The Psychosomatic Assessment
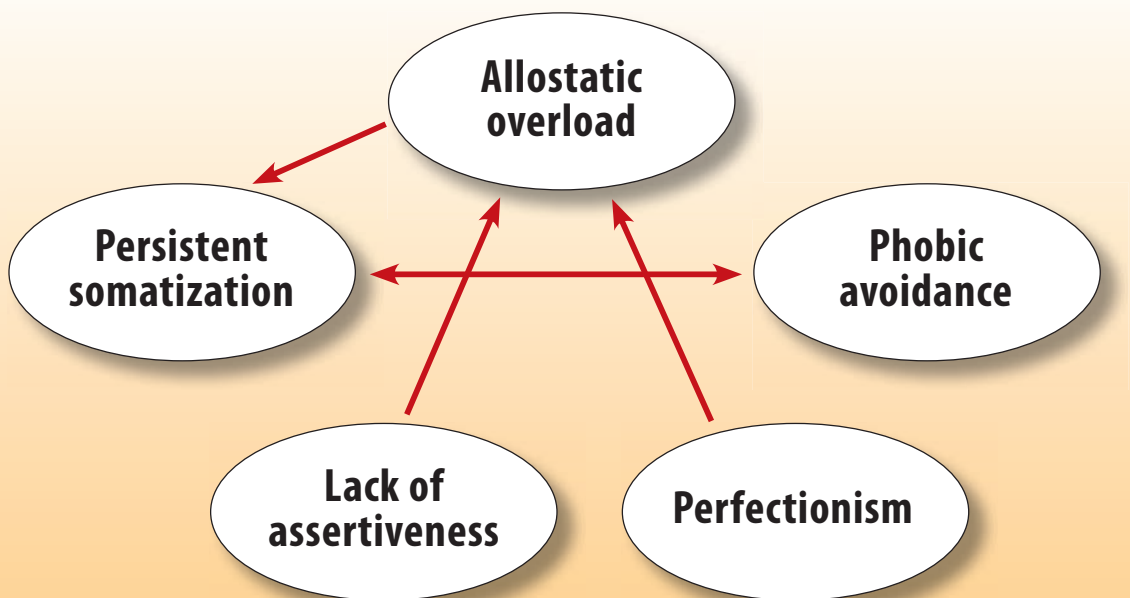
Strategies to Improve Clinical Practice

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Contents

Preface

Psychosomatic medicine cuts across many specialties and is concerned with assessment of psychosocial variables in the setting of medical disease. It has developed methods that provide clinical information that is likely to increase diagnostic sharpness and yield better targeted therapeutic approaches in all fields of medicine, including psychiatry. This volume enables the clinician to take full advantage of the psychosomatic approach in practice. The principles of psychosomatic assessment include the unprecedented opportunities entailed by clinimetrics, as described in the initial chapter. The second chapter deals with the medical interview and its enrichment by a psychosomatic approach. The following chapters outline the most sensitive and reliable clinical methods in evaluating specific psychosocial aspects of disease: childhood adversities, life events and chronic stress, lifestyle, sexual function, subclinical and affective disturbances, personality, illness behavior, well-being and family dynamics. Each chapter provides practical illustrations as to how crucial information can be obtained with specific methods that should be individualized according to the patients' needs. In many cases, the instruments that are recommended in the text are available in a specific website linked with the volume. The last chapter is concerned with ethical issues and how they can be explored in the medical interview.

The book is intended to expand and refine the skills of all clinicians who operate in general and specialized medicine and psychiatry, whether physicians, psychologists or other health professionals.

Giovanni A. Fava
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Principles of Psychosomatic Assessment

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Abstract

There is increasing awareness of the limitations of disease as the primary focus of medical care. It is not that certain disorders lack an organic explanation, but that our assessment is inadequate in most clinical encounters. The primary goal of psychosomatic medicine is to correct this inadequacy by incorporation of its operational strategies into clinical practice. At present, the research evidence which has accumulated in psychosomatic medicine offers unprecedented opportunities for the identification and treatment of medical problems. Taking full advantage of clinimetric methods (such as with the use of Emmelkamp's two levels of functional analysis and the Diagnostic Criteria for Psychosomatic Research) may greatly improve the clinical process, including shared-decision making and self-management. Endorsement of the psychosomatic perspective may better clarify the pathophysiological links and mechanisms underlying symptom presentation. Pointing to individually targeted methods may improve final outcomes and quality of life.

The concept of 'psychosomatic disorder' was strongly criticized by several psychosomatic researchers, notably Engel and Lipowski. Engel wrote that the term 'psychosomatic disorder' was misleading, since it implied a special class of disorders of psychogenic etiology and, by inference, the absence of a psychosomatic interface in other diseases [1]. On the other hand, he viewed reductionism, which neglected the impact of nonbiological circumstances upon biological processes, as a major cause of mistreatment [2]. Lipowski [3] criticized the concept of psychosomatic disorder since it tended to perpetuate the obsolete notion of psychogenesis, which is incompatible with multicausality, a core postulate of current psychosomatic medicine. Kissen [4] clarified that the relative weight of psychosocial factors may vary from one individual to another within the same illness and underscored the basic conceptual flaw of considering diseases as homogeneous entities.

Stemming from Lipowski's original definition [3] and subsequent developments [5–7], psychosomatic medicine may be defined as a comprehensive, interdisciplinary framework for: (a) assessment of psychosocial factors affecting individual vulnerability, course and outcome of any type of disease; (b) holistic consideration of patient care in clinical practice; (c) integration of psychological therapies in the prevention, treatment and rehabilitation of medical disease (psychological medicine).

Psychosomatic medicine has become in the US a subspecialty recognized by the American Board of Medical Specialties [8]. This has led to identifying psychosomatic medicine with consultation-liaison psychiatry [8], a subspecialty of psychiatry concerned with diagnosis, treatment, and prevention of psychiatric morbidity in the medical patient in the form of psychiatric consultations, liaison and teaching for non-psychiatric health workers, especially in the general hospital [9]. Consultation liaison psychiatry is clearly within the field of psychiatry; its setting is the medical or surgical clinic or ward, and its focus is the comorbid state of patients with medical disorders [10]. Psychosomatic medicine is, by definition [1, 5–7], multidisciplinary. It is not confined to psychiatry, but may concern any other field of medicine. Not surprisingly, in countries such as Germany and Japan, psychosomatic activities have achieved an independent status and are often closely related to internal medicine [11]. In the US, family medicine endorses a comprehensive psychosocial approach as integral to their training and practice [12].

Interestingly, the general psychosomatic approach has resulted in a number of sub-disciplines within their own areas of application: psychooncology, psychonephrology, psychoneuroendocrinology, psychoimmunology, psychodermatology and others. Such sub-disciplines have developed clinical services, scientific societies and medical journals [5–7]. The psychosomatic approach has resulted in important developments also in the psychiatric field, subsumed under the rubric of psychological medicine [13, 14].

Assessment of Psychosocial Factors Affecting Individual Vulnerability

It is becoming increasingly clear that we can improve medical care by paying more attention to psychological aspects of medical assessment [13], with particular reference to the role of stress [5–7, 15–17]. A number of factors have been implicated to modulate individual vulnerability to disease, e.g. healthy habits and psychological well-being positively promote health rather than merely reduce disease.

Early Life Events

The role of early developmental factors in susceptibility to disease has been a frequent object of psychosomatic investigation [15–17]. Using animal models, events such as premature separation from the mother have consistently induced pathophysiological

modifications, such as increased hypothalamic-pituitary-adrenal axis activation. They may render the human individual more vulnerable to the effects of stress later in life. There has been also considerable interest in the association of childhood physical and sexual abuse with medical disorders, such as chronic pain and irritable bowel syndrome [18]. A history of childhood maltreatment was significantly associated with several adverse health outcomes, e.g. functional disability and greater number of health risk behaviors, yet the evidence currently available does not allow any firm conclusions [19].

Recent Life Events

The notion that events and situations in a person's life which are meaningful to him/her may be followed by ill health has been a common clinical observation. The introduction of structured methods of data collection and control groups has allowed to substantiate the link between life events and a number of medical disorders, encompassing endocrine, cardiovascular, respiratory, gastrointestinal, autoimmune, skin and neoplastic disease [16, 20–24].

Chronic Stress and Allostatic Load

The role of life change and stress has evolved from a simplistic linear model to a more complex multivariant conception embodied in the 'allostatic' construct. McEwen and Stellar [20] proposed a formulation of the relationship between stress and the processes leading to disease based on the concept of allostasis, the ability of the organism to achieve stability through change. The concept of allostatic load refers to the wear and tear that results from either too much stress or from insufficient coping, such as not turning off the stress response when it is no longer needed. Biological parameters of allostatic load, such as glycosylated proteins, coagulation/fibrinolysis and hormonal markers, have been linked to cognitive and physical functioning and mortality [16]. Recently, clinical criteria for determining the presence of allostatic load have been determined [17]. Thus, life changes are not the only source of psychological stress and subtle and long-standing life situations should not too readily be dismissed as minor and negligible, since chronic, daily life stresses may be experienced by the individual as taxing or exceeding his/her coping skills.

Health Attitudes and Behavior

Unhealthy lifestyle is a major risk factor for many of the most prevalent diseases, such as diabetes, obesity and cardiovascular illness [25]. In 1985, Geoffrey Rose [26]

showed that the risk factors for health are almost always normally distributed and supported a general population approach to prevention, instead of targeting those at the highest risk. Switching the general population to healthy lifestyles would be a major source of prevention. The need to redesign primary care practice to incorporate health behavior changes has been recently underscored [6], e.g. the American Academy of Pediatrics in 2008 emphasized the need to address the current epidemic of childhood obesity through enhanced adherence to dietary guidelines and physical activity [27].

Social Support

Prospective population studies have found associations between measures of social support and mortality, psychiatric and physical morbidity, and adjustment to and recovery from chronic disease [5]. An area that is now called 'social neuroscience' is beginning to address the effects of the social environment on the brain and the physiology it regulates [16].

Psychological Well-Being

Positive health is often regarded as the absence of illness, despite the fact that, half a century ago, the World Health Organization defined health as a 'state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' [28]. Research on psychological well-being has indicated that it derives from the interaction of several related dimensions [29, 30]. Several studies have suggested that psychological well-being plays a buffering role in coping with stress and has a favorable impact on disease course [31, 32]. Antonovsky's sense of coherence (a resource that enables people to manage tension, to reflect about their external and internal resources, and to promote effective coping by finding solutions) has been found to be strongly related to perceived health, especially mental health, and to be an important contributor for health maintenance [33].

Personality Factors

The notion that personality variables can affect vulnerability to specific diseases was prevalent in the first phase of development of psychosomatic medicine (1930–1960), and was particularly influenced by psychoanalytic investigators, who believed that specific personality profiles underlay specific 'psychosomatic diseases'. This hypothesis was not supported by subsequent research [3, 5]. Two personality constructs that can potentially affect general vulnerability to disease, type A behavior and alexithymia

(the inability to express emotion), have attracted considerable attention, but their relationship with health is still controversial [34, 35]. The social-cognitive model of personality assumes that personality variables interact with social and environmental factors and result in differences in the features of the situations that individuals select [36]. In this sense, personality variables (e.g. obsessive-compulsive, paranoid, impulsive) may deeply affect how a patient views illness, what it means to him/her and his/her interactions with others, including medical staff [37].

Psychiatric Disturbances

Psychiatric illness, depression and anxiety in particular, is strongly associated with medical diseases. Mental disorders increase the risk for communicable and non-communicable diseases; at the same time, many health conditions increase the risk for mental disturbances, and comorbidity complicates recognition and treatment of medical disorders [38, 39]. The potential relationship between medical disorders and psychiatric symptoms ranges from a purely coincidental occurrence to a direct causal role of organic factors – either medical illness or drug treatment- in the development of psychiatric disturbance. The latter is often subsumed under the rubric of organic mental disorder whose key feature is the resolution of psychiatric disturbances upon specific treatment of the organic condition, such as depression in Cushing's syndrome [40]. Not surprisingly, a correct diagnosis of depression in primary care is a difficult task. A recent meta-analysis [41, 42] indicated that there are more false positives than either missed or identified cases.

Major depression has emerged as an extremely important source of comorbidity in medical disorders [43]. It was found to affect quality of life and social functioning and lead to increased health care utilization, to be associated with higher mortality (particularly in the elderly), to have an impact on compliance, and to increase susceptibility to medical illness [43–49]. The relationship between anxiety disorders and comorbid medical illness has also been found to entail important clinical implications [50–52].

Psychological Symptoms

Current emphasis in psychiatry is about assessment of symptoms resulting in syndromes identified by diagnostic criteria (DSM). However, emerging awareness that also psychological symptoms which do not reach the threshold of a psychiatric disorder may affect quality of life and entail pathophysiological and therapeutic implications led to the development of the Diagnostic Criteria for Psychosomatic Research [53] together with a specific interview to assess patients [54]. The DCPR were introduced in 1995 and tested in various clinical settings [53–56]. They also provide a

Table 1. Proposed classification for psychological factors affecting either identified or feared medical conditions [57]

– Hypochondriasis (DSM)
– Disease phobia (DCPR)
– Persistent somatization (DCPR)
– Conversion symptoms (DCPR)
– Illness denial (DCPR)
– Demoralization (DCPR)
– Irritable mood (DCPR)

classification for illness behavior, as the ways in which individuals experience, perceive, evaluate and respond to their own health status. The DCPR allows a far more sophisticated qualitative assessment of patients than the one dimensional DSM checklist of psychological symptoms.

Fava and Wise [57] have suggested to modify the DSM-IV category concerned with Psychological Factors affecting Medical Conditions, that is a poorly defined diagnosis with virtually no impact on clinical practice. They suggested a new section which consists of the six most frequent DCPR syndromes [54]. The clinical specifiers (table 1) include the DSM diagnosis of hypochondriasis and its prevalent variant, disease phobia. Both the DSM somatization disorder and undifferentiated somatoform disorder are replaced by the DCPR persistent somatization, conceptualized as a clustering of functional symptoms involving different organ systems [58]. Conversion may be redefined according to Engel's stringent criteria [59], involving features such as ambivalence, histrionic personality, and precipitation of symptoms by psychological stress of which the patients is unaware. DCPR illness denial, demoralization, and irritable mood offer further specifiers. Persistent denial of having a medical disorder and needing treatment (e.g. lack of compliance, delay in seeking of medical attention) frequently occurs in the medical setting [60]. Demoralization connotes the patient's consciousness of having failed to meet his or her own expectations (or those of others) with feelings of helplessness, hopelessness, or giving up [61, 62]. It can be found in almost a third of medical patients and can be differentiated from depressive illness. Irritable mood, that may be experienced as brief episodes or be prolonged and generalized, has also been associated with the course of several medical disorders, carrying important clinical implications [63, 64].

The advantage of this classification is that it departs from the organic/functional dichotomy and from the misleading and dangerous assumption that if organic factors cannot be identified, there should be psychiatric reasons which may be able to fully explain the somatic symptomatology. The presence of a nonfunctional medical disorder does not exclude, but indeed increases the likelihood of psychological distress and abnormal illness behavior [65].

Fava · Sonino · Wise

In 2004, Tinetti and Fried [66] suggested that time has come to abandon disease as the primary focus of medical care. When disease became the focus of medicine in the past two centuries, the average life expectation was 47 years and most clinical encounters were for acute illness. Today the life expectancy in Western countries is much higher and most of clinical activities are concentrated on chronic disease or non-disease specific complaints. 'The changed spectrum of health conditions, the complex interplay of biological and nonbiological factors, the aging population, and the interindividual variability in health priorities render medical care that is centred primarily on the diagnosis and treatment of individual diseases at best out of date and at worst harmful. A primary focus on disease, given the changed health needs of patients, inadvertently leads to undertreatment, overtreatment, or mistreatment' [66, p. 179]. Disease-specific guidelines provide very limited indicators for patients with multiple conditions [67]. Tinetti and Fried [66] suggest that the goal of treatment should be the attainment of individual goals, and the identification and treatment of all modifiable biological and non biological factors, according to Engel's biopsychosocial model [2].

But how should we assess these nonbiological variables? In clinical medicine there is the tendency to rely exclusively on 'hard data', preferably expressed in the dimensional numbers of laboratory measurements, excluding 'soft information' such as impairments and well-being. This soft information can now, however, be reliably assessed by clinical rating scales and indexes which have been validated and used in psychosomatic research and practice [68]. It is not that certain disorders lack an explanation; it is our assessment that is inadequate in most of the clinical encounters, since it does not reflect a global psychosomatic approach [68, 69].

