation. This reaction, however, is transient. By contrast, repeated stress exposure, modulates regulatory immunity and shifts the cytokine-balance towards cytokines that support a cellular dominated immune response. Under these conditions, acute inflammation resolves. At the same time, there is an increased neuroimmune interaction in the skin, which can react faster and stronger to further irritation. Chronic and pathogenetically sustainable and effective stress effects therefore seem to occur in particular when various stress stimuli interact. This process however can be trained.

PL7

UPDATE OF THE TREATMENT OF SKIN PICKING

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Objectives: Skin picking is a chronic and disabling obsessive-compulsive spectrum disorder which is also called dermatillomania. It's prevalence is, although not thoroughly studied, estimated on 2–5%. It is characterized by continuously scratching, squeezing or pinching out irregularities, such as wounds or pimples, little hairs that are about to emerge under the surface of the skin, but even healthy skin. Most patients focus on the skin of the face, but it can occur on every part of the body. Patients experience an uncontrollable urge to start the picking, and experience feelings of satisfaction during and feelings of guilt or regret after the skin picking. Consequences are tissue damage (90%) and possible

infections (around 60%). Just like in trichotillomania psychological consequences are feelings of shame and avoidance, either by masking the skin by make-up or avoidance of social events. The etiology is unknown, but a relationship with psychosocial stress is established. The undesired behaviour on the one hand helps to reduce stress, on the other hand it is a stimulating activity when the subject is bored. Every time one engages in the anxiety reducing behaviour, this behaviour is reinforced. Up till now, only a few papers addressed the efficacy of psychotherapy for patients with skin picking. **Methods:** At the Department of Psychiatry of the Academic Medical Centre, we have the first specialized habit reversal group treatment program for patients with skin picking, consisting of psychoeducation, chain analysis, stimulus response and control, restriction in time and place. The program consists of 8 group sessions with 6–8 patients of 4 hours a week during 4 months. During the last two years, we have treated 27 patients with skin picking and evaluated their symptoms using the Skin Picking Scale (SPS) and the Dutch Dimensional Obsessive Compulsive Scale (DDOCS) in a naturalistic design. **Results:** Skin picking symptoms decreased significantly during treatment. SPS scores decreased from 16.0 (SD 5.2) to 7.3 (SD 2.7) after 4 months and the DDOCS decreased 18.1 (SD 3.7) to 10.1 (SD 2.1). Three patients dropped out during our treatment. **Conclusion:** Patients with skin picking can be effectively treated with group habit reversal therapy. However, randomized clinical trials including a waiting list condition are needed.

PL8

PSYCHIATRIC MORBIDITY IN PSORIASIS PATIENTS

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Psychiatric morbidity is frequent in patients with psoriasis. Many patients may face various limitations in their psychosocial lives because of symptoms indicating the presence of psychopathological phenomena. The strong influence of the disease on patients' health-related quality of life with profound impact on the psychological aspect is well known. The objective of the examination was to detect the most frequent psychological changes in psoriasis patients. **Material & methods:** The 186 patients suffering from moderate to severe psoriasis were examined by dermatologists. The family histories & case histories were scrutinized. 31 patients (17%) with suspected psychological changes were consulted by psychiatrist. **Results:** Neurotic disorders associated with stress & somatoform disorders were diagnosed in 23 patients, including neurasthenia in 9 cases, somatoform disorders in 7 cases, panic disorder in 2 cases; mixed generalized anxiety & depressive disorder in 2 cases; obsessive-compulsive disorder in 2 cases; phobia in 1 case. Mood disorders presented by episodes of moderate severity level were diagnosed in 8 patients. **Conclusion:** 17% of patients suffering from moderate to severe psoriasis have mental diseases. Neurotic disorders associated with stress & somatoform disorders prevail. The findings prove the necessity of interdisciplinary programs of diagnostics and treatment of psoriasis.

PL9

DERMATOLOGIST-PATIENT RELATIONSHIP IN PSORIASIS

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Success in the treatment of psoriasis' patients lies not exclusively on drug efficacy but also on the change in patients' perception, helping them back to normal life. Thus, the cure implies regaining contact and intimacy with those they care about. The dermatologist-patient relationship is sometimes the field where this process is developed. *Objective:* To assess in terms of proxemics (the use of space on interpersonal communication) the association between the psoriasis and the feelings of trust and intimacy in the dermatologist-patient relationship. *Methods:* 116 psoriatic patients and 88 controls were studied in a psoriasis centre. The affective distances test was administered to both groups to compare the intimacy area and the touching behaviour of different bonds (sexual, family, work, public, with the physician, with the enemy, etc.) in each group. As patients and controls were asked to explain in writing why they chose a particular distance for each relationship, measured distances and verbal explanations were evaluated qualitatively. *Results:* Compared to controls, patients with psoriasis showed significant differences in "affective distances" with the dermatologist ($p=0.000$). Verbal associations revealed two kinds of responses: a) the attaching one, when patients feel that physical proximity means a promise of being healed or when they tend to equate medical setting with family environment and b) the avoiding one, when they fear being invaded. *Conclusion:* Psoriasis' patients establish a closer distance with their doctor than the controls. The patient's need to feel loved or attached to others influences the type of bond they have with their doctor. Thus, they confuse physical proximity and medical care: being clingy or getting the doctor to always be present means being in the doctor's mind, and therefore better treated. They also could behave at the doctor's office as if it were their home and expect the doctor to be as a family member. This promotes the tendency to deposit the burden of the disease in the dermatologist's office or to have a time-consuming behavior. On the other hand, they can develop a defense against the fusion with an attitude of detachment and avoidance that results from an unconscious fear of invasion. Sometimes, an alternation between both attitudes is observed, producing confusion in the medical team and preventing the intimacy and trust necessary for the healing process.

PL10

THE BODY-MIND-UNITY THEORY IN DERMATOLOGY – CURRENT APPROACHES TO RESEARCH

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After a groundbreaking article issued in 1977 in Science, "The Need for a New Medical Model: a Challenge for Biomedicine" which pointed to the need of integrating social and psychological factors in a new model of health and disease, George Engel published in 1980 in the American Journal of Psychiatry a second, possibly nowadays more neglected work, "The Clinical Application of the Biopsychosocial Model". Here the importance and the advantage of applying concepts from Bertalanffy's Systems Theory in Medicine are properly presented. When recognizing the hierarchy of natural systems (levels of organization) both the scientist and the clinician can go beyond the reductionist approach, thus for the first time taking into due account the interdependence "of the rules and forces responsible for the collective order of a system, whether an organelle, a cell, a person, or a community" [1]. In the course of the last decades, the biopsychosocial model has increasingly gained recognition and is now often described as a theory based on the unity of body and mind [2]. Recently, also more attention has been devoted to biopsychosocial research: data showing the complex interconnections between social, psy-

chological and biological factors are being increasingly collected. Especially in the field of psychodermatology we find significant results that emphasize the importance of a multidimensional approach, which adequately recognizes the unity of body and mind both in research and daily medical practice.

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PL11

PERSONALITY TRAITS IN PATIENTS WITH PSORIASIS

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Objectives: In psychodermatological literature, personality has been treated both as a psychological consequence of skin disease and as stable traits that might modulate the onset and course of skin diseases. The literature regarding personality traits and psoriasis is sparse. The aim of measuring personality traits in our studies was to identify potential traits of psychological vulnerability in different clinical subgroups of patients with psoriasis. To the best of our knowledge, no previous study has yet used the Swedish Universities Scales of Personality (SSP) in psoriasis research. *Methods:* A descriptive cross-sectional study was conducted among 101 consecutively recruited outpatients with psoriasis. A psychosocial interview was performed followed by self-assessment of validated questionnaires: SSP, Spielberger State-Trait Anxiety Inventory Form-Y, and Beck Depression Inventory. Psoriasis severity was assessed by the Psoriasis Area and Severity Index. Pruritus was measured by a Visual Analogue Scale. *Results:* Three clinically relevant subgroups of patients with an increased psychological vulnerability could be identified: Early age at onset of psoriasis, but not disease duration, was significantly associated with four pessimistic personality traits, i.e., embitterment, trait irritability, mistrust, and verbal trait aggression. Early age at onset of psoriasis was also associated with higher scores of depression and anxiety, compared with late onset psoriasis. Patients with higher levels of pruritus showed higher scores in four negative pessimistic personality traits, i.e., somatic trait anxiety, embitterment, mistrust, and physical trait aggression. Those with severe pruritus also reported significantly higher scores for both depression and anxiety. Sixty-four patients (63%) reported a subjective association between disease exacerbation and stress, and were defined as "stress reactors". Stress reactors showed a significantly more vulnerable and stress susceptible personality profile and higher scores of both depression and anxiety, compared with non-stress reactors. *Conclusion:* From a clinical perspective, our results stress the importance of increased attentiveness to psychological vulnerability when caring for patients with psoriasis, especially those with young age at onset, and/or severe pruritus, and/or patients who experience disease exacerbation during stress.

PL12

POST-TRAUMATIC GROWTH IN MELANOMA SURVIVORS

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Cancer patients experience positive as well as adverse consequences from cancer diagnosis and treatment. We shall review

psychological adjustment issues in melanoma patients and their differences with other cancer areas such as breast cancer. We also will present preliminary data on an ongoing study aimed to characterize the experiences of posttraumatic growth (PTG) in a cohort of female melanoma survivors and their significant others. **Methods:** This cross-sectional study is part of a multimethod, two-stage design (quantitative in the first phase and qualitative in the second) and a longitudinal project. For this phase we collected medical variables and physical variables as well as the following questionnaires: Posttraumatic Growth Inventory (PTGI), Impact Event Scale, Mental Adjustment to Cancer Scale, Life Orientation Test, Distress Thermometer, Hospital Anxiety and Depression Scale, Functional Assessment of Chronic Illness Therapy General (FACIT-G) and Spirituality (FACIT-Sp). Partner or significant others were approached and completed PTGI and personal account of patient's observable and behavior change (health behavior inventory). In the qualitative part of this study we use an interpretative phenomenological analysis (IPA) of groups of women melanoma patients who are willing and able to describe a detailed assessment of cancer-related disclosure and the pre-existing factors promoting psychological growth and maintenance of a sense of well being. **Results:** 30 women survivors (18 months average time from stages IA-IB-IIA, IIB melanoma diagnosis with no clinical evidence of disease at last medical follow-up) were approached and 75% reported finding benefit from their experience. Enhanced interpersonal relationship and greater spirituality were the most commonly cited scales. PTG was also prevalent among significant others. The PTG scores and significant others accounts were highly correlated. We found a robust relationship between perceived threat (IES) and PTG. Posttraumatic growth was not associated significantly with factors pertaining to cancer treatments variables. MAC fighting spirit was associated positively with PTG scales and MAC helplessness/hopelessness was negatively associated. We found no evidence of PTG being associated with reduced distress (HADS scores and NCCN thermometer). A modest positive correlation was found between PTG and optimism. IPA of 30 women melanoma survivors with high rates in the Spanish version of PTGI (21 item self-report inventory) reported some issues relating to the underlying interpersonal factors as predictors of benefit finding.

PL13

QUALITY OF LIFE IN NON-MELANOMA SKIN CANCER

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Non-Melanoma Skin Cancer (NMSC) is common, has low mortality, and often occurs in the context of field cancerization. As a result of this, patients often have a protracted disease course. Approximately 80% of NMSC appear in the cervicofacial region, and the disease therefore predominantly involves areas readily visible to both the patient and relatives. The assessment of patient-reported outcomes may therefore be particularly important in NMSC. Studies using generic and dermatology-specific Quality of Life (QoL) measures have shown only a minimal impact of NMSC on patients. On the contrary, studies using open-ended questions for NMSC and actinic keratosis have identified a number of significant QoL issues, especially emotional concerns. The need for QoL instruments to capture patients' concerns and explore the field of rising NMSC incidence and new non-invasive treatments have led to the development of different skin cancer-specific QoL questionnaires. The Skin Cancer Index (SCI) questionnaire concerning QoL of patients with NMSC on the face and neck was designed and validated for patients undergoing Mohs surgery. The Skin Cancer Quality of Life Impact Tool has been developed for patients following surgical removal of non-metastatic skin cancer

(Malignant Melanoma or NMSC). The Skin Cancer Quality of Life (SCQoL) questionnaire was developed, tested and found useful for assessing QoL in patients with NMSC affecting any area and undergoing any therapy. A clinical interpretation of the SCQoL scale score has also been made.

PL14

DELUSIONAL PARASITOSIS: EVIDENCE OF HETEROGENEITY OF THE DISORDER

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Delusional parasitosis (DP) defined also as Ekbom syndrom, delusional infestation or zoopathic delusion (Dermatozohewahn) is designated by a false idea of infestation with parasites. Although there is a plenty of case and case-series publications of clinically variable forms of the disorder, existing data lack information about possible rationale for such heterogeneity of DP obtained in large clinical samples. Objective is to establish clinical heterogeneity of DP in a large sample of outpatients referred to dermatological department. **Methods.** The study sample comprise 64 subjects (50 female; mean age – 59.5 ± 16.5 years) diagnosed with DP in 2009–2014. The methodological approach included precise dermatological and psychiatric evaluation performed in an interdisciplinary paradigm. Psychiatric assessment was based on a phenomenological psychopathology and pointed on precise description of signs, symptoms, and syndromes, i.e. mental states. **Results.** Psychopathological structure of DP is complex. It corresponds to conceptual binary model and comprise basic/primary and secondary/derived phenomena. The former include different sensory phenomena (tactile/coenaesthesiopathic and visual hallucinations), the later include corresponding ideatoric symptoms (delusions of infestation per se). As a result of analysis of primary and secondary symptoms interactions, three major types of DP were delineated: coenaesthesiopathic paranoia, coenaesthesiopathic paraphrenia and zoopathic delusion of imagination. In coenaesthesiopathic paranoia tactile sensory phenomena predominate over visual hallucinations and correspond delusions of parasites infestation of the skin. In coenaesthesiopathic paraphrenia coenaesthesiopathic phenomena extend to include also visceral hallucinations (“parasites crawling inside”). Correspondingly delusions of parasites infestation are not limited by skin involvement, but include visceral invasion (Enterozoenwahn). By contrast, in zoopathic delusion of imagination coenaesthesiopathic phenomena are minimal (e.g. just skin surface), and visual hallucinations predominate. Correspondingly delusions of parasites infestation are florid, inconsistent, vivid and imaginative (multiple diverse images of parasites projections on a “skin screen”). **Conclusion.** The proposed major types of DP could differ in prognosis and suggest different diagnostic and treatment approach.

PL15

DELUSIONAL INFESTATION AND UPDATE FOR DERMATOLOGISTS

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Delusional infestation (delusional infestation), formerly also known as delusional parasitosis or Ekbom syndrome, is a rare disorder, but often raises disproportionate practical problems for health care systems. Delusional infestation is characterized by a patient fixed belief that your skin, your body, or your immediate environment is infested by small, living (or less frequently inanimate) pathogens, despite a lack of medical evidence for this. 40% of patients have a mono-delusional form of delusional infestation. Approximately 60% of patient have

secondary forms of delusional infestation that occur in the context of substance abuse (for example, cocaine, amphetamines, cannabis), dopaminergic drugs, antibiotics, or can be associated with physical or mental illness (such as delirium, dementia, depression, schizophrenia, stroke, and other medical conditions that affect the brain or cause itching). The neurobiology of delusional infestation is not fully understood. Studies point to structural brain dysfunction or damage to the frontal cortex, the dorsal striatum, parietal and temporal cortex, and thalamus, i.e., the brain areas involved in sensory interpretation and learning. This supports the hypothesis that delusional beliefs are the result of problems with basic processes of learning and probabilistic reasoning. Consider delusional infestation in patients presenting with a fixed belief that they are infested with living or non-living organisms. Always exclude actual infestation first, review by a dermatologist or specialist in infectious diseases is usually appropriate. Recognize patients' distress, but do not reinforce false beliefs. Most patients require antipsychotics (amisulpride, olanzapine or risperidone), which can be offered as a means to alleviate symptoms and distress. Response rates are very good and doses are usually lower than in the treatment of schizophrenia. Management ideally requires a multidisciplinary approach, but as patients rarely agree to full psychiatric assessment the clinician who has developed trust with the patient should initiate treatment.

PL16 **DERMATITIS ARTEFACTA IN CHILDHOOD**

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Dermatitis artefacta (DA) is a factitious disorder caused by the deliberate production of skin lesions by patients usually with a history of underlying psychological problems. The patient may not be fully aware of this, and the true extent of this disorder is unknown. The skin lesions in this condition may be produced consciously by the patient, followed by an attempt to conceal and deny any involvement in their production. The subject may be aware that they are driven to create the lesions, or in some instances the activity may occur in a dissociative state outside the patients' awareness. DA is not well understood and is probably under diagnosed. Also, the aetiology of DA is multifactorial with a strong psychological component. Management of these patients can be especially challenging as many fail to engage effectively with their dermatologist. In children bullying, exam stress, parental divorce or separation is the common precipitating factors. DA in this group is usually transient and milder probably resulting from a maladaptive response to a psychosocial stress. Psychosocial stressors can be identified as a trigger in most cases and it is essential for the clinician to explore why the patient is presenting with DA rather than how they are creating their skin lesions. Rarely it may be possible to elicit a history of physical or sexual abuse especially if the DA lesions involve the genital skin or breasts. Although the link between the skin and psyche is not new the lack of awareness, expertise training and resources make caring for this group of patients not only challenging but also results in inefficient use of resources. And so these patients are best managed in a dedicated psycho dermatology setting which, evidence indicates, improve outcomes.

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PL17 **AN UPDATE ON PHARMACOLOGICAL INTERVENTIONS IN SKIN PICKING DISORDERS**

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Skin picking disorder is fairly common and undertreated. No specific pharmacological agent has been approved for the treatment of skin picking disorder. Recent studies suggest that drugs acting upon serotonin, dopaminergic, and glutamatergic receptors have shown promising results in various case reports and open trials. Double blind randomized studies and multicenter controlled clinical trials are needed to determine the efficacy of such agents.

PL18 **ANTI-PRURITIC MECHANISMS OF CYCLOSPORIN A IN ATOPIC DERMATITIS**

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Background: Atopic dermatitis (AD) is a chronic relapsing inflammatory skin disease associated with skin barrier impairment characterized by eczematous skin lesions and intense pruritus. Cyclosporin A (CsA) is an immunosuppressive agent that suppresses pruritus and is currently used in the treatment of patients with severe AD, although its antipruritic mechanism is poorly understood. *Objective:* This study was performed to reveal antipruritic mechanisms of CsA in AD using NC/Nga mice, a mouse model of AD. *Methods:* Dermatitis was induced by repeated application of *Dermatophagoides farinae* body ointment to the dorsal skin of NC/Nga mice. Different concentrations of CsA (1 mg/kg and 5 mg/kg) were administered intraperitoneally to each group of mice. Skin and dorsal root ganglion (DRG) were taken to investigate histological examination and gene expression, respectively. *Results:* Intraperitoneal administration of 5 mg/kg CsA reduced number of scratching, dermatitis scores, and transepidermal water loss, as well as reducing epidermal nerve fibers, CD4-immunoreactive T cells, mast cells, eosinophils, and epidermal thickness. In addition, it reduced itch-related gene expression such as IL-31ra and NK1R (Tacr1) in the DRG of 5 mg/kg CsA treated-mice compared with those in control mice. *Conclusion:* These findings suggest that the therapeutic efficacy of CsA in pruritus of AD may involve reduced epidermal nerve fiber density and expression levels of itch-related receptor genes in the DRG as well as improvement of acanthosis and reduction of cutaneous inflammatory cell numbers.

PL19 **PRURIGO NODULARIS: WHAT DO WE REALLY KNOW ABOUT THIS DISEASE?**

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Prurigo nodularis (PN) is a highly pruritic condition resulting from a vicious circle of repeated itching and scratching. It is characterized by the presence of multiple hyperkeratotic, erosive, and bleeding nodules and papules. PN occurs very rarely among dermatological patients; however, in our itch clinics, PN patients comprise one-third of the patients with chronic pruritus. Multiple pruritic diseases are known to underlie PN. Interestingly, women exhibit PN significantly more often than men. The pathophysiology of PN is still unknown, but peripheral sensitization and dermal neuronal hyperplasia seem to be involved. Clinically, a broad range of lesional types is seen in prurigo. We identified up to 500 single lesions in patients, with an average of over 150 papules and nodules per patient. Analysis of the different types of prurigo

enabled identification of five prurigo forms: papular, nodular, plaque, ulcerative, and umbilicated ulcerated types. The papular, nodular, and plaque types may merge into one another. Based upon this terminology, we suggest a novel classification and a prurigo activity score (PAS) that enables the assessment of PN in medical care and clinical trials. All patients with prurigo, irrespective of the type, have a high burden and severely reduced quality of life due to visible, repeatedly bleeding skin lesions and availability of few treatment options. Treatment of PN continues to be challenging. There are only a few randomized controlled trials investigating the efficacy of topical pimecrolimus, topical steroids, and certain phototherapies in PN. All other therapies have been evaluated in case series or case reports. Based upon our experience, we have developed a treatment ladder for PN comprising the most effective treatment options including pregabalin, gabapentin, apreritant, and naltrexone, and immunosuppressants such as cyclosporine or methotrexate.

PL20

BRAIN PROCESSING OF CONTAGIOUS ITCH IN PATIENTS WITH ATOPIC DERMATITIS AND ITS ALTERATION THROUGH PROGRESSIVE MUSCLE RELAXATION

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Background: Itch can be induced by observing other people scratching, a phenomenon referred to as contagious itch (CI). The brain processing of CI has been previously investigated in healthy subjects, but not in chronic itch patients. Interventions that target the brain such as stress management trainings decrease itch in patients with atopic dermatitis (AD). The aim of this study was twofold: to examine brain activity during CI in AD-patients and to examine whether progressive muscle relaxation (PMR) can alter CI and the brain activity associated with it in AD-patients. **Methods:** Nineteen AD-patients were shown two videos: an experimental video (EV) showing other people scratching and a control video (CV) showing the same people sitting idly. If patients reacted to the EV with an increase in itch intensity of at least 3 (VAS 0–10) and fulfilled the inclusion criteria, they were included in the study ($n=11$). Eight of them took part in a 2-week PMR intervention. Before and after the PMR, they underwent fMRI scans and were shown the videos in- and outside the scanner. Perfusion based brain activity during the videos was measured using arterial spin labeling. Itch intensity was assessed in- and outside of the scanner. Scratching (duration and number of scratch movements) was assessed outside the scanner and was evaluated by two independent people (inter-rater-reliability $r>0.94$; $p<0.001$). **Results:** At baseline, the presentation of the EV compared to the CV led to a significant increase in brain activity in the supplementary motor area (SMA; threshold: $p<0.001$; cluster size >20). Moreover, the presentation of the EV led to a significant increase in itch and scratching ($p<0.05$). Region of interest analyses indicated that induced activity in the SMA was reduced after participation in PMR. In addition, induced itch and the number of scratch movements measured outside the scanner were significantly reduced after PMR ($p<0.05$). **Conclusions:** This study showed that CI leads to an activation of the SMA, which was significantly reduced after PMR in AD-patients. The SMA is a region that is associated with the motor intention derived from the desire to scratch. Thus, decreased activity in this region may reflect the reduced urge to scratch. Future studies should investigate the effects of PMR in randomized control trials that include patients with other skin diseases for which also a relationship between stress and itch has been shown.

