

International Encyclopedia of Rehabilitation

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Inpatient Psychosomatic Rehabilitation including the aspects of the International Classification of Functioning, Disability, and Health (ICF)

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Overview of inpatient psychosomatic rehabilitation with a special focus on inpatient psychosomatic rehabilitation in Germany

Rehabilitation medicine is a medical speciality for the treatment, compensation, and prophylaxis of chronic illnesses that last more than six months. This review focuses on inpatient psychosomatic rehabilitation as a specialization within rehabilitation medicine. Although it is to a certain extent an integral part of psychiatric rehabilitation, psychosomatic rehabilitation is becoming increasingly important as a field in its own right. For a shorter survey on this topic published in German see Schmid-Ott and Stock (2008).

"When significant segments of the population are excluded from participating in work, numerous subsequent problems are to be expected with considerable impact on the health status of the general population in the sense of secondary damage and impairment. Psychological damage, loss of self-esteem, social isolation, existential crisis, limitation in physical activities, and dependencies pose significant risk factors for the health and functioning of the population in the sense of the ICF, which are accompanied by a corresponding need for support" (Seger et al., 2008).

Psychosomatic rehabilitation is mainly a German institution. For detailed information about hospitals, beds, patient spectrum, system of admission, structure of hospitals, reimbursement, history, effects, and outcomes in psychosomatic rehabilitation, see Schauenburg et al. (2006) and Schmid-Ott et al. (2008). - A search on Medline (16030210) with the keywords "psychosomatic and rehabilitation" returned only a limited number of English titles (Shapiro and Surwit 1974, Murray 1980, Dracup et al. 1984, Aitken 1987, Corbellini and Maisano 1988, Mayou 1990, Shapiro 1996, Drake et al. 2003, Rashbaum and Sarno 2003, Lash et al. 2003, Linden et al. 2003, Linden 2004, Linden et al. 2004, Fava and Sonino 2005, Petrak et al. 2005, Linden 2006, Mitchell and Selmes 2007, Sonino and Fava 2007, Beutel et al. 2008, Kallert 2008, Fava 2009, Petrak and Herpertz 2009). Indeed, psychosomatic medicine generally has been perceived only in Germany as a field distinct from psychiatry. However, psychosomatic medicine is now starting to be regarded more often -- at least by some experts in Germany and in the USA -- as a new psychiatric subspecialty that focuses on the interface between psychiatry and medicine (e.g., Lipsitt 2001, Lyketsos et al. 2006).

Individuals with psychological or psychosomatic illnesses in adulthood frequently suffer from a chronic course of disease, relapsing deterioration, and often exhibit a vast spectrum of co-morbidity. Medical rehabilitation often becomes necessary when illness-related damage has led to long-term disability or impairs participation in important areas of daily life. Medical rehabilitation requires a comprehensive, holistic, and interdisciplinary approach, according to the bio-psycho-social model. This model allows health care professionals to take the entire background of affected persons into account, including the interactions of the individual components of functional health and their impairment, as well as the interactions between individual health problems and contextual factors (environmental or personal). Furthermore, those who suffer from and who are treated for psychological or psychosomatic disorders come from diverse cultural backgrounds (see Schmid-Ott et al. 2003, Ditte et al 2006, Calliess et al. 2007). Despite its somewhat out-dated institutional label "spa," inpatient psychosomatic rehabilitation offers easy access to a suitable, specific therapy.

In summary, we can state the following conclusions about psychosomatic rehabilitation in the context of the International Classification of Functioning, Disability, and Health (ICF) (see Baron and Linden, 2008):

Psychosomatic rehabilitation diagnoses and treats patient and their chronic illness or disability on the somatic and psychological level as well as in their social environment, meaning that close attention is paid to the functional and psycho-social impact of the illness or disability. In this way, the narrow focus on the physical symptoms and the use of specific somatic treatments, frequently preferred by these patients in light of their somatic illness, is expanded upon. As a result, the daily routine of patients is given more comprehensive attention. However, in this context, one has to be careful not to confront the patient with a psychosomatic diagnosis without adequate preparation. The diagnosis must rather develop slowly based on a somatic-psychological disorder. In this context, psychosomatic rehabilitation refers to the person-related and interdisciplinary management of impairment of functional health.

