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QUALITY OF LIFE ASSESSMENT: ITS INTEGRATION IN REHABILITATION CARE THROUGH A MODEL OF DAILY LIVING

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To integrate quality of life assessment with rehabilitation care, some correspondence is required between the concepts of quality of life and of rehabilitation. A notion of quality of life is presented in which quality is conceived as *degree of goodness*, and life as *daily living*. Rehabilitation is considered both a *process* of adaptation and *assistance* to that process. These notions of quality of life and of rehabilitation can together be operationalized through a *model of daily living*. An individual's appraisal of his own situation in relation to adaptation can be explained, assuming a *hierarchy of internal standards*. Explaining appraisal by others requires *external standards*. Both types of appraisal are important grounds for decisions regarding assistance. In addition, general ideas on *justification* of rehabilitation as assistance may influence such decisions. The model integrates both objective and subjective appraisal and ideas on justification into rehabilitation, thereby offering opportunities for theoretical underpinning of the practice.

Key words: quality of life, rehabilitation, adaptation, theoretical model, appraisal of daily living, outcome assessment, health, definition of health.

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INTRODUCTION

The aim of this article is to integrate quality of life assessment in rehabilitation care by describing quality of life and rehabilitation in corresponding concepts. Such an integration will avoid a number of the problems experienced in using common conceptions of quality of life. The nature of these problems is described by various authors (see 1–5). Important criticisms concern the lack of conceptual elaboration and the lack of theory in articles from the field of rehabilitation on quality of life. Indeed, many studies investigate the relation between quality of life and a particular condition or a particular intervention, but there is often no scientific hypothesis in such studies. In most of these studies there is no theoretical explanation for the findings, and only rarely do the findings influence a theory on quality of life. However, studies that do elaborate concepts and theories on this subject may use language that is not common in rehabilitation. This could explain the present situation in which, according to Fuhrer, the available models of disablement are underdeveloped regarding subjective aspects of key concepts, regarding personal values and goals, and regarding information from self-reports (6). In addition, the relationship between "objective" and "subjective" is often considered a methodological problem, while on the other hand it is recognized that these should be integrated (7, 8). There appears to be a division between the area of theory and practice (7).

In this article I seek to build a bridge between the practice of rehabilitation and theories on quality of life. It is presumed that an explicit description of the practice will provide possibilities for theoretical explanations regarding appraisal, which advance the practice rather than confuse or divide it. The starting-point is an interpretation of the concept of quality of life as degree of goodness of daily living. Next, a description of rehabilitation is suggested. Thereafter, a model of daily living will be presented that provides terms and concepts considered relevant in rehabilitation. This model will then be used to explain appraisal in relation to adaptation. The ideas represented by the model could form the points of contact with theories from different scientific disciplines, in particular theories regarding appraisal and adaptation.

DEGREE OF GOODNESS OF DAILY LIVING

Life as it is lived and as it is observed by others does not necessarily correspond with the perception of its quality, whether perceived by the person whose life is regarded, or by somebody else. This forms a good reason for the distinction between life itself and its perceived quality. "Quality" in common language is "degree of goodness", and I suggest "life" to stand for "daily living". In this way the term "quality of life" does not designate some entity in itself. Rather, it refers to a characteristic of an object. The object is taken to be daily living. The characteristic is then the degree of goodness. Using quality in this sense, it means that the degree of goodness is attributed to the object of daily living, and is therefore a characteristic originating outside the object of daily living itself. This notion is useful for the practice, as the daily living of a particular person may be appraised by both that person herself or himself and by other people. From the rehabilitation practice, we know that different people can make different statements on the degree of goodness of one particular person's daily living. This form of

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appraisal could be explained with the subjectivist theory of health (9).

