

CLINICAL REPORT

Coping Strategies in Melanoma Patients

Michael TRAPP^{1*}, Eva-Maria TRAPP^{2*}, Erika RICHTIG², Josef Wilhelm EGGER¹, Anna ZAMPETTI³, Francesca SAMPOGNA⁴, Peter Michael ROHRER¹, Peter KOMERICKI², Tanja STRIMITZER⁵ and Michael Dennis LINDER^{1,6}

¹Research Unit of Behavioural Medicine, Health Psychology and Empirical Psychosomatics, Department of Medical Psychology and Psychotherapy,

²Department of Dermatology, Medical University of Graz, Graz, Austria, ³Department of Dermatology, Università Cattolica del Sacro Cuore, ⁴Istituto Dermatologico dell'Immacolata IDI-IRCCS, Rome, Italy, ⁵Austrian Agency for Health and Food Safety – Data, Statistics & Risk Assessment, Graz, Austria and ⁶Unit of Dermatology, University of Padua, Padua, Italy

*These authors contributed equally to the manuscript and should be considered as first authors.

An observational, questionnaire-based, cross-sectional study was performed to assess whether differences in coping behaviour (positive and negative strategies) between patients with either a recent diagnosis of malignant melanoma (MM) or with benign dermatological disease, were predictive of the diagnosis. Coping strategies were assessed with the German version of the stress-coping questionnaire (SVF 120) in 46 inpatients for whom surgery was planned at the Department of Dermatology, Medical University of Graz, Austria. Subjects were divided into two groups: patients with non-metastatic MM, and patients with benign dermatological diseases (controls). The risk for the diagnosis “melanoma” decreased with higher values of situation control ($p=0.007$) and increased with higher values of resignation ($p=0.035$) and trivialisation ($p=0.039$). Moreover, the risk for having a MM with thickness >1 mm decreased in patients with higher values in positive coping strategies ($p<0.34$). These results suggest differences in coping behaviour between patients with MM and those with benign skin diseases and, amidst patients with MM, between patients with different MM thickness; the results may hence lead to earlier, more specific and more effective psychological interventions to improve coping in patients with MM, as differences in coping behaviour seem to appear even in the non-metastatic stage of the disease. Key words: malignant melanoma; stress coping strategies; psychodermatology; psychooncological research.

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Michael Dennis Linder, Unit of Dermatology, University of Padua, Via Cesare Battisti 206, IT-35128 Padua, Italy. E-mail: dennis.linder@unipd.it

The diagnosis of malignant melanoma (MM), a potentially lethal disease, may have a high psychosocial impact on patients. In addition, current evidence highlights an association between coping styles and quality of emotional adjustment in patients with MM (1). Previous investigations on coping behaviour, social support and tumour-related distress in patients with

early-stage MM have shown that high social support and active coping are associated with favourable adjustment, whereas low perceived support and depressive coping behaviour have shown significant association with poorer adjustment (2). Furthermore, patients using less avoidant coping strategies, whereby avoidant coping is generally recognized as a negative strategy, as discussed below, may have a better outcome in terms of time to relapse and survival duration (3).

Psychological interventions addressing educational issues and coping behaviour in patients with MM may positively influence immediate and medium-term psychological and social well-being; however, the benefits to physical health and survival time remain questionable, in spite of some evidence of a link between the course of cancer in general and distress (4–9). Several studies of patients with other malignancies suggest social support to be associated with enhanced quality of life, better prognostic factors and better outcome of disease (10–12); nonetheless, specific data on interventions aimed at coping in MM are scarce. Improving interventions requires additional knowledge on specific coping strategies. The theoretical basis of this work leans on the transactional model of stress by Lazarus & Folkman (13).

The aim of this study was to assess possible differences in coping patterns of patients with MM compared with those of a control group of patients with benign dermatological diseases, such as varicosis, leg ulcers, and keloids. We hypothesized that patients with MM use less positive (=adaptive) strategies and more negative (=maladaptive) coping strategies compared with controls. Positive coping strategies hereby indicate the tendency to react to or deal with problems in a constructive, direct, positive manner (stress-reducing strategies) whereas negative coping strategies indicate the tendency to react to or deal with problems or issues in an avoidant or unconstructive manner (stress-enhancing strategies) (14). Increased knowledge about coping strategies may allow the development of more specific psychological interventions, and determine when such interventions may best be implemented during the course of the disease.

MATERIALS AND METHODS

Inpatients aged between 18 and 68 years at the Department of Dermatology Graz, for whom surgery related to their skin condition was planned for the following day, were contacted between March and November 2008.

Inclusion criteria were: no available evidence of metastases; no psychiatric disorders in the medical history; sufficient knowledge of the German language, and; judged by the medical staff to offer sufficient compliance for the study. Exclusion criteria were: a clinical history of previous melanoma, and; being treated for non-melanoma skin cancer.