The Clinimetric Approach

In 1967, Alvan Feinstein [70] dedicated a monograph to an analysis of clinical reasoning that underlies medical evaluations, such as the appraisal of symptoms, signs and the timing of individual manifestations. In 1982, he introduced the term 'clinimetrics' [71] to indicate a domain concerned with the measurement of clinical issues that do not find room in customary clinical taxonomy. Such issues include type, severity and sequence of symptoms, rate of illness progression (staging), severity of comorbidity, problems of functional capacity, reasons for medical decisions (e.g. treatment choices), and many other aspects of daily life, such as well-being and distress [72]. Feinstein [72], in his book on clinimetrics, quotes Molière's bourgeois gentleman who was astonished to discover that he spoke in prose as an example of clinicians who may discover that they constantly communicate with clinimetric indices.

Feinstein, when he introduced the concept of comorbidity, referred to any 'additional co-existing ailment' separated from the primary disease, even in the case this secondary phenomenon does not qualify as a disease per se [73]. Indeed, in clinical

medicine, the many methods that are available for measuring comorbidity are not limited to disease entities [74]. In psychiatry, comorbidity is limited to psychiatric diagnoses. In this regard, the majority of patients with mood and anxiety disorders do not qualify for just one, but for several axis I and axis II disorders [75]. As Cloninger [76] remarks, mental disorders can be characterized as manifestations of complex adaptive systems that are multidimensional in their description, multifactorial in their origins, and involve non-linear interactions in their development. As a result, efforts to describe psychopathology in terms of discrete categorical diagnoses result in extensive comorbidity and do not lend themselves to adequate treatment strategies [76]. Very seldom, comorbid diagnoses undergo hierarchical organization (e.g. generalized anxiety disorder and major depression), or the longitudinal development of mental illnesses is taken into account. There is comorbidity which wanes upon successful treatment of one mental disease, e.g. recovery from panic disorder with agoraphobia may result in remission from cooccurring hypochondriasis, without any specific treatment for the latter [77]. Other times, treatment of a single disorder does not result in the disappearance of comorbidity. For instance, successful treatment of depression may not affect pre-existing anxiety disturbances [77].

A new method has been developed in psychiatry for organizing clinical data as variables in clinical reasoning. Emmelkamp et al. [78, 79] have introduced the concept of macroanalysis (a relationship between cooccurring syndromes and problems is established on the basis of where treatment should commence in the first place). Fava and Sonino [68] have applied macroanalysis to assessing the relationship between medical and psychological variables. Macroanalysis starts from the assumption that in most cases there are functional relationships with different more or less clearly defined problem areas [78] and that the targets of treatment may vary during the course of disturbances [68].

The hierarchical organization that is chosen may depend on a variety of contingent factors (urgency, availability of treatment tools, etc) that include also the patient's preferences and priorities. Indeed, macroanalysis is not only a tool for the therapist, but can also be used to inform the patient about the relationship between different problem areas and motivate the patient to change [78, 79]. The concept of shared decision is getting increasing attention in clinical medicine [80], but it is still seldom practiced in psychiatry [81]. Macroanalysis also requires reference to the staging method, whereby a disorder is characterized according to seriousness, extension and longitudinal development [82].

Macroanalysis should be supplemented by microanalysis, a detailed analysis of specific symptoms (onset and course of the complaints, circumstances that worsen symptoms and consequences) [78, 79]. For instance, when anxiety characterizes the clinical picture, it is necessary to know under which circumstances the anxiety becomes manifest, what the patient does when he/she becomes anxious, whether an avoidant behavior occurs and what the long-term consequences of the avoidance behavior are.

Feinstein [83] remarks that, when making a diagnosis, thoughtful clinicians seldom leap from a clinical manifestation to a diagnostic end point. The clinical reasoning goes through a series of 'transfer stations', where potential connections between presenting symptoms and pathophysiological process are drawn. These stations are a pause for verification, or change to another direction. In psychiatric assessment, however, disturbances are generally translated into diagnostic end points, where the clinical process stops. This does not necessarily explain the mechanisms by which the symptom is produced [83]. Not surprisingly, psychological factors are often advocated as an exclusion resource when symptoms cannot be explained by standard medical procedures, a diagnostic oversimplification which both Engel [1] and Lipowski [84] refused. Macroanalysis may allow to identify modifiable factors and their interactions. Two examples show how clinical assessment and management follow similar patterns in case the disorder is either functional or organic.

The case which is illustrated in box 1 and figure 1 exemplifies the use of macroanalysis in the setting of a functional bowel disorder. Recurrent headaches together with additional symptoms of autonomic arousal and exaggerated side effects from medical therapy, signs of low sensation threshold and high suggestionability, indicated a syndrome of persistent somatization [54]. This category identifies patients in whom psychophysiological symptoms tend to cluster [58], as is frequently the case in patients with irritable bowel syndrome [85]. The clinical psychologist approached the psychological problems according to a sequential approach [86], starting from lifestyle modification, proceeding to explanatory therapy [87] and then to exposure, cognitive restructuring and well-being therapy [88]. The treatment team was multidisciplinary and involved the collaboration of a primary care physician who referred the patient to a psychiatrist, a gastroenterologist, a clinical psychologist and a nutritionist.

The example depicted in box 2 and figure 2 is that of an apparently straightforward hypothyroidism on replacement therapy. The endocrinologists the patient had previously consulted only looked at her thyroid hormone levels; they did not understand what was wrong since thyroid function parameters were satisfactory. As the patient was pointing out, however, quality of life may be compromised even when the patient is apparently doing fine by a hormonal viewpoint. In clinical endocrinology, in fact, there is often the tendency to rely exclusively on 'hard data', preferably expressed in the dimensional numbers of laboratory measurements, excluding 'soft information', such as disability and well-being [68]. Soft information, however, can now be assessed.

The issue is to take full advantage of clinimetric tools within the clinical process. It is not that certain disorders lack an organic explanation; it is that our assessment is inadequate in most clinical encounters, and this particularly strikes when 'hard data' are missing. As Feinstein remarks, 'even when the morphologic evidence shows the actual lesion that produces the symptoms of a functional disorder, a mere citation of the lesion does not explain the functional process by which the symptom is produced (…). Thus, the clinician may make an accurate diagnosis of gallstones, but if the

Fig. 1. Ms. X. **a**. Assessment by macroanalysis. **b** Therapeutic approaches according to macroanalysis.

diagnosed gallstones do not account for the abdominal pain, a cholecystectomy will not solve the patient's problem' [89, p. 270].

Pathophysiological Implications

Alvan Feinstein was also the one who warned against the destruction of the pathophysiological bridges from bench to bedside [90]. Indeed, the lack of a psychosocial

> **Box 2.** A 54-year-old woman with hypothyroidism.
>
> Mrs. Y is a 54-year-old woman who was diagnosed with **hypothyroidism**. She was prescribed replacement therapy which restored thyroid hormone levels within the normal range, but kept feeling miserable, with a very bothersome **globus in the throat**. She consulted several endocrinologists, who all stated that her thyroid replacement was fine and there was nothing wrong with her, which made her angry and dissatisfied. She was then referred by her primary care physician to a Psychoneuroendocrinology Service. Careful interviewing in this setting disclosed the presence of **agoraphobia** (fear of public spaces and going out alone) with sporadic panic attacks and that she attributed the globus and panic to the thyroid. She was adjusting by herself the thyroid replacement in relation to her current feelings. She also reported **marital problems**. The psychosomatic assessment and physical examination led to diagnosing **persistent somatization**. She was explained that agoraphobia is a psychological disorder, her globus was related to it (not to the thyroid) and that changing herself thyroid replacement could only make things worse. A brief course of cognitive treatment by a psychologist did improve her agoraphobia and marital problems greatly, with disappearance of panic attacks and only sporadic symptoms of globus related to anxiety. The various elements of macroanalysis are highlighted (underlined bold letters) and shown in figure 2.
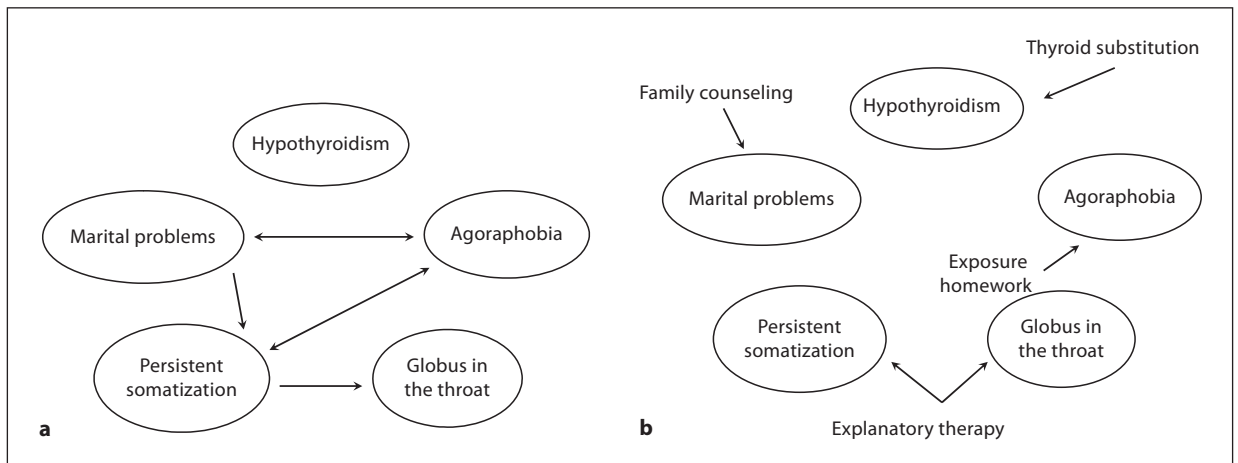
Fig. 2. Mrs. Y. **a**. Assessment by macroanalysis. **b**. Therapeutic approaches according to macroanalysis

perspective, as is generally the case in current medicine, deprives the clinical process of a number of important links:

A The biological correlates of allostatic load [16, 17], such as glycosylated proteins, coagulation/fibrinolysis and hormonal markers, carry important clinical implications in terms of vulnerability risk.

B Recent advances in psychoneuroimmunology offer links between endogenous danger signals and the brain cytokine system that organizes the sickness response in its subjective, behavioral and metabolic components [91]. The neurobiology of

illness behavior, including the placebo effect [92], is beginning to unravel a number of clinical phenomena [92, 93].

C   The autonomic system has been a traditional target for exploration of psychosomatic research. Autonomic imbalance, such as a state of low heart rate variability, may be associated with a wide range of psychological and medical dysfunctions [94, 95] and may affect response to medical treatments [96].

D   Mood and anxiety disorders have been associated with a variety of medical conditions [43, 97]. The neurotransmitter imbalances associated with reinforcement-reward dysregulation, central pain and psychomotor functioning may provide pathophysiological bridges for a number of clinical phenomena [98]. Similar considerations apply to the neurobiology of anger and irritability [99, 100].

E   Research on the neurobiologic correlates of resilience and well-being [101] has disclosed how different circuits may involve the same brain structures, and particularly the amygdala, the nucleus accumbens, and the medial prefrontal cortex.

F   The neurobiology of personality features, such as reward dependence and novelty seeking [102], alexithymia [35, 103–105] and type A behavior [54, 106], provides other valuable pathophysiological insights into the tendency to develop symptoms and abnormal illness behavior in the setting of medical disease.

Clinical Implications

A satisfactory psychosomatic assessment may entail a number of implications for management of medical disorders:

A   *Subtyping according to psychological variables.* There is now increasing evidence on the fact that the presence of psychological variables such as depressed mood in the medically ill is associated with a worse prognosis and deserves specific consideration [38, 40, 43–49, 107]. Interestingly, the need of subtyping has recently emerged within the psychiatric definition of depression [108–110].

B   *Lifestyle modification.* An increasing body of evidence links the progression of severe medical disorders to specific lifestyle behaviors [25, 111–114]. The benefits of modifying lifestyle have been particularly demonstrated in coronary heart disease [21] and type 2 diabetes [111]. Further, a number of psychological treatments have been found to be effective in health-damaging behaviors, such as smoking [115]. A basic psychosomatic assumption is the consideration of patients as partners in managing disease. The partnership paradigm includes collaborative care (a patient-physician relationship in which physicians and patients make health decisions together) [80, 81] and self-management (a plan that provides patients with problem-solving skills to enhance their self-efficacy) [116].

C   *Treatment of psychiatric comorbidity.* Psychiatric disorders, and particularly major depression, are frequently unrecognized and untreated in medical settings, with widespread harmful consequences for the individual and the society. Treatment of

psychiatric comorbidity such as depression, with either pharmacological or psychotherapeutic interventions, markedly improves depressive symptoms, health-related functioning and the patient's quality of life, even though an effect on medical outcome has not been demonstrated [117, 118].

D *Psychosocial interventions.* Use of psychotherapeutic strategies (cognitive-behavioral therapy, stress management procedures, brief dynamic therapy) in controlled investigations has yielded a substantial improvement in a number of medical disorders [119–121]. Examples are interventions that increase social support, improve mood and enhance health-related behavior in patients with cancer [122–125], foster self-control and self-management in chronic pain [126] and asthma [127] and improve emotional disclosure [128, 129].

E *Treatment of abnormal illness behavior.* For many years, abnormal illness behavior has been viewed mainly as an expression of personality predisposition and considered to be refractory to treatment by psychotherapeutic methods. There is now evidence to challenge such pessimistic stance [54]. For instance, several controlled studies on psychotherapy indicate that hypochondriasis is a treatable condition by the use of simple cognitive strategies [87]. The correlation between abnormal illness behavior and health habits may have implications in preventive efforts: individuals with excessive health anxiety were found to take worse care of themselves than control subjects in several studies [130]. Indeed, they may be so distressed by their belief of having an undiagnosed or neglected disease that choices which may yield benefits in the distant future appear to be irrelevant to them.

Current Issues

There have been major transformations in health care needs in the past decades. Chronic disease is now the principal cause of disability and use of health services consumes almost 80% of health expenditures [116]. Yet, current health care is still conceptualized in terms of acute care perceived as a product processing, with the patients as a customer, who can, at best, select among the services that are offered. As Hart [131] has observed, in health care the product is clearly health and the patients is one of the producers, not just a customer. As a result 'optimally efficient health production depends on a general shift of patients from their traditional roles as passive or adversarial consumers to become producers of health jointly with their health professionals' [131, p. 383].

The exponential spending on preventive medication justified by the potential long-term benefits to a small segment of the population is now being challenged [132], whereas the benefits of modifying lifestyle by population-based measures are increasingly demonstrated [133] and are in keeping with the biopsychosocial model.

Medically unexplained symptoms occur in up to 30–40% of medical patients and increase medical utilization and costs [13]. The traditional medical specialties, based

mostly on organ systems (e.g. cardiology, gastroenterology), appear to be more and more inadequate in dealing with symptoms and problems which cut across organ system subdivisions. The need for a holistic approach is underscored by the implementation of interdisciplinary services [69, 133, 134]. In the UK, the establishment of psychological treatment centers within the National Health System for providing psychotherapy to patients with anxiety and depressive disorders [135, 136] is an unprecedented opportunity of integration of different treatments.

The need to include consideration of functioning in daily life, productivity, performance of social roles, intellectual capacity, emotional stability and well-being, has emerged as a crucial part of clinical investigation and patient care [137, 138]. These aspects have become particularly important in chronic diseases, where cure cannot take place, and also extend over family caregivers of chronically ill patients and health providers. Patients have become increasingly aware of these issues. The commercial success of books on complementary and mind-body medicine exemplifies the receptivity of the general public to messages of well-being pursuit by alternative medical practices. Psychosomatic interventions may respond to these emerging needs within the established medical system and may play an important role in supporting the healing process.

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The Psychosomatic Interview

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Abstract

The psychosomatic interview is a patient-focused dialogue between physician and patient. It differs
from the traditional disease-focused encounter in that the psychosomatic approach includes the
biological, psychological, and sociocultural domains irrespective of the patients initial complaint,
whether somatic or psychological. The process of dyadic interaction and the techniques of open
questions are reviewed. Specific issues such as the alexithymic patient and breaking bad news are
challenges in such communications. Organizing the data into the perspectives of diseases, dimen-
sions, behaviors, and life stories allows the clinician to best understand their patients within a psy-
chosomatic milieu.   Copyright © 2012 S. Karger AG, Basel

The initial interview between physician and patient is the foundation that establishes
a working therapeutic alliance. The psychosomatic approach is the best method to
achieve this goal. How does a psychosomatic interview or assessment differ from the
traditional psychiatric or medical interview? Interviews may be either patient cen-
tered or disease centered. Berwick [1] calls for understanding what the patient wants
from care in addition to the biomedical assessment. While the medical interview or
psychiatric assessment often focuses upon the disease or disorder to generate an ICD
or DSM category, the psychosomatic interview is a broader patient-centered assess-
ment that explores the unique elements of each patient from biomedical, psychologi-
cal and sociocultural perspectives. This mandates identification of stressors as well
as understanding the coping mechanisms of the individual in the context of his/her
biological vulnerabilities. Thus, the psychosomatic interview must define *what* the
patient has (medical/psychiatric diagnosis), *who* he/she is (personality, life history)
and *how* his/her sociocultural context molds the disease presentation and his/her
reaction.