REHABILITATION

Rehabilitation can be conceived of both as a *process* and as the *assistance* therein (10). The process can be considered to reflect adaptation of a particular person (11) to her or his circumstances which have changed or are changing in relation to a disease, an injury, a congenital defect or ageing. The assistance to this process reflects both the reinforcing of the resources of this particular person and enriching her or his environment in order to facilitate the process of adaptation. In delivering the assistance it is presupposed that this person considers herself or himself to be in need of such assistance. Rehabilitation as a process and the assistance therein can be operationalized in terms of daily living (12). The degree of goodness of that daily living is then what matters. These ideas on rehabilitation emphasize the concept of daily living rather than that of disablement or disability. In rehabilitation, a model of daily living might therefore be more useful than a model of disablement.

Specifying the intended outcomes of rehabilitation as a process implies considering the justification of rehabilitation as assistance (6). By justification, I mean: identifying the reasons in terms of daily living why it is right or just to assist somebody in having the degree of goodness of daily living maintained or regained. Such a notion of justification implies that a certain desirability or value is attached to a certain state of daily living (9, 13), and that this desirability or value is shared by at least a majority of professionals. As the process of rehabilitation reflects adaptation, the justification of the assistance might be given in terms of adaptation. The description of health by Whitbeck may provide the terms for such a justification. *Health is the capacity for a high level of integrated psychophysiological functioning, enabling the person to act or respond appropriately to situations, in a way that promotes the person's projects and goals* (13). This notion of justification could be explained by objectivist theories of health (9).

The aims of rehabilitation as a *process* can therefore be considered as achieving *a high level of integrated psychophysiological functioning*, and *acting appropriately*, and *promoting individual goals*. This is not to say that these aims will always be attainable. Either somebody's circumstances or somebody's own resources may not be sufficient. Yet this description of health, even though it raises new questions (e.g.: what is meant by "high level"? and what is meant by "appropriately"? "promotes" at whose expense?), provides a global idea of the processes we may justifiably support, with rehabilitation as assistance. Reaching aims of rehabilitation as *assistance* supports the attaining of the aims of rehabilitation as a *process*. Aims (intended outcomes) of rehabilitation as assistance might be formulated in terms of reinforcing the resources (the capacity for a high level of integrated psychophysiological functioning) of a particular person and enriching her or his environment.

This idea of rehabilitation as a process and as assistance therein, together with the particular description of health, underlies the ideas represented with the model described in the following paragraph. With this model I will attempt to explain the appraisal of daily living in relation to adaptation.

A MODEL OF DAILY LIVING

The operationalization of daily living in the context of rehabilitation requires that (a) relevant *aspects* of daily living and their mutual relations can be identified and described; (b) *changes*, both negative and positive, of these aspects of daily living can be described and explained; and (c) *appraisal* of daily living can be understood.

I consider *daily living* to be the interaction between a person and her or his environment, with the person as the actor. The operationalization of this rather global idea is done by considering daily living to be activities of an individual which are the result of and influenced by characteristics of that person as well as by characteristics of the environment. The activities can be further operationalized as intentional activities and two hierarchical levels of components. The identification of these component levels is contingent upon what is needed for description and analysis in rehabilitation practice (12, 14). Philosophical studies also deal with hierarchy of functioning and activities, for example in search of knowledge forms (15) or in search of the nature of health (16). These philosophical studies provided considerations for the design of the model. However, usefulness in the practice is the main guideline for the model presented here. Examples of *intentional activities* are: to talk, to go around walking, to eat, to dress, to provide for meals, to carry out household activities, to visit a friend. Examples of mid-level components or *basic activities* are: remembering, listening, touching, standing. They can be considered components of intentional activities. They have a high degree of automaticity, but can be performed consciously. Examples of low-level components or *basic functions* are: memory, hearing, sensation, proprioception. These basic functions can be considered components of basic activities, and cannot be performed consciously. This distinction of three hierarchical levels of complexity serves the description of activities and to some extent the explanation of the changes in those activities. Changes in levels of a lower complexity contribute to the explanation of changes in levels of higher complexity, but also vice versa.