All institutional rules governing clinical investigations in human subjects were strictly followed during the study. 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 local ethics committee. Anonymity was warranted by identifying each participant with an ID number. Data collection was carried out the day before surgery (e.g. tumour excision), after patients were admitted to the inpatient department. For the study, participants completed a baseline questionnaire about socio-demographic and medical data, including age, gender, education, profession, family status, weight, height, medication, smoking behaviour, alcohol consumption, and frequency of weekly physical exercise.

Coping strategies of patients with MM and controls were assessed by means of the German stress-coping questionnaire SVF 120 (Stressverarbeitungsfragebogen 120), presented to the subjects in the paper and pencil version. The SVF 120 comprises 120 items divided into 20 subtests. Each item offers the possibility to select the adequate answer within a 5-level rating scale. The instrument is widely utilized and validated; it assesses both positive/stress-reducing strategies (*trivialisation, disparagement, defence from guilt, diversion from situation, substitute gratification, self-affirmation, relaxation, situation control, reaction control, positive self-instruction*) and negative/maladaptive coping strategies (*escape, social withdraw, intrusive thoughts, resignation, self-pity, self-blame*). Positive strategies result in efficient stress reduction and can be described as adequate coping strategies, whereas negative strategies are associated with a stress-enhancing behaviour (the SVF 120 also assesses strategies that cannot be ascribed to either group) (14).

Statistical analysis

To describe the relationship between the dichotomous response variable (1 = melanoma; 0 = no melanoma) and the different explanatory variables (coping strategies assessed by the questionnaire), a binary logistic regression model was used (forward selection likelihood ratio). The same model was also used to describe the relationship between the tumour-thickness (dichotomous response variable 0: ≤ 1 mm; 1: > 1 mm) and the stress scales (positive vs. negative strategies). Probability values of $p < 0.05$ were considered statistically significant. The risk of the MM diagnosis was calculated on the basis of the respective scores in coping strategies as assessed by means of the SVF 120.

For purely descriptive purposes, given the forcibly explorative feature of this study based on a small sample of patients, the homogeneity of the 2 groups (MM and controls) was tested by means of the Fisher's exact test, with no claim on these particular results to be part of the main issue addressed.

Analyses were performed using the statistical software SPSS version 18.0.0, SPSS Inc., Chicago, IL, USA.

RESULTS

Out of 75 eligible patients, 46 agreed to sign the written informed consent form and were enrolled in the study. The description of the study population is shown in Table I. There were 25 patients with MM and 21 controls.

A descriptive distribution of age, gender, smoking habits, education, and marital status is given in Table I.

The risk for the diagnosis "melanoma" decreased with higher values of *situation control* ($p = 0.007$) and increased with higher values of *resignation* ($p = 0.035$) and *trivialisation* ($p = 0.039$) (Fig. 1); hence, as can be seen from the p -values, *situation control* proved to be the best predictor for the diagnosis, followed by *resignation* and *trivialisation*, respectively (Table II).

It can be shown that, on the basis of the value of *situation control*, the diagnosis MM vs. benign lesion can be predicted correctly in 63% of cases, if one adds one of the two values of *resignation* or *trivialisation* this predictability can be increased to approximately 67%. Other strategies showed too little influence on predictability to be included in the model.

When analysing the data of the patients with MM (after dividing them into 2 subgroups: subgroup 1 (11 patients, 44%), tumour thickness ≤ 1 mm; subgroup 2 (14 patients, 56%) tumour thickness > 1 mm) the risk of presenting a MM with thickness > 1 mm decreased in patients with higher values of positive coping strategies ($p < 0.34$), whereby the scores for positive and negative coping strategies were calculated as described in (14) (Table III, Fig. 2).

Table I. Description of the study population

Variable	Melanoma	Controls	p -value
Age, years, mean (SD)	51.4 (12.0)	46.1 (12.2)	0.15
Gender, n (%)			
Male	9 (36)	8 (38)	
Female	16 (64)	13 (62)	1.00
Marital status, n (%)			
Single	1 (4)	3 (14)	
With partner	8 (32)	3 (14)	
Married	16 (64)	14 (67)	
Divorced	0	1 (5)	0.25
Education, n (%)			
Primary school [6–10]*	5 (20)	2 (10)	
Secondary school [10–14]*	14 (56)	12 (57)	
High school [14–18]*	5 (20)	4 (19)	
University [≥ 18]*	1 (4)	3 (14)	0.53
Smoking habit, n (%)			
Non-smoker	21 (84)	12 (57)	
Smoker	4 (16)	9 (43)	0.06

*Austrian Educational System - age ranges for each school; published by: Federal Ministry for Education, the Arts and Culture (BMUKK) and Federal Ministry for Science and Research (BMWf) 01/2012.