PL21

PROBLEMS OF DIAGNOSTICS AND TREATMENT OF PSYCHOGENIC ITCH

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Itch is determined by its high prevalence, problems of diagnostics, social-economical loss, not clarified mechanisms of pathogenesis and limited therapeutic and prophylaxis methods. According to classification, itch can be chronic (during 6 weeks and more) and acute; in addition, itch is a dermatological sign of skin diseases, systemic diseases and psychiatric disorders. The aim of our work was to determine systematics, to study clinical picture, to improve complex therapy and prophylaxis of psychogenic itch based on complex clinical (dermatologic, psychiatric, psychological) and experimental examination. In the period of 2009–2013, 60 patients (54.28 ± 15.79 years) with itch duration about 5 years were examined by psychodermatological group including Visual analog scale (VAS) and Eppendorf index, Life Style Index, Mini-Mult index, Hospital Anxiety and Depression Score. As a result of the study there were 3 groups of patients: the 1st group of patients with psychogenic itch ($n=28$), the 2nd group of patients ($n=18$) with amplified itch that did not correlate with severity of skin lesions in skin diseases and the 3rd group with itch by neurotic excoriations ($n=14$). According to VAS in 46.7% ($n=28$) itch intensity was high – more than 7 points – and in 43.4% ($n=26$) medium – 4–6 points. The relationship of psychotraumatic factor in these 3 groups was statistically significant ($p=0.038$). Patients with psychogenic itch had somatoform disorders in 41.3%. Personal predisposition was observed in patients with demonstrative (56.6%) and avoidant (21.8%) features. Complex treatment with dermatological and psychotropic drugs (antidepressants and neuroleptics) and prophylaxis in concordance with psychiatric disorders and clinical picture allow to achieve clinical efficiency in 58.4% in treatment of psychogenic itch.

PL22

THE PREVALENCE AND INTENSITY OF ITCH IN DERMATOLOGICAL PATIENTS IN EUROPE

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Introduction: Itch is the most common symptom in patients with dermatological disease. **Objectives:** To describe the prevalence and intensity of the symptom itch among dermatological patients in 13 European countries. **Material and Methods:** In dermatological clinics in 13 countries in Europe, a questionnaire was filled in by 250 consecutive patients. In addition 125 healthy controls filled in a questionnaire in each country. The questionnaire had an item on the presence of itch or not, and if yes the duration and intensity of itch assessed with a visual analogue scale. The study was approved by the Ethical Committee of Oslo and from each participating country. The diagnoses were categorized in 26 groups of common skin conditions. **Results:** The total number of responders was 4,994 (3,635 patients and 1,359 controls). The prevalence of itch was 54.4% in patients and 8% in controls. The intensity (range 0–10) was highest in patients with prurigo (7.4 ± 2.3), lowest in patients with non-melanoma skin cancer (4.0 ± 2.4) and benign skin tumors (4.0 ± 2.0). **Conclusions:** The presence and intensity of itch varies among the 26 different categories of skin diseases and is a common symptom among the

controls. The findings show that itch is a significant symptom in a wide range of skin diseases. To our knowledge, this is the largest study to report the prevalence of itch in different skin diseases using the same questionnaire.

PL23

THE BURDEN OF CHRONIC URTICARIA

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Urticaria is one of the most common skin diseases. If symptoms last longer than six weeks, urticaria is considered as a chronic one. Despite the high prevalence of chronic urticaria, its influence on patients' well-being has been poorly studied so far. Recently we have performed a large multicenter study to provide more insights regarding the relevance of chronic urticaria on patients' functioning and psychosocial status. A total of 1,091 adults (709 women and 382 men) with chronic urticaria (383 with inducible urticaria and 708 with chronic spontaneous urticaria) have been included into the study. Beside collecting a detailed anamnesis all patients were asked to complete the Dermatology Life Quality Index (DLQI), Work questionnaire (Q-Work) of Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q), Athens Insomnia Scale as well as to assess pruritus with visual analogue scale (VAS) and 4-item itch questionnaire (4-IQ). Chronic urticaria was responsible for at least moderately impaired quality of life (QoL) in 65.1% of patients. No significant differences were observed between patients with inducible and chronic spontaneous urticaria regarding QoL (8.9 ± 6.2 vs. 8.3 ± 6.1 points, $p=0.14$), work activity ($74.3 \pm 16.4\%$ vs. $74.3 \pm 18.4\%$, $p=0.99$) and pruritus intensity assessed with VAS (6.8 ± 2.3 vs. 6.7 ± 2.4 points, $p=0.26$). Patients with chronic spontaneous urticaria compared to those with inducible urticaria had slightly more problems with sleeping: 7.3 ± 5.3 points vs. 6.2 ± 4.9 points ($p<0.001$) and slightly higher pruritus scoring according to 4-IQ (8.8 ± 4.0 vs. 7.7 ± 3.9 points, $p<0.001$). Severity of urticaria significantly correlated with patients QoL ($r=0.55$), problems with sleeping ($r=0.4$), pruritus intensity ($r=0.34$), and to lesser degree with decreased work activity ($r=-0.22$) and itch severity according to 4-IQ ($r=0.26$) ($p<0.001$ for all comparisons). Significant correlation was also observed between DLQI scoring and mean pruritus intensity ($r=0.39$, $p<0.001$). Our large epidemiological study clearly indicated, that patients with chronic urticaria often demonstrate impaired QoL, and the QoL alteration is independent on the urticaria type, but is rather related to pruritus severity.

PL24

THE BURDEN OF ATOPIC DERMATITIS AND ACNE – A COMPARISON WITH A STRATIFIED CONTROL GROUP

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Objectives: Atopic dermatitis (AD) is a common skin disease characterized by chronicity, itch and typical infected skin areas. Acne vulgaris is another chronic skin disease which like AD also mainly affects adolescents and young adults. Psychological factors seem to be responsible for the course of the diseases in a subset psychological abnormalities in patients with AD and acne (compared with healthy controls (HC)). Besides, predictors of these

abnormalities will be identified in both patient groups. *Methods:* All patients and skin HC were selected from the data pool of the ESDaP study. Then for each group of patients a control group was chosen stratified by country of origin, age, sex and socioeconomic status. A total of 152 AD-patients (age 36.92 ± 14.6 years) and 152 HC (age 37.11 ± 13.3 years) (each group included 66 males and 86 females) as well as 140 acne patients (age 25.65 ± 7.16 years) and 140 HC (age 26.22 ± 5.95 years; each group included 49 males and 91 females) were selected. All subjects completed questionnaires assessing socio-demographic and disease-related variables, the DLQI, HADS and EQ-5D. In addition, all patients were seen by a doctor to verify the diagnoses and to determine the severity of skin disease. *Results:* Compared to HC, AD-patients scored higher concerning problems with self-care (EQ-5D: OR=5.27; CI 95%=1.48, 18.73), pain/ discomfort (EQ-5D: OR=3.09; CI 95%=1.93, 4.96), problems with usual activities (e.g. work, study, housework, family or leisure activities; EQ-5D: OR=2.47; CI 95%=1.39, 4.39), depression (HADS: OR=2.34; CI 95%=1.29, 4.25), suicidal ideations (OR=2.32; CI 95%=1.06; 5.07) and perceived stress (OR=1.62; CI 95%=1.02, 2.57). Acne-patients differed from HC in only a few scales. They scored higher in the following items: anxiety/depression (EQ5D: OR=2.26; CI 95%=1.39, 3.67), depression (HADS: OR=2.04; CI 95%=1.05; 3.96) and stress (OR=1.77; CI 95%=1.07; 2.93). Predictors for these increased values will be presented at the conference. *Conclusions:* Both groups of dermatological patients reported a reduced quality of life, increased depression values and more stressful life events than HC. Compared to acne patients, AD-patients experience limitations in more areas of life. The predictors for these increased values will be presented at the conference. Moreover, possible psychotherapeutic approaches will be discussed.

PL25

PREVALENCE OF IATROGENIC DRUGS CAUSING SECONDARY DELUSIONAL INFESTATION

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Objectives: Our objective was to find out the prevalence of iatrogenic drugs causing secondary delusional infestation in a dedicated psychodermatology clinic in the UK. *Methods:* We conducted a retrospective study to find out the prevalence of iatrogenic induced secondary delusional infestation in patients diagnosed with delusional infestation between 1st March 2012 and 1st March 2015. *Results:* 86 patients seen in psychodermatology clinic between 1st March 2012 and 1st March 2015 were diagnosed with delusional infestation. 6 (9.3%) of patients were on medications that are known to be causative of secondary delusional infestation. A further 2 (2.3%) patients were HIV positive and on antiretrovirals. Of the 6 patients, 1 patient had Parkinson's and was on ropinirole a dopamine-receptor agonist. 4 patients were on opiates (1 patient was taking oxycodone, oxycontin and ketamine for chronic back pain, under the pain clinic for three unsuccessful spinal operations; 1 patient was taking oral morphine for Tarlov perineural sacral cysts; 1 patient was taking opiates for chronic pain due to chronic fatigue under the pain clinic; and 1 patient was taking methadone, morphine and temazepam for a cause not documented in the hospital medical records). 1 patient was taking a prescribed benzodiazepine for a cause not documented in the hospital medical records. *Conclusion:* Health care professional need to be mindful before commencing drugs such as opiates and benzodiazepines in patients as delusional infestations is a possible consequence. We believe that health care professionals need to monitor patients for the development of delusional infestation early if they start such medications. Anaesthetists and other health care professionals involved in pain clinics must also be alert to the possibility and be aware of how to manage such patients.

PL26**SENSE OF TENSION BEFORE PICKING AND RELIEF DURING OR AFTER PICKING IN ISRAELI ADULTS SCREENING POSITIVE FOR EXCORIATION (SKIN PICKING) DISORDER***Vera Leibovici, Nancy J. Keuthen**Hadassah-Hebrew University Medical Center, Jerusalem, Israel and Massachusetts General Hospital, Harvard Medical School, Boston, USA, Jerusalem, Israel and Boston, USA*

Objective: The aim of the survey was to search for the relationship between loose and strict excoriation (skin picking) disorder (SPD) and the sense of tension or nervousness building up before picking the skin, or while attempting to resist picking (tension) and sense of pleasure or relief during or after picking the skin (relief). **Methods:** Of the 4233 preexisting questionnaires used in previous surveys of SPD in the Israeli population, only 2741 questionnaires, contained data regarding tension and relief and were therefore chosen for this study. Data regarding severity of depression, perceived stress, generalized anxiety, body dysmorphic disorder (BDD), obsessive-compulsive disorder (OCD), attractiveness to yourself and others, smoking, alcohol use, illicit drug use, were further investigated. Loose SPD was defined as including either associated distress or functional impairment, while strict SPD was defined as having both distress and functional impairment. **Results:** Of the 205 participants screening positive for SPD, 147 (71.7%) endorsed criteria for SPD loose and 58 (28.3%) for SPD strict. The mean age of participants was 33.1 (15.6) [18-81]. A total of 945 (44.4%) participants were above the age of 30. The proportion of male participants was 42.8% and 1096 (40.2%) were married. Severity of depression ($p<0.001$), OCD ($p<0.001$) and perceived stress ($p<0.001$) were greater in the SPD (strict and loose) positive sample. Similarly, attractiveness to yourself ($p=0.01$), BDD ($p<0.001$), generalized anxiety ($p<0.001$), smoking ($p=0.02$) and alcohol use ($p=0.02$) were more prevalent in the SPD (strict and loose)-positive responders. OCD ($p=0.04$), BDD ($p=0.002$) and generalized anxiety ($p=0.001$) were significantly higher in the SPD strict participants as compared to the SPD loose ones. Contrarily, depression ($p=0.35$), perceived stress ($p=0.6$) and attractiveness to yourself ($p=0.78$) and attractiveness to others ($p=0.76$) were not different between SPD strict and SPD loose groups. Participants screening positive for SPD loose or SPD strict endorsed significantly higher sense of tension or nervousness building up before picking the skin, or while attempting to resist picking (tension) ($p<0.001$ and $p<0.001$, respectively) and sense of pleasure or relief during or after picking the skin (relief) ($p<0.001$ and $p<0.001$, respectively) as compared to non-SPD participants. Participants with strict SPD presented with higher tension and relief than those with loose SPD ($p<0.001$). Sixty-nine (69.4%) of the total participants screening positive for SPD (loose and strict) present with tension before picking or while resisting picking. Sixty-three (63.4%) of total SPD (loose and strict) present with relief after picking. Only 31% of total SPD (loose and strict) present with both tension and relief. **Conclusions:** Two third of the participants screening positive for SPD present with either sense of tension or nervousness building up before picking the skin, or while attempting to resist picking (tension) or sense of pleasure or relief during or after picking the skin (relief), but only one third presents with both of them (tension and relief). Although, not a major criteria for skin picking, tension and relief are a sensitive indicator of the severity of skin picking and of its possible association with psychiatric comorbidities.

PL27**AN ANALYSIS OF THE RANGE OF MENTAL DISORDERS, PROVOKED BY CHRONIC DERMATOSES, WHICH PRESENT TO UNIVERSITY HOSPITAL DERMATOLOGY****DEPARTMENT IN RUSSIA***Igor Dorozhenok**I.M. Sechenov's First Moscow State Medical University, Moscow, Russia*

Objectives: There was a clinical study to assess the range and typology of nosogenic mental health disorders, provoked by chronic dermatoses, which present to a University Hospital Dermatology Department in Russia. **Methods:** 767 patients (av. age 38.3 ± 6.3) with nosogenic disorders (ND) (F43; F45) were examined in Dermatology Hospital FMSMU I.M. Sechenov (atopic dermatitis – 132; psoriasis – 127, acne – 118, rosacea – 115, eczema – 109, seborrheic dermatitis – 88, lichen planus – 64, pemphigus – 14 patients). Each patient was examined by psychiatrist, psychologist and dermatologist by clinical method and with use of standard diagnostic scales and questionnaires. **Results:** Depressive and dissociative nosogenic disorders (ND) were found in severe dermatoses with a predomination of somatogenic and vital factors (extensive affection of skin, frequent relapses, pain, itch, life threat and risk of disability). Depressive ND included depressed mood, crying, irritability, sleep disorders, hypochondriac fears, and somato-psycho hyperaesthesia. Dissociative ND were characterized by rational relation to manifestation of severe dermatosis with formation of overcoming behavior in patients with expansive-schizoid and paranoid premorbid personality (PP) with deficit in body self-consciousness (masqued hypochondria) or neglect of disease in patients with hysteric-hyperthymic or borderline PP with somatopsychic depersonalization (aberrant hypochondria). External-based (1) and internal-based (2) ND revealed in moderate dermatoses with predomination of psychogenic factors (affection of open skin areas, associated with cosmetic defect). 1. Patients consider cosmetic defect due to its perception by others in social situations, that leads to formation of anxiety-phobic (social phobia, situational avoidant behavior, avoidant and hysterical PP) and obsessive (sensitive ideas of reference, total avoidant behavior, sensitive-schizoid PP) symptoms. 2. Possession with ideas of elimination of cosmetic defect in order to reach «ideal» appearance – overvalued hypochondria (pathological fixation on affection of skin, absence of social phobia, massive autoaggressive behavior, narcissistic and schizotypal PP). **Conclusion:** Clinical typology was developed and psychopathological structure of nosogenic disorders was identified according to clinical severity of dermatosis, predomination of somatogenic, vital or psychogenic factors, structure of patient's personality.

PL28**ALEXITHYMIA AND PSORIASIS***Marta Garcia Bustinduy, Cristina Vazquez Martinez, Bryan Fuentes Perez**Medical School of La Laguna. Hospital Universitario de Canarias, La Laguna, Spain*

Objectives: Our aim was to compare the prevalence of alexithymia traits among psoriasis patients in the Canary Islands, Spain, and a control group (healthy subjects) and also with patients in Slovenia. We also wanted to find out epidemiological factors that could influence the results on both psoriasis groups of patients. **Materials and Methods:** We designed a transversal case-control observational study, including 30 patients with moderate to severe psoriasis born in the Canary Islands, 30 Slovenian patients and 30 control healthy subjects. Their alexithymia traits were assessed according to the 20-item version of the Toronto Alexithymia Scale (TAS-20). Psoriasis severity was evaluated using the Psoriasis Area and Severity Index (PASI). In addition, study subjects provided some personal data by completing a questionnaire about their own life and illness. Statistical analysis was performed using SPSS 20 (Chicago, Illinois). **Results:** For those patients in Spain, higher prevalence of alexithymia traits were found in the psoriasis group, but it was not statistically significant ($p=0.166$). Our

analysis showed no statistically significant differences between both groups, except for a connection of certain alexithymia traits and the patient's psychiatric history ($p < 0.05$). When comparing Spanish with Slovenian patients, a statistically significant higher prevalence of alexithymia traits were found among the last, moreover, the psychiatric history showed a negative relationship with these higher alexithymia traits found in the Slovenian population ($p = 0.05$). *Conclusion:* Alexithymia traits were found to be slightly higher among psoriasis patients than in healthy control subjects in the Canary Islands. Higher scores were found among Slovenian patients. Previous psychiatric illness was found more on those Spanish patients showing alexithymia higher traits than in Slovenian patients.

PL29

THE QUALITY OF LIFE OF THE PATIENTS WITH PSORIASIS VULGARIS IN BULGARIA

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Objectives: To evaluate the relationship between the effectiveness of treatment and the psychological status of patients suffering from Psoriasis vulgaris in the in-patient and out-patient setting in the University Teaching Hospital Pleven. *Methods:* 100 patients with Psoriasis vulgaris were asked about the impact of their disease and its treatment on their lives; The patients were asked to fill in the DLQI questionnaire on day 0 of their hospitalization and once again, on day 10, the day of their discharge from the hospital. The results unwarrantedly show that the DLQI score of these patients did not decrease (their DLQI score was evaluated to be the same on day 0 and on day 10 in most of them, or the variation was insignificant). It was noted the Psoriasis Assessment and Severity Index (PASI) score of these patients showed that the disease was well treated and the severity of the skin disorder decreased significantly. *Results:* The DLQI questionnaire was also completed by twenty patients with Psoriasis vulgaris, with treatment in the out-patient setting. The results showed that after 10 days of treatment at home, the main score of those patients was very low compared with the main score of the patients, treated at the hospital. *Conclusion:* This study confirmed that even if the disease is well treated, the admission to the hospital causes a lot of stress to the patients. It may be noted that the general condition in most government hospitals is of lower standard in Bulgaria as compared to the Western European countries. Hence, the psychological status of our patients does not to their somatic one.

PL30

A WEB-BASED, EDUCATIONAL, QUALITY-OF-LIFE PROGRAMME FOR PATIENTS WITH A CHRONIC SKIN DISEASE: VERSION 2.0

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Background: Chronic skin diseases can have a major impact on patients' health-related quality of life (HRQoL). Patient education aiming at an improvement of HRQoL is a promising and efficient way to provide additional care. We developed a web-based, educational ("e-learning") programme on HRQoL, offering patients knowledge and skills to cope with their chronic skin disease more effectively and to improve their HRQoL. A previous feasibility study with the first version of this programme led to several recommendations for improvement. *Objectives:* We aimed to improve the e-learning programme on HRQoL, resulting in a version 2.0, and to evaluate the content, relevance, effectiveness, convenience,

design, and feasibility of this new version in the opinion of health care providers and patients. *Methods:* A panel of experts ($n=6$) and patients with various chronic skin diseases ($n=14$) was founded, who were closely involved in the development of version 2.0 of the programme. Patients indicated their needs and preferences. Both experts and patients reviewed the content. To evaluate the programme, we conducted a pilot study in three dermatological clinics and one patient association. Health care providers and patients completed study-specific questionnaires to evaluate their experiences. *Results:* The e-learning programme version 2.0 consists of an introduction and final-module and 8 optional modules: 1) Coping with itch, 2) Rumination, 3) Anger, 4) Depression, 5) Body image, 6) Sexuality, 7) Social contacts, and 8) Leisure time and sports. First, patients complete a screening questionnaire and then choose four optional modules that fit their individual situation best. Each module consists of tips and advice from both patients and experts. Patients complete tests to increase their awareness and assignments to improve their quality of life. Also, blended learning is integrated in the programme. Data collection for the pilot study is currently ongoing. *Conclusions:* A version 2.0 of the e-learning programme was developed in close collaboration with experts and patients. Health care providers and patients evaluated the content, relevance, effectiveness, convenience, design, and feasibility of this new version. Results and conclusions will be presented at the conference.

PL31

E-HEALTH COGNITIVE BEHAVIORAL TREATMENT FOR PATIENTS WITH PSORIASIS: A RANDOMIZED CONTROLLED TRIAL

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Objective: Patients with psoriasis regularly experience physical and psychological impairments, which are often not fully addressed in routine dermatological care. A potential (cost-)effective solution to this problem may be to offer an adjuvant internet-based cognitive behavioral treatment to risk groups of patients with psoriasis. The aim of the current study is to examine the efficacy of therapist-guided and individually-tailored eHealth cognitive behavioral treatment for risk groups of patients with psoriasis in a randomized controlled trial. *Methods:* Patients from four outpatient dermatology departments and one patient association were screened for elevated levels of distress. Risk groups were included in a randomized controlled trial comparing assessing guided, tailored, internet-based cognitive behavioral treatment ($n=65$) compared to care as usual for controls ($n=66$). Outcome measures included the impact of psoriasis on daily life, including its impact on physical and psychological functioning and daily activities at post-treatment, and follow-up measurement at six months after post-treatment. Secondary outcomes included patient-reported improvements at post-treatment. *Results:* At post-treatment, patients indicated improvements in both coping and complaints, and were satisfied with the eHealth cognitive behavioral treatment. Positively rated intervention aspects include face-to-face intake sessions, setting of treatment goals, and online therapist contact. *Conclusion:* Preliminary results indicate that

eHealth cognitive behavioral treatment for patients with psoriasis is feasible and effective from the patients' perspective, suggesting its potential value as an adjuvant treatment for this patient group. Post-treatment and follow-up results of the randomized controlled trial on the primary outcomes are forthcoming and will be discussed in the presentation.

PL32

THE EDUCATIONAL INTERVENTION "NO.TE.S. (NON TECHNICAL SKILLS), THE ART OF THE DOCTOR-PATIENT RELATIONSHIP": A PILOT STUDY IN COMMUNICATION SKILL TRAINING IN GREEK DERMATOLOGISTS

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Objectives: The aim of this pilot study was to test the feasibility of a one-to-one training program on communication skills in dermatologists in their own practices and also to explore the participants' evaluation. **Methods:** Fifteen dermatologists were offered a one-to-one communication skills training program in their private practices, organized by LEO Pharma Hellas. A trained specialist provided 7–9 sessions to each participant from 9/2014 to 1/2015. After the program's completion, participants were asked to complete anonymously and voluntarily an evaluation questionnaire. Data have been qualitatively analysed by using thematic content analysis. **Results:** Fourteen dermatologists completed the program (93.3%). They had a mean professional experience of 10.9 years (± 6.6) and ten were female (71.4%). Thirteen declared no previous education on communication skills (92.9%). All of them (100%) would suggest NO.TE.S to a colleague, while 13 (92.9%) expressed an interest in getting involved in future educational programs on communication skills. All 14 physicians stated that their participation was a highly positive experience: for some physicians it led to re-consideration of the physician-patient relationship, while for others it motivated them to be more patient-centered, to improve their communication skills, to be aware of guides to medical interviews, to increased self-confidence, and finally to better self-care. After their training, 11 (78.6%) of the dermatologists declared that they have noticed improvements in patients' satisfaction, 14 (100%) in their own satisfaction, 7 (50%) in adherence to therapeutic plans, and 7 (50%) in treatment outcomes. **Conclusion:** This pilot study provides evidence that the one-to-one communication skills training tested in NO.TE.S, could be an effective, convenient, personalized means of enhancing communication skills in continuing medical education programs, leading to a more patient centric doctor-patient interactions.