The ideas on the operationalization of daily living can be represented in a model (Fig. 1). In Fig. 1, the relations between the components of the model are only represented with a line, and are not specified. The relations could be, for example, enhance, decrease, enable.

Intentional activities in this view are characterized by an intention. In *eating*, for example, the intention is to get food into the body; in *dressing* the intention is to stay warm. The intention of an intentional activity can be considered to serve an aspiration. I assume that each aspiration is served by different

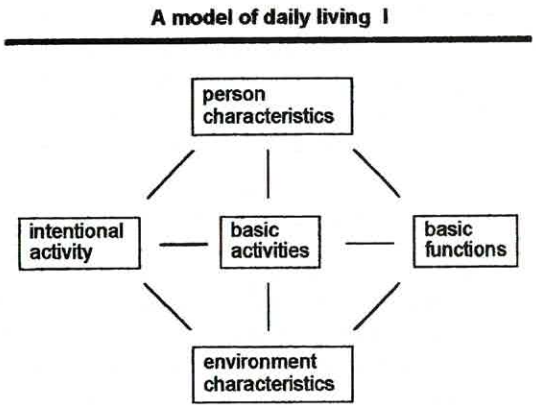

Fig. 1. Components of a model of daily living. There are five categories of components. The first is the set of characteristics of the person. The second is the set of characteristics of the environment. The other three categories are the operationalizations of activities: intentional activities, basic activities and basic functions. The lines indicate unspecified relations between the components of the model.

intentions. An aspiration can be near in terms of time and attainability, or far off. Aspirations can be considered to serve meaningfulness of life. The distinction of intention, aspiration and the sense of meaningfulness reflects an extension of the hierarchical levels of complexity of aspects of daily living. Intention, aspiration and sense of meaningfulness can be considered characteristics of the person.

Playing the lute can be considered an intentional activity for a particular person. The fingers move in certain patterns: basic activities, which in their turn can be described in basic functions. The intention when playing the lute is to produce music. An aspiration could be to perform music with friends. Performing music with friends might contribute to well-being and to meaningfulness in life.

Intention and aspiration as characteristics of the person are of a different order from physical condition, pliancy, or immune status. Hence the model of Fig. 1 can be further elaborated by dividing the person characteristics in three subsets, each of which corresponds with a level of complexity in activities (Fig. 2). For example, person characteristics corresponding with intentional activities are intentions, aspirations, stress-handling capacity, self-image, well-being, but also ideas and notions. Person characteristics corresponding to basic activities are, for example, physical condition, development potential, structure of body parts and organ systems. Person characteristics corresponding to basic functions are, for example, tissue characteristics, immune status. A similar distinction can be made for environment characteristics.

Daily living and the changes therein can be described with the components of this model and with the (qualitative) relations between those components. The facets of health as mentioned by Whitbeck (13) can be accommodated in this model in a global-descriptive way. They can be considered different aspects of daily living. *The integrated psychophysiological functioning* is thought to occur *within* the person. It can be indicated with the double-sided arrows in the right upper corner of the model (Fig. 2). These arrows represent interaction between different systems that form characteristics of the person. Secondly, the *ability to act or respond appropriately to situations* (handling of stress) can be considered a characteristic of the person. *To act or respond* can be expressed as intentional activities. And lastly,