As noted, the psychosomatic interview does more than attach a diagnostic label
upon the patient. The multiple axes in DSM iterations attempt to broaden the levels

of diagnostic elements but offer no integration, while the psychosomatic interview attempts to correlate various factors within multiple domains [2]. The most obvious psychosomatic category within DSM iterations is that of Psychological Factors Affecting Physical Conditions. Fava and Wise [3] argue that this category could be improved by modifying it to Psychological Factors Affecting Either Identified or Feared Medical Conditions. This would provide a more inclusive category that is in line with a psychosomatic perspective that avoids reductionist organic versus functional labeling. This new entity could have modifiers delineated in the Diagnostic Criteria for Psychosomatic Research [4]. These include the following: health anxiety, thantophobia, disease phobia, illness denial, persistent somatization, functional somatic symptoms, anniversary reaction, demoralization, irritable mood type A behavioral and alexithymia [5]. Each of these subgroups will expand the nature of the diagnostic interview.

Maguire and Pitceathly posit the ultimate goals in communicating with patients are to elicit their major problems within psychological, physical and social realms [6]. It demands inquiry into the patient's level of interest in participation of the treatment decision process. Does the patient understand both the implications of the diagnosis and the various treatment options? If such information is adequately assimilated by both physician and patient, there should be a more realistic assessment of how the patient will adhere to the treatment recommendations. For example, if a patient with chronic lung disease denies the need to stop smoking, therapeutic options will have less effectiveness. The initial interview can establish this understanding and begin an empathic treatment alliance that is not merely a paternalistic and authoritarian but a partnership that can offer effective disease management.

For example, telling an obese adolescent who is developing fatty liver changes that he/she must change his/her diet is often fruitless unless the physician understands the patient's actual understanding of the risks of such a disorder, his/her sense of his/her own ability to change (adhere to dietary changes) and his/her sociocultural milieu. Dietary management in such situations mandates collaboration with the family as well as patient. A disease-focused approach would be to merely review the situation and give the patient a manual of proper diets, while a true psychosomatic interview would ascertain the patient's sense of hopelessness, the patient's cultural elements of dietary preferences and his/her ability to financially afford the recommended changes. It is essential also to understand the family members' reaction to such a situation.

The Interview Process

The dyadic process of the initial interview has been described by Balint [7]. The patient enters the clinical encounter in a disorganized phase of illness. This denotes the patient's conception of what is causing his/her symptoms. Such ideas can be overly pessimistic that lead to catastrophic thinking without real confirmation. Alternatively,

the patient's appraisal of his/her problem can be characterized by significant denial which leads to repudiation of symptoms that need medical care. Either approach can foster aberrant illness behavior such as denying symptoms, utilizing useless remedies or avoiding medical treatments. The task of the clinical process is to organize the problem, which may or may not be an organic disease, into a coherent entity that both the physician and patient understand so that effective treatment can be instituted. The chief complaint initiates a cascade of questions from the physician and answers by the patient to better define the problem. This dialogue should give the physician a general idea of what systems are involved in the problem. It demands knowledge of what the problem is, when it occurred, with whom, and what the patient did about it. What were the consequences of the distress such as further pain or exhaustion? Does anything modify the symptoms? Such questions are the framework for texts on medical or psychiatric interviewing, but must include psychosocial elements as well as the physiological 'signature' of the complaints [8]. In the literature, the physiological signature is the anatomic or organic sensation that denotes a medical dysfunction. Such complaints are the hallmark of medical textbooks when discussing symptoms and complaints. The 'psychological signature' is the individual's personal statement of the distress that is formed by his/her own personal language ability, ideas of causation, and emotional aspects. The second phase is that of the physical exam to search for objective physical findings that further define the diagnosis. The third stage is the utilization of clinical testing via laboratory, imaging, or other types of studies to further define the causal factors in the problem. In this manner, the problem is organized into either a coherent disorder or often an ambiguous multivariate problem. When nothing organic is found, the patient is generally labeled as a somatizer, a psychosomatic patient, or someone who is anxious or depressed. Telling them 'nothing is wrong' misses the essential issue that something is aberrant to cause the chief complaint. Stone et al. [9] have demonstrated that calling such patients 'psychosomatic' has very pejorative implications. In such situations, it is the task of the physician to better understand from a broader psychosomatic view the multiple elements that contribute to the chief complaint. If psychosocial issues, in fact, suggest the chief complaint is primarily stress induced, it is proper to confirm that the diagnosis is indeed 'real' and its origins are from stress which causes somatic distress rather than merely label the problem as 'psychosomatic'. This requires that the physician better understand psychosomatic as a concept, while the patient must be educated about the interplay between symptoms, their meanings, and relationship to biopsychosocial challenges. Such education will depend upon the patient's sophistication and illness behavior.

Contemporary medicine is characterized by less time allotted to each patient encounter. The limited time available for each patient visit as well as the use of large group practices that hinder ongoing interaction with one consistent physician are potential barriers to such comprehensive understanding of the patient [10]. It is also not clear how the use of physician extenders such as physician assistants and nurse practitioners who partner with primary care physicians will affect such comprehensive

understanding of each patient. The demarcation between hospitalists and ambulatory physicians in primary care also limits continuity in patient care [11]. A recent survey by the Gold Foundation found that 12% of patients felt their physicians did not even know their names, and 20% experienced their physicians as rude or condescending [12]. Forty-seven percent felt rushed by physicians. Such data suggest that physicians need to reassess their ability to actively listen to their patients to fully comprehend the patient's situation and problems. There is also an increasing emphasis upon structured databases that could be stored in electronic formats. Investigators have questioned whether the presence of computers to gather information and the contemporary obsession with electronic medical records (EMR) will interfere with this basic interpersonal experience [13]. Specifically the EMR utilizes forced choice answers in menus that are presented upon the computer screen which the clinician checks. It has limited capacity for narratives that give the patients unique story. The EMR is useful for aggregation of statistics that are measurable in terms of terse subjective complaints such as 'pain' and noting its severity, such as 1–100 dimensionally, but it rarely can describe the context in which the pain began and to what the patient attributed the discomfort [14]. The EMR may enhance communication between physicians' offices, emergency departments and hospitals, but the effects upon physician-patient relationships are not fully understood [15]. To date, the results are mixed regarding the patients' attitudes towards use of computers, as well as electronic medical records. Such attitudes may also mirror the physician's ambivalence about this [16, 17]. Given the above data, there still exists a great need for physicians to better understand how to interview their patients from a humanistic perspective rather than a file in a database. Although the electronic medical record is important, it will not substitute for the basic human encounter between the physician, a socially sanctioned healer, and the patient who seeks help and alleviation of distress.

The Interview Itself

Since Morgan and Engel's book *Interviewing the Patient* [18], there has been a burgeoning literature how to teach medical interviewing. The Society for Research and Education in Primary Care and Internal Medicine developed a task force on the medical interview that evolved into the American Academy on Communication in Healthcare which is currently an organization devoted to promoting scholarship in the area of communication skills to enhance the doctor-patient relationship and incorporate core values of respect, empathy and the importance of self-awareness in both patient and physician [19]. Their journal *The Medical Encounter* focuses upon communication and interviewing in health care settings (http://www.aachonline.org).

Techniques to manage the psychosomatic interview involve a variety of verbal and nonverbal strategies. It is always useful to initiate the interview by asking the patient, 'How are you today'. This allows them to answer in a variety of ways. They

Table 1. Open versus closed questions

Open-ended prompts:
    How are you?
    Tell me about it.
    Explain that to me.
    What did you think caused the pain?
    What went through your mind?
Closed-ended questions:
    Are you depressed?
    Was your mother nice?
    Did it hurt?
    On a scale of 1–100 how much does it hurt?

may comment on how they actually are feeling such as weak, dizzy, or suffering from pain. They may complain about the temperature in a hospital or office room or note that they don't want the other person in a double-bedded hospital room to overhear the interview. They may respond with a simple statement, 'I don't want to be here...' Such statements will allow the physician to continue follow up on such responses utilizing open-ended questions that cannot be answered in a simple 'yes' or 'no' (table 1). Facilitating phases such as 'tell me more' or 'why' can be coupled with nonverbal gestures such as a sympathetic nod to allow the patient to tell his/her own story. Such cues can eventually be followed by closed questions such as 'where is the pain'. Broad questions can be followed by specific inquires as the patient's story unfolds. The domains of the interview should encompass biological psychological and social issues, but in medical settings it is often best to initially focus upon the medical or physical complaint that compelled the patient to seek help. In the psychiatric consultation, patients are often 'coerced' by family, friends or their physicians to see a psychiatrist. In such cases, it is useful to acknowledge that it must be difficult for the patient to come in. They will often respond with 'they must think I am crazy'. Reassurance is also complex in that offering false hopes can be devastating to a patient when a serious disease is found [20]. Perfunctory statements of 'don't worry' can escalate anxiety in the demoralized or suspicious patient. A better strategy than premature reassurance is letting the patient know you are concerned about his/her welfare and will treat the disorder when discovered. Another issue often experienced by psychiatrists is that patients' may believe that a referral to a psychiatric physician suggests that they are either fabricating a symptom or are 'crazy'. Addressing such fears is essential to facilitate the interview. The psychiatrist can clarify that depression or anxiety doesn't mean one is losing touch with reality, but such an interaction may offer new approaches to manage dysphoric symptoms that augment physical complaints. It is essential for the physician to emphasize all physical complaints are 'real'

even if no obvious physical cause is found. The use of humor is complicated since patients may initially be offended in settings of sensitive and frightening discussions. Sarcasm is rarely appropriate for the physician.

Even in settings where there is strong evidence that somatic complaints are due to psychosocial problems, it is important to initially focus upon the physical complaints. The physician should demonstrate an interest in the patient's presenting somatic problem and then can expand the interview into life settings wherein the disease occurred. Such histories will offer both objective facts such as medical events and dates but also the 'meaning' attached to the events. Karl Jaspers emphasized that understanding an individual's reaction to an event was largely due to the 'meaning' *[verstehen]* attached to the issue [21, 22]. This differs from explanation *[erklären]* which is an objective empirically based data point that often is considered in a more scientific cause and effect paradigm such as a traumatic blow 'causing' a fracture. The psychosomatic interview demands both types of knowledge.

It is easy to define when a patient developed chest pain that led to a hospital stay for a myocardial infarction, but it is also necessary to 'understand' the life setting of loss or demoralization due to other issues [23, 24]. Did the illness appear in a setting of an easily defined loss in fact or metaphorically such as children leaving the home. In this manner, each patient is used as his/her own control in the sense that the traumatic event changed his/her unique life story, and there was a temporal association between a life change and disease onset [25]. The psychosomatic interview looks for such associations as well as the meanings of such events and the accompanying feeling states.

George Engel, Arthur Schmale, Franz Reichsman, William Greene and other collaborators at The University of Rochester's School of Medicine developed a Medical Psychiatric Liaison Service for the research and education of biopsychosocial issues in medical practice [26]. They focused upon the patient's emotional state during the broad interval in which a disease presented itself. They thus investigated such life settings conducive for onset of serious diseases. The main technique by which they investigated such links was the open-ended interview which focused upon such life settings and affective (emotional) states [27]. They utilized an open-ended interviewing style as their 'microscope' to ascertain both the meaning and affective status of various life events for each individual. This approach was the idiographic process that allowed to look at each individual as a unique subject rather than an object within a comparison group [28–30]. They found that many patients were suffering from negative affective states of helplessness or hopelessness when they became ill. William Greene, one of Engel's colleagues at Rochester, studied the loss of vicarious objects as part of life settings conducive to illness [31, 32]. Specifically, he reported that some individuals who suffered a loss such as the death of a child would utilize a surrogate person to modify their anguish. When this 'surrogate', often a younger child, left for school or marriage, the patient would develop a sense of loss and depression similar to the original loss. In this setting, illnesses such as hematologic malignancies developed. Greene always cited a biological vulnerability as the basis for the specific disease that developed in

such settings, but believed that the use of the vicarious object limited a full grieving response by the patient and prevented psychological adaptation to such an initial loss. Thus, they were generalists in the sense that there was a common theme of loss and negative affectivity when a disease presented but always maintained that biological specificity of the individual defined a disease. In contradistinction to this individualized method, Holmes and Rahe developed a forced choice check list of common life events which exemplifies the nomothetic approach of looking at groups and utilizing means and outliers to define normality rather than personal meaning [33, 34].

It is also important to understand cultural nuances in patients, especially if they come from ethnic backgrounds that differ from a Western European or North American culture. Specifically, some cultures forbid women to greet males, even if it is a physician, with a handshake, while others rarely look at the physician directly [35]. It is useful to understand the meaning attached to a symptom in the patient's cultural view of his/her malady [36, 37]. An essential tenet of the psychosomatic interview is not to arrive at an early closure and jump into a conclusion which may omit biological, psychological or sociocultural domains of understanding.

As the patient's story unfolds, his/her personality style will become more apparent.

Personality styles have been described, both categorically and dimensionally. Although the DSM iterations describe personality, Kahana and Bibring [38] offered a practical overview of personality types that can be utilized in medical management. Their categorical approach described seven stereotypic personality types that are found in medical practice and suggested simple management approaches. They noted that the *dependent, overly demanding personality* needs to sense that they are being cared for by their healthcare team, but when limits are set, this should be done without a punitive message. The *controlled personality* will need more information. The *dramatizing, emotionally involved individual* frequently labeled 'hysterical' needs to understand that they are coping in a brave manner and are still an attractive and meaningful individual. The *long suffering, masochistic individual* is the fourth stereotype who often presents a problem of rehabilitation, as suffering within the sick role is more egosyntonic than other individuals. The next category is that of the *guarded, paranoid individual* who must be given some distance and acknowledgement of mistrust. The final two categories are those individuals with feelings of superiority that are often labeled *narcissistic* and finally the s*chizoid or aloof individual*. The limitation of this approach is that individuals often have mixtures of such stereotypic styles. A trait taxonomy utilizes dimensions that occur along a continuum; it is useful and perhaps more accurate as people often have mixtures of traits [39]. The dimensional perspective views a trait or characteristic in a quantitative manner, whether height, intelligence or personality. Some people have the intellectual ability to fully comprehend both the nature and extent of their various illnesses, where others do not. However, people who have less intellectual ability can often understand the gravity of such diagnoses and must be supported in an open and empathic manner. The

dimensional perspective is most frequently used in personality assessment, wherein people have different characteristics and reactions to life stresses, challenges, and triumphs and react in different manners. There have been many typologies of personality, but a currently popular approach is that of the five factor model that partitions traits into five basic domains [40]. The five factors are as follows: neuroticism, which denotes a tendency to experience anxiety, depression and vulnerability; extraversion, which is defined by an individual's propensity to be outgoing, requires highly social situations, and to demand immediate gratification. Openness to new ideas is the third personality dimension that defines an individual as being highly imaginative and open to new or different ideas or being rigid and conservative. The fourth dimension is that of conscientiousness and purposefulness in which an individual is organized and goal directed versus scattered and disorganized. Finally, the dimension of agreeableness versus disagreeableness completes the five factors. An individual's degree of characterization on each of these dimensions is not necessarily pathologic but will define his/her style of coping and general reactions to illness or certain complaints [41]. Specifically, an individual high in neuroticism will tend to react with emotional distress when experiencing the symptom or when diagnosed with a disease. They will often catastrophically consider their plight in a pessimistic manner with anxiety and despair. Individuals who are highly extroverted will find hospitalization particularly difficult if isolated from their usual socially stimulating environments. The disagreeable patient may foster conflict between caregivers, while the patient low on conscientiousness could find complicated treatment regimens difficult to adhere to.

A personality style that deserves special attention for psychosomatic medicine is alexithymia. An alexithymic patient can pose a difficult challenge in the psychosomatic interview. Sifneos [42] coined the term *alexithymia* from the Greek *a*, lack, *lexis*, word, and *thymos*, feeling, to describe a phenomenon seen in patients of 'no words for feelings'. He was building upon others who had described interviews with psychosomatic patients demonstrating a lack of fantasy, with practical thought content, which they termed 'pensée opératoire' [43].

Sifneos [44] conceptualized the alexithymia construct to consist of several characteristics, including difficulty identifying and verbalizing emotions, difficulty separating emotions from physiological changes associated with emotions, externally oriented thinking, and limited fantasy capacity. Patients with alexithymia are able to indicate that they are feeling badly or distressed but often are unable to answer specific questions about exactly the elements of their dysphoria such as anxiety, guilt, shame. They often respond very simply, concretely, or in a somatically focused way. Difficulty reflecting upon their own emotions negatively affects self-regulation of emotions, and creates limited communication of emotions to others (and thereby inhibits adequate interpersonal emotional support), perhaps with relationships of dependency or aloofness.

These characteristics in patients have been noted to create difficulty with insight-oriented therapy [45]. While psychoanalytic theory may view the characteristics as

resistance due to defensive processes such as denial, repression, and isolation of affect, the alexithymia construct considers the characteristics to stem from a basic biological deficit in emotional processing or severe development trauma that fosters this defect state [46–48].