PL33

A MULTIDISCIPLINARY TRAINING PROGRAM FOR OUTPATIENT CHILDREN AND ADOLESCENTS WITH PSORIASIS AND THEIR PARENTS: A PILOT STUDY

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Objectives: Pediatric psoriasis can have a profound effect on the patient's life, including complaints of itch, pain, shame, and stigmatization. In conjunction with dermatological care, psychosocial training programs have the possibility to improve physical and

psychosocial wellbeing. The aim of this pilot study was to assess the feasibility and acceptance, and describe the possible effects of, a multidisciplinary training program for outpatient children and adolescents with psoriasis and their parents. **Methods:** The outpatient group training consisted of four sessions of 2.5 hours and was designed for two age groups (6–12 and 12–18 years). The training was delivered by a multidisciplinary team consisting of a dermatologist, psychologist, and dermatology nurse specialist. The program included treatment modules of medical information and skin care, itch and scratch problems, psychological issues in coping with psoriasis, sleep hygiene, and relapse prevention. To assess the feasibility and acceptance of the program, participants were asked to fill in an evaluation questionnaire at the end of treatment. In addition, assessments were made before and after treatment and at three months follow-up on the outcome measures quality of life, itch and scratch responses, illness cognitions, impact on family life, and disease severity. Twenty-three patients and their parents participated in the training. In addition, age and gender-matched controls were recruited to create a control group of pediatric psoriasis patients. **Results:** Patients and their parents were highly satisfied with the program. Both patients and parents highly valued the group format and meeting other patients and parents. The great majority of participants indicated subjective improvements with regard to skin care, itch, scratching behaviors, psychological wellbeing, and dealing with stigmatization. In addition, positive changes were found for the treatment group on the outcome measures quality of life, itch and scratch responses, illness cognitions of helplessness and acceptance, and impact on family life. However, these improvements were relatively small and were also found in the control group. **Conclusion:** These results suggest that a multidisciplinary training program for children and adolescents with psoriasis and their parents is well-accepted and positively evaluated by the patients and their parents. Further improvements of the treatment program and suggestions for future research will be discussed.

PL34

BOTULINUM TOXIN: THE MISGUIDED PATH

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Botulinum toxin is widely used and has become a popular mass phenomenon in aesthetic medicine. Considerable scientific data concerning the biopsychosocial impact of botulinum toxin use have become available. The bidirectional interaction of mimic and emotion, described as the facial feedback hypothesis, is particularly influenced, as is mimicry. Furthermore, botulinum toxin can cause dysfunction of face harmony including false laughing or the "frozen face". As a result, complex psychosocial disturbances can occur and may affect social interaction and cause flattening of affect. Thus one must ask whether in the future botulinum toxin will continue to be employed in aesthetic dermatology or perhaps be regarded as a misguided path.

PL35

HAIR AND SCALP PROBLEMS WITH PSYCHOLOGICAL ORIGIN

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There are various reasons for hair loss and alopecias. Most of the frequent alopecias are not caused or aggravated by psychologic factors. These include androgenetic alopecia (50% of all men, 10–20% of all women), scarring alopecias such as folliculitis decalvans or lichen planopilaris. Whether alopecia areata has psychologic cofactors is a matter of intense debate. Clearly of psychologic origin are autoaggressive disorders like trichotillo-

mania (plucking of hair, scratching of the scalp) and its variants such as trichoteiromania (rubbing of the scalp, breaking of hair) or trichotemnomania (cutting of hair). The diagnosis of these disorders is often missed. In the presentation, clues for correct diagnosis of these disorders will be presented. Treatment options include behavioral modifications as well as antipsychotic drugs.

PL36

PSYCHOLOGICAL AND THERAPEUTIC EFFECTS OF NEEDLE THERAPY IN VITILIGO

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In medicine many specialists use needles in different conditions. Needle therapy in combination with selective UVB 311 exposure is a new method that is used in the therapy of vitiligo. The method based on the hypothesis that multiple injections can transfer melanocytes from normal skin into vitiligo area followed by UVB exposure stimulating melanogenesis. According to Iftikhar Sheikh, who presented his first experience in 2009, this combination can give promising results. In our clinic use of this method demonstrated great therapeutic and psychological effects in 205 patients. Application of tacrolimus also positively influences on the repigmentation.

PL37

TRICHOTILLOMANIA IN YOUNG ADULTS: PREVALENCE AND COMORBIDITIES

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Trichotillomania is an impulse control disorder characterized by the repeated non-cosmetic pulling out of hair resulting in noticeable hair loss. The exact prevalence of trichotillomania is unknown. However, estimates from university surveys suggest that even 6% of individuals pull out hair endorsing diagnostic criteria of trichotillomania. The aim of our study was to assess the prevalence of trichotillomania in young adults, and the comorbidity of these conditions with anxiety disorders and obsessive compulsive disorders (OCD). A total of 339 individuals, 208 (61.4%) females and 131 (38.6%) males (medicine students of Wroclaw Medical University) were interviewed with a structured questionnaire. Twelve (3.54%) of participants reported hair pulling during their lifetime, 9 females (75%) and 3 males (25%). Eight participants (2.36%) fulfilled diagnostic criteria of trichotillomania (5 females and 3 males). Anxiety disorders were diagnosed in 6 participants with trichotillomania (75%), while in the group without trichotillomania 67 persons (20.2%) met ICD-10 criteria for anxiety disorders during lifetime. The differences in anxiety disorders prevalence between analyzed groups were statistically significant ($p=0.0012$). OCD during lifetime was not diagnosed in the group with trichotillomania while among participants without trichotillomania OCD was diagnosed in 14 persons (4.26%).

PL38

BODY DYSMORPHIC DISORDERS IN DERMATOLOGICAL CLINIC: TYPOLOGY AND DIFFERENTIAL DIAGNOSIS

Ekaterina Matyushenko, Igor Dorozhenok, Andrey Lvov

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Objectives: Complex clinical and psychopathological study of Body Dysmorphic Disorder (BDD) in dermatology with additional epidemiological, psychological and therapeutic methods. *Methods:* 90 patients (68 female (75.6%), av. age 27.9 ± 9.6) with BDD diagnosis according DSM-IV criteria (300.7) adapted for use in

dermatological practice were explored. Epidemiological setting included 534 patients (48 female (67.6%), av. age 28.2 ± 12.3). Life Quality Questionnaire SF-36, Dermatologic Life Quality Index (DLQI), Hospital Anxiety and Depression Scale (HADS), Yale-Brown Obsessive Compulsive Scale (Y-BOCS), Clinical Global Impression Scale (CGI) were used. *Results:* BDD prevalence in dermatology was 13.3%. Two polar BDD types were identified – with external-based psychopathological disorders (65.6%) and with internal perfectionism (34.4%). 1st type BDD is characterized by social phobia with fear of extensive attention of others to their nonexistent or slight defect in appearance and includes 2 subtypes: with sensitive ideas of reference ($n=24$) and with social phobia ($n=35$). 1: Obsessive syndrome within dynamics of schizoid personality disorder (PD) (F45.2, 54.2%) or schizotypal disorder (F21, 45.8%) with sensitive ideas of reference, total avoidance behavior, hypothyria, absence of skin autodestructions, rare seeking for dermatological treatment. 2: Obsessive-phobic syndrome within dynamics of histrionic PD (F45.2, 62.9%) with fear of negative evaluation by others, safety and situational avoidance behaviors, checking behavior, high utilization of traditional dermatological treatment. BDD with internal perfectionism ($n=31$) – overvalued hypochondria predominantly within narcissistic PD dynamics (F45.2, 83.9%) with pathological fixation on appearance imperfection without fear of evaluation by others, egodystonic skin perception, severe skin autoaggressive behavior, seeking for invasive radical dermatological treatment and operations. Overall CGI responders rate on psychopharmacotherapy was 72.9%. In 1st type (80.0% responders) atypical antipsychotic monotherapy was effective in 1 subtype and SSRIs – in 2 subtypes. In 2nd type (58.8% responders) in order to overcome treatment resistance combination therapy was effective. *Conclusion:* BDD's prevalence in dermatology is high. BDD is heterogeneous disorder with two polar types. Pharmacotherapy is effective in BDD treatment and it is differentiated due to BDD type.

PL39

ATTACHMENT STYLE AND COMMON SKIN DISEASES IN EUROPE: THEORETICAL ASPECTS

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Objectives: To study attachment is an exploration of the content and nature of close relationships. A multi-center observational cross-sectional study was conducted in thirteen European countries organized by the European Society of Dermatology and Psychiatry. The purpose of the international study was to investigate the psychological burden of common skin conditions. One of the goals of the study was to explore the attachment style among patients with skin diseases and controls. *Methods:* The design was cross-sectional. In dermatological clinics in 13 countries in Europe, a questionnaire was filled in by 250 consecutive patients and 125 healthy controls. The questionnaire included socio-demographic background information, and attachment style was assessed with the Adult Attachment Scale. A clinical examination was performed. *Results:* The total number of responders was 4994. Patients' average age was 47.06 ± 17.97 years, percentage of females was 56%. In this presentation we will focus on the theoretical aspects of attachment styles. We will also discuss pathways on how attachment might impact general health, and dermatological conditions specifically. Examples will include how attachment theory could explain the impact on close relationships among persons who had skin disease during childhood and how persons whose relationship with a main carer was altered by severe atopic dermatitis. Some results and limitations from the ESDaP multicenter European study will be presented and discussed. *Conclusion:* Attachment theory represents an innovative approach to psychosomatic aspects of chronic skin diseases.

PL40**PSYCHOVENEREOLOGY: PERSONALITY AND LIFESTYLE FACTORS IN STI**Mikhail Gomberg¹, Vladimir Kovalyk²¹Moscow scientific and practical center of dermatovenerology and cosmetology, ²Department of urology, Federal medical biological agency, Moscow, Russia

It is evident that STIs correlate with a lifetime number of sexual partners. Other factors like sexual practice (e.g. orogenital and anal) and unprotected sex may play a major role in diversity of microbiological findings in STI. *N. gonorrhoeae* and *C. trachomatis* are among the most common bacterial agents that may cause STI. Both infections are very well treatable. But over the last 2 decades the rate of these pathogens decreased significantly. Up to 30-40% cases of urethritis in males are of non-chlamydial non-gonococcal origin. The role of viruses as STI agents are often underestimated. Despite the discussions in media regarding the role of HPV in oral cancer, and widely spread HSV-infection with lesions on oral mucosa, the unprotected oral sex is still a very common practice. In our study of sexual behavior in 505 heterosexual males with gonococcal, chlamydial and non-chlamydial non-gonococcal urethritis (nCnGU) we observed that unprotected orogenital sex with a casual partner was reported twice as frequently than unprotected vaginal sex. Among other observations we found that patients with nCnGU were significantly older, more frequently used unprotected orogenital sex, more frequently had a history of STIs, and had more lifetime sexual partners than patients with gonorrhoea and Chlamydia infection. Another interesting observation from this study was that HSV infection was relatively common among patients with nCnGU followed unprotected oral sex. Sexual behavior is depended on the achievements in the management of the most dangerous STI. The more successful is situation with therapy of life-threatening infections (i.e. HIV) the less careful are patients in their sexual practice.

PL41**A BALINT-TYPE TRAINING FOR ENHANCING THE EMPATHIC ABILITIES OF FUTURE PHYSICIANS AND FACILITATING PSYCHOSOMATIC APPROACH**

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Background: Empathy refers to the ability to share emotions with others, without confusion between self and others. Physician's empathic abilities are essential to build a strong doctor-patient relationship, which is known to improve treatment adherence and clinical outcomes. **Objective:** Although empathy is critical in a doctor-patient relationship, empathic abilities seem to decline throughout medical school. Our study aimed at examining changes in empathic abilities of fourth-year medical students who participated in an optional certificate based on Balint groups. **Methods:** Thirty-four students were included in the "Balint group" certificate and compared with 129 participating in other certificates. Before the training sessions and 4 months later, they filled in the interpersonal reactivity index (IRI) and were asked to rate their emotional reactions in response to two case-reports: the first described a woman with diabetes, borderline personality traits and a history of childhood trauma; the second, a woman with histrionic traits suffering from multiple sclerosis and hospitalized for functional symptoms. A principal component analysis extracted four factors from the 8 questions asked: empathic-approach (e.g. finding the patient touching), rejecting-attitude, intellectual-interest and fear of emotion contagion. **Results:** At baseline, there were no socio-demographic or psychological differences between groups. At follow-up, an increase of IRI fantasy-scale ($p=0.02$) and a decrease

of IRI empathic-concern ($p=0.006$) were observed, regardless of the group. Empathic-approach only increased in the "Balint group" and for the first case-report ($p=0.023$), with a difference between the groups at follow-up ($p=0.003$). **Conclusion:** Results suggest that Balint groups may enable medical students to better handle difficult clinical situations such as those presented by borderline personalities. Our findings encourage assessing training initiatives designed at helping young medical students to take into account the emotional component of a doctor-patient relationship. Balint groups are also an interesting training method for helping experienced dermatologist be more aware of transference and counter-transference feelings within patient doctor relationship and thus keep the right distance and achieve a comprehensive psychosomatic approach.

PL42**IMPAIRMENT OF SEXUAL LIFE IN 3485 DERMATOLOGICAL OUTPATIENTS FROM A MULTICENTRE STUDY CONDUCTED IN 13 EUROPEAN COUNTRIES**Francesca Sampogna¹, Uwe Gielert², Lucia Tomas-Aragones³, Lars Lien⁴, Françoise Poot⁵, Gregor B.E. Jemec⁶, Laurent Misery⁷, Csanad Szabo⁸, M. Dennis Linder⁹, Andrea W.M. Evers¹⁰, Jon Anders Halvorsen¹¹, Flora Balieva¹², Jacek Szepletowski¹³, Dmitry Romanov¹⁴, Servando E. Marron¹⁵, Ilknur K. Altunay¹⁶, Andrew Y. Finlay¹⁷, Sam S. Salek¹⁸, Jörg Kupfer¹⁹, Damiano Abeni¹, Florence J. Dalgard²⁰

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Objectives: Skin conditions may have a strong impact on patient's quality of life (QoL). Sexual life is an important component of QoL. However the degree to which it is affected by a disease is often not assessed by the physicians in their clinical practice, mainly because it is difficult to discuss such a sensitive issue. The aim of this study was to investigate the impact of several dermatological conditions on patients' sexual lives. **Methods:** In the framework of a cross-sectional study on the psychological burden of skin diseases conducted in thirteen European countries, we analyzed the sexual impact using item 9 of the Dermatology Life Quality Index (DLQI). The question asked "Over the last week, how much has your skin caused any sexual difficulties?", with the possible answers "very much" (3), "a lot" (2), "a little" (1), and "not at all/not relevant" (0). The Hospital Anxiety and Depression Scale (HADS) was used to evaluate the presence of depression and/or anxiety in patients. We calculated the frequency of each answer in the different dermatological conditions, and we

studied the association of sexual impairment with different variables. *Results:* Data were complete for question 9 of the DLQI in 3485 patients. Sexual difficulties were reported “very much” or “a lot” in 11.4% of patients overall. The impairment was particularly high in patients with hidradenitis suppurativa (42.9%), prurigo (25%), psoriasis (17.9%), pruritus (17.3%), infections of the skin (16.6%), blister disorders (15.8%), atopic dermatitis (15.1%), urticaria (14.5%), and eczema (14%). The lowest frequencies were reported by patients with nevi (0.6%), non melanoma skin cancer (2.7%), benign skin tumours (4.1%), and rosacea (4.3%). There was no significant difference between men and women, while sexual impairment was reported to be more frequently by younger patients. Sexual difficulties were strongly associated with both depression and anxiety. For example, among patients who reported sexual difficulties “very much”, 29.4% had clinical depression, while among patients who reported no problems, the prevalence of depression was only 7.2%. For anxiety, the percentages were 45.3% and 14.1%, respectively. *Conclusions:* These observations reinforce the idea that it is important to take into account specific psychosocial problems, such as sexual life, when assessing severity and treatment efficacy in dermatological conditions.

PL43

POSTTRAUMATIC STRESS DISORDER AND PSYCHIATRIC COMORBIDITIES IN PATIENTS WITH CHILDHOOD PSORIASIS: PRELIMINARY RESULTS OF A CASE CONTROL STUDY

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Objectives: Various studies in adults showed that posttraumatic stress disorder (PTSD) may accompany psychocutaneous diseases and affect complex interaction between nervous, endocrine and

immune systems. Our aim is to investigate the presence of PTSD and other psychiatric disorders in patients with childhood psoriasis vulgaris (CPV). This is the first study to present data on PTSD in patients with CPV. *Methods:* We planned this study in 30 patients and 60 controls. We would like to present herein preliminary results of our study with currently enrolled 15 patients with CPV (9 female, 6 male, mean age 11 ± 3.5), and 25 healthy children as controls (19 female, 6 male, mean age 9 ± 1.2). All participants completed a comprehensive test battery, which consisted of a questionnaire for socio-demographic data and clinical history. The Clinician-Administered PTSD Scale (CAPS) was applied to all participants for diagnosis of PTSD. Psychiatric comorbidities were assessed with Schedule for Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version-Turkish Version (K-SADS-PL-T). *Results:* Lifetime PTSD was detected in 73.3% ($p<0.01$) and current PTSD in 53.3% ($p<0.01$) of the patients. None of the participants were diagnosed as PTSD in control group. Anxiety disorder (86% vs 4% $p<0.01$), major depressive disorder (47% vs 0% $p<0.01$) and obsessive-compulsive disorder (47% vs 0% $p<0.01$) were significantly more frequent in CPV than the control group. The lifetime and current scores in CAPS were significantly higher in CPV patients (median: 92.7 vs 34 and 72.9 vs 34 $p<0.01$ in patients versus controls, respectively). *Conclusions:* PTSD is a severe, prolonged (at least 1 month) and sometimes a delayed reaction in response to an event that creates intense stress. It has been proposed that PTSD results in an increase in circulating T cell counts (especially NK cells), blood catecholamine levels and decrease in blood cortisol levels (by disrupting hypothalamic-pituitary axis), and these changes may predispose patients to autoimmune cutaneous diseases. Moreover, skin lesions can persist even for years following PTSD, if the traumatic event remains unresolved. This study demonstrates that CPV might be associated with PTSD, and we suggest that these patients should be assessed carefully for psychiatric comorbidities.

RESEARCH SYMPOSIUM ABSTRACTS

RS1

POTENTIALITIES OF THE PSYCHODYNAMIC APPROACH IN A MULTIDIMENSIONAL MODEL OF THE DERMATOLOGICAL DISEASES ETIOPATHOGENESIS

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The biopsychosocial paradigm is acknowledged nowadays in nearly all fields of modern medicine. We understand it as a complex multidimensional model considering the reciprocal interrelationship of biological, psychological, and environmental factors in the onset and course of the disease, as well as in elaboration for individualized treatment plans for the patient. We would like to stress that the impact of each dimension can fluctuate at the different stages of the disease. From the very beginning dermatological illnesses were an important part of psychosomatic medicine, because of the specific role of the skin for ones identity. Besides its set of important physiological functions it has its irreplaceable psychological dimension. It serves as a visible border between the inner and outer world, and it also provides its own communicative function which begins before the development of language skills. Dynamic psychiatry defines the formation of dermatologic symptoms as pathological efforts to repair deficits in ego-structure; they play the role of the so-called “false-identity”, enabling the patient to escape the stigmatization of mental illness. Somatic symptoms

play an important role in anxiety binding by providing relatively successful social functioning for patients. The peculiarities of early development, resolution of symbiosis complex, and pathological forms of attachment bring about distortions in the development of central ego-functions that causes specific vulnerabilities related to the onset and relapse of dermatological diseases under subjective stress conditions. Therefore, the use of specific psychotherapeutic interventions in the treatment of dermatological diseases can substantially improve the efficacy of the therapy and reduce relapse probability.

RS2

STRUCTURE AND SEVERITY OF MENTAL DISORDERS IN PATIENTS WITH FACIAL DERMATOSES

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Introduction & Objectives: The comorbidity of common skin disorders and mental pathology is well reviewed in the literature. However, there are only a few studies describing the specifics of mental distress in patients with facial dermatoses. In our study we evaluated the structure and severity of psychopathology in patients with the most common in outpatient practice facial dermatoses. *Materials & Methods:* 67 outpatients who presented with

facial dermatoses (adult acne=24, adolescent acne=22, excoriated acne=7, rosacea=10, perioral dermatitis=4) were enrolled in our study. The psychiatric diagnoses were assessed on the basis of a semi-structured interview, and classified according to ICD-10. Symptom Checklist-90-Revised (SCL-90-R), Hospital Anxiety and Depression scale (HADS), and Hamilton Anxiety and Depression scales were used for the evaluation of the severity of the symptoms. $p < 0.05$ was considered significant. **Results:** 43% of the patients presented with a comorbid psychiatric pathology. 31% of patients with mental distress were diagnosed with Generalized Anxiety Disorder (F41.1), 9% with Somatization Disorder (F45.0), 12% with Adjustment Disorder (F41.2), 12% with the Combined Anxiety and Depressive Reaction (F43.22), 6% with Dysthymia (F34.1), 9% with Hypochondria (F45.2), 6% with Social phobia (F40.1), and 3% – with Alcohol Dependence (F10.2). 9% reported a Severe Depressive Episode (F32.2) and 3% a Panic Disorder (F41.0) in anamnesis. The SCL-90-R mean scores of the patients with facial dermatoses were higher compared to the results of the general population were higher in items such as somatization (0.61 ± 0.05), interpersonal relations (0.71 ± 0.05), anxiety (0.57 ± 0.05), phobia (0.31 ± 0.04), and psychoticism (0.34 ± 0.03). According to HADS scores 7% of all patients presented with moderate anxiety, 28% with mild anxiety, 1% with moderate, and 9% with mild depression. According to Hamilton scales mild depressive symptoms were present in 12% of all cases, mild anxiety in 37%, and moderate anxiety in 3% of all cases. **Conclusions:** According to the results of our study, patients with facial dermatoses showed moderate frequency of psychiatric distress represented mostly by anxiety and affective disorders. The evaluation of symptoms severity showed mild to moderate distress mostly in items of somatization, anxiety, and interpersonal engagements. Further investigation is likely to determine the best complex approaches in treatment of these patients.

RS3 PSYCHOTROPIC MEDICATIONS IN DERMATOLOGY

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Objectives: Development of algorithms for the range of therapies used for mental health disorders, provoked by chronic dermatoses. **Methods:** 542 patients with nosogenic mental health disorders (F43;F45) provoked by chronic dermatoses (acne – 112, atopic dermatitis – 98; psoriasis – 95, rosacea – 86, eczema – 73, seborrheic dermatitis – 37, lichen planus – 36, pemphigus – 5 patients) were treated in Dermatology Hospital Sechenov's First Moscow State Medical University. Clinical Global Impression Scale (CGI), Hospital Anxiety and Depression Scale (HADS), Hamilton rating scale for depression (HAMD-21) and anxiety (HAMA), Yale-Brown Obsessive Compulsive Scale (Y-BOCS), Dermatologic Life Quality Index (DLQI), Side-Effect Rating Scale were used. Evaluation of dermatological status was also performed on each visit. **Results:** Modern antidepressants such as agomelatine, SSRIs and venlafaxine in average daily doses were effective and safe in nosogenic depression. Combination of antidepressant with alimemazine was effective and safe for amplified itch. Atypical antipsychotics in average daily doses: risperidone 4 mg, paliperidone 6 mg, olanzapine 10 mg, quetiapine 300 mg and aripiprazole 10 mg were effective and safe in dissociative and severe sensitive nosogenic disorders. Treatment of choice for external-based anxiety-phobic and obsessive nosogenic disorders were SSRIs (fluvoxamine, paroxetine and escitalopram), when massive somato-vegetative symptoms occur SSRIs in combination with sulpiride were effective. Internal-based overvalued hypochondria with massive skin autodestruction was therapy resistant. Moderate therapeutic effect was shown only with use of combined therapy

of atypical antipsychotics with SSRIs. **Conclusion:** Treatment of mental disorders provoked by chronic dermatoses could be successful in dermatological hospital when it is in consultation with psychiatrist. Treatment includes differentiated use of psychotropic agents (according to its clinical typology and psychopathological structure) along with psychotherapy.