The concept of functional health is central to the International Classification of Functioning, Disability, and Health (ICF) which was ratified by the World Health Organization (WHO) in 2001. In the ICF, functional health refers to the mutual interactions of a patient's impairment of health (listed in the ICF-10), their environmental factors, person-related factors and contextual factors. Functional health is classified on several levels: anatomical-structural aspects of the physical diagnosis, the functional impact of these disorders and their

consequences with regard to activity, and participation in various areas of daily life (Gutenbrunner et al. 2002, Üstün et al. 2003, World Health Organization 2000). The ICIDH (International Classification of Impairments, Disabilities and Health) from 1980 (Jochheim and Matthesius 1995) describes the following aspects of a disorder: impairment, disability, and handicap (social impairment, difficulty with integration). The ICIDH provides the basis for a theory of disability and makes it possible to represent the impact of disorders within the context of three different consequences of diseases: impairments, disabilities, and handicaps (Jochheim and Matthesius 1995, Masala and Petretto 2010, Schuntermann 1998, World Health Organization 1980). This perspective is, however, mono-directional, causing it to be criticized. The present ICF version emerged in response to this criticism.

The present International Classification of Functioning, Disability, and Health adds the following aspects to the model of the ICID: the interaction of illness and disabilities and their functional effects. At the level of the individual, they are called "activities"; in the context of social interactions they are termed "participation." The following contextual factors are taken into account: environmental factors; individual, person-related characteristics; attitudes; and abilities. Differentiating between supporting factors and barriers facilitates the expansion of the patho-genetically oriented approach to encompass the saluto-genetic perspective (Schmid-Ott et al. 2007). This allows us to capture a more adequate picture of the daily life of individuals and patients.

The goal of using the ICF for the multidisciplinary and interdisciplinary management of the functional health of an individual during inpatient psychosomatic rehabilitation is primarily to operationalize symptoms and disabilities as close to the patient's reality as possible so as to minimize them more effectively.

The ICF defines functioning and disability as multi-dimensional concepts, within an overarching context of a particular health condition, that relate to an individual's bodily functions and structures, their activities, the life areas in which they participate, and the factors in their environment that affect these experiences. Disability is used as an umbrella term for any or all of: an impairment of body structure or function, a limitation in activities, or a restriction in participation. Environmental factors and personal factors are contextual factors. Environmental factors consist of all the physical, social, and attitudinal features that together characterize the environment in which a person lives -- from climate and terrain to architectural characteristics and legal and social structures. Personal factors are defined as gender, age, coping styles, social background, education, profession, past and current experiences, overall behavior pattern, character, and other factors that influence how a disability is experienced by the individual. Personal factors are not classified in ICF at the moment. *Environmental factors* can be either barriers to or facilitators of the person's functioning (United Nations ESCAP 2010).

Several efficient strategies for inpatient psychosomatic rehabilitation can be derived from the ICF:

1. A curative strategy for treating damaged body parts and body functions
2. A rehabilitative strategy for compensating or overcoming impairment of body functions, activities, or participation
3. A preventative strategy to avoid further impairment of body functions, activities, or participation.

Thus, rehabilitation medicine, as care of chronic illness, comprises primary preventative, curative, secondary preventive, compensatory, and tertiary preventive strategies alike.

As a rule, inpatient psychosomatic rehabilitation is used to treat chronic, often incurable health disorders in the narrow sense. Nonetheless, rehabilitation is able to minimize the impairment of functional health by fostering positive, health-promoting behavior and by identifying and thus activating individual salutogenetic environmental factors. The ICF can be used to identify resources as well as deficits. This is why the contextual factors, such as environmental factors and individual aspects of a patient's personality, take on an immanently important position in the process of rehabilitation. Achieving success is predicated upon, first, the use of multi-disciplinary diagnostics by physicians trained in psychotherapy, psychologists, occupational and physical therapists, dieticians, nurses, and social service specialists (social workers, rehabilitation consultants), and second, possibly also upon prior medication and somatic treatment, among other factors. This is defined as *assessment* (Stucki et al. 2003). The rehabilitation team comprehensively diagnoses impairment or disorder of physiological functions and structures, activities and participation as well as contextual factors. This analysis is repeated at regular intervals in order to improve the outcome of treatment. This process yields treatment indications, treatment goals, and prognoses as to the need for rehabilitation, ability to be rehabilitated and prognosis for rehabilitation.