Alexithymic patients can foster feelings of frustration and anger in the interviewer. One of the characteristics of alexithymia, operational thinking, translates into an endless recitation of extraneous detail that can prolong an interview and limit obtaining important information. Besides difficulty in answering basic questions about emotions, the alexithymic patient can respond to a simple inquiry with endless recitation of extraneous detail that can prolong an interview and limit obtaining important information. Operational thinking is not passive aggression but truly a defect in the patient's ability to understand emotions and the link between feelings and events. Alexithymia is also correlated with depressed mood [49, 50]. When the affective disorder improves, the patient becomes less alexithymic. A variation of this construct, secondary alexithymia, has been developed by Freyberger [51] and Freyberger et al. [52]. In settings of dire illness, patients may not have the emotional energy to discuss their feelings and appear alexithymic in that they are terse, irritable, concrete and withdrawn [53]. This situation shares features with Engel's conservation-withdrawal behavior [54]. It is essential for the clinician to recognize this and not be aggressive in eliciting emotional data from such severely ill patients.

If a clinician suspects that a patient may have alexithymic characteristics, he/she can further explore the patient's ability to reflect upon his or her own emotions, be introspective, and discuss his or her emotions and fantasies. If a patient appears to become frustrated, a better approach may be to capitalize upon whatever somatic descriptions the patient has, or perhaps see if the patient can imagine what another person may have felt in a similar situation. Significantly, alexithymic patients respond better to a more supportive therapeutic approach rather than one which requires insight or introspection. It must always be remembered that the alexithymic individual is feeling emotional distress, but is limited in expanding on such dysphoria or linking it to causes. It does not mean they are not in pain, either emotional or somatic.

The data which one receives from a patient often need validation from a significant other or another physician. If a family member is utilized for this role, the patient must agree to such a contact. If the patient permits, it is often useful to see the other person together with the patient as well as alone.

Breaking Bad News

A special situation in psychosomatic interviewing is telling someone bad news [55]. This requires heightened sensitivity of the physician. The definition of bad news in the medical literature varies as pertaining to 'situations where there is either a feeling of no hope, a threat to a person's mental or physical well-being, a risk of upsetting

an established life style, or where a message is given which conveys to an individual fewer choices in his or her life' [56]. Although most literature of bad news involves severe conditions such as untreatable cancer, there are diagnoses that may not be uniformly considered as bad. Thus, the definition of bad news is primarily in the mind of the receiver and varies according to each subject's characteristics, including age, personality and familial obligations. Ptacek and Eberhart [57] believe that news is bad to the extent that it results in a cognitive, behavioral, or emotional deficit in the person receiving the news that persists for some time after the news is received. Patients respond differently to bad news, the spectrum may include shock, disbelief, denial, fear, anger and guilt. Therefore, empathetic responses from a physician demonstrate support and the promise to alleviate discomfort as much as feasible [58]. Patient preference regarding communicating bad news has been studied mostly in Western countries using descriptive evidence. A recent review of literature from Japan suggested that patient preferences regarding breaking bad news to them by physicians consist of four components: setting, manner of communication of bad, what and how much information is provided and emotional support [59]. These preferences were correlated with demographic factors. Younger patients, female patients and more highly educated patients consistently preferred to receive maximal amount of information and maximal support; Asian patients prefer that relatives be present when receiving bad news to a greater extent than Western patients and to discuss life expectancy to a lesser extent.

Practical elements that help facilitate effective and empathic communication in delivering difficult or upsetting information have been summarized by Lee et al. [60]. They include conveying the information in a private set without interruptions and never by phone! It is often important to have family or supportive individuals present. Ascertain how much information the patient desires in respect to detail by asking if they are the type that like 'very detailed information' or 'broad summaries'. It has been also suggested to let the patient know early in the interview that the news is not good. As the news is imparted, it is essential to allow for an emotional reaction such as tearfulness and silences as well as the family reaction. When appropriate, the physician may hold a patient's hand or touch his/her shoulder as a sign of support. Exploring what this means to the patient and offering some hope is essential. Having the patient summarize the situation allows assessment of his/her understanding of the information. Patients may consider getting a second opinion, and this should always be facilitated rather than viewing this as a threat to one's medical abilities. Follow-up is also essential to help with such life-altering communications.

Motivational Interviewing

Motivational interviewing is an increasingly popular approach to intervening with the substance-abusing patient [61]. It has also been reported to help in adherence

to diabetic regimens [62]. Its principles may well be appropriate for the somatically focused patient [63]. Thus, collaboration, evocation and autonomy are all appropriate domains for the patient who focuses upon an organic complaint but is ambivalent about considering psychosocial or psychosomatic issues. Motivational interviewing focuses upon getting the patient to consider changing a behavior that is injurious to his/her health such as drinking excess alcohol, tobacco use, poor compliance with diabetic care, or eating too much to foster obesity. Its use in somatic syndromes such as fibromyalgia is not yet documented. The essential characteristics of motivational interviewing are a patient-centered approach that recognizes the individual's ambivalence to change a specific behavior. In the context of this ambivalence, however, it is always recognized that the patient is the person responsible to change and direct the outcome of his behavior. The process involves discussing the risks and barriers to such change whether it be excess alcohol, smoking, or diabetic disease management. An essential feature of this interviewing technique, which may span a number of discussions, is collaboration between clinician and patient. Specific tactics include open questions, use of summaries of the conversations to ensure that the patient and physician are in agreement with what was discussed, and to emphasize issues of change. This process demands empathic listening rather than paternalistic prescription [64]. Sim et al. [65] have reviewed the use of influencing behavior change in general practice. The contemplation ladder model is central to this approach that includes the sequential steps of precontemplation of change, contemplation of change, preparation to act, actual action and maintenance of change [66]. In the psychosomatic interview, the essential data points to begin motivation as well as barriers for change can be elicited.

Putting It Together

A practical method of organizing the information in a psychosomatic interview is to delineate the various perspectives elicited from the dialogue. McHugh and Slavney [67] have discussed this method for Psychiatry, but it is also germane for the psychosomatic approach and will reduce reductionistic conclusions. There are four elements that should be covered during the interview: diseases, behaviors, dimensions and stories (the patient's autobiography) [68]. Before the interview has been concluded, it is important that the clinician has tried to obtain all the information available to organize the data in the following manner.

The first element is that of the *disease-focused perspective* which is a derivative of the disease-focused interview to which medical students and residents are commonly exposed. This demands careful questioning to develop a syndromic diagnosis. Commonly in psychosomatic patients, there are a variety of diagnoses generated. It is common to have a patient present with abdominal pain and, after significant evaluation, irritable bowel syndrome is diagnosed, but concurrent anxiety disorder

Symptom	Feeling state	When	What were you doing	Who else was there	What did you do about it	Result of actions	What caused it	Anything else about episode

Fig. 1. An example of a table to allow behavioral analysis of multiple physical complaints. Instructions: Assign number of both symptom (1: nausea, 2: back pain, 3: chest pain, 4: visual blurring) and feeling state (1: fear, 2: anxiety, 3: numb, 4: normal) in the appropriate box and fill out the other boxes as needed.

is also present. The patient with unstable angina can have a mood disorder which predicts significant mortality [69]. Such categorical labels are useful to a point, and they require treatment approaches that may mean dietary modification, cognitive behavioral strategies to manage ongoing fears and anxieties or medication directed at both the gastrointestinal difficulties, as well as the psychological disorder. It should be remembered that the medically unexplained complaint does not mean the absence of a disease but the lack of a diagnosis. It is for this reason that the DSM-V will most likely change the many categories in the somatoform section to a unitary 'complex somatic symptom disorder' to emphasize that there is as yet no clear etiology for all of the patient's complaints [70–72]. The next perspective, however, of *behavior* cannot be ignored and may greatly add to management of the abovementioned patient. It is important for the clinician to understand when abdominal pain or diarrhea-predominant symptoms occur. Careful behavioral analysis will better define the life circumstances, as well as what foods promote such symptoms [73, 74]. By having patients carefully record both their diets and situations in which symptoms occur, such disease management may better be understood and managed (fig. 1). Patients often deny or affirm many symptoms which can lead to either failures to diagnose serious illness or needless health utilization. These are behaviors that have been heuristically classified as *abnormal illness behaviors* [75]. These behaviors may be either somatically or psychologically focused to be either disease affirming such as repeated physician visits for minor complaints for which no etiology is discovered, or disease denying that results in delay of treatment that could alter the course of a disease [76]. An important behavioral variable is an individual's adherence to treatment, whether it is medication, diet, exercise or seeking specialist care [77]. This perspective will remind the clinician to understand reasons for such noncompliance if it is present.

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The next perspective is that of *dimensions.* Measurements of personality and intelligence are often done along such dimensions. As noted earlier, the dimensional taxonomy of traits allows the clinician to identify characteristic responses to stress depending upon the traits of the individual patient. Finally, the *life story* perspective is essential. It is important to understand the life setting in which a disease occurs. Engel [78, 79] expanded such autobiographical data into important clinical observations and hypotheses wherein helplessness and hopelessness were important markers for settings in which diseases presented. The clinician must obtain each patient's autobiography and understand both its strengths and weaknesses, life events, both positive and negative within the context of the individual's life. Issues such as this (the life setting during the emergence of an illness) will give the clinician a sense of helplessness and hopelessness. The life history perspective also should reveal anniversary issues that are important elements in an individual's life [80]. The use of the Diagnostic Criteria for Psychosomatic Research highlights such important elements in the life story [81].

Conclusion

All physicians in all fields of medicine should utilize the psychosomatic approach in medical interviewing. The psychosomatic interview properly managed should prevent premature closure of diagnostic considerations and ensure consideration of biological psychological and sociocultural factors. No matter what the presenting complaint, whether a medically unexplained complaint or a presurgical evaluation for oncologic surgery, the patient exists in a milieu of emotional reactions, biological vulnerability and a social network composed of health care providers and whatever support system is available. It is imperative that the physician document and understand the salient factors in these domains and conduct interviews utilizing a psychosomatic approach, whatever the complaint might be. Utilizing the techniques of open-ended questions, observing nonverbal behaviors, and considering the perspectives of diseases, dimensions, behaviors, and life stories, the physician will gather a more complete picture of the patient. Better care will follow.

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Evaluating Childhood Adversity

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Abstract

Childhood adversity increases risk of psychological and physical disorders. The comprehensive psychosomatic assessment of an individual's vulnerability to illness includes the evaluation of early life events, especially exposure to physical, emotional, sexual abuse and neglect. Many self-report and observer-rated instruments are now available to aid this evaluation and increase its validity. The authors review the features and limitations of published tools, and recommend which to choose for clinical and research purposes.   Copyright © 2012 S. Karger AG, Basel

The psychosomatic approach, as outlined by Fava and based on Engel's biopsychosocial model, involves the determination of psychological factors affecting individual vulnerability to develop, as well as influence the course and outcome of illness [1]. Various types of early life events seem able to alter vulnerability to illness later in life. In light of three decades of research, a comprehensive assessment of a person's current and future risk for illness requires attention to childhood experiences, both adverse and positive [2–4]. Fortunately, for clinicians and researchers, there is now an ample array of instruments to aid the relevant data collection. This chapter is divided into two parts. The first part includes a discussion of adverse childhood events, their relevance to psychopathology and methods designed to evaluate them. The second part reviews the instruments currently available for the assessment of adverse childhood events and provides recommendations for the best instruments to use for clinical and research purposes.

Discussion of Adverse Childhood Events

Adverse Childhood Events and Psychopathology

Abundant research has shown that adult survivors of early childhood trauma are at increased risk for a range of psychological and physical disorders. A selective list of

publications shows links between childhood adversity and heightened anxiety and depression in adult mood [5–8], suicidality and self-harm [9–11], substance abuse disorders [12, 13], eating disorders [14–16], personality disorders [17] and sexual disorders [18] as well as psychosomatic or medically unexplained syndromes [19–22]. Abuse survivors also overutilize routine healthcare, exhibit impaired work functioning and parenting, and show traumatic revictimization in later years [18, 23, 24]. In this body of detailed empirical research, most emphasis has been placed on the study of physical and sexual abuse, although there is growing evidence that emotional abuse and neglect may be of even greater etiological importance [25–27]. However, other writers identify violent and sexual traumas as conferring the greatest risk of severe adverse outcomes [24]. Other variables of the abuse-neglect paradigm may also be critical to a full understanding of psychopathology such as accumulation of impact, nature of the key players, the duration of the adverse experiences and the developmental stages at which the experiences occur.

Early trauma appears to compromise core psychobiological self-regulatory capacities, and be associated not only with psychiatric and behavioral morbidity, but also chronic stress-related gastrointestinal, metabolic, cardiovascular and immunological illness [2, 24]. Animal models indicate that events such as premature separation from the mother have consistently resulted in development of pathophysiological modifications, such as increased hypothalamic-pituitary-adrenal axis activation [28]. Extrapolation to humans suggests that similar events may render individuals more vulnerable to the effects of stress later in life [29]. McEwen and Stellar [30] proposed a formulation of the relationship between stress and the processes leading to disease based on the concept of *allostasis* and the ability of the organism to achieve stability through change. The concept of *allostatic load* refers to the wear and tear that results from either too much stress or from not turning off the stress response when it is no longer needed [31, 32]. Biological parameters of allostatic load include glycosylated proteins, coagulation/fibrinolysis markers and hormonal markers; these have been linked to cognitive and physical functioning and to mortality [1].

The effects of different types of adverse childhood events may be additive [26, 33, 34]. Polyvictimization (i.e. multiple types of victimization) appears to produce greater risk of internalizing and externalizing problems in children than does any single type of victimization [33, 34]. The Adverse Childhood Experiences study, amongst others, has revealed a dose relationship between adverse life events and important categories of emotional state, health risks, disease burden and healthcare costs [35]. Evidence from longitudinal studies suggests that the overall severity of cumulated experience is probably more important than the type of maltreatment [36, 37].

It is likely that there are different routes between maltreatment and psychopathology. For example, childhood abuse may lead to adult depression via abnormal self-concept and/or by abnormal self-regulation [38, 39]. At a physiological level, neurotransmitter system alterations and changes in brain size, structure and function have been proposed as mechanisms for long-term outcomes of childhood adversity [2,

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29, 40]. There are also macro-level considerations; in the Dunedin longitudinal study, socioeconomic factors accounted for most of the relationship between child maltreatment and adult alcohol and drug dependence and cardiovascular risks [41]. None of the mechanisms hypothesized to account for poor outcomes, including impaired self-regulation, disrupted development and altered attachment working models, has yet been rigorously investigated [24].

The timing of adverse events in childhood may be a significant factor in the development of later psychopathology. Adverse events in early childhood are associated with greater pathology in late childhood, whereas those in late childhood are associated with externalizing pathology [24]. Because the transition to adulthood is a crucial developmental watershed, the mental health consequences of adverse childhood experiences are likely to disrupt the establishment of positive roles and relationships that set the course for adult occupational and social attainment [42]. There is a very strong association between childhood adversity and depressive symptoms, antisocial behavior and drug use during the early transition to adulthood [42].

Types of adverse childhood events may change over time, and new types of child maltreatment may become identified. One example of a 'modern' form of child abuse is bullying inflicted over the internet, 'cyberbullying' [43, 44]. A recent study of more than 200 Finnish adolescents found a prevalence of 4.8% for cyberbullying, 7.4% for cybervictimization and 5.4% for the combination status. Both cyberbullies and their victims were found to be more likely to experience psychosomatic and psychiatric problems [45].

The nature and predictors of resilience among survivors of childhood psychological trauma need more research [46–49]. A number of researchers are addressing this area. Examples of recent interesting studies include that of mothers and children in London [50], one in the USA with child welfare-identified maltreated children [51] and one with an epidemiological community sample in Dunedin, New Zealand [52]. These studies have specifically examined predictors of positive functioning in early/mid-adulthood by traumatized children. Protective factors included intelligence, female gender, secure attachment to a primary caregiver, living in a stable residence in a non-threatening neighborhood with prosocial parents and peer support as well as sub-traumatic life stressors and a primary partner in adulthood. Risk factors included parents with substance use problems, poor school functioning, living in neighborhoods with high crime rates and low cohesion, and informal social control. Risk and protective factors often had indirect moderating effects as well as direct effects on subsequent adjustment and functioning, and these may differ at different adolescent and adult developmental periods [51].

Evaluation of Adverse Childhood Events

The pursuit of reliable and valid instruments for the assessment of adverse childhood events began with the pioneering, systematic work of David Finkelhor and Diana

Russell, both in the US [53, 54]. Each of these authors wrote popular books describing their careful studies of prevalence of childhood abuse, using in depth interviews. Each broadened the important questions about childhood from those raised by Kempe and colleagues in their work on battered children [55]. It became clear from those projects that briefer instruments would be necessary for use with random community samples and with linkage studies between childhood adversity and later health outcomes, both psychological and physical, for the research field to advance. A substantial and complex body of empirical work has emerged since then.