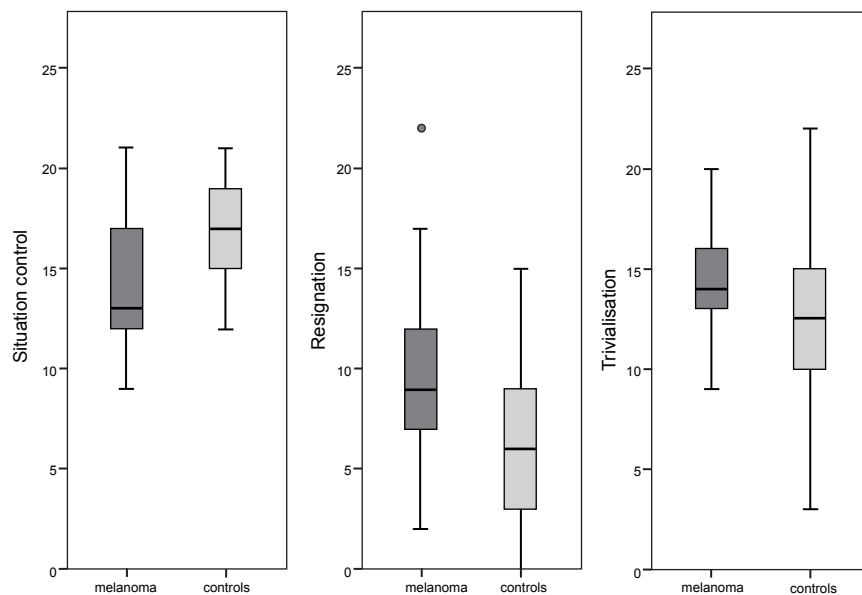


Fig. 1. Boxplots for the coping strategies *situation control*, *resignation* and *trivialisation* in melanoma patients and controls. The horizontal line indicates the median value; the bottom and top of the box are the 25th and 75th percentiles of the distribution.

DISCUSSION

This study shows that chosen coping strategies allow prediction with statistical significance of the diagnosis of MM vs. benign dermatological disease, thus suggesting the existence of some differences in coping strategies in patients with MM compared with a control group. In particular, patients with MM may have a divergent coping behaviour in terms of reduced ability to analyse stressors and to plan and perform activities to reduce the individual stress level in comparison with controls (*situation control*); also, they may be characterized by more *resignation* and *trivialisation*.

Low scores for *situation control* indicate that stressful situations are not adequately analysed and, consequently, few attempts are made to control the stressor and the stress-reaction. High scores in the subtest *resignation* indicate the tendency to give up quickly in a stressful situation (type C behaviour), which may produce feelings of helplessness and hopelessness (12, 14).

In all patients observed, according to selection criteria, all melanomas were primary. Furthermore, the planned surgery on the following day was either a primary excision or aimed at achieving standard excision margins after primary excision: the assessment has

hence provided information on “original” traits and not on states that might have “become chronic” as a consequence of a long-standing unfavourable diagnosis. A peculiarity of SVF 120 is that it assesses traits rather than states (time stability of coping strategies) (14). The choice of subjects and controls, who were both to undergo surgery on the following day, makes the results even more reliable, since any component of coping “state” possibly influencing the questionnaire results would have influenced cases and controls equally.

In oncology patients, problem-focused, active coping strategies are associated with better adjustment to the disease, whereas patients with passive or avoidant coping styles demonstrate worse adjustment (1, 15–19). Furthermore, maladaptive type C behaviour, originally identified among patients with MM, was found to be associated with negative prognostic factors, such as MM progression, thus resulting in poorer clinical outcome (12, 20, 21). Psychiatric interventions that aim to improve coping strategies and reduce distress in patients with MM may prove beneficial, although clinical relevance remains to be clearly assessed (5, 22). In a study examining the association between acute social

Table II. Relationship between the dichotomous response variable (1 = melanoma; 0 = no melanoma) and the significant explanatory coping variables

Variables	Regression coefficient B	Standard error	Wald	df	Sig.	Exp(B)
Trivialisation	0.229	0.111	4.242	1	0.039	1.257
Situation control	-0.358	0.132	7.346	1	0.007	0.699
Resignation	0.186	0.088	4.450	1	0.035	1.205
Intercept	1.089	2.078	0.275	1	0.600	2.972

Wald: Wald statistics; df: degrees of freedom; Sig.: Significance (a *p*-value ≤0.05 is considered statistically significant); Exp (B): estimated proportion.