Assignment to a rehabilitation center for prescribed treatment is performed by pension insurance or health insurance employees, who examine the case records of patients and determine who receives inpatient rehabilitation. These institutions also select the specific rehabilitation center, using their own competency criteria. Within the framework of the assignment decision, the patient, the health care provider, and the insurance carrier are informed of the medical indication and of the goals of rehabilitation. The subsequent intervention encompasses the rehabilitation plan and goals based on the health problems as determined in the *assignment*.

Inpatient psychosomatic rehabilitation regards itself as a continuing process, which means that in the course of treatment, the patient's situation is repeatedly re-assessed and reviewed and then re-evaluated in view of the intended goals of treatment. The results of re-assessment are ultimately discussed with the patient. This is defined as *evaluation* (Gutenbrunner et al. 2002, Stucki et al. 2003).

Psychosomatic patients usually respond well to group therapy (Janssen et al. 2006). This form of health training serves less to convey information than to impart practical knowledge for strengthening personal responsibility (Schmid-Ott et al. 2000), encouraging individuals' potential for self-help as well as improving adherence in the sense of patients' active collaboration (Korsukéwitz 2003). For patients with a somato-psychological disorder, taking part in sessions of a disorder-specific self-help group is frequently useful for boosting their self-help potential. This can already be initiated, if desired, during inpatient treatment, for instance by providing information about the work of similar self-help organizations or contact information in the patient's place of residence.

At the start of inpatient psychotherapy, rehabilitation goals are devised as realistic objectives attuned to the patient's daily life (assignment measures), taking into account any specific individual limitations for participation. Patients can strive for goals on various levels: somatic, psychological, educational, activity-related, participation-related or contextual. The following goals of therapy can be established in inpatient psychosomatic rehabilitation within the con-

text of the International Classification of Functioning, Disability, and Health (ICF, cf. also Schuntermann 2008):

Psychological rehabilitation goals

1. Increasing adherence
2. Realistic assessment of the illness
3. Improving patients' ability to cope with the illness, their responsibility for themselves and their motivation to implement the psychotherapeutic and medical treatment
4. Improving self-control
5. Encouraging the understanding of connections between somatic and psychological influences (so-called somatic vulnerability, also in somatoform disorders).
6. Learning and the application of new knowledge (e.g. improved sensory perception, elementary learning skills, and various techniques of linking knowledge acquisition and knowledge use
7. General issues of task resolution and coping with demands (e.g., accepting tasks, dealing with daily routines, reducing, and balancing demands on one's psychological well-being)
8. Communication (e.g., communication as a receiver, communication as a sender, conversation, and the use of communications technologies and techniques)
9. Interpersonal interaction and relationships (e.g., general interpersonal interaction, specific forms of interpersonal relationships)

Social rehabilitation goals

1. Improved integration in the workplace (see Härdel et al 2006)
2. Improved social integration
3. Improved social competence
4. Increased involvement in community activities (e.g., civic engagement, recreation, religion, and spirituality)
5. Increased involvement in other important areas of life (e.g., parenting, education, independent forms of economic production)

Educational rehabilitation goals

1. Information about risk factors and the course of mental disorders
2. Improved mechanisms for coping with stress by learning systematic relaxation techniques

The following contextual factors comprise what we regard as the entire background of an individual central to inpatient rehabilitation based on the International Classification of Functioning, Disability, and Health (ICF):

1. Risk factors such as abuse of stimulants, tobacco, and alcohol
2. Poor nutrition
3. Lack of physical activity
4. Inadequate styles of coping with illness (Ermann 1997; such as denial, depressive withdrawal, blaming others) or
5. Personality factors such as the presence of a personality disorder