Adverse childhood events are most commonly evaluated clinically with a careful, semi-structured assessment interview conducted by an experienced clinician (psychiatrist, psychologist, nurse or allied health professional). However, a wide variety of self- and clinician-rated instruments is also available; some are questionnaires, some are interviews, some are designed for screening and some are designed for definitive appraisal. Several scales have been designed for use in adults for the specific evaluation of childhood maltreatment. These vary considerably in the types of abuse or neglect assessed and the amount of abuse-specific detail they gather. The reader is referred to four previous reviews of this area [56–59], especially that by Roy and Perry, which we found to be the most comprehensive and useful [57].

The design of instruments that purport to measure adverse childhood experiences warrants some discussion. A number of currently used trauma instruments were developed in research contexts and do not meet current psychometric standards for clinical psychological tests [60, 61]. Although many of these tests are internally consistent, their actual clinical applicability and utility are often unclear. Some trauma impact measures do not have normative data from the general population. In this situation, clinicians cannot evaluate the meaning of a high score. In the case of diagnostic screening instruments, the absence of normative data is less of a problem because the only measurement issue is whether the participant endorses the required level of symptoms or not [62].

With regard to the question of which is better, questionnaire or interview, there is no straightforward answer. Brown advises that the choice should be made on scientific rather than economic grounds [36]. If questionnaires are used, he suggests that the best way forward might be to have a backup interview-based instrument for at least a subsample of the research population. In most research contexts, pragmatic considerations of funding issues and the acceptability of the instrument to the participant, especially the time commitment burden, are critical.

Retrospective assessment has a number of limitations. Some assert that only memories that are linked to self through emotional and motivational significance and form a coherent life narrative are truly autobiographical, in the sense of being replicable [63]. Others have shown that such detailed interviewing which aims to create a coherent story have proved surprisingly stable over a period as long as 10 years [64]. Brown has highlighted how different reports from the Dunedin longitudinal study showed poor agreement between adolescent retrospective reports of family life and measures

collected during childhood [65]. He asserts that information about childhood mal-treatment gathered without a deep contextualization of such adverse events produces superficial and non-replicable data which can mislead [36, 64]. This particularly applies, in his view, when cohort prediction effects between early experiences and later health parameters are being sought [66]. Other writers are more sanguine about replication and the value of short, retrospective questionnaires; this debate recalls the vicious disagreements between recovered and false memory factions which marked so much of the child abuse research in the 1980s [67]. Fortunately, with better knowl-edge about memory, a middle ground consensus has been reached. Fergusson et al. [68] have reported considerable instability in repeated reports from their cohort of 18- to 21-year-olds on childhood physical punishment and sexual abuse (test-retest values r = 0.45). Unreliability was explained by abuse victims who often provided false negative reports, rather than non-victims providing false positive accounts. Martin et al. [69] suggest that unstable reporting is a problem with less severe incidents of abuse. Fergusson et al. [68] state that the consequence of this instability is that sin-gle report measures may underestimate the true prevalence of abuse. However, the impact on statistical relative risk calculations of psychiatric adjustment is small. The use of a detailed semi-structured, leisurely assessment of context and personal mean-ing in research is considered optimal by Brown [36]. However, they too note that the impact of unstable reporting across time on statistical models linking child maltreat-ment and adult psychiatric disorder is minimal [64].

Contextualization and the search for meaning of events have not been explored as much in children as in adults who have experienced trauma, either as adults or as children. This is probably because of the assumption that a child's fundamental needs, particularly for security, will differ little across settings. However, contextualization may be necessary to reflect the individual's culture properly, especially when discov-ering whether a particular behavior was experienced as abusive. Against this body of reasoning, are the detailed efforts of several groups of researchers, aiming to develop brief, reliable and valid tools which can be robust enough to detect longitudinal path-ways [70–72]. Interestingly, Brown's own group has also been involved in the search for good, brief, self-report measures [73]. The tension between the two approaches is healthy when it spurs the careful evaluation of available tools and a sophisticated discussion about 'horses for courses', i.e. which instrument is best for which research question or which clinical presentation.

In addition to all of the above issues, it can be noted that it is not always possible to distinguish between the specific and general effects of trauma; comorbid sources of trauma-related distress can confound interpretation of data. Being victimized is a risk factor for further victimization [74, 75]. Multiple traumatic events experi-enced by the same individual may be also referred to as 'event comorbidity'. Multiple and potentially interactive psychological effects of these various traumas result in a complex symptom picture. Emotional or cognitive suppression, denial, dissociation, memory distortion or involvement in activities that numb or distract may produce

avoidance, denial and underreporting. Elliott and Briere [79] described a subsample of children for whom there was direct evidence of sexual abuse (such as unambiguous medical findings, explicit photographs or abuser confession) who nonetheless denied they had been abused and scored lower than non-abused subjects on the Trauma Symptom Checklist for Children. Widom et al. [78] and Williams [77] also independently showed underreporting of childhood sexual and physical abuse by 30–40% of victims later in adulthood.

Overreporting and malingering may also skew the data gathering. Some individuals may consciously or unconsciously magnify their symptoms as a 'cry for help' or an attention-getting device [79–81]. There may also be financial motives for symptom endorsement. Clinical experience suggests that false reports of victimization-related symptomatology are relatively rare in non-forensic clinical settings. However, even when accurately reported, misidentification and distortion of the sequelae of childhood trauma may occur. Such effects may be mislabeled as personality disorders to the extent that they involve interpersonal difficulties, chaotic internal states, tension-reduction behaviors or other affect-avoidance activities [79].

Failure to identify early maltreatment is determined in part by practical and legal difficulties of collecting such information during childhood. This can explain why most research has been done either in adults or on children who have been legally or clinically defined as maltreated. Ideally, it would be good to develop more measures of maltreatment that can be used in childhood itself so that a clear picture of a high-risk constellation can be detected early and effective intervention offered, if needed.

Review of Instruments to Evaluate Childhood Adverse Experiences

Literature Search Strategy

Rigorous searches were conducted using Medline, EMbase, PsycINFO, PsycBOOKS, and EBSCO's CINAHL and Psychology and Behavioral Sciences Collection databases. For Medline, EMbase, PsycINFO and PsycBOOKS, the searches were carried out using a combination of subject headings and keywords (and in the case of PsycINFO, classification codes) integrated into the strategy to describe the three concepts of childhood abuse or neglect, adult psychopathology, and tests/measures. Both OvidSP Advanced and OvidSP Basic search modes were used, and the Find Similar feature was run on the most relevant of the results. In the EBSCO databases, searches were carried out using any available subject headings plus keywords. No limitation on year of publication was set, and it is of interest that the earliest begins in 1983 [82]. A total of 145 articles were identified using the search strategy described above. A number of articles used the Minnesota Multiphasic Personality Inventory as a proxy assessment of childhood abuse without an additional specific abuse instrument being used. When these articles were eliminated from consideration, the

number of potentially relevant articles reduced to 123. Abstracts of these articles were subsequently reviewed by the authors for relevance, with the requirement that the reports address tool development and testing, with some description of psychometric properties. This further reduced our list to 38 instruments. Finally, some instruments not captured by our search strategy, but mentioned in the four previous review articles on this area and a few others identified by cross-referencing available articles, were added to the shortlist and resulted in a total of 43 instruments for consideration as listed in table 1 (see also online suppl. appendix). We checked the frequency of citations for each instrument by its name in PsycInfo using their Tests and Measures search limitation function; this search was conducted on 3.3.2011.

Evaluation of Instruments

Streiner [60] created a valuable checklist of criteria for assessing such instruments. This included four main areas to be considered: the items themselves, reliability, validity and utility. Item criteria of interest include how they were developed and assessed. Reliability indices include internal consistency, test-retest reliability and inter-rater reliability. Validity criteria include face validity, content validity, criterion validity and construct validity. Utility criteria include whether the scale can be completed in a reasonable amount of time, the amount of training required for administration and the ease of scoring of the instrument. Although we initially aimed to evaluate all child abuse measurement instruments using these criteria, it quickly became apparent that the majority of articles did not provide adequate information for us to do so.

Instead, we have developed a shortlist of good quality instruments for clinicians and researchers using the following set of principles. Firstly, we searched for the use of a proper 'gold standard' or more properly, a criterion standard, during the development and testing of the instrument. In accord with long standing tradition, we deemed this to be the in-depth sophisticated clinical interview with an empathic and experienced interviewer. As a secondary consideration, we were interested in instruments which were validated against other instruments that had been properly validated against such a gold standard. Secondly, we counted the types of abuse and neglect covered (sexual abuse, physical abuse, emotional and physical neglect, losses, etc.) and the range of items under each domain. Thirdly, we critically evaluated the psychometric properties of each instrument, being particularly interested in good reliability and validity for both the whole instrument and any subscales which were described. Fourthly, we assessed the utility of each instrument, considering the time taken to administer it, the cost of its use, the need for training and/or availability of a manual, its acceptability and social desirability. Finally, we reviewed the interpretive value of each instrument, taking into consideration its comparability, robustness and the number of times it had been used by other researchers. The following instruments proved themselves worthy of further consideration.

Table 1. Reviewed instruments

Abbreviation and full name of instrument		Reference	Citation
Self-report instruments			
AEQ	Adverse Childhood Experiences Study Questionnaire	[83]	15
AE II/III	Assessing Environments Questionnaire	[84]	20
CAMI	Computer Assisted Maltreatment Inventory	[72, 85]	9
CATS	Child Abuse and Trauma Scale	[70, 86, 87]	53
CEQ	Childhood Experiences Questionnaire	[88]	49
CLEFCQ	Childhood Life Events and Family Characteristics Questionnaire	[89]	0
CSAFS	Childhood Sexual Abuse Frequency Scale	[58]	1
CSACI	Childhood Sexual Abuse Count Index	[58]	1
CSAMCI	Childhood Sexual Abuse Multiple Characteristics Index	[58]	1
CTQ	Childhood Trauma Questionnaire	[90, 91]	600
CVS	Childhood Violence Scale	[92]	0
CHUSE	Childhood Unwanted Sexual Events	[93]	0
ETI-SR	Early Trauma Inventory – Self Report	[94]	58
FEI, FEQ	Familial Experiences Interview, Familial Experiences Questionnaire	[38, 95]	FEI 2 FEQ 1
NS	Neglect Scale	[96]	28
PAS	Physical and Sexual Abuse Questionnaire	[97]	10
PMI	Psychological Maltreatment Inventory	[98]	7
RFPQ	Retrospective Family Pathology Questionnaire	[99]	0
RSEQ,	Retrospective Separation Experiences	[99]	0
RCEQ	Revised Childhood Experiences Questionnaire	[100]	5
SAQ or SVQ	Sexual Abuse or Sexual Victimization Questionnaire	[53]	10
SAQ	Sexual Abuse Questionnaire	[101]	27
SEQ events	Sexual Events Questionnaire	[102]	5
SEQ experiences	Sexual Experiences Scale	[103]	79
SLEI	Sexual Life Events Inventory	[104]	1
SPAHQ	Sexual and Physical Abuse History Questionnaire of Leserman and colleagues	[71]	6
TEQ	Traumatic Events Questionnaire	[105]	52
UCSE	Unwelcome Childhood Sexual Events	[106]	0

Table 1. Continued

Abbreviation and full name of instrument		Reference	Citation
Interviewer-rated instruments			
BPSAQ	Brief Physical and Sexual Abuse Questionnaire	[107]	8
CECA-Q and CECA	Childhood Experience of Care and Abuse Questionnaire	[73]	10
CMIS	Child Maltreatment Interview Schedule	[108, 109]	12
CTQ	Childhood Trauma Questionnaire-Long	[110]	600
CTQ-SF	Childhood Trauma Questionnaire-Short Form	[111]	37
DI	Developmental Interview	[112]	4
EHEI	Early Home Environment Interview	[113]	3
ETI	Early Trauma Inventory	[114]	58
FEI	Family Experiences Interview	[115]	3
FIPE	Family Interview for Protectiveness and Empathy	[116]	0
HPSAQ	History of Physical and Sexual Abuse Questionnaire	[117]	0
ITEC	Interview for Traumatic Events in Childhood	[66]	2
SSPAI	Structured Sexual and Physical Abuse Interview	[118]	0
STI	Structured Trauma Interview	[133]	10
TAI	Trauma Antecedents Interview	[119]	4
THS	Trauma History Screen	[120]	5

Some Good Quality Instruments

Self-Report Instruments

The Computer Assisted Maltreatment Inventory [72, 121]
The Computer Assisted Maltreatment Inventory is a web-based adult self-report measure of child maltreatment, which includes sexual, physical and psychological abuse, neglect, and exposure to interparental violence. It takes 10–30 min to complete and produces a total score and scores for each abuse type. It is reported to be easy to use with minimal training and time required of administering staff. It was tested with 1,398 undergraduate students using the Childhood Trauma Questionnaire (CTQ), which itself has respectable psychometric properties, as a substitute gold standard [72]. Internal consistency for subscales was reported as good, with a Cronbach's α coefficient for psychological abuse scales of 0.91 and an α coefficient for neglect scales of 0.88. Test-retest reliability (2–4

weeks between repeat administration) ranged from 0.54 to 0.80 with a mean of 0.70, showing 'good agreement'. Further discussion of psychological abuse and neglect scales suggests that these subscales are difficult to interpret [122]. PsycInfo citations n = 9.

Comment. This instrument is of great interest given the utility offered by its online nature. It was preferred by participants and considered more confidential than an interview or self-report questionnaire format [85].

The Childhood Experience of Care and Abuse Questionnaire

The Childhood Experience of Care and Abuse Questionnaire (CECA-Q) [73] is the self-report version of the CECA (see below under clinician-administered instruments), which itself is well validated and was used as the gold standard to test the CECA-Q with 179 London UK women. It covers lack of parental care (neglect and antipathy), physical and sexual abuse. It is in the public domain and no training is needed; time for completion is unclear. There are 16 parental care items, one screen item for physical abuse with four supplementary items and three screen items with eight additional items for sexual abuse. Good internal consistency (antipathy 0.81, neglect 0.80) and test-retest reliability after 5 years (0.51–0.84, all p < 0.0001) were reported. Against the CECA, all correlations were significant (r = 0.48–0.66 with and without women with depression, sensitivity 73% specificity 78%. Criteria validity indices were good against depression scales and the Parental Bonding Instrument. It has also been validated in a clinical population of depressed patients with good results [123]. PsycInfo citations n = 10.

Comment. A first choice for a research or clinical screen with a broad scope, with the additional back up for the interview CECA if more objective and detailed (and expensive) data are required.

The Childhood Sexual Abuse Frequency Scale, Childhood Sexual Abuse Count Index, Childhood Sexual Abuse Multiple Characteristics Index

These three linked retrospective measures assess CSA (1) Frequency, (2) Type and (3) Characteristics (duration, age and relationship to abuser, victim's age at beginning and end of abuse, and methods of coercion used), respectively [58]. Thirteen types of sexual activity on a 6-point frequency scale were assessed. Two modest-sized samples of women were used for instrument testing – a family practice clinic sample (n = 132) and a community sample (n = 19). Physical and psychosocial symptomatology and depression were chosen to assess criterion validity. The CSA Frequency Scale had internal consistency = 0.90, test-retest reliability = 0.94, criterion-related validity r = 0.36, and depression r = 0.38. The CSA Count Index had good test-retest reliability = 0.92, criterion-related validity against symptomatology r = 0.41, p ≤ 0.01, and depression r = 0.40, p ≤ 0.01. The CSA Multiple Characteristics Index had internal consistency = N/A, test-retest reliability = 0.94, criterion-related validity for symptomatology r = 0.40, p ≤ 0.01, and depression r = 0.39, p ≤ 0.01). External validity was not available for the CSA Frequency Scale, and for both the CSA Count Index and CSA Multiple Characteristics Index, external validity was low. Each of these three

distinct approaches to measurement of childhood sexual abuse met most, if not all, of the criteria for satisfactory quality, and no one measure was found to be superior to the others. PsycInfo citations n = 1 for each tool.

Comment. These instruments would benefit by having their construct validity assessed against an acceptable gold standard before the reader can have confidence in their overall utility.

The Childhood Trauma Questionnaire

This self-report instrument [110, 124] appears to be the most widely used and has had the most psychometric analysis. The authors created it from the Childhood Trauma Interview (CTI), which they had also developed [110]. Initially, the CTQ was a 70-item instrument assessing abuse and neglect experiences in childhood, rated on a 5-point Likert scale and requiring 10–15 min to complete. The CTQ (twice, on average 3.6 months apart) and the CTI were tested with inpatients with alcohol/drug dependence. Internal consistency for the entire scale was high, 0.95, as it was for the four factors – physical and emotional abuse, emotional neglect, sexual abuse, and physical neglect (0.79–0.94). The CTQ test-retest reliability for the entire scale was 0.88, and for individual factors between 0.80 and 0.83. The CTQ showed good convergent validity with the CTI. The CTQ does not cover trauma characteristics (age at onset and relationship of perpetrator to victim). The authors suggest that ease of administration and relative noninvasiveness make the CTQ a good brief screening tool. Paivio and Cramer [90] added psychometric data using a student, nonclinical sample. Internal consistency ranged from 0.75 to 0.97 (0.75, the lowest being for physical neglect, was considered fair) and test-retest reliabilities ranged from 0.85 to 0.97, which were considered acceptable for the total scale and all five-factor scales (emotional, physical and sexual abuse, and emotional and physical neglect). PsycInfo citations n = 600.