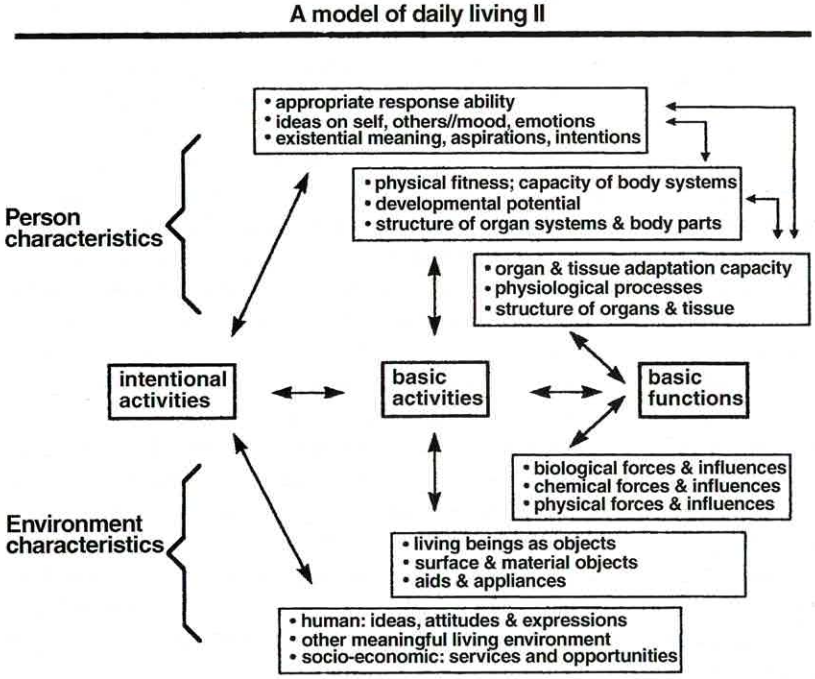

Fig. 2. Examples of characteristics of person and environment in three different subsets. Each subset corresponds with one of the levels of complexity of activities. The double-sided arrows indicate only a relation, not the nature of the relation. The arrows in the right upper corner represent intrapersonal processes.

Table I. *Correspondence (indicated with →) between aspects of daily living, and internal standards for appraisal of those aspects*

Aspects of daily living	Standards: a degree of goodness of aspects, desirable for the purpose
Aspirations	→ Meaningfulness
Intentions	→ Aspirations
Intentional activities	→ Intentions
Basic activities	→ Intentional activities
Basic functions	→ Basic activities
Physiolog. functions	→ Basic functions

the *person's projects and goals* (aspirations) might also have a place, again as characteristics of the person. The model is just one way to represent ideas on daily living. It is as a matter of fact also a simplification of human reality.

DIFFERENT STANDARDS

The term "appraising" is used here as an equivalent to "assessing the degree of goodness". In this section the concept of standard, both internal and external, will be explored. In the next section I illustrate how a person appraises her or his daily living, in relation to the process of adaptation.

Rehabilitation concerns persons whose daily living is changed or is under threat of change. The standard for a person appraising his changed daily living, could be the desired degree of goodness of daily living as it was before the changes. Using such a standard would inevitably lead to a negative appraisal. However, studies have shown that adversity does not necessarily lead to a negative appraisal of daily living (1). This observation is thought to reflect the process of adaptation. How can we, using the model, explain appraisal reckoning with adaptation?

The expression "to assess a degree of goodness of something", or "to appraise something", implies the assumption of a standard. A standard may, in common language, be considered a *degree of goodness considered desirable or necessary for some purpose*. If a person appraises her or his own daily living, one could assume internal or intra-personal standards. Now what could be an internal standard for appraisal of daily living? In other words: What could be *a purpose that makes a certain degree of goodness of daily living desirable*? The answer for that person could, for example, be *meaningfulness*. Meaningfulness may be reflected by well-being or satisfaction with life as a whole, as reported by that person. Although *meaningfulness* could be considered such a purpose or aim in daily living, the aims of rehabilitation are different. Aims of rehabilitation as a process relate to *adaptation*, or, framed differently, *maintaining or regaining meaningfulness*. The aim of rehabilitation as assistance could then be considered as *reinforcing the person's resources and enriching her or his environment* in order to maintain or regain meaningfulness. So the question becomes: Can we find internal standards for the degree of goodness of aspects of daily living that are useful in rehabilitation?