The development of the International Classification of Functioning, Disability, and Health provides rehabilitative medicine with a broad scientific foundation. The ICF operationalizes the concepts of illness, disability, and health in a clear manner, taking (somatic) illnesses together with psychosocial stress, individual patient factors, and environmental conditions

into account. This approach is particularly interesting for psychosomatic medicine and psychotherapy because it characterizes the chronicity of numerous psychological disorders in terms of psycho-social stress (Schmid-Ott et al. 2003, Schmid-Ott and Jäger 2005, Ditte et al. 2006, Calliess et al. 2007). Disorders can be defined and documented through the ICF and in ways appropriate to their multifaceted genesis.

It is important to point out in this context that those suffering from mental illness or undergoing treatment are often stigmatized. Psychosomatic or psychological disorders and their professional treatment are – in contrast to most somatic illnesses and their treatments– plagued by a widespread stigma on communication. Patients usually only confide in a few trusted individuals.

The holistic approach of medical rehabilitation

Medical rehabilitation takes a holistic approach. Beyond recognizing, treating, and healing an illness, medical rehabilitation considers the interaction between a person's health problems – described in terms of damage, impairment of activity, and reduction of participation – and their context in order to achieve the best possible recovery in the sense of taking part in social life and work life. Contextual factors can exert a positive, supportive influence (resources) as well as a negative, debilitating influence (risk factors) on all components of functional health. The holistic rehabilitation approach requires the application of complex measures in medical, educational, occupational, and social arenas, differing on a case –by-case basis. It also entails a tightly woven collaboration between medical, psychotherapeutic, and nursing care with physical therapy, occupational therapy, and dietary care. The holistic approach also helps patients to learn how to cope with the consequences of their illness and to change their behavior with the goal of reducing negative influences on their health. In addition to its curative effects, medical rehabilitation calls for a multi-dimensional and interdisciplinary approach.

Indications

Inpatient psychosomatic rehabilitation refers to comprehensive, twenty-four hour rehabilitation. General indications for inpatient rehabilitation are present especially in the following circumstances.

- Work performance is jeopardized due to psychosomatic and psychological disorders
- Continuous support and structuring through the inpatient setting becomes necessary because of reduced psycho-physical resilience
- It has become necessary to remove a patient from their stressful psychological environs because of specific professional and family conflict constellations; in other words, treatment in a protected therapeutic space, usually removed from the area of residence, has become necessary
- The improvement of social competence and relationships can only be achieved through the integration into a complete inpatient setting wherein the therapeutic community functions as a learning and experimental environment for the patient
- The therapeutic measures are expected to lead to emotional destabilization which surpasses the patient's coping abilities
- Adequate adherence in taking medicine and a constructive cooperation can only be assured through inpatient instruction and supervision
- The symptoms or behavioral disorders are so grave that close supervision, treatment, and continual availability of crisis intervention are essential

Furthermore, the patient's ability to start and commit to the rehabilitation process is a prerequisite.

Indications and counter-indications for inpatient psychosomatic rehabilitation

Indications for inpatient psychosomatic treatment include in their majority illnesses of chapter F of ICD-10, above all the following mental and behavioral disorders: mood (affective) disorders (F30-F39), neurotic, stress-related and somatoform disorders (F40-F48), behavioral syndromes associated with physiological disturbances and physical factors (F50-F59) including psychological and behavioral factors associated with disorders or diseases classified elsewhere (F54) and obesity (E66), as well as disorders of adult personality and behavior (F60-F69). Patients with other mental illnesses can be treated in other specialized, but not psychosomatic, rehabilitation centers, provided they are not exacerbated by an acute somatic disorder, schizophrenia, schizoid and delusional disorders in remission (F20-F29) or metabolic and non-metabolic dependencies (F10-F19, F55, F63).

The following disorders are absolutely counter-indicated: acute suicidal tendencies, florid psychoses, deterioration of intelligence with severe impairment of cognitive and emotional comprehension and introspection, and, in addition, patients with a need for urgent care with exacerbating somatic conditions or need for long-term care.