Comment. A valuable choice where it is important to be able to compare results with a range of previously published studies using the same instrument, e.g. in an exploration of cross-cultural differences in prevalence or consequences of a particular type of abuse. It also has a broad scope.

The Childhood Trauma Questionnaire-Short Form

The Childhood Trauma Questionnaire-Short Form (CTQ-SF) [111] is a 28-item (25 clinical items, 3 validity items) self-rated questionnaire that also identifies physical abuse, sexual abuse, emotional abuse and neglect. It was developed through factor analysis from the CTQ. It takes only 5 min to complete and does not require formal training. The CTQ-SF was initially tested in four population samples including that used earlier for the CTQ alcohol or drug disorder inpatients, 296 adolescent psychiatric inpatients and 579 controls), a total of 1,978 people. Results were compared with scores on the CTQ and the therapist's maltreatment ratings (Child Maltreatment Ascertainment Interview) for the adolescent group. The instrument was found to have good internal consistency (Cronbach's α for emotional abuse = 0.84–0.89, physical

abuse = 0.81–0.86, sexual abuse = 0.92–0.95, emotional neglect = 0.88–0.91, and physical neglect = 0.61–0.78). Good correlation was found between subsets of abuse on CTQ SF and therapist maltreatment ascertainment interview ratings in the adolescent group, suggesting criterion validity. Further work with the short-form 28-item CTQ in a racially mixed US community sample (n = 1,007, males and females aged 18–65) generated acceptable internal consistency coefficients for the entire measure (0.91) with physical neglect subscale the lowest (58), and sexual abuse subscale the highest (94) [91]. Its wide use is reflected in the number of translations which have been produced, including German, Dutch, Italian, French, Spanish, Portuguese, Turkish, Norwegian, and Haitian Creole. PsycInfo citations n = 35.

Comment. Robust psychometric data and the extensive use of this instrument make it a worthy candidate for consideration in research projects not requiring contextualization. These features also make it a good choice for clinical situations also although its overall utility has not been discussed in detail.

The Early Trauma Inventory-Self Report
The Early Trauma Inventory-Self Report (ETI-SR) [94] is another instrument for the assessment of childhood physical, emotional and sexual abuse, and general traumas (e.g. death of a parent), which measures frequency, onset, emotional impact and other variables. It is a 62-item modification of the Early Trauma Inventory (ETI; see interview instruments below) a semi-structured interview; the ETI-SR takes about 30 min to complete. It can be located at: http://userwww.service.emory.edu/~jdbremn/instruments/ETISR-SF.pdf.

The ETI-SR was administered to 288 subjects of mixed diagnoses, including some with no diagnosis. Validity (criterion) was assessed by correlating the ETI-SR score with PTSD symptom severity measured with the Clinician Administered PTSD Scale (CAPS).Individual domains showed good internal consistency (α = 0.78–0.90). In terms of validity, most items correlated >0.2 with the CAPS. A subset of 27 items was selected for a shorter form. The authors concluded that the ETI-SR can be used for clinical and research purposes. PsycInfo citations n = 58.

Comment. This may be a good choice for a screen for a wide range of adverse experiences including abuses, given its broad design. We did not find construct validity reports for it.

The Familial Experiences Interview and Familial Experiences Questionnaire
The Familial Experiences Interview (FEI) and Familial Experiences Questionnaire (FEQ) [95, 115, 125] are closely related retrospective measures assessing the frequency, severity and duration of a wide range of adverse childhood experiences including physical and sexual abuse, neglect, losses, frequent moves, school difficulties, parental unemployment and others. The questionnaire was adapted later [125] from the interview [115]. Interviewers were clinical psychologists and were given 2 months extensive training with manuals to study. Completion time for the FEI and FEQ

are not clear. Preliminary internal consistency FEI data were good [126]. Interview inter-rater reliabilities ranged from 0.47 to 1.0 (only 6/150 <0.70). Durrett et al. [95] compared the FEI with the FEQ in undergraduate university students (n = 421). Correlation between the FEQ and FEI was high for sexual abuse by any perpetrator (0.91) and less strong (0.59) for physical abuse by a parent. Internal consistencies were good for severity and duration of sexual abuse (0.58–0.75), strong for severity of physical abuse (0.81), and low for agreement on duration of physical abuse (0.32). FEQ test-retest reliability for sexual abuse was 0.52 and for physical abuse was 0.48. The 2-year test-retest reliability of the assessments was only fair for both the FEI and the FEQ. PsycInfo citations FEI n = 2, FEQ n = 1.

Comment. These instruments have not been properly validated and require lengthy training. However, they have a wide scope and may be useful where validity considerations are not prime, e.g. where cross sample comparison is not relevant.

The Neglect Scale

Discussing the problem of 'neglect of neglect', Harrington et al. [96] reported on reliability and validity of their Neglect Scale, a self-rated, retrospective measure previously developed in 1995 by Straus and colleagues, using a low income sample of 151 maternal caregivers from families at risk of neglect. A 40-item version was assessed for internal consistency and factor analyzed. It was self-administered using a computer format; the time for completion was not stated. Child abuse researchers then coded these items into one of the four subscales developed by Straus's team: Emotional, Cognitive, Supervisory, and Physical. The researchers agreed on 24/40; the other 16 items were dropped. Psychometrics: internal consistency for 40 items was very high (α = 0.96) and moderate for subscales (Emotional 0.85, Physical 0.82, Cognitive 0.78, Supervisory 0.81). Contrary to their implication in the abstract, the authors did not assess validity against any gold standard. Rather, they used the factor analyses to eliminate items which loaded on more than one factor, thus reducing the Neglect Scale further down to 18 items (Emotional 5, Cognitive 4, Supervisory 3, Physical 6). They commented that further research will be necessary to determine the criterion and construct validities particularly against criteria used by Child Protection Agencies. They recommended use of the full 40-item version; if a shorter one is needed, they recommended using only the 11 items fitting both Straus group's and their own data. PsycInfo citations n = 28.

Comment. This instrument awaits validation, but may be worth considering for studies of neglect without other forms of adverse events.

The Psychological Maltreatment Inventory

Engels and Moisan [98] were interested in developing a self-report scale to tap psychological maltreatment, which they suggest is more prevalent than other forms of abuse/neglect. The Psychological Maltreatment Inventory is a 25-item scale which was psychometrically assessed on adult outpatients (n = 118). No training is described; time for completion was not noted. Three highly intercorrelated factors emerged,

Emotional neglect, Hostile rejection, and Isolation. Internal consistency was high (0.94). Test-retest coefficients after 18–24 months (with low response) were good (overall 0.81, Neglect 0.78, Hostile rejection 0.78 and Isolation 0.75). They criterion-validated the Psychological Maltreatment Inventory against two symptoms scales, a self-efficacy scale and a diagnosis of personality disorder using DSM-III-R, and used a modification of the Adult Parental Acceptance and Rejection Questionnaire (APARQ) of Rohner and Rohner to test construct validity [127]. The APARQ has good psychometric properties. PsycInfo citations n = 7.

Comment. Another measure of parental psychological maltreatment with indirectly validated qualities only.

The Sexual Abuse Questionnaire

This questionnaire was developed in Binghamton, New York State as a brief screening device to aid taking a child sexual abuse history. In its final form, the Sexual Abuse Questionnaire [101] has 45 true-false items and takes about 5 min to complete. No training is required, the scoring is simple; certain items need to be reversed, and then all items are summed. The authors included items which they call 'non face valid' designed to elicit symptoms often associated with childhood trauma. Its psychometric parameters were tested in two samples of university undergraduate students mostly Caucasian, n = 533, 58% females, 10.3% of whom reported CSA, with retesting one month later. Participants also completed the Trauma Symptom Checklist 40 (TCS-40) and a PTSD subscale, to assess criterion validity. Good test-retest reliability, internal consistency, and convergent and discriminative validity (TSC-40 r = 0.71, and the PTSD scale r = 0.70) were found. PsycInfo citations n = 27.

Comment. The authors called the Sexual Abuse Questionnaire a time- and cost-efficient method, commenting that its performance was unknown in other populations, e.g. non-university samples. Given its wide use, it is worth considering for studies of sexual abuse.

The Sexual and Physical Abuse History Questionnaire

No formal name was given by the authors [71], although another instrument with very similar provenance, called the Child Maltreatment History Self-Report [128] is regarded as identical by Roy and Perry [57]. Both contain sexual abuse items adapted from a 1984 Canadian government survey of sexual abuse of children [129] and differ only in minor wording and frequency counts. Both add physical abuse items, either from Briere's work [71] or from the Conflict Tactics Scale of Straus [128]. Only the paper by Leserman et al. [71] gives psychometric properties; these authors do an excellent job of assessing the instrument using classical psychometric approaches. The gold standard used was an in-depth, structured abuse interview conducted by one trained female psychologist, with uncertain responses discussed with senior team researchers. Research participants (n = 139) were outpatients in a gastroenterology clinic. The questionnaire, published fully in the 1995 article has six sexual (yes/no)

and five physical abuse items (never, seldom, occasionally, often) answered each for child and adult years. Sexual abuse at first administration: test-retest reliability after a median of 2 months (range 0–16 months) was 0.63, with 81% overall agreement. Other parameters reported were: sensitivity 71%, specificity 91%, positive predictive value 90%, negative predictive value 74%. Test-retest reliability was 0.54. Also reported were: sensitivity 68%, specificity 74%, positive predictive value 73%, negative predictive value 68%. The authors also give psychometric values at the readministration, which in general were a little better. They provide an in-depth discussion of possible causes of discrepancies. They conclude that the sexual abuse questionnaire has acceptable test-retest reliability and criterion validity, as does the physical abuse questionnaire, although to a lesser extent. PsycInfo citations n = 6.

Comment. This instrument has been directly content validated against the best gold standard, and will be a first choice for a screen for studies addressing sexual and physical abuse alone. This questionnaire has been further developed into a structured interview, the Structured Sexual and Physical Abuse Interview (SSPAQ), see below.

Interviewer-Rated Instruments

The Childhood Experiences of Care and Abuse
The Childhood Experiences of Care and Abuse (CECA) [130, 131] is a clinician-rated instrument that detects physical abuse, sexual abuse, neglect and antipathy occurring before the age of 17 years. Some items are scored on a Likert scale and others are reported as direct answers. It was initially administered to a sample of 179 women (18–51 years). Participants were also rated on the Parental Bonding Instrument and the Present State Examination. Satisfactory internal consistency was found for antipathy (0.81) and neglect (0.80), but not for other subscales. Satisfactory test-retest reliability was found for most subscales. A type of validation was undertaken with 87 pairs of sisters, to see what concordance existed between individually completed scales assessing parental neglect, physical abuse and sexual abuse. The authors viewed the mean correlation for the three experiences of 0.60 as satisfactory.

The interview takes an average of 1.5 h or so to administer for a medium risk case and around three times as long to transcribe and score. The full scale is provided with the original article, and a 220-page manual with definitions and examples is available. In accord with the Bedford College's group philosophy of interview use, the CECA uses a conversational style, encouraging detail; they consider it important to move beyond standard questions to develop a coherent narrative [64]. The length of the interview is variable depending on the complexity of the childhood circumstances. Full training takes 2 days and currently costs GBP 350. PsycInfo citations n = 10.

Comment. The most detailed and contextualizing approach, with the strong research provenance of its developers. Although the CECA is too time consuming for most projects, it can be considered for use in a subsample, to set the criterion

evaluation against which other instruments can be validated. It will have a role where the personal meaning of the abuse experiences is salient to the study, rather than the simpler epidemiological questions of abuse prevalence.

The Child Maltreatment Interview Schedule

This instrument [108, 109] assesses physical, sexual and verbal abuse, witnessing violence, emotional neglect, separation from and loss of caregiver. A short form (11 items, with multiple sub-questions) is freely available online at http://www.johnbriere.com/Unpublishedtests.htm and seems to have replaced the long version. It takes 5–10 min to complete, with no training required. Both the long and short form are written as an interview, but can also be administered as a self-report questionnaire [109]. No validity data are available for either version; internal consistency of the psychological abuse subscale is good for both, e.g. for the long version α = 0.87 [132]. PsycInfo citations n = 12.

Comment. This has a wide scope and may be useful where validity considerations are not prime, e.g. where cross-sample comparison is not relevant. Unlike the FEI and FEQ, the absence of the need for training may make it attractive to researchers.

The Early Trauma Inventory

The ETI [114] is a 56-item clinician-rated questionnaire that identifies sexual abuse, physical abuse, emotional abuse and general trauma (such as witnessing family violence), but not neglect. It asks about the types and frequency of abuse, age at which the abuse started and stopped), the perpetrator and the impact of the event(s). It takes about 45 min to administer, and the authors wish an experienced clinician to be involved, either to conduct the interview themselves or to supervise directly the interviewers. Most answers are rated on a 7-point Likert scale. An ETI childhood trauma severity index has also been developed to indicate the 'total burden' of abuse over a person's childhood. In addition, the authors have developed a self-report version that takes 45 min to complete (see above). The ETI was validated in a population of 137 adults with mixed diagnoses. The ETI showed good inter-rater reliability (0.99 overall, 0.97 for physical abuse, 0.97 for emotional abuse, 0.99 for sexual abuse, and 0.94 for general trauma). Test-retest reliability was also very good, 0.91 (0.97 for physical abuse, 0.98 for emotional abuse, 0.99 for sexual abuse and 0.51 for general trauma). Internal consistency was high, 0.95 (0.86 for physical abuse, 0.92 for emotional abuse, 0.92 for sexual abuse, and 0.74 for general trauma). Convergent validity was found to be satisfactory with a correlation of 0.63 between the ETI and a CLTE. ETI scores were higher in PTSD patients than healthy controls. PsycInfo citations n = 58.

Comment. Another useful instrument, with some sound psychometric results. However, there is not a full construct validation available yet.

Structured Sexual and Physical Abuse Interview

This 38 item seeks information about sexual abuse and physical abuse (with 'intent to kill or seriously injure') with details on duration, number of incidents, identity of

perpetrator, separately for before 13 years and subsequently. The Chapel Hill group used data from this interview to develop an Abuse Severity Measure, summing a score for each of: invasiveness of sexual abuse, severity of physical injury, total number of life threatening, physical abuse incidents [118] .

Evaluation of Good Quality Instruments

Comparing the instruments detailed above, our recommendations are as follows. The CECA (full interview) is the most detailed interview developed and has broad scope. It is likely to be too time consuming for most research projects. However, as it is closely yoked with its short questionnaire version, the CECA-Q, the CECA could be the criterion standard, against which the questionnaire is validated. One can envisage the CECA being given to a subset of participants in a study to validate the CECA-Q, which would be given to all participants. The use of either clinically is not yet clear. The questionnaire developed by Leserman and colleagues (called the Sexual and Physical Abuse History Questionnaire by Roy and Perry) has excellent psychometric properties and would be the ideal questionnaire where the focus is on childhood physical and sexual abuse only.

As the CTQ has received the most attention and publications, it will be a good choice where comparison with many other studies is desirable, and multiple abuse/neglect processes are being studied. It has the best pedigree for cross cultural and other language research to date, although this may change. The Computer Assisted Maltreatment Inventory can be chosen where the participants (and researchers) are internet savvy, and good validity is important. This relatively new instrument is one to watch to see if its uptake confirms its early promise of high utility and good psychometric properties. We consider that the other instruments individually described in detail all may have a place depending on the research questions, the population being studied and time.

Conclusions and Future Recommendations

It is clear from our review, and those of others, that there have been major advances in the past three decades, with steady improvement in the range of instruments available and data supporting their utility. Researchers have continued to improve existing instruments as well as creating new ones. It is encouraging to see the recent appearance of tools to assess neglect and emotional abuse, both areas of concern previously thought unmeasurable. Further work on developing clear definitions of abuse is needed. We recommend that authors of future scales produce a complete description of their instruments according to the guidelines suggested by Streiner in order that a comparison can be made with existing instruments. Most workers concur with the general principle in abuse prevalence research that a precise behavioral description is

best, rather than leaving the participant to make a subjective judgment about whether their own experience was 'abusive' or 'traumatic'. This guiding principle should continue. It will be necessary to do more work on cross cultural notions of abuse and the accurate translation of these instruments into other languages. Our review has only dealt with English language publications. There is also an obvious need to develop a nuanced understanding of the use of the main instruments with special groups; men, visible minorities, elderly and the young immediately come to mind. As a generalization, validation is specific to the population in which it was carried out, and cannot be presumed to apply to other sociodemographic groups. The extension of scales for use with children is urgently needed, assuming that earlier detection will lead to more timely and effective interventions. We refer the authors of such scales to guidelines by Hamby and Finkelhor [56], which set out recommendations for the sensitive interviewing of children. A few instruments have already been used with adolescents, e.g. CTQ-SF, but more studies are also needed for this age group.