RS4

SKIN PICKING DISORDER: CLINICAL VARIABILITY AND TREATMENT APPROACH

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Recently skin picking disorder (SPD) has been placed into the section Obsessive-Compulsive and Related Disorders in DSM-5 (2013). However, there is an evidence that it is not limited exclusively by compulsive features, but includes clear impulsive subtypes (Snorrason et al., 2012). Also there are limited data of a complex clinical structure of the disorder, that comprise not only motor acts and urges to scratch (compulsive/impulsive), but also variable skin sensations, e.g. “itchiness”, “benign irregularity”, “sensations such as something underneath the surface of the skin” etc. (Gupta et al., 1986, 1987; Neziroglu et al., 2008). The mentioned skin sensory (coenaesthesiopathic) phenomena are not considered among diagnostic criteria of SPD and generally neglected. Objective is to distinguish compulsive and impulsive subtypes of SPD based on a clinical variability of sensor (coenaesthesiopathic), ideatory/emotional and motor dimensions of the disorder. **Methods:** The study sample comprise 51 subjects (37 female) diagnosed with SPD among outpatients referred to dermatological department. Psychiatric assessment was based on a phenomenological psychopathology and pointed on precise description of signs, symptoms, and syndromes, i.e. mental states. **Results:** Clinical structure of SPD is multidimensional, corresponds to conceptual binary model and comprise basic/primary and secondary/derived phenomena. Basic phenomena in SPD are sensor (coenaesthesiopathic) symptoms that differ in compulsive and impulsive subtype corresponding to distinct secondary/derived ideatoric/emotional symptoms and skin picking motor acts *per se*. As a result two major types of SPD were distinguished. In compulsive SPD ($n=19$, 16 female) skin sensory phenomena could be designated as “epidermal dysaesthesia” and “tactile illusions” with an extrusive perceptions pattern: a sense of itchy and disturbing additional “plus tissue” on a skin surface, “protuberating” above the skin tactilely perceived as covered by “lesions” (“tubercles”, “knobbles” etc.). Sensations are accompanied with compulsive skin picking acts as a result of obsessive urge of skin “lining”. Attempts to resist and overcome the urge are associated with anxiety increase. As sensations, as anxiety dramatically decrease immediately after the scratching. In impulsive SPD ($n=32$, 21 female) coenaesthesiopathic phenomena refer to “intradermal dysaesthesia” with a distinct penetrating pattern described metaphorically (“like needles dig in”, “like under skin nodules rupturing from beneath the skin”). Sensations are combined with impulsive skin picking acts: irresistible impulse is associated with irritability/dysphoric affect. Relief occurs immediately after the scratching act and is accompanied with a feeling of satisfaction, pleasure (“delight of scratching”). **Conclusion:** The proposed subtypes of SPD differ in diagnostic and treatment approach resulting from compulsive or impulsive nature of SPD.

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pulling disorder (trichotillomania) and skin picking disorder? A review of evidence for comorbidity, similarities and shared etiology. *Clin. Psychol. Review* 2012; 32: 618-629.

RS5

ADDITION TO BODY MODIFICATION

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Today it is obvious that the spectrum of addictive disorders consists of at least two groups: chemical (substance use) and behavior (or nonchemical) addictions. We have introduced the classification with five sections: 1) pathological gambling; 2) erotic addictions; 3) socially acceptable addictions; 4) technological addictions; 5) food addictions (Egorov, 2007; 2013; Egorov, Szabo, 2013). Body modification is the permanent or semi-permanent deliberate altering of the human body for non-medical reasons. In a 2010 study, 23% of Americans reported having at least one tattoo, and 8 percent reported sporting a piercing other than in the earlobe (Pew Research Center, 2010). Though the popularity of body modification is increasing, the psychosocial data about practitioners of body piercing and tattooing are few and controversial. In some cases the repeated body modification becomes uncontrollable and interferes negatively with life responsibilities, health and interpersonal relationships may be considered as a behavior addiction. Body modifications may be classified as Reversible: wearing unusual clothes and jewellery, colouring of the body (make-up, body art), manipulation with the hair, beard, moustaches and nails, weight change, and Irreversible: decorating skin with tattoos, scarification, implantation of foreign objects (mikrodermal and/or transdermal implantation), piercing, operational modifications of the teeth, tongue, genitals, fingers and toes until the desire for amputation, suspension, repeated cosmetic surgery. The leading motive of body modifications is to get pleasure from the individually produced changes, which are partly connected with the sexual desire and relationship with partner. This gives satisfaction in their own eyes. This desire is moving closer to manifestations of sexual fetishism and primarily with fetishistic transvestism. Repeated body modification may be classified as a behavioural addiction (among socially acceptable addiction section up to our classification) because of obsessive-compulsive craving with inability to correct which is based not only on social circumstances but on personality characteristics. As in other addictions human behavior is not consistent with the concept of society about what is acceptable or unacceptable. Further investigations are needed to elucidate the definition of the body modification addiction.

RS6

THE IMPACT OF MENTAL HEALTH DISORDERS IN HIV-INFECTED PATIENTS WITH EARLY SYPHILIS IN THEIR SOCIAL ADAPTATION

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Objective: The objective of the study was to determine the impact of mental health disorders in HIV-infected patients with early syphilis in their social adaptation. *Method:* 62 HIV-positive patients with early syphilis were examined by clinical method. *Results.* The sample was 20 women (mean age 31.77 ± 5.69 years) and 42 men (mean age 34.13 ± 8.09 years). Mental health disorders were found in 100% of women (dependence on opioids (F11; 80%), alcoholism (F10; 35%); depression (F32 - 20%; F43 - 15%), unstable personality disorder (F60.3; 20%)) and in 73.8% of men (depression (F43, 30.9%), alcoholism (F10, 21.4%), dependence on opioids (F11; 2.4%), unstable personality disorder (F60.3, 7.2%). The findings showed that the majority of patients had episodes or periods of maladjustment (from 1 month to 10 years) in their lifetime (100% of women and 64.3% men), which were accompanied by mental and/or behavioral disorders. The most common problems were drug abuse (85% of women and 30.9% men), alcohol abuse (45% of women and 33.3% men), depressions (40% of women and 21.4% men) suicide attempts in 15% of women and 4.8% men. Other problems which we identified were delinquent and antisocial behavior, involvement in commercial sex services) in 50% of women and 28.6% men with personality disorders and addictive disorders. All patients displayed behavior which may be considered higher risk: the use of drugs and alcohol (85% of women and 33.3% men), unprotected promiscuous sexual partners (95% of women and 100% men) (homosexual – 69% of men) in an alcohol or drugs intoxication (45% of women and 21.4% men) involved in commercial sex in order to pay the drugs (25% of women and 2.4% men) and hedonistic purpose (28.6% men), crime (40% of women and 11.9% men). Adaptation level 70% of women and 21.4% men at the moment of examination was rated as low (do not have a job and profession, family or social support, the prospects for the future). The high level of adaptation in men was more frequent among homosexual patients (54.8%, 23.8%, $p < 0.05$). *Conclusions.* We found the high frequency of mental health disorders in HIV-infected patients with syphilis. Women had significantly more frequent dependence on opioids (70% of women, 2.4% of men, $p < 0.01$). We elucidated a low level of social adaptation in patients (especially female), accompanied by a large range of mental disorders (addictive disorders, depression, behavioral disorders).

POSTER ABSTRACTS

PP1

RELATIVES OF PATIENTS WITH DELUSIONAL INFESTATION MAY PRESENT WITH A SHARED DELUSION IN PLACE OF (OR BEFORE) THE ACTUAL PATIENT

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Delusional infestation (DI) is a reportedly uncommon psychocutaneous disorder in which an individual holds a fixed, false belief of pathogenic infestation of the skin contrary to medical evidence. We describe the occurrence of a shared delusion within a family of two sisters. These two retired caucasian females had never married and had lived together since childhood. The shared delusion was the belief that blue thread like fibres were coming out of their body. These beliefs led to the patients obsessively bathing and even hiring pest control professionals to clear their home. However, all methods to clear away these fibres were unsuccessful. Examination of both patients was unremarkable. In this case the index patient, the person who first developed the delusion was the eldest sister. However, the youngest sister who had the shared DI presented to doctors as she had the motivation to seek medical attention. In clinic, it was clear that the youngest sister had a shared delusion (she believed that her sister had morgellons disease and she was worried that she may be affected by her sister). We asked for the younger sister to encourage her elder sister to attend our clinic as we believed that the elder sister had DI and the younger sister (who presented to our clinic) had a folie a deux. When the elder sister attended clinic, aripiprazole was prescribed to the eldest sister and topical emollients to the younger sister to relieve complaints of dry skin. Folie a deux, the phenomenon in which a delusional belief is transmitted between two individuals, affects approximately 12% of cases of DI. Clinicians who manage patients with DI should be aware that the presenting patient may not have DI but may have a shared delusion (folie a deux/folie en famille). Recognising that the presenting patient has a shared delusion is important as the management of that patient is entirely different from the management of a patient with DI, and because clinicians can then encourage the presenting patient to facilitate the relative (who has DI) to attend for treatment of their disease. When patients with DI are successfully treated, relatives with a folie a deux usually get better spontaneously.

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PP2

PSYCHOLOGICAL ASPECTS IN BURNING MOUTH SYNDROME

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Objectives: Burning Mouth Syndrome (BMS) is a chronic disease characterized by a burning sensation in the oral mucosa associated with a sensation of dry mouth and /or taste alterations in the absence of a detectable organic cause, with a bilateral and symmetric distribution, that occurs usually in postmenopausal women, and has an important impact on patient's quality of life. The exact pathophysiology of BMS is unknown. Recent studies have found

evidence for mechanisms such as central and peripheral nervous system alterations using quantitative sensory testing and functional imaging methods. It has been reported that psychological disorders such as anxiety, depression, and somatization can be implicated in SBU and at least one-third of BMS patients may have an associated psychological diagnosis. The aim of this study is to explore the presence of a possible underlying psychological factor related with personality in patients with BMS. **Methods:** After excluding other known causes of oral burning through clinical and laboratory explorations, a diagnostic of BMS was performed in 37 patients attending a dermatological hospital service. Millon's personality test was used to assess personality profile in this group of BMS patients. The results were compared to the personality profiles of BMS subjects of an equivalent number of an age and gender matched group with organically based intraoral pain disorder seen at the maxillofacial surgery service. **Results:** Statistical differences in the personality profile between BMS and control group were found. Patients with BMS were more pessimistic, avoidant, introverted, fearful, neurotic and emotional and indecisive. We found a low psychological adaptation profile with a possible tendency to depression. Given the similar pathology in both samples, the differences should be more likely attributed to stable behavioural tendencies in BMS. **Conclusion:** The psychological styles found in BMS may be facilitating the pain sensation, lowering the pain threshold, which is in line with other previous findings.

PP3

POSTHERPETIC NEURALGIA: ASSESSMENT OF QUALITY OF LIFE

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Introduction: Neuralgia is the most significant secondary effect of herpes zoster. The use of opioids in the treatment of pain caused by post herpetic neuralgia has been controversial. Post herpetic neuralgia causes fatigue, insomnia, depression and anxiety. These symptoms can affect interpersonal relationships, interfere with daily activities and lead to poor quality of life. In some studies, patients with post herpetic neuralgia have not presented psychiatric diagnostic criteria but they have shown a series of comorbid somatic symptoms. The objective of this work is to assess the evolution in the quality of life of patients suffering from postherpetic neuralgia after six months of treatment with transdermal fentanyl. **Methods:** The study group comprised 154 patients diagnosed with post herpetic neuralgia (42.2% men; 57.8% women). They were given transdermal fentanyl every 72 hours during a period of six months. Regular follow-up visits assessed possible secondary effects and the pain experienced by the patients was evaluated by means of the Analogue Visual Scale. The SF-36 questionnaire was used to measure quality of life and the SCL-90R was used to screen psychopathological symptoms. **Results:** Pain was controlled for the majority of the patients with 25–50 µg/h patches. Quality of life improved and somatic symptoms decreased with treatment. **Conclusion:** Transdermal Fentanyl offers efficient pain relief in patients for post herpetic neuralgia and quality of life is improved. The side effects are minimum and patient satisfaction is achieved.

PP4

NOSOLOGICAL STRUCTURE OF SKIN DISEASES IN PATIENTS IN A PSYCHONEUROLOGICAL ASYLUM

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Objective: to investigate the nosological structure of skin diseases in patients in a psychoneurological asylum of Moscow. **Materials and methods.** 1,060 patients in a psychoneurological asylum were examined simultaneously by dermatologists. Skin diseases were revealed in 108 patients suffering from oligophrenia (58.3%), schizophrenia (22.2%) and dementia (19.5%). Seborrheic dermatitis was registered as the leading positions. It was found in 36 patients (3.3% among all), that keeps within statistics in total. 18 (50% of these patients did not receive any psychopharmacological therapy, 6 patients were treated with haloperidol and aminazine, leponex, thioridazine and truxal were prescribed to 3 patients each. Skin pathologies such as eczema, skin cancer, dyshidrosis, rosacea, atopic dermatitis, mycosis, acne vulgaris were revealed with similar frequency (in 6 cases each – 5.5%) as in patients taking haloperidol and in those, who did not receive psychotropic agent. We discovered psoriasis in 9 patients (8.3%). All of them were taking neuroleptics (periciazine – 3 cases, trifluoroperazine – 3 cases and risperidon – 3 cases). The prevalence of skin pathology corresponded to occurrence of each type of mental disorder. In patients with oligophrenia we diagnosed seborrheic dermatitis (33.3%), atopic dermatitis and eczema (in 14.2% each), mycosis and acne vulgaris (in 9.5% each) and rosacea, pyoderma, psoriasis, skin itch (in 4.7% each). Seborrheic dermatitis was also the highest in patients with dementia (42.8%). Skin cancer came in second place in dementia patients. Rosacea and eczema amounted up to 14.2% each. In patients with schizophrenia eczema occupied 37.5%. Seborrheic dermatitis (25%) and psoriasis (25%). 12.5% of schizophrenia patients suffered of dyshidrosis. **Conclusion:** We plan to use this data for further investigation, which aims to reveal possible interdependence between skin pathology and factors such as type of mental disorder, use of psychopharmacological agents and presence of concomitant diseases.

PP5

ROLE OF THE ENZYMES OF DOPAMINE BIODEGRADATION IN THE PATHOGENESIS OF PANIC DISORDER AND PSORIASIS

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Introduction: The comorbidity between psoriasis and depression, anxiety and other psychosocial disorders has been documented (Rieder, Tausk, 2012; Zeljko-Penavic et al., 2013). Previously, we have informed of the effect of polymorphisms of genes encoding catechol-O-methyltransferase (COMT) and dopamine beta-hydroxylase (DBH) on the pathogenesis of panic disorder. The aim of this work is to reveal the association of polymorphic variants of COMT gene (c.472G>A) and DBH gene (Ins/Del) with psoriasis. **Materials and methods.** We used DNA samples of patients diagnosed with psoriasis ($n=88$) and unscreened residents of Moscow as a control ($n=363$). Molecular genetic analysis conducted by allele-specific PCR (DBH) and real-time PCR (COMT). Statistical processing was performed using chi-square test. The search for associated complex haplotypes was performed using APSampler 3.6.1 software. **Results and discussion:** Association with the disease detected only for COMT gene: genotype AG (chi-square=10.57, $p=0$, OR=3.54, CI (95%)=2.00–6.29). During the analysis of complex haplotypes a combination of

alleles of the studied genes was revealed that contribute to the pathogenesis of the disease: COMT:G,A + DBH:Del (Fisher $p=2.13e-06$, OR=3.85, CI (95%)=[2.18-6.80], Correction Bonferroni $p=0.00012$) and COMT:A + DBH:Del (Fisher $p=0.00036$, OR=2.71, CI (95%)=[1.54-4.79], Correction Bonferroni $p=0.02$). Both enzymes involved in biosynthesis of dopamine, using it as a substrate. DBH is synthesized norepinephrine from dopamine. A deletion in the 5'-region of the DBH gene linked to low level of its plasma activity. This leads to the accumulation of dopamine. Substitution in COMT gene (c.472G>A) causes an amino acid substitution p.Val158Met. The enzyme containing Met at position 158, showed 3–4 fold lower activity than wild-type Val. COMT methylate dopamine to form 3'-methoxytyramine. The decrease of COMT activity also leads to the accumulation of dopamine. The second complex haplotype COMT:A + DBH:Del, has less power, but indicates a role of decrease in enzymes activity in the pathogenesis of psoriasis. This suggests a role for dopamine excess in the pathogenesis of psoriasis. **Conclusion:** Thus, we show the effect on the pathogenesis of psoriasis polymorphisms of genes involved in the metabolism of dopamine and previously associated with panic disorder. This suggests the role of abnormalities in the functioning of neurotransmitter systems in the pathogenesis of psoriasis.

PP6

PRURITIC AND PAINFUL DERMATOSES CARRY THE HIGHEST PSYCHOLOGICAL BURDEN AMONG DERMATOVENEROLOGICAL PATIENTS

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Objectives: Skin diseases are mostly chronic and lifelong with recurrences. The special thing about skin diseases is their visibility. Most of them are public because face and hands is the most common site of many dermatoses. Pain is not common but it has its parallel pruritus. All of these facts influence patient's life, social network and psychological status. In this study different dimensions of quality of life were being assessed and psychiatric comorbidities: depression and anxiety were evaluated. **Methods:** This study was approved by the Ethics Committee of the University Center Hospital, Sestre milosrdnice, in Zagreb, where the study was conducted. Two hundred and ninety male and female patients suffering from different dermatoses and venereological diseases participated in the study. All participants were treated as inpatient and outpatient at the Department of Dermatovenereology. Participants were divided into three groups. First group of patients were those with symptomatic dermatoses like psoriasis, atopic dermatitis and venous ulcer. Second group were dermatoses without symptoms like vitiligo, alopecia and acne. Third group involved venereological patients with diagnose of HPV, Herpes simplex and Balanopostitis. Consenting participants completed the following standardized psychological questionnaires: Dermatology Specific Quality of Life Index, Beck's Index of Depression and State and Trait Anxiety Inventory. **Results:** The first group of patients had the highest influence of the disease on their quality of life. There were statistically significant differences between different dimensions of quality of life except psychological dimension. 4.1% of the participants had a high depression scores, mostly in first group of patients. Anxiety symptoms were mild in all three groups even though there was statistically significant difference between venereological diseases and the other two groups. Different dimensions of quality of life were in correlation with intensity of the disease with the exception of the psychological dimension. Patients with high intensity of the skin lesions were more depressed but patients with exposed (to UV radiation) localization (hands and

face) were more anxious. *Conclusion:* Patients with pruritic and painful dermatoses are the skin diseases that influence quality of life most. The psychological aspect of quality of life is probably mostly affected by patient's personality traits and not by skin or venereological disease by itself. Localization and intensity of the dermatovenereological disease influence symptoms of depression and anxiety.

PP7

PATHOLOGICAL SKIN PICKING IN A PATIENT WITH OBSESSIVE-COMPULSIVE DISORDER

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Objectives: Pathological skin picking is a condition in which patients produce skin lesions through repetitive excoriations of normal skin or skin with minor irregularities. Patients admit that they produce their lesions but are unable to stop their behavior. Obsessive-compulsive disorder (OCD) is a chronic, debilitating syndrome, consisting of intrusive thoughts, experienced as inappropriate by the patient and producing anxiety, and compulsions, manifesting as repetitive behaviors produced to reduce anxiety. OCD is a frequently encountered psychiatric comorbidity in patients with xerosis, eczema or lichen simplex chronicus. However, other afflictions, which are otherwise included in the group of factitious disorders, have also been associated with OCD. *Methods:* We report the case of a 17-year-old female, Caucasian patient from the urban area who addresses the dermatology department for an eruption consisting of erythematous, sharply demarcated, papules and plaques, with angular and oval shapes, disseminated on the thighs, arms and forearms. The patient asserts that the lesions had first occurred 5 days before presentation, after depilation. She claims that they are extremely pruritic and she feels relieved after excoriating them. However, she acknowledged that they had enlarged after intensive scratching. The local examination also revealed erythematous lesions covered by hematic crusts in both knees and multiple linear scars on the left forearm. *Results:* Laboratory findings were within normal range. The patient was sent for a psychiatric examination and was diagnosed with OCD. *Conclusion:* Based on the clinical findings and psychiatric examination the patient was diagnosed with pathological skin picking in a patient with OCD. She was treated with antihistamines, topical corticosteroids and doxepin and she received psychiatric treatment with selective serotonin reuptake inhibitors. The evolution was favorable, with complete remission of the skin lesions at the one-month follow-up. She remains under our supervision and under the supervision of the psychiatric department. Studies show that about one third of the patients addressing dermatology departments have psychiatric comorbidities. Therefore, a close collaboration between dermatologists and psychiatrists is of paramount importance.

PP8

SKIN PICKING PRODUCING PRURIGO NODULARIS LESIONS IN A PATIENT WITH OBSESSIVE COMPULSIVE DISORDER

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Objectives: Prurigo nodularis (PN) is a rare disorder of undetermined cause. It is characterized by the presence of intensely itchy nodules with a hyperpigmented halo, especially on the limbs and

trunk. PN is often resistant to treatment. We present the case of a patient who was admitted to our clinic for the occurrence of pruritic nodular lesions. *Methods:* A 51-year-old woman presented to our clinic with very pruritic nodular cutaneous lesions. The lesions had developed 17 years before. The onset was on her left calf. She was diagnosed with PN. The disease evolved with remissions and exacerbations. The remissions lasted about 4 months. Pruritus was exacerbated by warm water and sun exposure. *Results:* A physical examination revealed grouped and scattered erythematous nodular lesions rounded by a hyperpigmented halo, on the limbs, lower back and superior thorax. Multiple excoriations were noticed. The patient was underweight (BMI 17). Otherwise, the physical examination was unremarkable. Laboratory findings were within the normal range. A skin biopsy was performed from the left thigh. The skin biopsy showed hyperkeratosis (ortokeratosis), epidermal hyperplasia and focal hypergranulosis. A dense dermal lymphohistiocytic infiltrate with numerous eosinophils, was also found. These histopathological findings suggested PN. The patient had been diagnosed with obsessive compulsive disorder one year before. It is important that patients with chronic pruritus also be evaluated according to their psychological status. *Conclusion:* The management of patients with PN is difficult; first we should rule out the associated disorders. Notably when the cause remains unknown, a possible psychogenic condition should be evaluated. Numerous studies have shown the connection between emotional status and cutaneous manifestations.

PP9

SEXUAL DYSFUNCTION AND TRAUMATIC CHILDHOOD EXPERIENCES IN PATIENTS WITH FUNCTIONAL PRURITUS

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Objectives: Pruritus is not only the most common symptom in dermatology; but also it is frequently encountered in various systemic, psychiatric and neurologic conditions. Functional pruritus (FP) is a subtype of chronic pruritus that is a somatoform disease in nature. Skin is an organ from which sexual arousal begins and spreads, through visual and tactile sensations. Certain skin regions become the main source of pleasure in certain childhood periods. Traumas during these periods result in fixation in these regions as the source of pleasure. Disturbed psychosexual development or childhood psychological traumas may lead to problematic sexual life in adulthood. We investigated sexual dysfunction, accompanying depression-anxiety and childhood traumatic experiences in patients with FP. *Methods:* 46 patients with FP (34 female, 12 male, mean age 40.65 ± 8.3) and 48 healthy controls (40 female, 8 male, mean age 38.27 ± 3.9) were enrolled in the study. Sociodemographic data including sex, age, educational status and illness-specific data were collected. FP diagnosis was made using diagnostic criteria of the French Psychodermatology Group (FPDG). Pruritus severity was evaluated subjectively with visual analog scale (VAS). Beck Depression Scale (BDS), Beck Anxiety Scale (BAS) and Arizona Sexual Experience Scale (ASEX) were performed in all subjects. Childhood Abuse and Neglect Questionnaire (CANQ) was also applied to assess traumatic experiences of children. *Results:* There was no difference between the groups in terms of sociodemographic variables. Sexual dysfunction was significantly more frequent in FP patients than in the control group, according to the ASEX total scores (median: 21 vs 15.5, $z=-2.58$, $p<0.05$). BDI and BAI scores were statistically higher in patients compared with the controls (median: 22 vs 9, $z=-4.11$, $p<0.01$ and median: 14.5 vs 6.5, $z=-4.45$, $p<0.01$). A history of physical, emotional and sexual abuse and neglect in childhood was significantly more frequent in FP cases than in the control group ($p<0.001$) according to CANQ results. *Conclusions:* FP patients have higher rates of sexual

dysfunction, depression, anxiety and childhood abuse or neglect when compared with healthy population. These psychological components of FP can lead to secondary sexual dysfunction. In conclusion, we suggest that patients with FP should be evaluated for sexual dysfunction and comorbid psychopathology.