Goals of rehabilitation

A central goal of medical rehabilitation is to eliminate or reduce the impending or existing impairment of participation in work and social life and to prevent deterioration or alleviate its consequences. Through rehabilitation, the person undergoing rehabilitation should be enabled to carry out a job (again) and specific activities of daily life in a manner and to an extent considered to be normal for that individual (in the sense of having been typical for his or her life).

These goals can be achieved during inpatient rehabilitation for psychological and psychosomatic disorders using the following strategies.

- eliminating or reducing damage (including mental functions)
- reducing the severity of the impairment of activity or reversing disabilities
- compensation of impairment and disability
- developing adequate adaptation or coping mechanisms

Rehabilitation goals relating to bodily functioning (including mental functioning) include, for instance, mental stabilization, reducing negative affects such as depression and anxiety, improving self-perception, improving patients' acceptance of themselves and personal self-confidence, correcting dysfunctional cognitive patterns, reducing physical symptoms, and improving the ability to handle functional disorders.

Further rehabilitation goals related to activity include expanding the individual's repertoire of behaviors, improving communication skills, building up social skills, improving interpersonal skills, employment skills and problem-solving skills, optimizing coping strategies, improving the ability to structure leisure time and improving how stress situations are handled.

Goals aimed at participation include maintaining or improving psychological independence, physical independence, mobility and social integration or re-integration in the area of

employment, and economic autonomy. To achieve these rehabilitation goals, the care-giver is involved in as many areas of the patient's life as is feasible. In concrete terms, this might mean training relatives through educational programs or individual counseling or, if appropriate, establishing contact with the employer or company physician.

The type and extent of functioning problems can be exacerbated or diminished by contextual factors (either environmental or specifically individual) such that they must be taken into account when determining rehabilitation goals and when designing the diagnostic and therapeutic measures. This can take place, for instance, by adjusting the workplace environment, changing the organization of workflow, planning and introducing measures for participating in work life, undertaking occupational re-integration, offering instruction on healthy nutrition and motivating changes in lifestyle (including reduction of risky behavior), instruction on how to reduce or cope with stress, adjusting the domestic environment, and introducing appropriate leisure activities. Patients undergoing rehabilitation receive support in how to live and cope with the consequences of their illness or handicap and how to avoid negative influences or reduce their effects. Rehabilitation goals in this sense include improving knowledge about the illness, developing strategies to reduce risky behaviors (such as smoking, alcohol and drug abuse, poor nutrition, lack of exercise, inadequate use of leisure time, physical and mental exhaustion), and instruction in techniques of self-control and relaxation.

Specific rehabilitation goals for somatoform and pain disorders, depression, or anxiety disorders are established cooperatively with the patient, with the goal of making improvements in the areas of damage or functional disorders, disabilities, impairment, risk factors, and contextual factors. These goals are also monitored with the patient over the course of the rehabilitation process.

Psychological diagnostics in psychosomatic rehabilitation

Before the start of psychosomatic rehabilitation, an illness-related somatic and psychological diagnosis or differential diagnosis of the underlying illness and possible concomitant illnesses should be completed. A careful, detailed diagnostic assessment must be conducted at the beginning of the rehabilitation process within the framework of a comprehensive clinical examination, including a psychological diagnosis and social-medical assessment. On the other hand, further diagnostic results are to be gathered according to classification systems specific to the rehabilitation, whereby the ICF is especially relevant, particularly the psychological and the social rehabilitation goals described above. Psychological rehabilitation diagnostics are largely characterized by the fact that they not only make use of classical measures and instruments (psychometric measures of anxiety, depression and pain, etc.) but also understand the health or disease condition as a resulting from the interaction of bodily functions and structures, activities and participation – factors that are in turn impacted by social and environmental factors as described in the ICF (see Baron and Linden 2008, Fricke 2010)

Psychological diagnostics are based on previous medical findings, a detailed initial interview that yields a picture of the patient's life history, and psychological testing. Patient and physician determine priorities in treatment for the stay at the clinic. The psychological diagnostics help – as do the physical diagnostics – to define the goals of rehabilitation for the patient, develop the rehabilitation plan and confirm the assessment in the psycho-social dimension on the basis of diagnostic findings that aspire to be as objective as possible.