We would contend that a thorough psychosomatic assessment needs to address child abuse and neglect in order to provide a deep understanding of the risk factors for anxiety and hyperarousal states which may lead to adverse outcomes. One-off events may set in train alterations within the family which have adverse effects on the child's development, and so they too are important to record. We would agree with Ford that prospective studies with high- and low-risk samples are needed to assess at repeated intervals, beginning in early childhood and continuing through adulthood using psychometrically sound measures of trauma exposure and psychobiological outcomes. Temporal trajectories of risk and resilience must be mapped in order to move beyond static formulations of the relationships among traumatic victimization, psychobiological mediators and moderators and adult outcomes [24]. Although the link between childhood trauma and adult psychopathology is well established in many demographic groups, the elucidation of the mechanisms through which this relationship develops needs to be understood further. A full explanation will include the moderating effects of temperament or other biological and environmental variables, the nature of resilience and vulnerability. Only then will we be in a sound position to develop preventative interventions.

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Evaluating Life Events and Chronic Stressors in Relation to Health: Stressors and Health in Clinical Work

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Abstract

Despite the fact that there is an extensive scientific literature regarding the importance of exposure to psychosocial stressors, the assessment of such stressors is often neglected in clinical work. The present review summarizes the scientific literature on critical life changes and work-related stressors. Particular emphasis has been on somatic outcomes and physiological processes that have been shown to be affected by exposure to stressors. Although the relationships are highly complex, it could be concluded that exposure to stressors may often determine the onset of many illnesses. Standardized well-functioning assessment instruments that could be used in clinical practice exist and should be used.

The interplay between the individual characteristics of a patient and the situation surrounding him/her determines the effects of stressors on the patient's health. This has led to the misinterpretation that the nature and intensity of stressors could be disregarded because the only thing that really counts is the individual reaction. It is enough to point out for instance that deaths related to the loss of a loved person would not occur if loved persons would never die. Death of a close relative does not affect all individuals in the same way. That, however, does not mean that the event per se is unimportant. Critical life events may have a decisive role in determining the onset of a disease [see for instance 1].

An external condition that demands excessive adaptation from an individual is 'filtered' through the individual coping program. This is constituted by genetic factors and previous experiences [see 2]. The interaction between stressor and individual coping program determines the behavioral, psychological and physiological response to the stressor. One of the possible responses is a general arousal reaction. If this arousal reaction lasts for a long time, the response will gradually change. In Hans

Selye's terminology, this is the general adaptation syndrome that has three stages, arousal, defense and exhaustion. According to McEwen [3], long-lasting adaptation to high arousal leads to allostasis (for a more detailed discussion, see below).

Throughout life, there is a constant flow of experiences. This means that the individual program is never 'ready', it is going through changes throughout life.

The aim of this chapter is to provide a theoretical framework for the assessment of life events and chronic stressors and to review the literature supporting or refuting the influence of stressors on illness development. A second aim is to propose assessment tools that could be used in clinical practice. Since the psychosomatic approach relates psychosocial processes to physiology and somatic illness, the examples that I choose will have 'objective' outcomes, for instance myocardial infarction (which has a defined onset in time and therefore is more accessible for studies of time relationships between stressor and illness) or physiological repeated outcome measures whenever this is possible.

Stressors

Stressors are always divided into critical events with a defined onset and duration on one hand and chronic stressors, or chronic life difficulties [1] with undetermined onset and duration, on the other hand. Chronic life difficulties are typically conditions that last for a lifetime or for very long periods such as life-long poverty and unresolved marital discord. The border may not be easy to define in all cases however. For instance, a natural disaster such as a tsunami, an earthquake or a nuclear power station emergency are examples of disasters that may result in chronic difficulties such as physical handicap, posttraumatic stress disorder or in a series of secondary events (loss of residence, loss of relatives, loss of job opportunities, etc). An effort to disentangle chronic life difficulties from critical life events has been made by Brown et al. [1].

Critical Life Events

There are two ways of recording critical life events.

First of all, subjects who go through a defined life event such as job loss, bereavement or reorganization at work could be studied separately. In such studies, the ideal is to follow different phases before, during and after the event. There are numerous such studies that have been published. For instance, longitudinal studies of subjects going through job loss [4, 5], bereavement [6] and hurricanes [7] have been published that relate the different phases of these critical life changes to the development of mental symptoms and physiological reactions. This is of relevance for clinicians who frequently encounter patients that go through such crisis situations but also for public health officers in charge of prevention programs.

Secondly, critical life change in general can be studied as they occur spontaneously in the flow of people's life. This is particularly relevant for practitioners who could use clinical interview techniques for all of their patients. Two quite different assessment theories have been established, one of them based upon self-administered questionnaires and the other one on systematic interviews.

Standardized Methods for Recording Typical Critical Life Events That People May Experience

In the most frequently used methodology for recording critical life events, subjects are confronted with lists of critical life events and asked to report whether they have experienced any of them during a defined period of time retrospectively. Such questionnaires were introduced by Holmes and Rahe [8]. The lists have been refined and put into theoretical context. For each change, a score has been assigned based upon population studies. This score indicates mean level of adaptation that the average subject in the population would require for coping with the change. For the time interval studied, these scores are added. For instance, if a person has lost his/her job and divorced during the past 6 months, the population adaptation score for job loss and the corresponding score for divorce are added for this time interval and a total life change unit sum is achieved [for further introduction and theoretical discussion see Rahe 9]. Even short time intervals were used for the study of weekly life events in relation to physiological change. In a study of male patients who were back to work after a myocardial infarction, Theorell et al. [10] showed that a change in weekly life change sum from one week to the next (calculated on the basis of repeated weekly standardized interviews) explained statistically 10% of the concomitant change in urinary output of adrenaline during work hours in this kind of clinical sample. It should be pointed out however that there was a pronounced interindividual variance in strength of association; for one third of the subjects no relationship was found. Prominent events in this study were conflicts at work and at home, changes in work hours or conditions and personal outstanding success.

More recent research has shown that although the life change unit sums are helpful in predictions of ill health, they are highly correlated with number of critical life events, and the theoretical rationale for additivity has therefore been questioned. New lists of critical life changes have been renewed and validated [11, 12]. In more recent studies of objective health outcomes such as myocardial infarction, shorter lists of high impact life events are usually used and summing of weights has been abandoned. Weighting is still used but rather in the form of self-rated impact ratings from the participants themselves than from the population.

An example of more recent life change lists utilized in a study of myocardial infarction patients is from Möller et al. [13] (see table 1 in online suppl. appendix). In this study (the so called SHEEP, Stockholm HEart Epidemiology Programme), all cases of

myocardial infarction were contacted within a defined geographical area during a defined time period. At the same time, matched population controls were contacted. There were 1,000 men and 500 women in each group. Weight sums of life changes during the 12 months preceding myocardial infarction (and the corresponding period) did not differentiate the groups. However, a crude rating was performed by each subject (for instance conflict 'affected me strongly/fairly/not much'), and this rating turned out to be important. 'Impaired economic situation', 'conflict at work' and 'increased responsibility at work' – if they were reported to 'affect fairly or very strongly' – differentiated clearly both male and female myocardial infarction cases from controls. A relevant critique against this kind of retrospective case control study is that retrospective 'search for meaning' could have influenced the findings. The findings are however consistent also with a prospective study in which healthy men were followed during a one-year period with regard to incidence of myocardial infarction [14]. The life event 'increased responsibility at work during the past 12 months' predicted increased risk of myocardial infarction but a weighted life event sum score of life changes in general was not associated with increased myocardial infarction risk. These findings are also consistent with another large case-control study of myocardial infarction patients [15] in which a standardized interview was used (see below).

A methodological novelty in the SHEEP study was the co-called ONSET interview analysis which focuses on triggering events. The interview goes into detail with regard to the 24 h preceding the myocardial infarction and possible triggering events occurring during this short period. A similar analysis was also done for the week preceding the onset. These analyses were confined to the cases. They showed that a 'high pressure deadline' at work was statistically associated with the 24-hour triggering and 'event where felt pressure or competition' as well as 'praised by the boss' were statistical 'triggers during the past week'. We can possibly see parallels with the findings in the weekly life change study described above in which work changes and conflicts as well as outstanding success were prominent features. 'Praise by the boss' could in fact be interpreted as an effort from the boss to increase pressure and competition. There has been a scientific discussion regarding the reliability of these kinds of retrospective short-term trigger studies. However, for the kinds of events that were reported in the SHEEP study the findings are probably reliable, although the magnitude of the association may have been inflated [16].

Triggers and Habitual Levels of Critical Life Changes

The trigger perspective is related to another theoretical perspective in this research. In early retrospective research on life events preceding illness onset the hypothesis tested was that an excessive accumulation of critical life changes during a short period markedly exceeding the person's habitual level of changes would increase risk of illness. For instance, retrospective studies of 3-month intervals (using summation of

life change units) showed a pronounced accumulation of change during the months before the onset of myocardial infarction compared to the preceding months [for a summary regarding the accumulation theory see Rahe 9]. Similarly patients who have attempted suicide but survived report a strong accumulation of life events during the month preceding the attempt [17]. Such studies can be criticized because the patients or their relatives may have been 'seeking meaning' retrospectively.

Regardless of interpretation, it is certainly an important observation that subjects could be accustomed to a high or a low incidence of life change in general. Those who become accustomed to a high incidence of changes may belong to privileged intellectually and socially stimulated groups with a low general incidence of illness. Or vice versa, they could belong to a disadvantaged group which is exposed to a high incidence of markedly negative events. An epidemiological study [18] of 28-year-old men (followed up 10 years after they had gone through mandatory medical screening for medical service) showed that participants with high blood pressure at rest reported fewer life events during the past year than did those with normal blood pressure. Such findings illustrate, consistent with previous reasoning that the effect of a large number of events during a given time period should be related to the habitual level of life events experienced by the individual. Regardless of where the scientific discussion will end, it is important to take the general dynamics of change patterns into account with the patient. In addition, the clinical impression is that patients who have just had an onset of a serious illness benefit from discussing critical life changes preceding it.

Positive and Negative Life Changes

An additional important discussion in life event research relates to positive and negative impact, respectively. The original theory postulates that an accumulation of critical life changes, regardless of whether they have a positive or a negative impact, could trigger illness due to the amount of adaptation demanded. The applicability of this theory probably varies with the kind of illness studied. In patients with coronary heart disease who suffer from attacks of myocardial ischemia whenever excessive physical effort or psychological arousal arises, positive or negative impact may not be so important for the timing of an attack of angina pectoris. This is exactly what we observed in the longitudinal study of myocardial infarction patients described above [10] – angina pectoris attacks could be triggered by positive as well as by negative events. However, for more long-lasting pathophysiological processes, negative impact is more important than positive. A small longitudinal study [19] of subjects who were followed with regard to spontaneously occurring life change on four occasions during a year showed that life changes with negative impact (according to the subjects themselves) were associated with rising levels of plasma prolactin concentration as well as rising serum triglycerides and blood pressure. Positively loaded life changes on the other hand were associated with decreasing serum triglycerides and blood pressure. A psychosomatic

study was performed on 18-year-old men who were grouped – during the mandatory medical screening procedure for military service – into hypertensive, normotensive and hypotensive subjects. There was a significant difference between the groups [20]. A retrospective life change interview showed that the hypertensive subjects reported that fewer positive events had occurred during their teenage years than did subjects in the other groups. This may be an illustration of the potential importance of a low number of positive life changes during childhood. The positive/negative argument could also be applied to an event's desirability [17] and controllability [21] and also whether it represents an exit or an entrance in the person's life [22]. Such aspects have also been studied by means of interviews and questionnaires.

Later developments of this research tradition has resulted in a comprehensive questionnaire including not only questions about life events, working conditions and social support but also about individual coping patterns [23; see also www.drrahe.com]. Particularly when such questionnaires are used longitudinally, they offer valuable clinical insight.

Detailed Interviews Regarding Critical Life Events – A Sociological Perspective

A group of researchers was very critical of the questionnaire-based life change inventories. They claimed that self-administered questionnaire surveys can never establish [see 1, 24 and 25] causality since there has to be more rigorous interview data about timing, meaning and context of the reported life changes. They claimed that it would be possible by means of a detailed interview to establish whether the 'event' described should be labeled a 'life event' or a 'chronic life difficulty'. The interview should also be able to examine timing of the event, degree of contextual threat (the most important events were labeled 'markedly threatening'), etc. Whether to label an event 'markedly threatening' or not should always be a matter of context. For instance, a pregnancy is under most circumstances not threatening but it could be a markedly threatening event for a young girl who lacks social and family support. A particularly important argument for using interview rather than questionnaire is that it is only in the interview that it is possible to disentangle what came first, critical life change or illness.

On the basis of their methodological considerations, this group has constructed an interview guide. It has been used particularly for the study of life events in relation to the onset of depression [24], but more recently also for the study of traumatic life events during childhood [25]. According to these researchers, the systematic interview Life Events Diagnostic Survey provides reliable estimates of critical life changes that have occurred a long time before the interview. This interview technique has a well-designed format, and the only disadvantage is that the systematic interrogation about life events that the patient has experienced may take a long time.

A particularly interesting concept that has been introduced by this group is the 'brought forward time' corresponding to the time it may take on average from the

Table 1. Psychosocial work environment factors of relevance for health of employees

Excessive demands (qualitative as well as quantitative)
Lack of decision latitude
Lack of social support from superiors and/or work mates
Low rewards (material as well as sociological and psychological)

event to the onset of the illness. In the comparison between depression and psychotic schizophrenic outbreak, the brought forward time for depressive episode is typically much longer than it is for an episode of schizophrenia [24].

Approximately at the same time as the Brown group started developing their interview guide, Paykel and his group also started establishing an interview guide which is now named the Interview for Recent Life Events. This interview guide is based upon principles similar to those developed by Brown and Harris [24] but is less detailed. The interview guide contains 64 different life events. There are short specific criteria for some of the events, such as 'serious argument' which is defined as a one-way or interactive altercation which adversely affects behavior of one of both parties for a minimum of 5 days. The interview guide has been used for the exploration of critical life events in relation to onset of several kinds of illnesses such as myocardial infarction and depression [24] (see table 2 in online suppl. appendix).

O S M

Work and Unemployment as Stressors

That adverse job conditions can have strong effects on risk of developing serious illness such as myocardial infarction and depression has been shown in extensive research [26–28]. That this is a cause of financial losses in working life has been shown in several publications [27, 29]. A list of psychosocial conditions that increase health risks is presented in table 1.

The combination of excessive psychological demands and low decision latitude has been labeled job strain. Several prospective studies have shown that this is a risk factor for myocardial infarction in men [30–32], although there is still disagreement regarding the effect of adjustment for accepted cardiovascular risk factors such as tobacco smoking, high blood pressure and abnormal serum lipids and social class. This means that some authors are of the opinion that there is a direct psycho-neuro-endocrinological effect of stress which explains the association, whereas others claim that the association is mediated or confounded by more established risk factors including social class. There is no doubt, however, that psychosocial work environment factors have direct pathophysiological effects. The question is of course how important these effects may be in relation to other relevant pathophysiological processes. The

'stress' effects are added on vulnerability factors. The estimation of the contribution of the psychosocial factors is complicated by the fact that different mechanisms have different time frames. In the estimation of the role of psychosocial factors in work compensation cases, it may be impossible to really know what the effect of the psychosocial work stressors may have been in an individual case although there is sufficiently strong epidemiological evidence. What pathophysiological mechanisms have been discussed?

Effects of psychosocial work stressors on immunological parameters [33] and on blood pressure regulation [34] have been discussed as mediating mechanisms. A longitudinal study by our group has shown that at least in men increasing job strain is associated with increasing sleep disturbance and blood pressure [35] as well as decreasing plasma testosterone [36] and immunoglobulin G concentration [37]. Decreasing decision latitude has also been associated with decreasing heart rate variability, which indicates a lowered parasympathetic and/or elevated sympathetic activity [38]. Similar observations have been observed for the combination of high effort and low reward, although the physiological correlates of the effort-reward and demand-control-support models may be differently patterned [39]. The evidence regarding the relationship between the psychosocial work environment variables listed above and physiological parameters has been summarized recently by Hansen et al. [40]. When work conditions deteriorate, catabolic variables (associated with energy consumption in situations requiring energy) show increasing activity and anabolic/regenerative variables (associated with building of resources) decreasing activity.