Table II. *Examples of external standards applying to appraisal of aspects of daily living*

Aspects of daily living	External standards:
	Individual ideas
Development	Desired development
Mental activities	Level of mental activities
Social activities	Level of social activities
	General ideas; professional
Psychophys. functioning	Biopsychological health
Handling of stress	Effectiveness of coping
Goals and projects	Adequacy of aspirations
Environment	Living standard
	General ideas; non-professional
Own or individual	Customarily expected
• Aspirations	• Aspirations
• Intentions	• Intentions
• Activities	• Activities

The answer can be found in the *hierarchy of aspects of daily living*. The hierarchy implies that lower-level aspects of daily living are in some way conditions of higher-level aspects. In other words, the hierarchy of aspects of daily living implies a *hierarchy of purposes* for those aspects (except for the highest aspect: meaningfulness of life). An internal standard could then be: the degree of goodness of a certain aspect of daily living that is considered desirable or necessary for a particular higher aspect of daily living. In other words, such a standard could then be described as follows: *sufficiently good according to the individual's idea of how this next level, the purpose, should be*. As the model reflects relations between aspects of daily living, and the hierarchy of standards runs parallel to those aspects, the model provides some explanation for the degree of goodness of aspects of daily living.

Table I provides an overview of the aspects of daily living and the corresponding purposes implicit in standards. Aspects on the one hand and purposes and standards on the other follow the same hierarchy.

Rehabilitation as assistance brings us to a professional's appraisal of aspects of daily living of a particular person. Standards in such an appraisal are *external*, i.e. external to the person whose life is appraised. "External" indicates "environmental". These standards may, for example, concern *ideas of the professional as to what is expected from a person*, or they may concern *common ideas about how certain aspects of the daily living of a person should be*. These external standards do not represent some sort of purpose as in intra-personal ideas. Table II gives examples of external standards.

External individual ideas are, for example, those of parents when they appraise the daily living of their children. *External general* ideas are ideas shared by a particular group of people. Professionals share ideas on, e.g., health, coping, living standards. Other forms of external general ideas are culture-based ideas on how daily living should be. Both the external individual and the external general standards are in the model characteristics of the environment (Fig. 3).

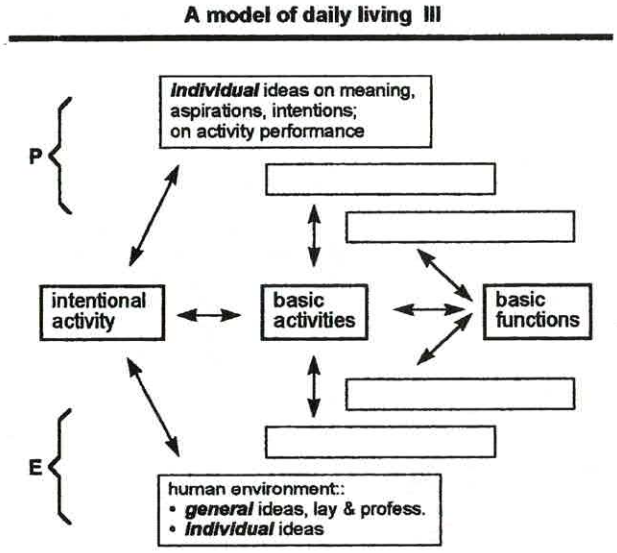

Fig. 3. Ideas on degrees of goodness or levels of achievement considered desirable or necessary for some purpose. Such ideas can be person characteristics ("P"), or environment characteristics ("E"). Ideas of the person reflect a hierarchy of *internal* standards. Ideas in the environment (*external* standards) may be general (shared by a group of people) or individual, and either professional or non-professional. The double-sided arrows indicate relations which are not further specified. The empty rectangles reflect subsets of characteristics not further specified in the context of this figure.