The psychological diagnostic instruments and techniques utilized include: depthpsychological exploration, analysis of behaviors and conditions, observation of behavior, clinical observa-

tion of the course of treatment, and possible counter-transference. In addition, recognized psychometric tests are conducted that are validated for the respective language and culture and are appropriate for psychosomatic rehabilitation. These tests assess on standardized scales the extent of somatoform or pain disorders, depressive disorders, and anxiety disorders.

Therapy during inpatient psychosomatic rehabilitation

The explicit goal of inpatient psychosomatic rehabilitation is to restore or ensure the ongoing participation of the patient in work life; this naturally includes improvement in psychological symptoms and the successful treatment of mental and behavioral disorders from the specific perspective of the ICF. Therefore, the focus in this section is on these aspects rather than on the treatment of individual mental and behavioral disorders.

An essential characteristic of integrated medical rehabilitation – congruent with the principles governing good medical practice – is the comprehensive evaluation of all diagnostic findings gathered by all professionals taking part in the treatment (participating professionals, mainly medical doctors, psychologists, social workers, physical therapists, sport therapists, occupational therapists, art therapists or music therapists and dieticians). This approach facilitates a continuous reassessment and possible correction of the rehabilitation goals and rehabilitation plan especially regarding social-medical problems by including multi-method treatments and job-related measures during inpatient psychosomatic treatment. This forms the basis of the social-medical assessment. The patients are actively integrated into this process (see Table 1.)

Table 1: Implementation of the concepts of the ICF in applied rehabilitation (modified according to Schuntermann 2008)

Concept of including the patient's subjective experience of participation	The attending physician and/or psychologist defines the goals of inpatient rehabilitation by evaluating several related areas of patient well-being: contentment, health-related life quality, and the amount of personal recognition and appreciation received in the areas of highest relevance
Concept of bodily functions and structures including psychology	<ol style="list-style-type: none"> 1. To prevent deterioration of functional disorders and structural damage 2. To restore or improve impaired body functions and structures 3. To strengthen non-affected body functions and structures if necessary
Concept of activities	To restore or improve performance in terms of the rehabilitation goals
Concept of contextual factors: environmental factors, personal factors	<ol style="list-style-type: none"> 1. To remove barriers that prevent or hinder performance or participation 2. To build up resources that improve performance or enable participation

In psychosomatic rehabilitation, the following organizational and treatment principles are of elementary importance (Paar and Grohmann 2008): the principle of the care-giver therapist, group treatment, multiple methods, multiple professionals, team work, patient information, psychological education and self-management, the activation of job-related and social resources, and cooperation and follow-up care. In this context, group treatment is central for psychosomatic rehabilitation because of its lower cost and high potential for contributing toward the goals of psychosomatic rehabilitation, e.g. activating and supporting social and job-

related resources. Concrete treatment elements encompass: psychotherapy, medical care and medication, social-therapeutic care, social counseling, assistance for reintegrating into daily life and the workplace, job-related training, training of routine skills, creative or occupational therapies, sport and exercise therapies, physiotherapy, relaxation training, nutritional counseling, health education, social-medical assessment and initiation of ongoing measures and adequate follow-up care (Paar and Grohmann 2008).

Cost-benefit ratio and return of investment (ROI) and long-term outcomes of inpatient psychosomatic rehabilitation

Zielke (2008) calculates the cost-benefit ratio of psychosomatic rehabilitation from the health-economics perspective as follows. All cost factors together with disease-related expenditures during the two years prior to inpatient rehabilitation were calculated to amount to €5,676 on average. The cost savings related to successful treatment in the two-year follow-up period total an estimated €1,554. The comparison yields a cost-benefit ratio of 1:3.79. This means that an investment of €1 towards inpatient psychosomatic treatment and rehabilitation reduces the cost of disease treatment and follow-up by €3.79. Concerning the return of investment (ROI), Zielke calculates, on the basis of various economic and business analyses, an expected standard deviation in productivity of 0.7. Furthermore, one can expect a median effect size of the psychosomatic rehabilitation under consideration of multiple outcome criteria of $d=0.7$ (Stapel 2005). Given annual operational costs for salary and ancillary costs of €55,000, the standard deviation of productivity can be set at €38,500. Given a two-year period to research the effects of the therapy, an effect size of $d=0.7$, and inpatient treatment costs of €5,676 per patient, we get a net effect of €48,224 per case using Brodgen's 1949 formula for evaluating the economic effect of interventions (see Wittmann and Stapel 2005).