PP10

IMPACT OF COMORBIDITY ON COMPLIANCE IN GERIATRIC PSYCHODERMATOLOGY

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Objective: The purpose of this study was with the view of compliance improvement by psychotropic drug prescriptions (anti-depressants, sedatives, anxiolytics) and prevention of iatrogenic complications, to examine the comorbidity between skin and internal organs diseases, taking into account the emotional state of patients with mycological infection. **Methods and Materials:** The sample included 51 patients: 42 men (82,4%) and 9 women (17,6%), aged 75 to 93 yrs (mean age 80 yrs). The ICD-10 codes, Hospital Anxiety (A) and Depression (D) Scale (HADS), Dermatology Life Quality Index (DLQI) and Scoring Clinical Index for Onychomycosis (SCIO) have been applied to identified patients. All subjects had cytological confirmation of the diagnosis of Tinea unguium. [B35.1] and Tinea pedis. [B35.3]. The number of affected nail plates ranged from 1–10. The SCIO was estimated to be 16–30 points. **Results:** in the sample, intercurrent dermatoses were distributed as follows: benign skin tumors (seborrheic keratosis, papilloma) in 100% of cases; Leser-Trélat syndrome ($n=10$); rosacea ($n=16$); herpes zoster ($n=3$); eczema on the lower legs ($n=8$); seborrheic dermatitis ($n=12$); chromophytosis ($n=4$); candidal intertrigo between the gluteal folds and perianal region ($n=5$); recurrent angioedema ($n=1$), recurrent chronic urticaria ($n=1$), allergic contact dermatitis ($n=4$), dyshidrotic eczema on the hands ($n=1$). Concomitant physical illnesses were associated with such systems as cardiovascular ($n=35$) (high blood pressure, heart attacks, condition after insertion of a pacemaker), urogenital ($n=34$) (kidney cysts, chronic pyelonephritis, glomerulonephritis, urolithiasis, prostate adenoma); endocrine ($n=7$) – condition after strumectomy ($n=1$), toxic nodular goiter nodular goiter ($n=1$), diabetes mellitus ($n=5$); digestive ($n=27$) (gastric ulcer, duodenal ulcer, cholecystitis, pancreatitis, irritable bowel syndrome, Crohn's disease), nervous ($n=36$) (encephalopathy, ischemic stroke, Alzheimer's disease), bronchopulmonary ($n=5$) (COPD), rheumatoid arthritis ($n=1$) and skin and internal cancer ($n=25$). In this study, the anxiety level (A) was detected from 1 to 15 points (mean=5.94). Depression level (D) from 1 to 19 points (mean=6.45). Gender features were identified: in the female sample, the mean level of anxiety was 8.75, depression – 4.8, 5.4 and 8.8 in males, accordingly. It has been shown when identified concomitant cardiovascular diseases A were 10.5, D=10; digestive – A=8, D=5; bronchopulmonary – A=8, D=16; diabetes mellitus – A=10, D=6; Alzheimer's disease – A=8, D=11; skin and internal cancer – A=10, D=8.5. Combination of 10 affected nail plates (SCIO=30) and candidal intertrigo in perianal region resulted in A=7, D=8. When intercurrent dermatoses observed the mean levels of anxiety and depression were different, for example: rosacea A=8, D=9; seborrheic dermatitis A=9, D=6; allergic contact dermatitis A=6, D=7; eczema on the lower legs A=6, D=7; dyshidrotic eczema on the hands A=6, D=9; Leser-Trélat syndrome A=5, D=7; herpes zoster A=3, D=9. **Conclusions:** In this study, gender features were clearly demonstrated: subclinical levels of anxiety were more frequent in females and subclinical levels of depression in males. In the presence of concomitant pathology subclinical levels of anxiety (skin and internal cancer,

diabetes mellitus, high blood pressure, condition after insertion of a pacemaker, Alzheimer's disease, gastric ulcer and duodenal ulcer, irritable bowel syndrome) and depression (skin and internal cancer, cardiovascular disease, Alzheimer's disease, COPD) were determined. Based on the findings, intercurrent dermatoses enhanced anxiety (rosacea, seborrheic dermatitis) and depression (total onychomycosis, candidal intertrigo in perianal region, dyshidrotic eczema on the hands, herpes zoster). It seems necessary to consider comorbid diseases in patients with mycological infection in order to improve the compliance and prevent iatrogenic complications by integrated management and corrective pharmacotherapy assignment.

PP11

COMPREHENSIVE AND INTEGRATED ASSESSMENT OF PATIENTS WITH DEPRESSION

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Background: The inseparable connection between the pathological skin process and mental health is obvious [Lvov A.N., 2004]. According to the World Health Organization (WHO), from 4 to 6% of the global population suffers from depression, lifetime risk reaches to 15–20%. Dermatological symptoms, including itch, may considered both a phenomenon of anxiety mediated by the autonomic nervous system [Mendelevich V.D., Soloviev S.L., 2005], and a skin reaction that develops due to severe and chronic hypothyria. As for analysis of the dynamics, chronic dermatoses increase the risk of the recurrence of depression whereas mood disorders reduce the duration of clinical remission to 40% in patients with skin diseases [Mashkilleysen A.L., 1990]. The percentage of psychogenic manifestation/exacerbation of psychosomatic disorders is following: psoriasis – 25-60% [Gupta M., 1996], rosacea – 25-70% [Lalaeva A.M., 2003]; vitiligo – 15-20% [Koshevenko J.N., 1999]. **Objective:** The aim was to analyze the frequency and structure of dermatological syndromes in patients with depression. **Materials and methods:** The sample included 22 inpatients (13 females (59%) and 9 males (41%)): 7 affected by F.31. – bipolar affective disorder, mild or moderate depression (first / recurrent episode) and 15 affected by F.32. /F.33. – unipolar depression of mild to moderate severity (first / recurrent episode), according to ICD-10 criteria. Patients ranging from 26 to 73 years (mean age=51.45 ± 3 yrs). Exclusion criteria were: schizoprenia, schizoaffective disorder, organic lesion of the central nervous system, dementia, epilepsy, Alzheimer's disease, traumatic brain injury, history of alcoholism and drug abuse, pregnancy and lactation. The Hospital Anxiety and Depression Scale (HADS), the Clinical Global Impression Scale (CGI) have been applied to identify patients. The dermatological data was collected by medical records and objectively on admission and during hospitalization. **Results:** In this sample 3 patients had previously established diagnoses: rosacea [L.71.] ($n=1$), psoriasis [L.40.] ($n=1$), vitiligo [L.80.] ($n=1$). These patients reported exacerbation of psychosomatic disorders on the background of mood disorder. On admission, during the skin inspection rash had been detected in 3 patients: red papules, localized to less than 5% of the skin surface ($n=1$); scattered all over the skin, but covers less than 1/3 of the skin surface ($n=1$); rash on neck, nasolabial triangle and upper chest ($n=1$). Increased tendency to sweating was identified in 8 patients (40.9%), hampering, requires frequent change of clothes ($n=1$). 2 patients suffered from allergic reactions: to birch flowering ($n=1$); to iodine-containing drugs, seafood, to Capoten and Corinfar (dry cough), angioedema to penicillin. Generally, dermatological syndromes were found in bipolar patients (3 patients; 42.9%) more often than in unipolar (5 and 33%). **Conclusions:** This study confirms the high prevalence of dermatological syndrome in patients with affective disorders,

especially in bipolar. High comorbidity of dermatological and psychiatric diseases demonstrates the need of comprehensive assessment (thorough skin examination, catamnesis health records), and, most importantly, a joint management of psychiatrists and dermatologists.

PP12

FEATURE AFFECTIVE DISORDERS ON WOMEN WITH ACNE AND HORMONAL ABNORMALITIES

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Object: The study involved 326 patients with acne and 100 healthy women. Depending on the form of hyperandrogenism (HA) and other hormonal abnormalities, 6 groups were formed: in group I was 85 women with ovarian hyperandrogenism (OHA), group II – 65 OH and insulin resistance (IR), Group III – 31 with adrenal HA (AHA), group IV - 49 with mixed HA (MHA), group V – 27 with MHA and hyperprolactinemia (HPrl), group VI – 69 without laboratory signs of HA. The control group consisted of 100 women without acne. **Methods:** Psychological testing was conducted using the scale M. Hamilton, HDRS-21 and HARS. **Results.** In group I affective disorders were ascertained at 69.41%/59, in group II – 83.08%/54. During the test HDRS-21 in patients with AHA was found that was seen in dysthymia 9.68%/3 and depressive episodes at moderate 6.45%/2 patients. Most commonly affective disorders in this group were characterized by mild anxiety at 25.81%/8 and medium impact at 35.48%/11 patients. The middle total score of depression was 9.39 ± 0.72 , and anxiety – 18.54 ± 2.63 . In women with MHA affective disorders were ascertained at 75.51%/37 from group IV and 88.89%/24 from V group. In this case, dysthymia is the most common in patients of group IV (28.57%/14), and episodes of depression and anxiety disorders in patients with moderate degree with HPrl (25.93%/37.04% and 7/10, respectively). The total gross score in these groups on a scale of HDRS-21 was 15.83 ± 1.24 : women group IV – 10.12 ± 1.05 ; patients of group V – 21.54 ± 1.43 points, which corresponds to an average episode of depression severity. In assessing the severity of anxiety disorder average total score in these groups of patients was 16.59 ± 2.36 . In group VI, in most cases (40.58%/28) were recorded episodes of depression of moderate severity, at which there were significant signs of dysmorphophobia and Dismorphomania. Dysthymia was observed in 24.64%/17 patients of group VI, at least – easy (10.14%/7) and medium (17.39%/12) degree of anxiety disorders. The lack of affective disorders in this group had 7.25%/5 women. The average total score of depression on the scale of HDRS-21 women's group VI was 21.48 ± 2.35 , anxiety scale HARS – 9.32 ± 1.06 . When analysing the results of testing prevailed average degree in severity of episodes of depression in women groups V and VI. In the other group, the average total score on a scale of HDRS-21 match dysthymia. **Conclusion:** Women with acne and hormonal abnormalities were found to have comorbid affective disorders: prevalence of depressive episodes on women in groups V and VI, and anxiety disorders – patients groups III and V.

PP13

MOTIVATION ISSUES IN COSMETIC SURGERY PATIENTS

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Objectives: Motivation of patients for cosmetic procedure is an important factor to predict its outcomes. The aim of this study was to evaluate the clinical features of patients, depending on their motivations. **Methods:** This prospective study involved 25 cosmetic surgery patients operated in the City hospital of Saint

Petersburg. Clinical method was used in the study. **Results:** The mean age was 33.8 years (range from 24 to 55 years). The patients were divided into two groups depending on the type of motivation. The first group included patients with external motivations: desire to increase sexual attractiveness was leading in 52.0% of cases (13/25). The second group included patients with internal motivations: subjective dissatisfaction with breast was leading in 48.0% of cases (12/25). Patients in both groups did not differ in age, severity of changes in the mammary glands, character of preoperative complaints. Patients of the first group characterized by a request for a larger size of the implant, inconsistency and uncertainty in conversation, the desire for informal communication with the surgeon, obvious strain during the conversation, conflict in relation to medical staff. These patients more often had unformed ideas of guilt ($p=0.061$), decreased libido in the last 6 months ($p=0.037$), the presence of distressed situations (break relations with a partner, divorce). In 38.46% of cases, patients with external motivations planned new aesthetic surgery before the current discharge from the hospital. Patients of the second group had more realistic and specific requests (usually associated with the return the parameters that were lost after childbirth and lactation). This group characterized by the wide prevalence of anxiety, formal and distant behavior. There was a lack of awareness of psychological mechanisms of recourse to plastic surgery. **Conclusion:** Patients with internal motivations have personal distress, more specific requests for surgery. They have a better chance to achieve its objectives. Externally motivated patients require more careful preparation with a detailed explanation of the risks and benefits of the procedure. If the request does not correspond to the patient's expectations of the procedure, and if the patient is showing considerable conflict and stress, a consultation with a mental health specialist is recommended.

PP14

PRURIGO NODULARIS AMONG DERMATOLOGICAL PATIENTS IN EUROPE

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Introduction: Prurigo nodularis is a highly pruritic, poorly understood severe skin disease with considerable morbidity. **Objectives:** To describe the clinico-epidemiological characteristics of patients with prurigo nodularis in a recent large study consisting of dermatological patients and controls from 13 European countries. **Material and Methods:** In dermatological clinics in 13 countries in Europe a total of 4635 patients and 1,359 controls were enrolled in the study. The patients were examined by a dermatologist, and all the participants filled in the same questionnaire. **Results:** A total of 24 patients from 10 European countries had either prurigo nodularis as first or second diagnoses, of which there were 9 females and 13 males. The prevalence of present itch was 91.3% (21/23) compared to 8.0% (88/1094) in controls. Dermatology Life Quality Index scoring was extreme in 6 patients, very large in 6 patients and moderately elevated in 4 patients. In patients with prurigo nodularis the prevalence of clinical depression was 30.4% (7/23), clinical anxiety 39.1% (9/23) and suicidal ideation 21.7% (5/23). The corresponding prevalence of clinical depression, clinical anxiety and suicidal ideation in patients with psoriasis was 13.8%, 22.7% and 17.3% and in controls 4.3%, 11.1% and

8.3%. **Conclusions:** Prurigo nodularis is an uncommon disease among dermatological patients in Europe. Patients with prurigo nodularis have a considerable morbidity reflected in a high prevalence of itch, high levels of mental health problems and reduced health-related quality of life compared to both healthy controls and patients with psoriasis.

PP15

INTRALESIONAL METHOTREXATE: A PLAUSIBLE TREATMENT OPTION FOR NON METASTATIC SQUAMOUS CELL CARCINOMA

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Objective: Intralesional methotrexate have been used for the treatment of nonmelanoma skin cancer (NMSC) with no reports on its use in Squamous cell carcinoma (SCC). The aims were to evaluate intralesional methotrexate as a possible treatment modality for nonmetastatic SCC. **Methods:** 15 patients with 15 SCCs were enrolled in the study. The size of the lesions ranged from 0.5 to 4 cm². Sessions were performed every two weeks until complete cure. Dose injected ranged from 0.3 to 2.0 ml of 25 mg/ml concentration of methotrexate. **Results:** All 15 lesions were treated with a cure rate of 100%. Number of treatments ranged from 1 to 12. Lesions located on the lip and tongue, as well as lesions larger than 2 cm² required the maximum number of treatment sessions. No recurrences were detected over a mean two years follow-up period. **Conclusion:** Intralesional methotrexate is a cost effective treatment option for non metastatic cases of SCC, with an excellent cosmetic result.

PP16

ALEXITHYMIA IN HEMODIALYSIS PATIENTS WITH URAEMIC PRURITUS

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Objectives: The aim of this study was to assess the relationship between alexithymia and pruritus in hemodialysis patients. **Materials and methods:** The study was conducted in 90 hemodialysis patients (48 with uraemic pruritus, 42 without pruritus). Alexithymia was evaluated in all patients using Bermond-Vorst Alexithymia Questionnaire (BVALQ). Pruritus intensity was assessed using the horizontal visual analogue scale (VAS). In addition, sleeping problems were analyzed with the Athens Insomnia Scale (AIS). All results were analyzed statistically. **Results:** Most of patients with pruritus rated their itch as mild or moderate. No significant differences were found between patient with and without pruritus regarding the total score of BVALQ (103.5±13.9 vs. 108.5±16.3 points, $p=0.12$). However, there was a statistically significant difference considering the domain of daydreaming and fantasy. Patients with uraemic pruritus had significantly lower average score in this domain (25.9±11.1 vs. 21.7±8.9 points, $p<0.05$) and the scoring also correlated with the intensity of pruritus ($r=-0.33$, $p=0.03$). In contrast, no relationship was found between alexithymia and sleep problems ($r=-0.16$, $p=0.14$). **Conclusions:** The ability to fantasize and daydream is higher in patients with uremic pruritus compared to patients without pruritus and correlates with the intensity of pruritus. Further studies should be conducted to confirm, if pruritus as an isolated symptom affects alexithymia in other groups of patients.

PP17

ANXIETY IN PATIENTS WITH ALOPECIA AREATA

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Introduction: Alopecia areata is a common autoimmune skin disease with sudden loss of hair. The disease heavily affects well being of the patients. **Objective:** The aim of the study was to assess the intensity of anxiety in adult patients with alopecia areata in comparison with the normal subjects. **Material and methods:** A group of 50 subjects (35 women and 15 men, mean age 39.3 ± 15.1 years) with alopecia areata and 53 healthy volunteers (35 women and 18 men, mean age 43.2 ± 12.2 years) were enrolled. All patients underwent careful physical examination and completed questionnaires on anxiety and quality of life. The study was based on Beck Anxiety Inventory (BAI), Social Physique Anxiety Scale (SPAS) and Dermatology Life Quality Index (DLQI). The results were statistically analyzed. **Results:** Patients with alopecia areata compared to control group had significantly increased level of anxiety (BAI: mean 11.1 ± 7.1 vs. 7.6 ± 6.9, $p=0.01$; SPAS: mean 42.7 ± 8.4 vs. 46.1 ± 8.4, $p=0.01$) respectively. Women statistically more commonly were affected with anxiety (BAI: mean women 12.5 ± 7.3, men 7.7 ± 5.2, $p=0.02$). In patients with alopecia universalis anxiety was more frequently observed than in patients with typical type of alopecia areata (BAI: mean 15.0 ± 6.8 vs. 9.9 ± 6.9, $p=0.03$) respectively. However there was a significantly correlation between anxiety level and DLQI (SPAS: $r=-0.34$, $p=0.02$). **Conclusion:** Alopecia areata is associated with significant increase in anxiety.

PP18

QUALITY OF LIFE AND PSYCHOLOGICAL ASPECTS OF PATIENTS WITH PSORIASIS AND PSORIATIC ARTHRITIS

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Depending on the severity of psoriatic process, localization of lesions, the nature of its course and the presence of comorbid pathologies, psoriasis patients experience severe physical and psychological discomfort, difficulties in social and professional adaptation, and the quality of life is often lower than in serious diseases such as depression, myocardial infarction, diabetes mellitus. A number of studies have shown that in cases of mild, and in cases of severe course of psoriasis, the most disturbing symptom of patients, the most subjectivity deterioration in quality of life was itching, in second place was a pain in the joints of patients with psoriatic arthritis. Therefore, at present time psoriasis is considered as a systemic disease, since the presence of comorbid pathologies can not only aggravate the course of the primary process, but also lead to early disability of patients. The presence of rash on the skin of exposed areas of the body, scalp cause for patients special psychological problem, because according to studies, more than 70% of patients define psoriasis as a serious problem in their lives, about 60% of patients have a tendency to BDD experience social phobia and have lower self-esteem, which is connected with the fear of social rejection, difficulties in finding work and personal life device. Psychological distress in combination with pain, itching and immunological disorders can lead to severe depression, anxiety and significant social isolation and disadaptation of the patient. Importantly, comorbidity psoriasis and depression, social phobia occur with increased frequency in patients who have no subjective psychological discomfort. Therefore, the management of these patients is important, often a collegial approach to the disease, it is necessary to take into account related comorbidity. Much more attention should be paid to the issues of early diagnosis and prevention of psoriatic arthritis and other comorbid conditions and causal

psychological disorders. For the purpose of social adaptation and rehabilitation of patients it is needed to inform patients about the ongoing schools psoriasis and other patient organizations where they can get information about the treatment and prevention of exacerbations of their disease, learn to accept their illness and maintain a way of life, and get psychological help and support.

PP19

PATIENTS WITH VITILIGO BENEFIT FROM SHORT PSYCHOLOGICAL INTERVENTION DURING CLIMATOTHERAPY WITH PSEUDOCATALASE PC-KUS AT THE DEAD SEA

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Objectives: Vitiligo is an acquired skin disease leading to loss of pigmentation and often to an impaired well-being. Combined climato therapy with pseudocatalase PC-KUS at the Dead Sea is a medically effective treatment for this disease. Aim of this study was to explore the influence of an additional short term psychological intervention on quality of life (QoL) and coping in an international patient group at the Dead Sea. **Methods:** Dermatology Life Quality Index (DLQI) and the Adjustment to Chronic Skin Disorders Questionnaire (ACS), using the sub-scales Social Anxiety/Avoidance (ACS-SAA), Helplessness (ACS-H) and Anxious-Depressive Mood (ACS-ADM). High scores indicate impairment of well-being. Questionnaires were answered three times: on day 1 at the Dead Sea, 20 days later (last day) and 4 months later at follow-up appointment in Germany. At the Dead Sea, all patients were offered one hour session of interventional psychological stress assessment by a chartered psychologist from the UK using 1. a structured interview and 2. the opportunity to talk about any vitiligo-related issues. A second session was offered if required. 19 English-speaking patients and non-native speakers with sufficient language knowledge accepted and took part. The remaining 16 patients continued their medical treatment without the psychological intervention (control group). Signed consent was obtained. **Groups' characteristics:** Patients enrolled/controls: mean age 45.2/50.7 years, 10/9 males, 9/7 females, 16/15 with skin phototypes I-III and 3/1 with IV-VI (all differences $p > 0.05$). **Results:** 1. Patients with combined climato therapy only: Improvement of QoL from day 1 to day 20, but not measurable anymore 4 months later (day 1/day 20/follow-up: DLQI 8.8/2.9**/6.4; ACS-SAA 44.9/40.5/42.3; ACS-H 28.7/27.2/28.7; ACS-ADM 24.4/23.1/22.9). 2. Patients with additional psychological intervention: Significant improvement of QoL, social anxiety/avoidance and helplessness, even 4 months later (DLQI 5.7/1.5**/3.2*; ACS-SAA 38.1/33.8*/31.8**; ACS-H 26.9/23.8**/22.9**; ACS-ADM 21.0/19.1/19.3, significance compared to day 1 by paired T-Test, * $p < 0.05$, ** $p < 0.005$). **Conclusions:** Combined climato therapy with pseudocatalase PC-KUS at the Dead Sea alone significantly improves QoL in the short term. Addition of a short psychological intervention significantly further improves QoL and coping even in the long term. Hence, psychological counselling should be considered for patient care in vitiligo.

PP20

ANXIETY ASSESSMENT IN PATIENTS WITH ALOPECIA

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Introduction: Patients with various forms of alopecia often report high levels of personal distress and disability as a result of their hair loss. Losing hair can be a very stressful situation. On the other hand, alopecia is often related to the presence of stressful situations. The aim of the present study is to measure and observe the existing relationship between alopecia and anxiety. **Methods:** We present a transversal study of 60 patients with alopecia: 7 with alopecia areata, 10 with diffuse alopecia and 43 with androgenetic alopecia. These patients were asked to complete the Inventory of Situations and Response to Anxiety (ISRA), as well as a socio-demographic form. **Results:** There were 32 females and 28 males aged between 15 and 51. The incidence of severe anxiety was 53% in women and 36% in men. The incidence of moderate anxiety was 31% in women and 50% in men. In both men and women, there were 15% with normal levels of anxiety. **Conclusion:** High levels of anxiety were found in both men and women with alopecia in our study. We will present details of the types of anxiety measured (cognitive, motor and physiological), as well as the situations which cause the stress (being evaluated, interpersonal relationships, phobias, everyday hassles).