ASSESSMENT OF THE DEGREE OF GOODNESS OF DAILY LIVING

Considering appraisal in relation to adaptation, the following example is given. A person sustains a serious injury to his right lower leg. He likes to play football. This can be considered an intention. He wants to become a good sportsman. This could be considered an aspiration. The intentional activity relating to the intention is "playing the ball with the feet". He therefore must be able to kick the ball. This can be considered a basic activity, which requires different functions of his leg, i.e. different basic functions. Each lower level of activity or function can be considered a condition for a higher level. It is important to realize that these conditions are necessary but not sufficient. However, in explaining why things go wrong, disturbed basic functions or basic activities might be a sufficient condition for a disturbance at a higher level.

Imagine that this person broke his right lower leg. At the initial moment of confusion he may experience that everything is lost. At a later moment, though, he will focus on the intentional activity, and the intention served by that activity, and on the basic activities necessary for it. "To play football" is the intention, and the purpose of the intentional activity. Hence the standard for the appraisal of the intentional activity is: *sufficiently good to play football*. The outcome of the appraisal is: *not sufficiently good for playing football*. For appraisal of the basic activities, it can be assumed that the intentional activity is the standard. Hence the outcome of the appraisal is: *not sufficiently good for playing the ball with the feet*. It is likely that this appraisal is less important than that of the intentional activity itself. Yet, either of these appraisals will be correlated with a process of recovery (possibly with assistance); in other words, functional adaptation. For appraisal of the intention "to play football" one can assume as a standard the aspiration "to become a good sportsman". In the episode of fracture healing, the appraisal of the intention "to play football" could be: *not sufficiently attainable* (rather than good) *to become a good sportsman*. However, this appraisal does not seem relevant if recovery is expected.

Now imagine that he realizes, aided with information from the surgeon, that his leg will heal but that considerable loss of muscle tissue will result. In terms of appraisal, the surgeon will appraise the physical condition as: *not sufficiently good, and permanently so, for kicking the ball*. Disturbed kicking is sufficient for a limitation of playing the ball with the feet. This in its turn is sufficient for decreased ability to play football. This represents a definite loss, the adjustment to which may be accompanied by grief. The particular intention "to play football" will no longer serve to make him a good sportsman. As for the aspiration, he will probably understand that this does *not* represent a definite loss. He must make choices about other capacities or resources in order to secure his sporting aspirations. In short, a higher-level standard allows explanation of appraisal by its constancy. Lower-level standards allow explanation of adaptation by their changing.

It seems reasonable to assume that, after the initial episode of uncertainty, the appraisal starts at the level of intentional activities, with intentions as a purpose. Indeed, this level bears *immediate* meaning. The prospect of adapting to loss of *intentions* would be more threatening, would involve more grief, than adapting to loss of intentional activity. Even more so for loss of aspiration. This is why appraisal may not start at a higher level than intentional activities. On the other hand, adapting to loss of levels lower than intentional activity would be more automatic and functional. For a surgeon, however, the relevant appraisal is precisely at these lower levels. In general, it seems that for appropriate appraisal and adaptation the experience of meaningfulness of life must somehow return.

Mr Z, 62 years of age, is a musician and a lute teacher. He suffered an infarction in the region of the left middle cerebral artery. After some months he still had difficulties with memory, language use, vision, and the function of the right arm and leg. Around this time a depressive mood developed, probably in relation to the important losses and uncertainty about how the future would be. He received unwavering support from his wife. This was important for the return of his appraisal of life as meaningful. From then on he succeeded in the rational appraisal of lower levels of aspects of daily living. One of those was the intentional activity, playing the lute. He understood that the movement of the fingers of his right hand, and the coordination between left and right hand were not sufficiently good for playing the lute, and that this would be permanent. He wanted to preserve the aspiration to make music with friends. He discussed with friends about having an Irish harp specially made for him. He could play this

with his left hand. He thus could uphold his aspiration but he lost many more abilities. A long episode of grieving accompanied the return to a new equilibrium, but he no longer considered himself as healthy.