Steffanowski et al. (2007) evaluated eight studies with complete data on the occupational status both at the time of admission and at follow-up in the MESTA study on the effects of inpatient psychosomatic treatment on the continuation of work life. One year after discharge (the first timepoint of follow-up), 67.4% of all patients were able to remain in or re-enter work. This shows a slight reduction in employment rates of 4.3% compared to the time of admission (71.7% employed patients). In contrast, the number of retired patients rose from 2.4% at the time of admission to 5.6% at the time of follow-up. Yet, none of these changes shows any statistical significance. Thus, further studies will have to focus on rehabilitative medicine's mandate to avert a potential or already manifest threat to the patient's employment status.

Steffanowski et al. (2007) and Löschmann et al. (2006; see Zielke 2008) evaluated 65 outcome studies with approximately 25,000 patients in a systematic meta-analysis with respect to treatment outcome at the time of discharge and the course of illness at follow-up points varying between one and two years. With the following effect sizes between evaluation upon admission and discharge from the rehabilitation clinic [r ES (A/K)] on one hand and between admission to the clinic and the changes found at follow-up [r ES (A/K)] on the other hand, they found that the following factors influence inpatient treatment results as moderator variables. Age; in years; had a negative effect on the outcome of treatment at follow-up [r ES (A/K) = -0.23; r ES (A/K) = -0.38, $p = 5.0\%$]. Gender and duration of illness, contrary to expectations, had no significant effect [r ES (A/K) = 0.10 and 0.05; r ES (A/K) = 0.10 and 0.05]. High level of education had a positive impact on the outcome with r ES (A/K) = 0.40 ($p = 1.0\%$) and r ES (A/K) = 0.36 ($p=5.0\%$). Duration of treatment at the clinic also showed positive effects with r ES (A/K) = 0.27 ($p = 5.0\%$) and r ES (A/K) = 0.42 [$p = 1.0\%$; multiple $R = 0.60$ and 0.68 ($p =$ each 5.0%)]. These results are of particular relevance because the studies included in the meta-analysis integrate several age-groups with treatment periods of

different lengths. This precludes the methodological disadvantage inherent in correlation analyses limited to a single homogenous age-group with a low variation in the duration of inpatient therapy (see Zielke 2008).

In order to determine the efficiency of psychosomatic rehabilitation, Steffanowski et al. (2007) used the effect size metric proposed by Wittmann et al. (2002) in the MESTA study. A total of 32 of the 65 studies included in the meta-analysis contain measurements at three time points: upon admission, at discharge, and follow-up. Thus it was possible to assess the stability of the success of treatment. The weighted overall effect size at the time of discharge was $d=0.57$ and $d=0.49$ at the time of follow-up. According to Cohen (1992), this is a medium-intensity effect that drops only slightly at the time of the follow-up. Given a linear decline of this effect of 0.08 points per year, the mean effect size for the first year after treatment is $d=0.53$, for the second year it is $d=0.45$, for the third year $d=0.37$, the fourth year $d=0.29$, the fifth year $d=0.21$, the sixth year $d=0.13$ and the seventh year $d=0.05$.

The Federal Statistical Office of Germany put the gross wealth creation of the German economy at a total of €2.02 trillion in 2005. Divided by 38.8 million wage earners in that year, this corresponds to 52,126 euro on average per year and patient. For each year the gross effect has to be determined separately by setting the mean effect size at $T=1$ year and $N=1$ patient. Subsequently the gross effect can be added up over the seven-year period assumed in this case.