Table III. Relationship between the tumour-thickness (dichotomous response variable 0: ≤1 mm; 1: >1 mm) and the stress scales (positive vs. negative strategies)

Variables	Regression		Wald	df	Sig.	Exp(B)
	coefficient B	SE				
SVF						
Negative strategies	-0.035	0.130	0.074	1	0.786	0.965
Positive strategies	-0.545	0.257	4.502	1	0.034	0.580
Intercept	8.106	4.005	4.096	1	0.043	3,314.247

SVF: German stress-coping questionnaire SVF 120 (Stressverarbeitungsfragebogen 120); SE: standard error; Wald: Wald statistics; df: degrees of freedom; Sig.: Significance (a *p*-value ≤0.05 is considered statistically significant); Exp (B): estimated proportion.

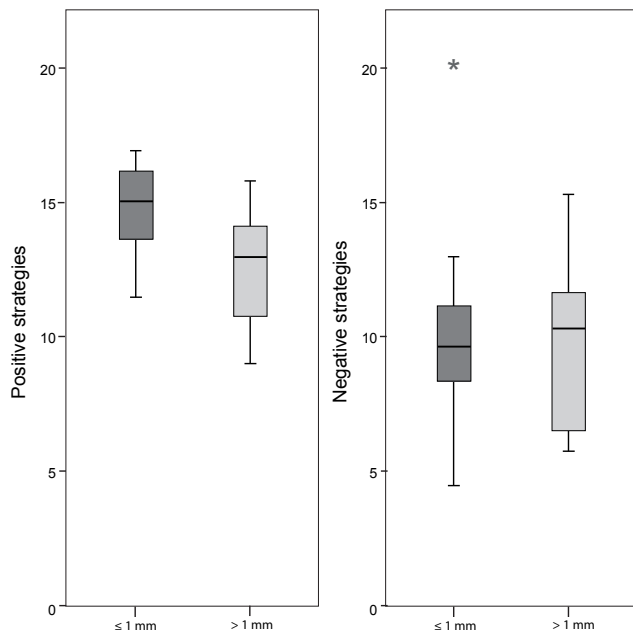


Fig. 2. Boxplots for the positive and negative coping strategies in patients with melanoma thickness ≤ 1 mm and > 1 mm. The horizontal line indicates the median value; the bottom and top of the box are the 25th and 75th percentiles of the distribution.

stress, immunological alterations and the development of pulmonary MM metastases in mice, subjects engaging in “negative” coping strategies, here defined by an absence of attack behaviour, low non-social exploration levels and high levels of defences, subordination and avoidance, developed a higher number of pulmonary metastases (23).

In mice, again, a relationship between different coping strategies for social stress and melanoma progression seems to exist: after social stress exposition animal subjects using passive-reactive coping strategies (submission, flee, avoidance behaviours) had a higher number of tumour foci, a higher level of corticosteroids and a lower NKG2D receptor expression compared with subjects with active-proactive coping behaviours (24). As for the case, for instance, of leukaemia patients (25), some data suggest that patients with MM responding to the diagnosis with a fighting spirit have longer survival than those who react with hopelessness (26).

The results of the present study, i.e. that patients with MM (with no known metastatic disease) may already show more *resignation*, *trivialisation* and less *situation control* at an early stage of the disease, compared with patients with benign diseases, appear plausible. This is mirrored in the emotional domain in the personal experience of an actually stronger threat and, from the behavioural point of view, in a comparable loss of direct influence on the course of disease. The 3 psychological aspects – *resignation*, *trivialisation* and *situation control* – are strongly associated with the physiologically relevant stress processes of helplessness and hopelessness, i.e. with depression-correlated phenomena (27, 28). The

possibility of an early intervention, focussed on these psychological risk factors of coping profiles of patients with MM suggests a beneficial effect on further disease development, if such interventions are able to provide sufficient “relief” for the immune system.

Among patients with MM, those with thinner tumours appear to choose more positive strategies, which in turn suggests the possibility of an associated increased resilience: this may positively influence the course of the disease.

In the present study patients with a higher educational level show a tendency to greater *resignation*. This might be ascribed to the fact that more knowledgeable patients could have more realistic expectations towards life, having more competence for recognizing threats: as a consequence, they may experience feelings of loss of control, since they may feel helpless when facing the disease diagnosis. This, in turn, may impact on survival time (3).

A possible limitation of this pilot study is the small number of patients, as the results need to be verified on a larger sample. Changes in coping behaviour over time should also be investigated. The role of coping in MM, especially its relation to tumour progression, has so far only partly been explored, and the benefit in terms of clinical relevance of coping strategies in MM remains questionable. Interventions to improve coping behaviour in patients with MM need to be developed and tested for efficacy. The present study suggests that such interventions should be implemented in the early stages and could aim at specific subcategories of coping style. Finally, for MM, further research is required to assess the importance of positive coping strategies and the potential threat posed by negative coping strategies, in terms of general benefit and influence on immunological status and disease progression.

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