DISCUSSION AND CONCLUSION

The assumption of a hierarchy of standards for a person's appraisal of her or his own situation makes subjective appraisal more explicit. In that sense, the hierarchy of standards could be considered a further elaboration of the idea of domain-specific satisfaction, i.e. lower level, and satisfaction with life as a whole, i.e. higher level. However, one could also assume that a person appraises an aspect of daily living irrespective of other levels of daily living. A person might simply assess whether an aspect can be realized or not. If it can be realized, he needs to assess whether it is under threat. If it cannot be realized, he needs to assess whether there is a chance to improve the conditions for it. Both ideas, i.e. *with* the hierarchy of standards and *without*, are just assumptions. So we need not bother about which one is true, but only which is the more useful. Regarding rehabilitation, I consider the first idea more useful as it provides some explanation of appraisal.

In addition, the hierarchy of standards contributes to the explanation of both *appraisal* of aspects of daily living and *adaptation* to changes in daily living. The hierarchy of standards allows the assumption that a person finds a standard at a certain level which remains constant and which helps to explain appraisal of a particular situation by that person. At the same time the hierarchy of standards allows the assumption that this particular person must change his or her standards at a lower level, which helps to explain adaptation by that person in that same situation.

Health is often seen as something good, as something worth striving for. Indeed, health in the definition of Whitbeck is in this article taken to represent something of value in general, justifying rehabilitation as assistance. Does this mean that health can be considered a purpose? And if so, does this mean that health can be used as a standard for subjective appraisal as explained by my model? Unless health represents ultimate meaningfulness, I agree that health could be considered to serve a purpose. However, I do not consider that this description of health can be taken as a standard for subjective appraisal in my model. This is because the different aspects of health according to Whitbeck's description are interwoven in the model, and not part of the hierarchy of aspects of daily living. Health according to Whitbeck's description cannot therefore be a part of the hierarchy of standards in my model.

The notion of rehabilitation as a process and as assistance to that process implies a distinction between aims and outcomes of the *process* and aims and outcomes of *assistance* to that process. Rehabilitation as assistance presupposes that the subjective appraisal of somebody's daily living leads to a request for that assistance. Its implementation presupposes that the subjective appraisal corresponds both with the individual professional's idea concerning the need of assistance for that person, and with the general idea that it is justified to assist in attaining a certain state of daily living.

In the practice of rehabilitation, a model of daily living seems to be more appropriate than a model of disablement. Not only can a model of daily living include both the disturbances and the resources of a person. It can also serve the understanding of the subjective appraisal, by using aspects which are *not* affected, as internal or intra-personal standards. It could also provide some differentiation as to the expected importance of an outcome of subjective appraisal, depending on which hierarchical level of standard is used. Furthermore, the model distinguishes between internal and external standards, as well as between external individual and external general standards.

The model of daily living together with the distinction between daily living on the one hand and its degree of goodness on the other may avoid a number of problems associated with the use of an ill-defined concept of quality of life. Furthermore, they enable an explanation of appraisal from within the realm of rehabilitation medicine. In this way the quality of life assessment can be integrated in the practice of rehabilitation.

I have argued that two different aspects of appraisal apply to a situation in which a person is attended to by a professional. Also ideas on justification of assistance apply to such a situation. This could mean that three different forms of value theory are three simultaneously applicable explanations to three aspects of a situation, rather than three separate explanations of one situation.

I want to emphasize that the model and the subsequent consideration of the appraisal of daily living are just one of several ways to make the practice of rehabilitation explicit, and to provide explanation. The explicit description of appraisal presented here can provide points of contact for theoretical elaboration, thus creating conditions for the integration of theoretical knowledge from adjacent fields of science. Dossa states that "while theory provides a focus and an ideological underpinning to practice, the latter energizes the former and stimulates further development through its concern with the complexities of real life." (7). In this article I have presented a way to bring together views from the theoretical area on the one hand and the practice area on the other that is meant to be to the advantage of both theory and practice.

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