PP21

PREDICTORS OF QUALITY OF LIFE IN ADULTS WITH ACNE: THE CONTRIBUTION OF PERCEIVED STIGMA

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Objectives: As dermatology patients complain that their psychological distress is extensive and often overlooked, it is surprising that there is a paucity of research investigating factors associated with acne-related quality of life. This study, therefore, aimed to compile a preliminary list of risk factors for psychosocial distress as a result of having acne in adulthood, while specifically examining the role of an under investigated variable – perceived stigma – due to the high levels of stigmatization reported by these individuals. **Methods:** Adults with acne ($n=119$; mean age: $M=26.37$), recruited from private dermatology offices in Athens were administered the Feelings of Stigmatization Questionnaire (FSQ; Ginsburg & Link, 1989) and Acne-Specific Quality of Life Questionnaire (Acne-QoL; Allison, 1996). Multiple regression analysis was conducted in order to assess the capacity of various psychosocial and demographic variables to predict acne-related QoL. **Results:** Gender, age, history of acne, self-rated severity of acne and perceived stigma emerged as significant predictors of acne-related QoL. While perceived stigma and self-rated severity of acne represented significant predictors for all three domains of acne-related quality of life (self-perception, role-social and role-emotional), the former variable made the largest contribution to the regression model. **Conclusions:** This research study provides preliminary evidence that adults who feel stigmatized are at risk for experiencing a poor quality of life as a result of having acne. Potential risk factors of secondary importance, which can be clinically useful in providing red flags for dermatologists treating adults with acne, may also include one's self-rated severity of acne, age, gender and previous history of acne.

PP22

DELUSION OF PARASITOSIS: THERAPEUTIC STRATEGIES. EXPERIENCE IN THREE PATIENTS

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Delusional parasitosis (DP) is a condition in which a person has the unshakeable and mistaken belief of being infested with parasites. **Objectives:** • Share and compare my experience in the

therapy of DP with colleagues from other countries. • Highlight the importance of the patient-physician relationship both with the patient himself and his family, with whom to generate an effective therapeutic strategy. • Assess comparatively the response, dosage and compliance to different antipsychotic drugs. *Methods:* Three clinical cases from private practice are shown, two male patients and a female one. Two of them were treated with 1 mg-day Risperidone and Aripiprazole respectively and in one case no antipsychotic treatment was prescribed. In two of the cases the treatment was accompanied by psychotherapy. *Results:* The therapeutic response may be considered favorable in all the cases, both when Risperidone and Aripiprazole were administered as when no antipsychotics were prescribed. The discontinuation of the treatment in the second case caused recurrence of the symptoms. *Conclusion:* As published in the literature, the pharmacological treatment improves the quality of life in these patients though the delusional syndrome remains silent. The choice of psychotropic drugs depends on the medical history of each case as well as the organic cause and interactions with other treatments. The compliance of these patients is irregular and requires a strong therapeutic alliance. Early treatment of this pathology with an interdisciplinary team or supervised by a dermatologist results in a marked improvement in the quality of life.

PP23

A STUDY OF STRESS IN PATIENTS WITH ACNE EXCORIÉE, LICHEN AND MACULAR AMYLOIDOSIS, AND LICHEN PLANUS

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Objectives: The present study was conducted to compare stress scores and types of reported stress in three dermatological conditions (acne excoriée, lichen and macular amyloidosis, and lichen planus) and those without any dermatological condition. *Methods:* We assessed stress by Gurmeet Singh's Presumptive Stressful Life Events Scale (by a psychiatrist) in 20 cases of each condition each of acne excoriée, lichen and macular amyloidosis, and lichen planus, and 20 controls. We collected demographic data and stressors in all participants, and clinical data in 60 cases. We used multivariate linear regression models to study the factors associated with stress scores. *Results:* The mean age (standard deviation [SD]) in acne excoriée, lichen and macular amyloidosis, lichen planus, and controls were 25.2 (5.5), 39.4 (12.7), 35.7 (14.1), and 38.5 (11.6) years respectively ($p < 0.001$). The common stressful events were financial problems (51%), family problems (40%), marital conflicts (36%) and death (32%). Stressful life events were significantly more commonly reported by cases compared with controls (88% vs 8%, $p < 0.001$). The Median (Interquartile range [IQR]) stress scores were highest in patients with lichen and macular amyloidosis (230 [210, 284.5]), followed by acne excoriée (189 [130, 234.5]), lichen planus (154 [105, 200.5]), and controls (0 [0, 65]); the differences were statistically significant ($p < 0.0001$). In the adjusted models, the mean stress scores were significantly higher in patients presenting with lichen and macular amyloidosis (201.4, 95% confidence intervals [CI]: 157.1, 245.6; $p = 0.001$), acne excoriée (156.4, 95% CI: 107.4, 205.5; $p < 0.001$), and lichen planus (128.5, 95% CI: 84.2, 172.7) compared with controls. Financial stress was reported by 70% of acne excoriée, 65% of lichen and macular amyloidosis, 50% of lichen planus cases, and by 20% controls ($p = 0.007$). Marital conflicts were reported by 60% of lichen and macular amyloidosis, 45% of acne excoriée, 30% of lichen planus cases, and by 10% controls ($p = 0.007$). Similarly, family conflicts were reported by 70% of lichen and macular amyloidosis, 50% lichen planus, 40% of acne excoriée cases, and none of the controls ($p < 0.001$). *Conclusions:* Stressful life events were more commonly reported by cases

compared with controls. Stress scores were highest in lichen and macular amyloidosis, and acne excoriée patients. These dermatological diagnoses were associated with different types of stressful events in life.

PP24

PSYCHOSOCIAL HISTORY AND INTERVENTION OF FEMALE PATIENT WITH EPIDERMOLYSIS BULLOSA

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Epidermolysis bullosa is a genetically determined disorder characterized by blistering and erosions of skin after minimal trauma. A 60-year old female patient was seen at our outpatient dermatological department in Alcañiz Hospital in Spain. After taking a detailed history, followed by a dermatological examination, the diagnosis of epidermolysis bullosa was confirmed. No one had ever told the patient what her diagnosis was so it was necessary to give detailed explanation of treatment options. The patient showed signs of sadness and was very withdrawn and after a few visits the dermatologist asked the psychologist in the team to sit in with him to meet the patient and offer psychosocial support. The patient was born at home, in a small village in the region of Aragon. The family realized their daughter had a problem when her ears were pierced a week after birth. As a child, any fall or bump had dramatic effects on her skin. She recalls having had a very difficult time during adolescence when she became aware of how different she was to others. She retreated from social life and left her house only to go to school. At the age of 22 she decided to "normalize" her life and soon after she met her future husband. Her husband has epileptic crisis and a difficult temperament, not very empathetic towards his wife's illness or suffering. The patient's hands are deformed and she has no nails on hands or feet. She has alopecia in head and pubic area. She is especially worried about her sight as she is shortsighted and has cataracts, which are blinding her considerably. Her main fears are going blind or needing a surgical intervention and not being able to have it because of her illness. Several visits were scheduled with both the dermatologist and the psychologist. Little by little, the patient gained confidence in the staff and she began to unfold some of her "secrets" and the issues that were causing her suffering and worry. Some psychological screening tools were used (Symptom Checklist-90-R, Hospital Anxiety and Depression Scale), as well as a dermatology specific quality of life questionnaire (Dermatology Life Quality Index). She had a very impaired quality of life (DLQI=20), screened positive for depression and anxiety, and manifested the following symptoms: loneliness, nervousness, sadness, excessive worrying, fears, desire to cry, headaches and muscular pain. The patient continues having monthly sessions in the psychodermatology department of the hospital.

PP25

WOMEN'S SELF-IMAGE – HOW WE PERCEIVE OURSELVES, HOW MUCH WE SACRIFICE FOR PERFECT LOOKS

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Objectives: Increasing access to aesthetic medical procedures as well as the cult of perfect appearance created by the media induced the authors to conduct research of the satisfaction level of self-image among a representative group of Polish women.

What is more, an analysis was conducted, the aim of which was the assessment of women's views on the topic of surgical and non-surgical methods of appearance correction and their frequency. *Methods:* The study involved 143 professionally active women aged from 20 to 50 years old, mostly living in Silesian agglomeration's cities (80%). The research applied a survey method with the use of multiple choice as well as discussion and conjunction. The prepared survey contained an own authorship evaluation scale of satisfaction of certain parts of the body. The statistical analysis was conducted with the use of Statistica 10.0 program. *Results:* The level of satisfaction on self-image among Polish women is quite high and it is 74%. The face, according to Veale and collaborators, is characterized by the highest satisfaction level among Polish women (89%). The main sources of dissatisfaction are, on the other hand, the bottom parts of the body, especially thighs (27%) and belly (25%). 84.2% of the respondents attempt to change their nutritional and skin care habits in order to improve their appearance, however, only 11.9% of them succeed. 45% of the participants regularly (every three months) visit beauty salons. However, doctors of aesthetic medicine, used only by 6% of women, enjoy relatively little trust. Among medical procedures, the most popular is exfoliation, while cosmetic laser treatment is used the least often. None of the surveyed women has ever had a plastic surgery and only 5% consider such a possibility. *Conclusion:* One of the biggest research of the satisfaction level of self-image conducted by David Garner on an international group in the 90s showed that as far as 56% of the women involved were unhappy with the way their body looked. Modern Polish women seem not to undergo the medial pressure to strive for excellence at all cost and the level of satisfaction is considerably higher than the results gathered by Garner.

PP26

DETERMINANTS OF PSORIATIC PATIENTS' PSYCHOSOCIAL WELL-BEING – RESULTS OF THE MULTINATIONAL STUDY

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Introduction: Psoriasis is one of the best studied dermatoses with respect to quality of life (QoL) impairment. However, differences between various countries have not been analyzed well so far, especially regarding determinants of psychosocial well-being deterioration. *Objective:* The aim of this study was to compare the psychosocial well-being of patients with psoriasis in different European countries and to assess the major factors having influence on QoL impairment. *Material and methods:* This is an international multi-center observational cross-sectional study conducted in 13 European countries. A total of 662 patients (54.2% males and 45.8% females) aged 47 ± 15.6 years were recruited. All patients completed a questionnaire with socio-demographic information, negative life events and suicidal ideation. Depression and anxiety were assessed with the Hospital Anxiety and Depression Scale (HADS), and QoL with Dermatology Life Quality Index (DLQI) and EQ-5D. *Results:* Significant differences regarding QoL, anxiety and depression were observed between psoriatics from various countries ($p < 0.001$). The lowest anxiety and depression scoring was noted in patients from Denmark (HADS-anxiety: 5.0 ± 4.4 points, HADS-depression: 3.2 ± 3.2 points). The best QoL was observed in subjects from Spain (overall health status: 74.9 ± 16.8%; DLQI: 3.7 ± 4.9 points), while patients from Italy were the most impaired ones (HADS-anxiety: 10.6 ± 3.9 points, HADS-depression: 9.6 ± 4.4 points, overall health status: 55.6 ± 22.2%, DLQI: 14.3 ± 6.6). The most relevant parameters influencing the patients' well-being were pruritus severity (HADS-anxiety: $r = 0.34$, HADS-depression: $r = 0.33$, overall health status: $r = -0.3$, DLQI: $r = 0.46$), satisfaction with the current dermatological treatment (HADS-anxiety: $r = -0.22$, HADS-depression: $r = -0.19$, overall health status: $r = 0.17$, DLQI: $r = -0.2$) and to lesser degree gender, experience of serious economical difficulties in the past 5 years as well as having stressful life events during the last 6 months. Importantly, the level of anxiety and depression symptoms significantly correlated with suicidal ideation in the studied patients (HADS-anxiety: $R = 0.37$, HADS-depression $R = 0.33$). *Conclusions:* Pruritus severity and satisfaction with the current dermatological treatment were shown to have the greatest impact on the psoriatic patients' well-being. Moreover, there was also found a clear link between the level of anxiety and depression symptoms in psoriatic individuals and the presence of suicidal ideations.

PP27

TRICHOTEMNOMANIA: THREE ADOLESCENT CASES WITH A VERY RARE DISORDER AND REVIEW OF THE CURRENT LITERATURE

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Objectives: Trichotemnomania (TT) is hair-loss due to cutting or shaving by patients which is an obsessive-compulsive habit. Prevalence of this condition is usually underestimated, whereas dermatologists can miss the diagnosis. Our aim in this study was to present three adolescent patients with TT. This is the first adolescent case-series of TT. *Methods:* Three adolescent patients with variable characteristics of TT were evaluated by dermatologist and child and adolescent psychiatrist. Dermatologic examination included medical history, physical examination and laboratory investigations. Detailed psychiatric assessments consisted of socio-demographic data, clinical history, Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version-Turkish Version (K-SADS PL), Yale-Brown Obsessive Compulsive Scale (Y-BOCS), Social Anxiety Scale for Children-Revised (SASC-R). We have followed up all the patients for at least six months. *Results:* All patients admitted to dermatology clinic accompanied by their parents with sudden loss

of hair. Dermatologic examination revealed a generalized hair loss and preservation of normal-length hairs at the margins of the affected area. The hair pull test was negative and there were neither exclamation point hairs nor yellow black dots in dermoscopy assessment. All the patients denied cutting or pulling scalp hair. After detailed psychiatric evaluation, case 1, case 2 and case 3 had the diagnosis of OCD. Total scores of Y-BOCS were 52, 55 and 61, respectively. Other comorbid psychiatric disorders were social anxiety disorder (in case 1 and case 2), general anxiety disorder (in case 3) and agoraphobia (in case 3). Case 1 and case 2 were started on sertraline 50 mg/ day. After 6 months follow-up, they were symptom-free for OCD (Y-BOSC total points were 7 and 9, respectively) and they had no more hair-loss. Case 3 and her parents refused the treatment. Conclusion: TT is a very rare disease. There are only a few case reports in literature. Dermatologists and psychiatrists don't recognize this clinical entity and most of the cases are left undiagnosed. Clinical characteristics of this disease should be investigated in large scale studies.

PP28

GENDER BIAS IN PREFERENCES FOR DERMATOLOGY AS A SPECIALTY AMONG DEPARTMENT OF HEALTH POST-GRADUATE INTERNS OF A TERTIARY HOSPITAL IN THE PHILIPPINES

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Background: There has been an increasing trend towards having more female dermatologists than males. Studies have shown that more women enter the field of Dermatology, while fewer of their male counterparts consider this specialty. Furthermore, gender and the roles assigned by the society have an impact in specialty preferences. **Objectives:** In light of a program on Gender and Development, guided by the principles of the Philippine Magna Carta of Women, this study was undertaken to gain knowledge about medical interns' specialty preferences, to discover the possibility of gender gaps, especially for dermatology as a specialty preference, and to explore the reasons why it might exist. **Methods:** A questionnaire-based interview was conducted among Post-graduate Interns of East Avenue Medical Center between July to November 2014. Data were collated and statistically analyzed. Chi-square test was used to compare differences in proportions and test relations across gender. Statistical significance was based on p-values ≤ 0.05 . SPSS v20 was used in data processing and analysis. **Conclusion:** Gender has been a factor in deciding a specialization for medical interns. Controllable lifestyle has now been the topmost factor for males while anticipated income is now a top priority for females. With these factors, the field of Dermatology has been appealing to many post graduate interns but sadly, due to stereotyping of male dermatologists as gay, many males hinder themselves from applying.

PP29

THE BARBIE EFFECT ON KINDERGARTEN GIRLS AND ON WOMEN SEEKING AESTHETIC PROCEDURES

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Objective: The aim of the survey is to show the impact of the Barbie effect on self-esteem and personal image on both young girls and women. **Material & Methods:** Parallel study among 48 kindergarten girls, aged 4–6 years old (mean age: 5), and 23 women, aged 22–38 years (mean age: 32), concerning beauty aspects

related to Barbie image. The girls were asked a series of questions about Barbie dolls, and the answers were written by the teacher and dermatologist. The female patients were selected according to the following criteria: suffered from mild/moderate depression (Beck scale was used) for which they were undergoing treatment, and came for a dermatological procedure, botulinum toxin and/or hyaluronic acid injection, with unrealistic expectations, bringing photos of celebrities and asking for a “Barbie-like” appearance. **Results:** According to the survey, all girls own at least one Barbie doll (mean 3) and consider Barbie a role model; 58.33% (28 girls) wish to grow-up and look like Barbie. When asked what is the most beautiful thing about Barbie, 47.91% (23) answered face (69.56% – eyes (16); 30.43% – lips (7)), 25% (12) slim body, 14.58% (7) hair and 12.5% (6) dresses). Beck scale emphasized an interval from 14 to 27 points (mean value 20) showing mild (47.82%) or moderate (52.17%) depression. All patients were counseled by both dermatologist and psychiatrist and advised to reevaluate their expectations from the medical procedure. Photos of patients were photoshopped to point the outcome of the procedure according to the dermatologist point of view (a natural look) and to the patient's desire (Barbie-like look). Eventually all 23 patients accepted the dermatologist proposal and were injected with botulinum toxin and/or hyaluronic acid. Reevaluation of Beck score 2 months after the cosmetic procedure showed a mean decrease of 4 points in 69.56% (16) patients, with an improvement of self-esteem. However, within 3 months, 34.78% (8) of the 23 female patients returned to the dermatologist seeking for a second filler injection to provide more volume to the lips. **Conclusion:** The studies support the concept that Barbie influences girls' developing self-concept and body image, as well as women's beauty concepts and expectations in terms of beauty procedures.

PP30

NEUROTIC EXCORIATIONS IN A BLIND WOMAN

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Objective: To emphasize a case of factitial dermatitis in a blind woman. **Material & Methods:** We report the case of a 53-year-old female, blind for almost a year (due to traumatism), undergoing treatment for moderate depression, who presented with multiple excoriations and scarring on the face, upper back and arms, evolving for 9 months. **Results:** Dermatological examination showed multiple excoriations in various stages of evolution and healing, post inflammatory hyperpigmentation and numerous scars, distributed over the face, upper back and extensor surface of the upper extremities, without associated pruritus. After complete loss of vision due to an accident, the patient became isolated and suffers from moderate depression (score on Beck Scale=21) for which she is undergoing treatment with venlafaxine and lorazepam. Skin lesions first appeared 3 month after she became blind. The patient was treated several times during the past months for folliculitis and scabies, without improvement. She denied skin picking, but she was carefully monitored by her tutor who observed the patient inducing skin lesions through compulsive, repetitive excoriation of her skin in areas easy to reach, thus supporting the diagnosis of neurotic excoriations which was made. Topical dermatocorticoid improved the aspect of lesions and the patient received a higher dosage of the psychiatric treatment as well as psychological counseling, with good result within 2 months therapy. **Conclusions:** Neurotic excoriations or skin picking is a psychocutaneous disorder; described as an uncontrollable urge to pick at normal skin or skin with mild lesions, in order to temporary alleviate depression. Detailed history, physical examination and collaboration between dermatologists and psychiatrists are essential in establishing the diagnosis and treatment of factitial dermatitis.

PP31 COMORBID PSYCHIATRIC DISORDERS IN PATIENTS WITH HAIR LOSS

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Psychiatric disorders that are comorbid with hair pathology are characterized by significant polymorphism. They include a wide range of primary and secondary psychiatric disorders. Hair loss is associated with the loss of appeal and body image issues. It is an important trigger in the development of psychogenic (nosogenic) reactions. **Objective:** To study psychiatric comorbidities in patients with hair loss. **Methods:** Nine patients with hair loss were consulted using an interdisciplinary approach by a trichologist and a psychiatrist. The following diagnoses were established by the trichologist: androgenic alopecia ($n=3$), diffuse telogen effluvium ($n=2$), and alopecia areata ($n=4$). Nosogenic reactions or adjustment disorders with depressed mood and with anxiety (F43.21-22 in ICD-10) were diagnosed by the psychiatrist. Severity of depressive and anxiety symptoms was measured with the Hospital Anxiety and Depression Scale (HADS). **Results:** According to the results of HADS, the level of anxiety was higher (8.5 ± 4.1 points) than the level of depression (5.75 ± 3.3 points). This reflects the fact that nosogenic disorders with phobic reactions were typical for patients with hair loss and were often accompanied by avoidance behaviour. There was a tendency to limit social life and escape a squeamish attitude of other people "caused by negative appraisal on patients' hair quality". However, no direct relationship between the severity of alopecia and the severity of reaction has been found. The severity of the reaction mostly depended on the personality dimensions of patients. More severe reactions were observed in patients with premorbid, over-valued attitude to hair quality ("hairdo must be perfect", "hair must be silky" etc.).

PP32 PSYCHOLOGICAL IMPAIRMENT IN PATIENTS WITH CHRONIC SPONTANEOUS URTICARIA

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Objective: Chronic spontaneous urticaria (CSU) is a common skin disorder that has been associated with psychological distress. We investigate psychopathological symptoms such as anxiety and depression in patients with CSU. **Methods:** This observational study included 70 patients with CSU attending the outpatient clinics of a reference Dermatology Department at a University Hospital in Barcelona, Spain, and 70 healthy subjects, who completed the Goldberg Health Questionnaire (GHQ-60), the Beck Depression Inventory (BDI-21), and the Spielberger State-Trait Anxiety Inventory. **Results:** Patients with CSU had significantly higher mean scores than controls in GHQ-60 (19.06 vs 5.18 , $p<0.001$), BDI-21 (14.38 vs 4.0 , $p<0.001$), and anxiety state (26.47 vs 14.18 , $p=0.0005$). Statistically significant differences were also found between the CSU and control groups in mean scores for anxiety trait (31.23 vs 18.01 , $p=0.0002$). **Conclusion:** Anxiety and depressive symptoms are significantly increased in our CSU population with respect to controls. Thus, management of CSU patients may benefit from a psychological approach and intervention in association with dermatological treatment.

PP33 THE IMPORTANCE OF ILLNESS REPRESENTATIONS AND COPING FOR

PHYSICAL IMPAIRMENT IN PATIENTS WITH ATOPIC DERMATITIS: A 1-YEAR-FOLLOW-UP STUDY

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Background: Leventhal's common-sense model postulates that illness representations lead to a certain way of coping. Coping and illness representations are associated with physical impairment in patients with different chronic diseases like tinnitus, COPD or rheumatoid arthritis. Also, in patients with atopic dermatitis (AD), a relationship between illness representations, coping and bodily well-being has been shown using a cross-sectional design. However, this study is the first assessing whether illness representations and coping at the end of a stay at a rehabilitation clinic (T1) are associated with the self-rated severity of the disease and the well-being of the patients one year later (T2). **Methods:** 109 AD-patients filled in validated questionnaires to assess illness representations (Illness-Perception Questionnaire; IPQ) and coping (Ehrenselder Inventory of Coping; EBS) at T1. At T2, the same patients were asked to evaluate their current AD severity and physical well-being by means of the Patient-Oriented SCORAD (PO-SCORAD) and the questionnaire for assessing subjective physical well-being (FEW). The response rate was 55% ($n=60$). **Results:** Linear regression analyses revealed that at T2 18.4% of the AD-severity could be explained by illness representations and coping ($p=0.003$): The belief that the disease was caused by chance, that it will have a bad course as well as depressive reactions were positively associated with disease severity (POSCORAD). Moreover, at T2, 43.7% of self-rated physical well-being could be explained by illness representations and coping ($p\leq 0.001$): The less the patients believed that bodily symptoms occurred due to their skin disease (low illness identity), the more they believed that they can influence the disease, the less depressive reactions they showed and the higher they scored on active problem solving, the higher was their bodily well-being (FEW). **Conclusions:** This study is the first showing that illness representations and coping at the end of a stay at a rehabilitation clinic predict the illness severity and self-rated physical well-being in AD patients one year later. The results point out that feeling powerless regarding the cause and course of the disease and being more depressed is associated with more physical impairment. Therefore, interventions teaching AD-patients strategies how to actively cope with their disease, also including cognitive restructuring, should be offered to this patient group.