In order to calculate net effect, the costs for the rehabilitation measures have to be deducted. Given a treatment duration of 40 days on average (Federal Statistical Office Germany, 2005) and a daily care per diem of €10 in psychosomatic rehabilitation, the direct costs of treatment are €4,400. The indirect treatment costs that result from the loss of productivity for the time of the inpatient treatment are calculated as $(40 \text{ days}/365 \text{ days} \times €2,126)$. Total costs are calculated by adding direct and indirect costs, which amount to €10,112. The net effect is €32,214 per patient. Multiplied by 93,658 cases of treatment absenteeism per year, this amounts to an effect of €3.0 billion for the society as a whole for each year of overall patient treatment. Cautiously estimated, the cost-effect ratio is 10.112:42.326 or 1:4.19. The break-even point, where the effect equals the costs, is already achieved before the one-year follow-up has passed. And after 2 years, the ratio is 1 : 2.02.

These results supply solid evidence that psychosomatic rehabilitation compares favorably with other areas of health care. Indeed, there is reason to believe that the monetary effects of psychological and rehabilitative treatment programs are heavily underestimated socially and politically. Psychosomatic rehabilitation is not only effective but also efficient. For this reason, too, the current and future significance of this branch of healthcare should receive more attention.

The influence of patient satisfaction (cf. Richter et al. 2010A and Richter et al. 2010B) on the cost-effect ratio of inpatient psychosomatic rehabilitation has not, to our knowledge, been investigated.

Kobelt and Schmid-Ott (2010, page 101) offer the following observation.

Follow-up studies longer than one year "have only rarely been presented in psychiatric-psychosomatics until now (e.g. Nübling et al. 1999). In a five-year follow-up at a German psychotherapeutic care unit, Nübling et al. (1999) were able to reach 46.8% of the patients, whereby this study forewent the use

of standardized testing procedures and a comparison group. The results showed above all that the mental state of the patients undergoing rehabilitation continued to improve significantly over the five-year period compared to the one-year follow-up; in addition, Nübling et al. (1999) found a distinct increase in unemployment and a decrease in the number of patients who were employed full-time. In contrast, there was a continuous decrease in the number of days patients were unable to work across the three measurement time points. At the one-year follow-up, 6.7% of patients were retired, which rose to 12.6% after five years. After five years, 55% of the rehabilitated individuals reported stable improvement in the outcome of treatment; 17.2% a distinctly improved outcome, 11% a worsened outcome and 17% an unchanged outcome of treatment. Huber et al. (2009) published another study, which focused on long-term follow-up. Here the stability of symptomatic and interpersonal changes was investigated within three to five years after inpatient psychodynamic psychotherapy. The patients in this study improved on symptomatic and interpersonal levels. However, in this study the authors did not consider therapeutic aftercare. Even rarer are follow-up studies on outpatient group therapy. Tschuschke (2007) determined in a broad study that group therapy demonstrates better outcomes the longer the patients take part in the group; Tschuschke also showed in his study that the symptoms, the interpersonal problems and the general level of mental functioning improved markedly over the course of group therapy (Tschuschke, 2007). The work group surrounding Conway, Audin, Barkham, Mellor-Clark and Russel (2003) likewise verified that group therapy whose length is limited in time can help patients achieve better mental health. The lengthy time period of a five-year follow-up not only presents a logistic challenge if one wants to achieve the highest possible response rate. At the same time, it must be understood that the findings can only be partially attributed to the effects of an intervention which took place five years previous and was low-threshold at that, such as is the case with outpatient psychotherapeutic aftercare."

Kobelt and Schmid-Ott (2010) utilized a post-treatment design and compared two groups. The treatment group included 52 participants who had concluded inpatient treatment and then started outpatient psychotherapeutic aftercare. The 43 persons of the control group had only undergone the inpatient treatment. The participants of the treatment group were able to improve or stabilize their depression better than the participants of the control group ($p < 0.01$). The participants' dependence on pensions and/or insurance benefits showed a trend toward reduction ($p < 0.1$). Nevertheless, no significant differences arose between participants and the comparison group during the periods of paying into insurance. Further studies should examine long-term follow-up studies of inpatient psychotherapy.

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