PP34 A COMPARATIVE STUDY OF THE PSYCHOSOCIAL EFFECTS OF HANSEN'S DISEASE ON MALE VERSUS FEMALE PATIENTS IN A TERTIARY GOVERNMENT HOSPITAL

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Objectives: Hansen's Disease is a potentially disabling infectious disease caused by Mycobacterium leprae which has psychological and socioeconomic effects due to stigma. There are very few reports on the impact of this disease in relation to gender. This study aims to compare the psychosocial effects of Hansen's Disease among male and female patients in a tertiary government

hospital. *Methods:* This cross-sectional study documents 36 diagnosed cases of Hansen's Disease (18 males and 18 females) in the outpatient department. A questionnaire was designed to assess the psychosocial effects of the disease. The Dermatology Life Quality Index (DLQI) was used to evaluate the impact of Hansen's Disease on quality of life. Gender differences based on qualitative measures were assessed using Chi-square test. Data was analyzed with SPSS v20 program. Significance is based on p -values ≤ 0.05 . *Results:* More male patients sought medical attention a year after initial symptoms appeared ($p=0.042$). Physical deformities and concern about health were the common triggers for seeking help in both men and women ($p=0.721$). Upon diagnosis, informing the immediate family members was given importance but most males would not reveal their condition to friends. Discrimination and depression were more common among female participants. Possible problems arising from family life were of great concern in all participants initially but as the disease progressed, family life was more affected among females, while work and self-worth issues affected the males. Accessibility of medications and support from loved ones were the driving factors in starting and completing therapy. The overall quality of life scores (DLQI) showed that Hansen's disease had a greater impact on the psychosocial well-being of females when compared to males. *Conclusion:* Both men and women are similarly affected by the stigma of leprosy with no statistically significant difference. However, females are more likely to hold self-stigmatizing attitudes that can interfere with their daily lives. Physicians and healthcare staff should be aware that the stigma and psychosocial impact of leprosy does not cease, even after treatment.

PP35

LICHEN PLANUS AND COMORBID MENTAL DISORDERS

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Objectives: To study the relationship between lichen planus (LP) and comorbid mental disorders. *Methods:* 30 (19 female, 11 male; mean age=37.6 years) patients with LP affected skin were examined. Psychopathological, experimental-psychological methods were used. Dermatological status examination was performed by universal scales; – Clinical Symptoms Index (CSI) and Dermatologic Life Quality Index (DLQI). *Results:* There was a predominance of psychogenic manifestations/exacerbations of LP in 12 (40.0%) cases within reactive depressions, which preceded the development of clinical presentation of dermatosis (F43). In 15 (50.0%) cases nosogenic reactions were diagnosed (F43). Severity of depressive nosogenic reactions ($n=7$) correlated with extensive area of affected skin and high CSI total score – 17 and moderate DLQI total score – 13 points. Structure of depression consists of depressed mood, anxiety about disease outcome, crying, irritability, sleep disorders, somatopsychic dysaesthesia without any strong connection with premorbid personality (PP) structure. Sociophobic nosogenic reactions ($n=8$) had obsessive-phobic structure and included social anxiety with intrusive phobia of negative evaluation by others and situational avoidance behavior. Skin affection was predominantly localized on open skin areas; CSI - 13; DLQI – 14 points. Checking behavior and camouflage rituals occurred. Individuals with histrionic PP predominated. In 3 (10%) cases LP manifested secondary to comorbid recurrent depression (F33). Patients with avoidant and hyperthymic PP had depressed mood, melancholy, anxiety, irritability, ideas of hopelessness, intrusive thoughts about skin disease, daily rhythm with morning change for worse, and sleep disorders. *Conclusion:* In cases of LP manifestation, strong comorbidity with psychogenic disorders (reactive depressions) is revealed by the presentation by psychogenic mechanism of somatopsychic lability. Depressive

nosogenic reactions predominantly depend on the extent and severity of skin affection. Sociophobic nosogenic reactions are associated with constitutional predisposition and develop both in severe and mild LP with localization on open skin areas. Recurrent depressions which are in phase with LP exacerbations remain major characteristics of classical depressive phase.

PP36

QUALITY OF LIFE IN IRANIAN HIGH SCHOOL STUDENTS WITH ACNE VULGARIS

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Objective: Acne vulgaris as a common skin disorder may have considerable impact on quality of life (QoL), especially in young people. The aim of this study was detection of the impact of acne and related factors on QoL in high school students as a main part of involved population. *Methods:* In this cross-sectional survey, 1,002 high school pupils in Tehran, Iran, were included. This sample was derived from all high school pupils in the city by divided, randomly organized steps from the 20 subdivision areas. The Global Alliance to Improve Outcomes in Acne was used for acne grading and Assessment of the Psychological and Social Effects of Acne (APSEA) questionnaire for assessing their QoL. *Results:* Nine hundred eleven pupils completed the questionnaire. The overall acne prevalence was 93.1%. Moderate to severe acne was observed in 14%. The mean APSEA score was 52.06 (± 20.58 as SD). The impact of acne on QoL was associated with the severity of acne ($p<0.0001$). Female with moderate/severe acne had a greater APSEA score compared to similarly affected males ($p<0.0001$). Acne duration significantly influenced APSEA score, with higher score in females than males ($p<0.009$). We found no significant correlation between APSEA score and gender or age. *Conclusion:* Acne as a common disorder in Iranian pupils has a significant impact on their QoL. It is important to identify and treat such teenagers early to reduce the future socio-economic burden of their acne.

PP37

PSYCHODERMATOLOGY OUTPATIENT CLINIC IN ROTTERDAM, THE NETHERLANDS: OVERVIEW OF A FIVE-YEAR EXPERIENCE

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Since November 2009 a joint psychodermatology outpatient clinic has been run every two weeks by a dermatologist and a psychologist where both specialists see patients concurrently at the dermatology department of the Erasmus Medical Centre in Rotterdam. Where appropriate we involved other specialist experts including psychiatrists, specialized skin nurses and skin therapists. *Objectives:* The aim of this overview is to assess the population visiting the psychodermatology outpatient clinic, regarding referral, DSM-5 disorder, and number of visits. *Methods:* The medical records of all the patient visiting our outpatient clinic were studied to assess the before mentioned parameters. *Results:* In total, 204 patients visited our clinic between November 2009 and January 2015. Most patients were female (62%) and referred by a dermatologist within our department (74%). Somatic symptoms and related disorders were the most frequent disorders in our patients (60%). The majority of patients needed only one consultation at our psychodermatology outpatient clinic (73%). Clarity of psychological or psychiatric diagnosis and opinion, and clear advice on treatment/follow-up arrangements were the

key items of content in the written communication to the referring physicians. For the patients who were treated at our hospital (27%), a care plan was developed that addressed psychiatric and or psychological problems in an integrated way, with dermatology care that was both specific and tailored to the patient. *Conclusion:* The psychodermatology outpatient clinic is mostly used to assess psychological or psychiatric problems in dermatology patients and to guide them to the most suitable practitioner for follow-up and/or treatment. It is a valuable addition to fill the gap between somatic and psychiatric caregivers.

PP38

ERYTHROMELALGIA: IS A PSYCHODERMATOLOGICAL DISEASE?

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Erythromelalgia (or Mitchell's disease) is a rare neurovascular peripheral pain disorder in which blood vessels, usually in the lower extremities or hands, are episodically blocked (frequently on and off daily), then become hyperemic and inflamed. There is severe burning pain (in the small fiber sensory nerves) and skin redness. The attacks are periodic and are commonly triggered by heat, pressure, mild activity, exertion, insomnia or stress. Erythromelalgia may occur either as a primary or secondary disorder. The most prominent symptoms of erythromelalgia are episodes of erythema, swelling, a painful deep-aching of the soft tissue and tenderness, along with a painful burning sensation primarily in the extremities. These symptoms are often symmetric and affect the lower extremities more frequently than the upper extremities. Symptoms may also affect the ears and face. The neuropathological symptoms of primary erythromelalgia arise from hyperexcitability of C-fibers in the dorsal root ganglion. Specifically, nociceptors (neurons responsible for the sensation and conduction of painful stimuli) appear to be the primarily affect neurons in these fibers. This hyperexcitability results in the severe burning pain experienced by patients. This disease rarely occurs in children, that is why there is a considerable interest in the existing observation of the 10-year-old boy. Often the only way to stop the acute pain attacks – is self-destruction (dipping of limbs in boiling water, application of chemicals, needle sticks, rubbing snow, etc.), which lets to «displace» the neuropathic pain with the help of the psychological mechanism. The self-inflicted behavior leads to the formation of non-healing ulcers that imitate the symptoms of necrotizing vasculitis. Also, quite interesting is the fact of extreme heterogeneity of descriptions of painful sensations: arching burning pain, fever, pricks inside, twisted pain, etc. Long-term persistent pain syndrome inevitably leads to the formation of psychopathological nosogenic reactions predominantly of depressive and hypochondriac spectrum. The best effect in the relief of a complex neuro – and psychopathological symptomatology is achieved by taking the typical antipsychotics. Thus, the combination of features allows us to talk about Erythromelalgia as a psychoneuro-somatic formation.

PP39

SELF-INFLICTED SKIN LESIONS: A CASE REPORT

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Self-inflicted skin lesions (SISL) are symptoms clearly related to mental disorders, yet the dermatologist is sometimes the first health

professional to be visited by these patients. A coherent multidisciplinary approach and good communication between the involved caregivers is important when dealing with such cases. We present a case report of a 40-year-old woman attending in a dermatology outpatient clinic for self-inflicted skin lesions. The patient (Juana from now on) had heard that our clinic also offered psychodermatology and she asked from the beginning to be attended in a holistic manner. Juana was born in Germany. Her mother was Spanish and had gone to work there when she was 18 years old. She married a German citizen and they had two daughters. Juana was born first and her sister was five years younger. Juana was born with a cleft palate and lip, and had various surgical interventions as a child, with long hospitalizations and few visits from her family due to the long distances between the hospital and their home. There is also a history of sexual abuse, from the age of 5–15 years old, as well as physical abuse. Juana started cutting and burning herself from the age of 8. She started smoking when she was 11 because an aunt had died of lung cancer and she wanted to die too. At 15 she began serious self-harm with suicide attempts and she was hospitalized for 9 months. She recalls this time as very helpful and the therapy she received helped her to become aware of the sexual abuse she had been submitted to. That is when she decided there would be no more. Going back home was difficult and she left when she was 17. At 18 she was admitted into an adult psychiatric hospital, but it was different to the last place she had been to and she never quite adapted. Juana had years of psychiatric and psychological treatment in Germany, both as an inpatient and as an outpatient. In Spain, Mental Health professionals see her on a regular basis. She has been diagnosed Borderline Personality Disorder, Major Depression and Post-Traumatic Stress Disorder. At the age of 30, the patient came to live in Spain, to be near an aunt (her mother's sister) whom she had kept contact with. She has stopped serious self-harm and only picks and scratches her skin. Her body, however, is full of scars from previous attempts of suicide and self-harm.

PP40

BURNING MOUTH SYNDROME. EVALUATION OF ITS MANAGEMENT IN HOSPITAL DEL MAR (BARCELONA) PATIENTS

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Introduction: Burning mouth syndrome (BMS) is defined as a chronic pain condition mainly characterized by a burning, stinging, or painful sensation of the tongue or other oral sites in the absence of any specific oral lesion or any visual alteration. This generally determines a significant delay in diagnosis. Its pathogenesis is still unclear, being probably multifactorial, and most treatments remain unsatisfactory. *Objectives:* The aim of this study is to evaluate the main clinical symptoms associated psychopathological disorders and outcome after psychoactive treatment of patients with BMS. *Methods:* Hospital del Mar is the main hospital in an area of 15 km² providing healthcare to 305,237 inhabitants, which represent 18.5% of the population of Barcelona. In this study we conducted a retrospective review of the clinical records of 191 patients with diagnosed BMS in our Dermatology Department from June 2005 to June 2013. Clinical characteristics and psychopathological profiles were determined by appropriate instruments. *Results:* In our study, 165 patients were women (86%) with an average age of 67 years. The median time of delayed diagnosis was 21 months. In relation to symptomatology, 91% of the patients expressed burning and/or stinging and/or pain; the remaining ones complained of dysgeusia, inflammation, or paresthesia. In addition, 34% of patients also experienced xerostomy (negative anti-Ro and anti-La antibodies in all the cases). *Candida albicans* was isolated

from oral mucosa samples in 28 patients (11 of them used dental prosthesis). Anti-fungal therapy did not improve symptoms in any of these cases. In 13 patients (6.8%) we also found oral lichen planus. Three patients had associated vulvodynia. Regarding the trigger, 30% of patients expressed a stressful life event before the onset of symptoms, and 10% a previous dental procedure. Psychiatric disorders proved to be the most frequent comorbidity; 15% of patients had a diagnosis of anxiety/depression and 12% had cancerophobia. Seventy-five patients underwent the Hospital Anxiety and Depression Scale (HADS) test, revealing depression and anxiety traits in 32% and 50% of patients, respectively. The most frequently associated medical conditions were, in first place, diabetes mellitus (17 patients), followed by hypothyroidism (14 patients) and fibromyalgia (14 patients). Laboratory examinations were performed in each patient and revealed 10 subjects with iron deficiency, 6 cases with B12 vitamin deficiency, 3 subclinical hypothyroidism, and 1 case of folic acid deficiency. No patient showed improvement after replacement therapy. A breath test to detect *Helicobacter pylori* was carried out in 55 patients with dyspepsia, with 30 testing positive. Eradication treatment did not improve symptoms in any case. Patch-testing was performed on 102 patients, showing positive results in 34 of them, but only 4 were considered clinically relevant. Concerning treatment, we treated 180 patients with psychotropic drugs (in most of them combining several drugs), and 50% received at least one complementary topical treatment. A follow-up conducted after 18 months showed that 55% of the patients had experienced an improvement in symptoms whereas 8.3% had experienced no changes or had worsened. In the remaining 33.6% of subjects, no follow-up was possible. **Conclusions:** BMS is a chronic condition difficult to manage. Typical patients are post-menopausal women. There is no relevant association with other medical or dermatological diseases, and psychiatric comorbidity (depression and/or anxiety) is very common. The most relevant triggers include stressful life events (death and/or cancer in relatives or close friends) followed by dental procedures. Analytic alterations are not frequent, and in cases of hormonal or nutrition deficiencies correction of these does not improve oral symptoms. Identification of *Candida albicans* in oral mucosa samples is not rare, especially in dental prosthesis users. The use of patch-testing is controversial, forcing a correct selection of patients, as well as *Helicobacter pylori* eradication. The therapeutic approach with psychoactive drugs in the management of BMS should be the main treatment, especially combined therapy, having led to improvement in more than half of the patients in our study.

PP41

PSYCHODERMATOLOGY IN THE NETHERLANDS: A NETWORK OF PSYCHOSOCIAL CARE PROVIDERS

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Objectives: As psychosocial factors play a role in >40% of skin diseases, it is important to recognize psychodermatological problems and to refer to a psychosocial care provider if necessary. In a previous study we found that Dutch dermatologists refer only eight patients on average per year to a psychosocial care provider. Lack of psychosocial care providers with an expertise in psychodermatology was the main reason that dermatologists referred such a low number of patients. In the present study we aimed to examine 1) how many patients with psychodermatological problems are seen by psychosocial care providers, 2) why patients were referred, 3) which diagnostic and therapeutic interventions psychosocial care providers use, and 4) whether psychosocial care providers are

interested in psychodermatological training. **Methods:** We invited all Dutch hospital psychologists and psychosocial care providers who were a member of the Dutch Society for Psychodermatology ($n=511$) to complete a 16-item study-specific questionnaire, including questions with regard to the number of patients with psychodermatological problems that are seen, the reasons for referral, the questionnaires and types of interventions that are used, and interest in psychodermatological training. **Results:** 182 (36%) psychosocial care providers responded. Of those, 129 providers (71%) indicated that patients were referred to them because of psychodermatological problems, on average 12 patients (SD 24.9) per year. Most patients were referred by their dermatologists (66%) with a range of indications, e.g., (a combination of) coping problems (59%), itch/scratch problems (49%), mood problems (42%), acceptance problems (41%), and impaired quality of life (29%). 48% used questionnaires to screen patients for problems. Respondents used both unimodal and multimodal interventions, e.g., (a combination of) cognitive behavioral therapy (64%), relaxation techniques (61%), cognitive therapy (49%), and patient education (52%). 35% were (very) interested in more psychodermatological training, especially covering psychodermatological problems in general (61%), treatment of itch/scratch problems (46%), and screening (44%). **Conclusion:** To further facilitate the referral of patients with psychodermatological problems and to improve multidisciplinary approaches, we constructed a network of psychosocial care providers with specific interest and expertise in psychodermatology. Also, we developed a specific training in psychodermatological issues.

PP42

PSYCHOGENIC PRURITUS: A DERMATOLOGIST'S DILEMMA

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Introduction: Pruritus is a common symptom associated with many dermatoses, systemic abnormalities, and psychiatric/psychosomatic diseases. Psychogenic pruritus has received limited diligence, partly due to lack of training of dermatologists in this realm. We present herein fifty cases of psychogenic pruritus. Awareness and pertinent treatment of this disorder by dermatologists will lead to a more holistic treatment approach and better prognosis. **Materials and methods:** 200 cases of chronic pruritus who presented to our Outpatient Department over a period of one year were included in the study. Detailed cutaneous and systemic examination with investigations were performed to rule out cutaneous and systemic causes of pruritus. No organic cause was found for 67; they were then referred to a psychiatrist for evaluation. **Results:** Of 67, there were 42 females and 25 males in the study, with 35 patients above 30 years of age. There were 40 (59.7%) cases of localized (anogenital) and 27 (40.29%) cases of generalized pruritus. The most common disorder seen was obsessive compulsive disorder (OCD) seen in 20 (30%), 19 (28.35%) body dysmorphic disorder, and 16 (23.88%) were suffering from depression and anxiety in various grades and 12 (17.9%) of stimulations and psychotic disorders. The patients with OCD, body dysmorphic disorder, and depression were started on Selective Serotonin Reuptake Inhibitors. The patients with OCD were given a higher dose. **Discussion:** Pruritus or itch refers to an uncomfortable sensation and emotional experience associated with an actual or perceived disturbance to the skin that provokes the desire to scratch. Chronic pruritus and induced scratching behavior could have a significant impact on disease course, life quality, and healthcare costs. Additionally, pruritus is one of the most intractable symptoms due to its complex pathogenesis involving an increasing number of mediators and receptors, undefined neurophysiologic pathways, unclear cerebral processing, and psychophysiology interaction. Psychogenic

pruritus (PP) is a poorly defined entity in which the patient has intractable or persistent itch, not ascribed to any physical or dermatological illness. PP can be generalized or localized. The most common sites of predilection are legs, arms, back, and genitals. Often there is history of a major psychological stress preceding the onset of PP. Recognition of this condition is important as it can be managed effectively if diagnosed early.

PP43

TRICHOTILLOMANIA: A CASE SERIES FROM NORTH INDIA

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Introduction: Trichotillomania is a behavioral disorder characterized by compulsive hair pulling. It presents as a pattern of hair loss with no clear biological or overt traumatic explanation. It is seen more commonly in females than males and in children more than adults. In the present study we were able to detect trichotillomania in 30 out of 1,000 patients who presented in the clinic with hair loss. **Materials and methods:** In all patients a detailed questionnaire was filled regarding information about demographic data and associated disorders. The clinical presentation was noted, and detailed examination carried out including the hair pull test and trichoscopy. Wherever required, laboratory investigations were carried out, such as complete haemogram and thyroid function tests. **Results:** Of 30 patients, 18 were children below age of 14 years and 12 were adults. In all cases, the pattern of hair loss was bizarre and hairs were twisted and broken at various distances from the clinically normal scalp. In 3 patients, all adults, the hairs were affected at other sites also; 2 (beard) and 1 (eye brows). All cases were managed by us. Two cases required the intervention of a psychiatrist. Treatment in children was primarily behavioral therapy, while adults were managed with selective serotonin reuptake inhibitors (SSRIs). **Discussion:** Though the diagnosis of trichotillomania is straightforward, the management can be frustrating at times. The differential diagnoses include tinea capitis, alopecia areata, and monilethrix. These can be excluded by taking a history, physical examination, trichoscopy, KOH examination, fungal culture, and scalp biopsy. In adults the response to SSRIs was striking.

PP44

THE EFFECT OF THE INTERNAL DISEASE PATTERN ON THE COURSE OF CHRONIC URTICARIA

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Any disease, in addition to its impact on original mental processes, states, and psychological properties of the "premorbid personality", induces formation of an "internal disease pattern" (IDP). It is possible that it is the IDP that determines a patient's attitude toward disease, the estimation of his own state, and, as a result, the patient's commitment to the prescribed therapy. We examined 67 patients with chronic urticaria (CU) at the age of 24 to 65 years (mean age 42±3.5); 25 males, 37 females. Patients were divided into two groups depending on severity of the disease (urticaria). Patients with severe (30 points) and moderate (37 points) CU were enrolled in the study. All patients received a background therapy with antihistamines. The psychological status of patients was assessed using self-administered validated questionnaires, including Taylor Manifest Anxiety Scale and Beck's depression inventory. The anxiety scale contains a built-in lie scale to assess the reliability of the responses. Commitment to therapy during the past six weeks, care-seeking, and treatment were evaluated based on an analysis of outpatients' cards. In the group with moderate severity of the disease (CU) high levels of anxiety (38±2), were reported;

mean levels of depression=19±3 points. It is noteworthy that patients in this group scored low on a built-in lie scale, and their commitment to treatment remained high; only 3 (6.6%) patients skipped medication or avoided treatment. In the group of patients with severe CU anxiety and depression levels were lower (21±1.5 and 7±1 points, respectively). However, the fact that 21 (70%) patients enrolled for the survey scored more than 6 points on the built-in lie scale raises doubts concerning the results of anxiety and depression assessments. The same patients showed low levels of compliance and repeated omission of medication intake, repeated requests to replace the administered drug, and refusal of treatment. The results for the group of patients with moderate CU disease are in agreement with the worldwide concept of mental change in those patients marked by increasing anxiety and depression. The results for the group of patients with severe CU raise questions about the origins of such a variant of clinical course of the disease. It is possible that a special IDP forms in those patients, marked by denial of the very fact of disease and as a consequence, reduced compliance, poor commitment to treatment, and, accordingly, to a more grave condition.

PP45

THE COMBINATION OF DISORDERS OF THE SKIN AND URINARY RETENTION IN WOMEN INFECTED WITH HERPES SIMPLEX VIRUS II, I OR VARICELLA ZOSTER VIRUS

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Acute urinary retention is the leading cause of medical emergencies in men in urology. In our practice a common cause of acute urinary retention in women, with the exception of mental and acute neurological disorders, was infection; primarily genital herpes and herpes zoster with the main defeat of the lumbosacral spinal cord. The study included a total 17 women (mean age of 27 years) who addressed urgently with acute urinary retention. All of the women also had pain, burning sensation, or itching in the genital and anal area. Also, all women had skin lesions in the form of popular eruptions which transformed into single or multiple vesicles from one side or on both sides symmetrically. Skin disorders were frequently diagnosed by the physician at the examination. About 50% of women had general weakness and an increase in temperature. Women were counseled by urologist, gynecologist, neurologist, and dermatologist. The Ultrasonography of abdominal, urinary system and reproductive system was done. We also conducted laboratory diagnostics (PCR, EIA) with verification HSV II, I or VZV, screening for sexually transmitted infections HIV 1,2, hepatitis B and C, syphilis. Our experience in the diagnosis, treatment, and monitoring of all patients benefited from the use of urethral catheter Foley for 3-5 days and treatment with antiviral drugs (acyclovir, valacyclovir), and quinolones fluorinated, in accordance with clinical guidelines. For the treatment of herpetic and postherpetic neuralgia, anxiety reduction and stabilization of sleep, we used drugs for the treatment of epilepsy (gabapentin, pregabalin) and non-steroidal anti-inflammatory drugs (ketoprofen). Psychotherapy sessions were also conducted with patients to adapt to the problem, understand the causes of disease, and deal with the security problems of life while respecting the rules of treatment. Patients were informed of the possibility of recurrence of the disease and measures for its prevention. As a result we consider the acute urinary retention in combination with disorders of the skin at women infected with HSV II, I or VZV as an example of acute neurogenic bladder dysfunction due to ganglionevrit through the defeat of the peripheral nervous system. We believe that the treatment of this problem should be

complex. Important joint consultations should be conducted with urologist, gynecologist, neurologist, and dermatologist. This will improve the quality of diagnosis and treatment of disease, and also reduce the risk recurrence of a disease.

PP46

AFFECTIVE DISORDERS IN PATIENTS WITH ATOPIC DERMATITIS AND PSORIASIS

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Background: Atopic dermatitis (AD) and psoriasis (PS) are chronic, relapsing, itching dermatoses. The link between emotional stress factors, psychiatric disorders, AD and PS is the subject of research. Manifestation and exacerbation of these dermatoses is considered to be resulted from immune, genetic and environmental abnormalities and epidermal barrier defects. Depression, anxiety, social withdraw and other behavioral disturbances are implicated in the comorbid pathology and are considered to influence on disease processes, including the frequency and duration of exacerbations. The aim of the study was to evaluate the link between severity of dermatoses and psychological parameters in patients with AD and PS. **Methods:** Scoring of Atopic Dermatitis (SCORAD) and Psoriasis Area and Severity Index (PASI) were used for the assessment of dermatological status. Hamilton Depression Rating Scale (HAM-D) and Hamilton Anxiety Rating Scale (HAM-A) were used to assess depression and anxiety parameters. **Results:** 19 AD patients (23–79 years old, 9 men, 10 women with moderate severity of AD, SCORAD 41.6 ± 14.6) and 25 patients with PS (18–59 years old, 15 men, 10 women, with mild PS, PASI 19.7 ± 12.9) were examined. Both groups of patients had no severe somatic pathology, acute infections or treatment with psychotropic agents of 3 months before the participation in the study. Assessment of psychological status was also conducted in 52 healthy controls (21–58 years old, 16 men, 32 women with no history of mental disorders or treatment with psychotropic agents). HAM-D scores of patients revealed moderate depression (17.8 ± 6.2) in AD patients and mild depression (13.4 ± 7.06) in patients with PS. HAM-A scores revealed moderate anxiety (20.2 ± 10.02) in AD patients, but not among PS patients (14.8 ± 7.3). Strong correlation between anxiety and depression parameters ($r=0.8, p<0.001$) and weak correlation between SCORAD and anxiety levels ($r=0.3, p=0.048$) in patients with AD were observed. Moderate correlation between severity of anxiety and depression ($r=0.6, p<0.001$) was observed among PS patients. No depression and anxiety 7.0 ± 6.6 and 7.9 ± 6.1 accordingly were observed among healthy volunteers. **Conclusion:** Our data support the finding demonstrating comorbidity of depression and anxiety in AD and PS patients. Furthermore, the data suggest a positive correlation between severity of AD and severity of depressive symptoms.

PP47

MULTIMODAL PSYCHOTHERAPY OF ONYCHOPHAGY IN CHILDREN

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Onychophagy is an obsessive-compulsive disorder involving nail biting with subsequent swallowing of the fragments. It is generally common in children. Parents usually complain to the dermatologist about peeled and broken skin on the cuticle of the nail bed of fingers and even toes. On visual examination, fingernails are usually equally bitten to approximately the same degree and damaged skin in the cuticle of the nail bed can be observed. Patients are followed by both dermatologists and psychiatrists. The purpose of the study was to assess the efficiency of combined psychological approaches in the treatment of onychophagy. 96 children of age 7-14 were observed and were divided into two groups. Main group ($n=48$) received complex multilevel medical and behavioral counseling including: first level – metabolic (medication) – Phenibut, according to age and weight, sedative herbal infusion; second level – neurophysiological, including psychological diagnosis and the correction of complex psychomotor developmental blocks of the child’s mental activity; third level – syndromal, consisting of a combination of intellect-developing games and devices (biological feedback mechanism device) which allows for identification of different elements of the syndrome; fourth level – behavioral, consisting of different types of behavioral therapy in relation to cognitive, emotional and suggestive methods; fifth level – personality, the use of different types of individual psychotherapy aimed at solving internal and external psychogenic conflicts, development of personality, effective interaction with adults and other children. In addition, salt water baths, topical regenerative ointments, antibacterial topical therapy and anti-keratic creams were used as indicated. The control group ($n=48$), received only medication therapy (the first level) coupled with the same topical ointments as in the main group, when indicated. Psychological tests such as Luscher, Toulouse-Peyronie and child-parent relations test and drawing tests proved to be very informative and helped to diagnose and evaluate the efficacy of treatment. **Results:** the main group (Complex treatment): recovery – 41% (20 children), improvement – 37% (17 children), no change in behavior – 4% (2 children), recurrence of symptoms was noted in 18% (9 children). In the control group (use of only topical drugs) the results were as follows: recovery – 30% (14 children), improvement – 21% (10 children), no change in behavior – 20% (10 children), and recurrence – 29% (14 children). **Conclusion:** the use of complex psychotherapy, which is the treatment of choice in Russia, consisting of psychotherapy in combination with topical dermatological treatment proved to be a highly effective method in optimizing therapy of children with onychophagy.

OTHER ABSTRACTS

OAI

PROBLEMS OF PREVENTION OF SEXUALLY TRANSMITTED INFECTIONS

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The prevalence of STI in Russia is still very high. This situation indicates the failure of preventive measures. STIs are the result of risky sexual behavior (RSB). In our country infectionists and venereologists deal with the prevention of STIs. But their methods are often directed to treatment but not to RSB correction. The RSB problem concerns other specialist as well: sexologists and psychologists, who are trained to learn to understand and act on appropriate behavior. However, the order for the prevention of STIs is not submitted for these specialists. In this regard the evidence based sexual education is needed. To solve this problem, it is necessary to introduce training program "Sexology" in medical and pedagogical universities, refer teachers to these trainings, prepare the professional structure of psychologists to conduct together with teachers screening of children and adolescents to identify groups with risk of deviating psychosexual development, prepare therapists to correct deviant sexual behavior in children and adolescents; create a school for parents about sexual education of children and adolescents.

OA2

PEMPHIGUS AND PSYCHOSOMATIC DISORDERS

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Objectives: The aim of this study was to investigate the psychosomatic aspects of pemphigus. *Methods:* We examined 9 (5 female, 4 male; mean age 57.6 years) patients with pemphigus (6- vulgar form, 3- seborrheic form) in process of steroid therapy. *Methods:* psychopathological, experimental psychological, dermatologic. *Results:* 3 patients with anxious premorbid personality manifested pemphigus when exposed to the psychogenic factors: grave disease of mother, divorce, forced sale of real estate. In 4 patients with premorbid deficiency of somatic awareness, tolerance to manifestations of grave disease in absence of hypochondria fixation we noted nosogenic mental disorders of masked hypochondria type. Despite the vital threat and disabling complications of steroid therapy there was noted the rational attitude to treatment with inclusion of therapeutic activities in the regular daily routine and the strict adherence to the therapy courses. There was also noted no social anxiety caused by cosmetic defects. In 2 cases with cycloid premorbid personality we detected comorbid hypomania manifesting before the initiation of steroid therapy. Patients suffered the severe manifestations of disease without manifesting nosogenic disorders. *Conclusion:* Despite the detected relation between pemphigus and exposure to psychogenic factors in one third of observations, the structure of comorbid psychosomatic pathology is radically different from other dermatoses. Presumably the accumulation of cases of masked hypochondria in pemphigus with paradoxical ignoring of somatogenic and vital factors correlates with the newest data on dissociative nature of nosogenic disorders in oncologic practice. One should also clearly divide the mental disorders comorbid with pemphigus and iatrogenic mental disorders, such as affective disorders and psychotic episodes.

OA3

A STUDY OF ANXIETY IN PATIENTS WITH ACNE EXCORIÉE, LICHEN AND MACULAR

AMYLOIDOSIS, AND LICHEN PLANUS

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Objectives: The present study was conducted to compare anxiety scores in three dermatological conditions (acne excoriée, lichen and macular amyloidosis, and lichen planus) and those without any dermatological condition, and factors associated with anxiety scores. *Methods:* We assessed anxiety using the Hamilton Anxiety Rating Scale (by a psychiatrist) in 20 cases each of acne excoriée, lichen and macular amyloidosis, and lichen planus, and 20 controls. We collected demographic data and stressors in all participants, and clinical data in 60 cases. We used multivariate linear regression models to study the factors associated with anxiety scores. *Results:* The mean age (standard deviation [SD]) in acne excoriée, lichen and macular amyloidosis, lichen planus, and controls were 25.2 (5.5), 39.4 (12.7), 35.7 (14.1), and 38.5 (11.6) years, respectively ($p < 0.001$). The proportion of females were higher in the acne (65%), and lichen and macular amyloidosis (65%), compared with lichen planus (55%) and controls (40%); the difference was not statistically significant ($p = 0.53$). The mean (SD) anxiety scores were highest in patients with lichen and macular amyloidosis (15.9 [7.1]), followed by lichen planus (12.5 [6.8]), acne excoriée (9.8 [4.5]), and controls (4.4 [3.5]); the differences were statistically significant ($p < 0.0001$). In the adjusted models, the mean anxiety scores were significantly higher in patients presenting with lichen and macular amyloidosis (10.74, 95% confidence intervals [CI]: 4.58, 16.89; $p = 0.001$), and lichen planus (7.65, 95% CI: 2.69, 12.61; $p = 0.003$) compared with controls. There were no significant differences in mean anxiety scores in patients with acne excoriée compared with controls (4.40, 95% CI: -1.33, 10.12; $p = 0.13$). None of the stressful events (death, marital problem, family concerns, financial concerns, others) were significantly associated with high anxiety scores. Among clinical cases, the mean anxiety scores were significantly higher in those who had lesions on the scalp (16.02, 95% CI: 6.09, 25.94; $p = 0.002$). *Conclusions:* Lichen and macular amyloidosis, and lichen planus were independently associated with high anxiety scores, even after adjusting for stressful life events. Although, we had also expected high anxiety levels in patients with acne excoriée, this was not reflected in our psychological testing.

OA4

A STUDY OF DEPRESSION IN PATIENTS WITH ACNE EXCORIÉE, LICHEN AND MACULAR AMYLOIDOSIS, AND LICHEN PLANUS

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Objectives: The present study was conducted to compare depression scores in three dermatological conditions (acne excoriée, lichen and macular amyloidosis, and lichen planus) and those without any dermatological condition, and factors associated with depression scores. *Methods:* We assessed depression using the Hamilton Rating Scale for Depression (by a psychiatrist) in 20 cases each of acne excoriée, lichen and macular amyloidosis, and lichen planus, and 20 controls. We collected demographic data and stressors in all participants, and clinical data in 60 cases. We used multivariate linear regression models to study the factors associated with depression scores. *Results:* The mean age (standard deviation [SD]) in acne excoriée, lichen and macular amyloidosis, lichen planus, and controls were 25.2 (5.5), 39.4 (12.7), 35.7 (14.1), and 38.5 (11.6) years, respectively ($p < 0.001$). The proportion of females were higher in the acne (65%), and lichen

and macular amyloidosis (65%), compared with lichen planus (55%) and controls (40%); the difference was not statistically significant ($p=0.53$). The mean (SD) depression scores were highest in patients with lichen and macular amyloidosis (11.4 [5.8]), followed by lichen planus (10.6 [6.3]), acne excoriée (8.5 [3.4]), and controls (3.4 [3.0]); the differences were statistically significant ($p<0.0001$). In the adjusted models, the mean depression scores were significantly higher in patients presenting with lichen and macular amyloidosis (6.03, 95% confidence intervals [CI]: 0.73, 11.34; $p=0.03$), and lichen planus (5.87, 95% CI: 1.60, 10.15; $p=0.008$) compared with controls. There were no significant differences in mean depression scores in patients with acne excoriée compared with controls (3.25, 95% CI: -1.70, 8.19; $p=0.19$). None of the stressful events (death, marital problem, family concerns, financial concerns, others) were significantly associated with high depression scores. Among clinical cases, the mean depression scores were significantly higher in those who had lesions on the scalp (11.83, 95% CI: 3.60, 20.07; $p=0.006$) and oral cavity (7.01, 95% CI: 1.58, 12.44; $p=0.01$). **Conclusions:** Lichen and macular amyloidosis, and lichen planus were independently associated with high depression scores. Interestingly, such an association was not found in acne excoriée patients. Thus, regular screening and management of depression, irrespective of the presence or absence of stressful events, may be warranted.

O45 **PATIENTS WITH DELUSIONAL INFESTATION** **MAY NOT ADMIT TO TAKING RECREATIONAL** **DRUGS**

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Objectives: Our objective was to find out the prevalence of drugs of abuse causing secondary delusional infestation in a dedicated psychodermatology clinic in the UK and whether patients will tell health care professionals honestly about taking them. **Methods:** We conducted a prospective study to evaluate the prevalence of recreational drug use in patients with delusional infestation. 24 consecutive patients seen in psychodermatology clinic between 1st December 2014 and 1st March 2015 who had a diagnosis of delusional infestation were asked to provide urine samples during their consultation. The purpose of the urine sample was to screen for drugs of abuse and this was explained to patients. Informed consent was obtained from all 24 patients. The urine drugs of abuse screen tests for amphetamine, benzodiazepine, buprenorphine, cannabinoids, cocaine metabolite, methadone, monoacetyl morphine and opiate. **Results:** Of the 24 patients requested to provide a sample, 6 (25%) patients did not provide a urine sample to the clinic nurse. 13 (54%) urine samples tested negative for drugs of abuse. 5 (21%) urine samples tested positive for drugs of abuse. 2 urine samples tested positive for amphetamines, 2 urine samples tested positive for cannabinoids and 1 urine sample tested positive for amphetamines, benzodiazepines and cannabinoids. On review of the histories for these patients, the 5 patients who had positive urine tests for drugs of abuse all denied recreational drug use and were not prescribed any of the above drugs tested by health care professionals. The 6 patients who did not provide a sample also denied recreational drug use and were not prescribed any of the above drugs tested by healthcare professionals. **Conclusion:** This study highlights the importance of screening for drugs of abuse in patients presenting with delusional infestation to help differentiate between primary delusional infestation and secondary delusional infestation. Treatment can then be targeted towards referring patients who will engage to drug and alcohol services. Also, patients may not own their recreational use of drugs and so health care professionals may need to use a screening urine test with a patient's consent to look for this secondary cause.

O46 **SATISFACTION OF DERMATOLOGICAL OUT-** **PATIENTS IN THIRTEEN EUROPEAN COUNTRIES**

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Objectives: Patient satisfaction in dermatology has an impact on quality of life and it can foster high levels of adherence. A multi-center observational cross-sectional study was conducted in thirteen European countries organized by the European Society of Dermatology and Psychiatry. The purpose of the international study was to investigate the psychological burden of common skin conditions. One of the goals of the study was to explore patient satisfaction. **Methods:** There were 5,369 participants; 4,010 adult out-patients from the participating dermatology clinics and 1,359 controls were assessed. Patient satisfaction with the dermatologist was measured with a 11-degree scale (0=not satisfied at all; 10=extremely satisfied). **Results:** Patients' average age was 47.06 ± 17.97 years. Percentage of females was 56%. The most frequent skin diseases were psoriasis (17%) and non-melanoma skin cancer (10.6%). Patient satisfaction (7.59 ± 2.55) was reported to be the highest in the following participating centers: Szeged, Hungary (9.29 ± 1.69), Stavanger, Norway (8.64 ± 2.3), and Zaragoza, Spain (8.59 ± 1.53). Female patients' satisfaction scores (7.68 ± 2.58) were significantly higher ($t=-2.560$, $p<0.05$) than male patients' (7.46 ± 2.52). Satisfaction was reported to be the highest by patients with the following diagnoses: non-melanoma skin cancer (8.44 ± 1.92), malign melanoma (8.36 ± 2.23), and ulcer cruris (8.27 ± 3.01). Levels of satisfaction differed along certain dimensions: socioeconomic level (chi square=17.665, $p<0.05$), experiencing serious economical difficulties in the last five years (chi square=12.447, $p<0.05$), how concerned the patient was about the skin disease (chi square=77.198, $p<0.01$), and whether the patient knew the diagnosis of the skin disease or not (chi square=222.814, $p<0.01$). **Conclusion:** dermatological out-patients in thirteen European countries reported high levels of satisfaction with their dermatologists, and certain factors were identified that can influence levels of satisfaction. These results can contribute to enhancing adherence in the treatment of dermatology patients.

O47 **TRICHO-DENTO-OSSEOUS SYNDROME**

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Tricho-dento-osseous (TDO) syndrome is an autosomal dominant genetic disorder that belongs to a group of ectodermal dysplasias. 3 children (one boy and two girls) in our clinic had this syndrome. The relatives of one girl had this syndrome too. She had disabled siblings. Tricho-dento-osseous syndrome is characterized by ectodermal affection of the hair, teeth, nails, and/or skin. The following signs are presented in this syndrome: kinky or curly hair; absent mineralization of tooth enamel; and unusual thickness and/ or denseness (sclerosis) of the skull (calvaria) and/ or the long bones of arms and legs. In some cases, thin, brittle nails or premature closure (fusion) of the fibrous joints between

bones in the skull (craniosynostosis), resulted in dolicocephaly, can be revealed.

OA8

NEUROIMMUNOLOGICAL MECHANISMS OF THE PATHOGENESIS OF ACNE

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Introduction: Acne vulgaris is a skin disorder of the sebaceous follicles that commonly occurs in adolescence and in young adulthood. The treatment of acne typically applies a diversity of methods therapy, in combination with systemic drugs (with moderate and severe forms of acne) aimed at key stages of pathogenesis. It is shown that in 14-22% of cases, exacerbation of acne is due to emotional stress. With approximately 50% of acne in patients there are various pathologies, including neuroses, asthenoneurotic syndrome, or depression. Therefore, today an important aspect in the study of the role of regulatory peptides in the pathogenesis of dermatoses, in particular acne, is the definition of a cascade of cytokines, growth factors, their receptors and antagonists of receptors in target tissues and the systemic circulation. **Purpose:** To determine the neuroimmunological mechanisms of acne. **Materials and methods:** 126 patients with acne (age 17-47 years, 23,0 ± 2,6), 45 male (35.7%), 81 female (64.3%). Severity of acne included 18 (14.2%) - with mild, 46 (36.5%) - with moderate, and 62 (49.2%) with - severe acne. We investigated IL-1, IL-6, growth factor vascular endothelial (VEGF), insulin-like growth factor (insulin-like growth factor 1, IGF 1) in the serum of patients with acne depending on the severity of the acne and the level of anxiety. **Results:** Studies have shown a significant increase proinflammatory cellular mediators: IL-1, IL-6, VEGF, IGF 1 in the serum of patients with acne which positively correlates with the severity of acne and level of anxiety. Thus, a detailed study of cytokine system, which integrates regulatory mechanisms at different degrees of severity of the acne and the level of anxiety can be used for further studies of molecular neuroimmunological mechanisms of development of acne. The obtained clinical results show the feasibility of complex examination of patients with torpedo flowing forms of acne with the appointment of adequate therapy to achieve clinical recovery and restore mental and emotional health of patients.

OA9

STUDY COGNITIVE DECLINE OF PATIENTS WITH LOCALIZED SCLERODERMA

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Localized scleroderma (LS) is one of the most common chronic diseases of the connective tissue. The problem of cognitive impairment is now attracting the attention of doctors of various specialties. Mild cognitive problems in patients with dermatoses are often the first clinical signs of the maladjustment of the organism in response to pathological effects of various external factors, changes in the internal homeostasis, as a result of various diseases of the central nervous system [1-6]. **Objective:** Study of the spectrum of cognitive impairment in patients with LS. **Methods:** To achieve this goal we conducted clinical and psychological examination of 39 patients with generalized form of LS using evaluation techniques memory (mechanical and associative), concentration and logical thinking. Projective techniques with pictograms were used to diagnose cognitive problems. Statistical, mathematical processing of the data was

performed using the statistical software package Statistica 6.0, BIOSTAT, programs "Microsoft Office Excel 2007" and "Microsoft Office Word 2007". **Results:** 39 patients with LS with anxiety and depression underwent clinical-psychological examination of cognitive problems. 23 (58.9%) patients had cognitive problems. Among them, impaired memory and logical thinking were dominant. Violations of associative memory were detected in all 23 patients with cognitive impairment (100%), violation of the logical course of thinking in 19 (82.6%), impaired concentration in 12 (52.2%), and violation of mechanical memory in 9 (39.1%). The severity of cognitive impairment did not reach the degree of dementia, and met criteria for mild cognitive impairment (ICD-10). Cognitive impairment prevailed in patients with higher education: 69.6% of patients with cognitive impairment had higher education. Affective distribution revealed a significant correlation between cognitive impairment and apathetic affectivity ($p < 0.01$). **Conclusions:** The majority of patients (58.9%) revealed cognitive impairment: memory, attention, and logical thinking. The severity of cognitive impairment did not reach the degree of dementia and meets the criteria for mild cognitive impairment (ICD-10). In most cases, infringements of associative memory and logical thinking, often manifested in the form of difficulties in establishing logical relationships.

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OA10

ANXIETY DISORDER AND DEPRESSIVE SPECTRUM FOR PATIENTS WITH LOCALIZED SCLERODERMA

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Localized scleroderma (LS) is a chronic connective tissue disease, mainly affecting the skin and underlying tissues. In recent years, more and more researchers have paid attention to studying the role of stressful factors and anxiety and depressive disorders in the origin and dynamics of dermatoses, which impair their adaptation of patients and lead to a decrease in quality of life [1-5]. **Objective:** To study the spectrum of anxiety and depressive disorders in patients with LS. **Methods:** To achieve this goal we conducted the ICD-10 psychiatric diagnosis of conducted anxiety and depressive disorders in 39 patients with generalized form of LS. Evaluation of the structure and intensity of anxiety and depressive disorders was performed using the Hospital Anxiety and Depression Scale (HADS), the Hamilton Anxiety Scale (HAM-A), the scale depression Montgomery-Asberg Depression Rating Scale (MADRS), and perceived stress PSS10. **Results:** Among the patients with generalized form of scleroderma anxiety and depression were determined. There was a dominant affect of anxiety (69.2%); and

anxiety was characterized by dysphoria in 7.7% of cases. After clinic-psychopathological examination it was possible to identify a number of syndromes for anxiety disorders and the depressive spectrum in patients with LS. At the same time the anxiety had a distinct relationship with the severity of feelings of guilt and loss. *Conclusions:* in all cases of LS we revealed stressful factors preceded anxiety and depression. LS is characterized by the predominance of anxiety than depression in accordance with the structure of psychopathological syndromes.

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OAI1

COPING WITH ATOPIC DERMATITIS DEPENDING ON THE TIME OF THE INITIAL MANIFESTATION OF THE DISEASE

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Objectives: In most patients, atopic dermatitis occurs in early childhood. Development prior to adulthood is significantly influenced by the impairment of their skin. However, there is a difference in patients whose skin disease occurred for the first time "only" in adulthood. As part of a psychological concept of activity, it is believed that patients with a late manifestation of atopic dermatitis have more problems in coping with the disease than patients who already had to deal with it while growing up. *Methods:* For this purpose, we tested 103 patients (average age=25.7 years) with an early manifestation of atopic dermatitis and 35 patients (average age=34.0 years) with a late manifestation. In each group, two-thirds of the patients were women and one-third were men. The Marburg atopic dermatitis questionnaire and the itch-cognition questionnaire were used to learn about how the patients coped with the disease. Additionally, the complaints registration questionnaire for measuring psychological comorbidities and the Trier Inventory questionnaire for testing the chronic stress level, were applied. *Results:* Patients with a late manifestation of the disease experienced their quality of life to be significantly less impaired. However, they showed notably more physical and psychological comorbidities. The latter was mainly related to an increased tendency towards phobia and brood within the context of more complex neurotic disorders/complaints. They also showed more social anxieties, and experienced more social isolation and less social support. *Conclusion:* From the active-psychological point of view, long-term confrontation associated with an early manifestation of the disease leads to more confidence in dealing with atopic dermatitis. In late manifestation, however, and with regard to potential psychotherapeutic interventions, it should be noted that the study also provides evidence that the disease is apparently embedded in a more complex mental/psychological disorder in these patients, which does not seem to be the case with early manifestation. Therefore, more complex psychotherapeutic objectives/goals should be given for patients with late manifestation.

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