When the demand control support model was introduced during the 1980s, most studies showed that decision latitude was the most important component. During later years, however, the psychological demands component seems to have become more important, possibly reflecting markedly increasing demands in working life in the (mostly highly industrialized) populations studied [41]. According to summaries, high job strain in men (in most studies the 20–25% with the worst combination of scores) assessed by means of self-administered questionnaires is associated with a 40% excess risk of developing a myocardial infarction during 5–10 years of follow-up after adjustment for other risk factors. Men below 55 years of age at start show a stronger excess risk – in the order of 80%. Among women, the combination of family stress and job stress seems to be more important [42], and predictions of risk with the use of job strain assessment alone are less successful. There are similar observations for the effort reward model. The crucial element in this theory is 'non-reciprocity or imbalance between efforts spent and rewards received'. Not as many prospective studies have been published on the relationship between effort reward and risk of myocardial infarction, although the evidence is pointing at a strong relationship [32]. With regard to depression, both models have shown predictive value in several prospective studies [43]. It has been emphasized by several authors that the two models are complementary, if both are used together better predictions are obtained with regard to health outcomes than if either one is used.

A third model that has been introduced in work environment research is the 'organizational justice' model which postulates that an organization which is perceived as not providing employees with possibilities to get a fair treatment in crisis situations will generate an increased incidence of both somatic and psychiatric illness. There are few published prospective studies, but there is evidence for an association with myocardial infarction risk [31, 32].

How to Measure the Psychosocial Work Environment?

As with life changes, the best way of examining a patient's work environment is always by means of a personal interview combined with observations in the work place. However, very good questionnaires have been developed which incorporate the dimensions discussed above. Several of these questionnaires have abbreviated forms that are useful in diagnosing the patient's working conditions. The most comprehensive questionnaire covering most of the aspects discussed above is the Danish Copenhagen Psychosocial Questionnaire (COPSOQ) which has been translated into several languages [44]. COPSOQ has three versions, one short version for screening purposes, one for occupational clinical analysis and one for detailed research purposes. The questionnaire most extensively used for the assessment of the demand control support model is the Job Content Questionnaire (JCQ; Karasek RA, user guide http://html-pdf-convert.com/cari/job-content-questionnaire-user-guide-karasek.html). A shorter version [34] which is similar to the JCQ has been used mostly in Scandinavia (DCQ, 35). This version has a smaller number of questions related to decision latitude and a different response format (based upon frequency rather than intensity). The social support dimension differs from the corresponding one in JCQ. The standardized questionnaire version of Effort Reward Imbalance assessment has been presented by Siegrist et al. [45].

The benefit of examining and intervening in work environments has recently been illustrated by evaluations of manager education programs aiming at improved psychosocial competence among managers which could beneficially influence the work environment [46, 47].

The importance of a poor psychosocial work environment has recently been discussed [48] in relation to the concept 'posttraumatic embitterment syndrome' which has been defined by Sensky as:

'an emotion encompassing persistent feelings of being let down, insulted or being a loser, and of being revengeful but helpless. According to the diagnostic criteria of the syndrome, people experience embitterment in response to a single exceptional negative life event which is regarded as the cause of embitterment. Those experiencing embitterment report repeated intrusive memories of the critical event and blame themselves for the event, for not having prevented it or for not being able to cope with it'.

Sensky argues that the single event criterion may not be valid and that instead 'stress of conscience' (collision between ethical standards that for instance health care staff have been taught on one hand and increasing lack of resources and time making it impossible to meet such standards on the other hand) as well as 'organizational injustice' are key factors. He also argues that chronic embitterment may frequently result in allostatic overload. The discussion regarding chronic embitterment clearly illustrates the problems that researchers in this field are facing in efforts to disentangle the effects of chronic stressors from those of critical life events.

Unemployment

Unemployment is a powerful stressor in most populations. There has been an extensive discussion regarding the relationship between unemployment and poor health: Have unemployed subjects poorer health to start with or does exposure to unemployment contribute to poor health? Both explanations seem to be valid [for a more detailed discussion see 49]. Exposure to unemployment is therefore an important clinically relevant factor. The effect of unemployment is different across different social and national groups, however. In countries without unemployment insurance systems and with poverty, the health consequences are more severe than in other countries [see for instance 50], and within countries with such systems those with more financial insecurity are likely to suffer more deterioration of health than others [51]. In addition, the effects vary according to phase of unemployment. This has been described in two longitudinal studies [4, 5]. These show that anxiety levels tend to be particularly high during the anticipation phase (when subjects have been forewarned about upcoming redundancies) and also when several weeks have passed without new employment. During the weeks immediately following job loss, however, the anxiety levels are lower. These fluctuations in affective states are paralleled by changes in physiological parameters such as urinary excretion of catecholamines, blood pressure and serum concentration of serum lipids and cortisol. Elevated risk of severe health consequences such as suicide and myocardial infarction tends to arise when several months of unemployment have passed. This is also the period when more long-lasting consequences for the immune system have been observed [52]. Long-lasting unemployment in youth seems to be particularly dangerous because it may have long-term consequences on health-related life habits and on health [53].

Combinations of Social Background/Childhood Adversity and Adult Life Stressors

Several recent studies have shown that an accumulation of critical life events and/or chronic difficulties during childhood may increase the vulnerability to adult life stressors. For instance, in a recent study, our group has shown that 'adversity in childhood'

(operationalized as an index comprising residential mobility and crowding, parental loss, parental unemployment and parental physical and mental illness including substance abuse) interacts with job strain in generating allostatic overload, a combined measure of chronic stress (see below). Those who had had increased adversity in childhood were more likely when they were reporting job strain to show a high allostatic load (AL) in younger middle age. Those without childhood adversity, on the other hand, were statistically unaffected by job strain with regard to AL [54].

Physiological Correlates

There are many physiological parameters that could be studied in relation to stressors. It should be emphasized that, for the clinician, assessment of physiological variables is particularly meaningful when a patient is followed on several occasions so that development over time could be recorded. Measurement of single variables such as salivary cortisol at one point of time is mostly not meaningful. However, composite variables including several physiological variables could be valuable and definitely of prognostic significance in clinical work. One concept that has been used is AL.

Allostatic overload [3, 55] corresponds to the physiological result of accumulated 'wear and tear' resulting from the accumulation of stressful exposures. In the short run, such exposures activate physiological stress systems (e.g. the hypothalamic-pituitary-adrenal axis) which lead to compensatory changes in secondary physiological systems [e.g. metabolic systems, 56]. These dynamic responses are necessary for the maintenance of homeostasis, a process called allostasis. However, the model of AL suggests that in the long run the accumulation of adaptations mediated by stress systems develops into allostatic overload, a multi-systemic pre-disease state represented by sub-clinical levels of metabolic immunological, endocrine and cardiovascular parameters. AL has been shown to be a useful concept for predicting future morbidity, mortality and psychosocial functioning [57–59]. An AL measure typically includes systolic and diastolic blood pressure, body mass index, waist circumference as well as levels of serum cholesterol, high-density lipoprotein, triglycerides, apolipoprotein A_1, apolipoprotein B, glucose, C-reactive protein and diurnal cortisol. The different domains blood pressure, overweight, atherogenic lipids, protective lipids, immunological status and HPA axis activity (mostly cortisol in plasma or saliva) should be equally represented in the total measure. The clinician could also use proxy measures which include only part of these measures as long as the different dimensions are represented.

The metabolic syndrome is a concept which is close to AL, with a similar set of variables. Chandola et al. [60] have shown in a large longitudinal cohort study (Whitehall II, British civil servants) that repeated exposure for many years to lack of social support at work in combination with job strain ('iso strain') is associated with increased risk of developing metabolic syndrome.

In clinical work, it is important to remember that there is substantial evidence indicating that an accumulation of life stressors may give rise to AL. In practice, it may be valuable to use a check list like the one proposed by Fava et al. [61]. A high stressor load which taxes the coping resources of the patient with concomitant psychosomatic or psychiatric symptoms is a likely indicator of AL (see table 3 in online **O S M** suppl. appendix).

Conclusion

This review has shown that stressors are very important in disease etiology. There is a large scientific literature supporting this notion. Both psychiatric and somatic disorders are affected by long-lasting exposure to adverse stressors. Plausible underlying mechanisms have been studied. Standardized assessments for stressors have also been published and could be widely used clinically. The assessment of work stressors has often been neglected in clinical work. Given the etiological importance that work stressors have according to the literature, this neglect has not been scientifically justified. Methodological work has resulted in several easily administered and extensively tested questionnaires for work environment and life events. In the online supplementary appendix, the reader can find easily administered instruments that are free for use: table 1, a short questionnaire regarding serious life events; table 2, an interview guide regarding life events, and table 3, a list of criteria for AL. In addition, the reader may contact web pages which present other instruments which could be used clinically or for research. See for instance questionnaires about life events, coping, social support: www.drrahe.com – a questionnaire regarding working conditions in general, www.mentalhealthpromotion.net/resources/english_copsoq_2_ed_2003-pdf.pdf – a questionnaire specifically designed to measure effort reward imbalance at work, and www.workhealth.org/UCLA%20OHP%20class%202004/ERI%202004.pdf – a questionnaire designed to assess working conditions in general, particularly psychological demands, decision latitude and social support at work.

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Assessment of Lifestyle in Relation to Health

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Abstract

Habits relevant to health include physical activities, diet, smoking, drinking and drug consumption. Despite the fact that benefits of modifying lifestyle are increasingly demonstrated in clinical and general populations, assessment of lifestyle and therapeutic lifestyle changes is neglected in practice. In this review, associations between unhealthy lifestyle and health outcomes are presented. Particular emphasis will be placed on description and discussion of the standardized assessment instruments and behavioral methods that could be used in clinical practice to measure lifestyles.

After pioneer behavioral medicine research demonstrated how behavior can influence health and how modifying behavior can affect health outcomes [1], an increasing body of evidence links the initiation and progression of several medical disorders to lifestyle and behavior [2–4].

Recently, the need to redesign primary care practice by incorporating health behavior change and information about health-promoting behaviors has been underscored [5, 6]: half of the deaths that take place in the US can be attributed to chronic diseases that are all heavily influenced by 'largely preventable behaviors and exposures' [7].

Consequently, there is growing awareness that contemporary medicine needs to focus on lifestyle changes for primary prevention, for secondary intervention, and to empower patients' self-management of their own health behaviors [8].

Humans naturally form 'habits' or 'style', which are recurrent and often unconscious patterns of behavior [9]. Any behavior in which control and choice are impaired is abnormal by definition and thus a source of clinical concern. Curt Richter [10] first discussed the concept of motivated behaviors: motivated (driven) behaviors develop through a combination of (a) specific physiological features, which stimulate the drive and respond to its satisfaction with (b) learning, which is the result of the influence of the environment on the responses generated by the drive. Craving drives (derived from powerful physiological impulse) combined with

conditioned learning, overwhelm an individual's capacity to direct and modify his or her actions [11].

Behaviors relevant to health include physical activities, diet, sleeping, smoking, drinking and drug consumption [12]. Disorders of such motivated behaviors could come either from some disarrangement of the drive mechanisms or from a maladaptive life experiences that misled the learned response patterns [11]. There are several aspects that McHugh and Slavney take into account to define a disordered behavior [11]. A disordered behavior may, for example, be tied to its *goals.* Alcohol dependence can be seen as behaviors with disordered goals. The *means* to getting to a goal represent another way in which a behavior can be deviant and disordered. Examples may include the use of dangerous sedatives for sleep. The *consequences* of some behaviors identified them as dangerous and injurious. Examples include lung cancer from cigarette smoking, and coronary artery disease and obesity with high-fat dietary preferences [11].

As remarked by Wise [5], poor healthy behaviors may be worsened also by psychosocial variables that affect health and contribute to the prevalence of comorbid anxiety and depression in primary care populations. For example, demoralization in the primary patient, if untreated, often promotes unhealthy attitudes and behaviors such as substance abuse or lack of compliance [5]. These examples, however, constitute a small minority of the behavioral problems requiring explanation and treatment. More frequent are those behaviors that emerge in individuals who have no obvious diseases or defects [11]. Physicians, psychiatrists, psychologists should question how to interrupt these dangerous behaviors or, when that proves too difficult, protect people from their unhealthy consequences [11]. According to this need for behavior modification, a constant interplay between assessment and therapeutic strategies should be promoted. Measurement of lifestyle behaviors is thus necessary for the identification of causal associations between unhealthy lifestyle and health outcomes, description and quantification of the dose-response relationships between lifestyle and health outcomes, documentation of changes and differences in unhealthy lifestyles within and between individuals, respectively, over time, formulation of public health recommendations, the validation of intervention programs, and comparison of unhealthy lifestyles levels between populations, particularly when cultural and language differences exist.

However, despite considerable evidence for the importance of the assessment of lifestyle and therapeutic lifestyle changes in both clinical and normal populations, it still is underutilized [13–16].

Assessing Behaviors: Behavioral and Quantitative Approaches

Kanfer and Saslow [17] commented on traditional methods of data collection for behavioral analysis: the patient's verbal report, his non-verbal behavior during an

interview and his performance on psychological tests. To evaluate behaviors in clinical practice, the authors [17] stated that, not only clinimetric and psychometric assessments are essential to do behavioral analysis: if one views behavior disorders as sets of response patterns which are learned under particular conditions and maintained by definable environmental and internal stimuli, an assessment of the patient's behavior only based on the verbal report remains insufficient for a complete analysis and for prediction of his daily behavior. '…a functional approach of behavior has the advantage that it specifies the causes of a behavior in the form of explicit environmental events which can be objectively identified and which are potentially manipulable…' [18, p. 3]. Kanfer and Saslow [17] thus suggested a series of data categories as essential in order to help the clinician in the collection and organization of information for a behavioral analysis. This list involves the analysis of the problem situation (frequency, intensity, duration, appropriateness), the circumstances where the problem appears (antecedents, consequences for the patients and the others in his environment), the motivational aspects associated with the problem (analysis of the reinforcing stimuli), the patient's characteristic behavioral development and patient's deficits and excesses of self-controlling behaviors. To determine what resources can be used and limitations must be considered during the treatment, also a sociocultural-physical environment analysis should be done.

Standardized interviews and tests may collect behavioral samples of the patient's reaction to a real problem situation in a relatively stressful interpersonal setting. Psychological tests can thus gather not only quantitative scores but they can also be treated as a small-scale life experience, yielding information about the patient's interpersonal behavior and variations in his behavior as a function of the nature of the stimulus conditions [17]. In this chapter, we will examine the methods of behavioral assessment and standardized tools for those lifestyles (physical activity, dietary intake, smoking and alcohol consumption) currently declared by international guideline recommendations to be the major preventable risk [19].

Variations on traditional testing procedures should be also obtained by using role playing, discussion, and interpretation of current life events. Observations of interaction with significant others can also be used for the analysis of variations in frequency of various behaviors as a function of the person with whom the patient interacts. The patient may be asked to provide samples of his/her own behavior by using tape recorders for the recording of segments of interactions in his family, at work, or in other situations during his everyday life [17].

Habitual Diet Intake and Health

The role of dietary factors in the development of chronic disease is not fully acknowledged and is based mostly on indirect data [14]. However, epidemiologic evidence suggests that unhealthy dietary parameters are associated with increased risk for

obesity, type 2 diabetes, and heart disease [20–22], and a change in dietary choice seems to reverse or moderate the disease burden of some common risk factors related to coronary heart disease, diabetes, some cancers, and stroke [23]. Today, assessing diet intake and enhanced adherence to dietary guidelines are recommended [24].

Dietary and Nutritional Assessment

The goal of dietary and nutritional assessment should be to identify appropriate and pragmatic areas of change in dietary lifestyle [25]. A primary nutritional assessment should take no more than 5–15 min, and it should obtain the following information: relevant laboratory and anthropometric data and the patient's current diet. Cultural and behavioral factors that are pertinent to a patient's food choices should also be evaluated [25, 26].

Anthropometric data should include the patient's body mass index [BMI = body weight (in kg) ÷ stature (height, in meters) squared] and the body fat distribution (a local predominant abdominal fat increases the risk of complications such as metabolic syndrome and coronary heart disease) [22]. Recommended laboratory data should include total cholesterol, HDL, triglycerides and LDL. Supplemental and specific lab test may be appropriate in assessing the nutritional state in special population such as Crohn's disease, colitis, diverticular disease, renal disease and patients who present unexplained gastrointestinal distress, anemia or unintentional weight loss [25, 26].

A complete dietary and nutritional assessment then provides for obtaining relevant information from the current diet. This will help determine which dietary lifestyle changes are reasonable for a given patient and any beneficial dietary habits that may be increased. Diet intake can be evaluated directly and indirectly [14]. Direct measures are aimed at counting the absolute amount of habitual diet intake. There are several methods used to assess dietary intake directly: dietary records, 24-hour dietary recall, food frequency, brief dietary assessment instruments, diet history, blended instruments [27]. Indirect methods to assess habitual dietary intake consist of trying to measure an indicator of the amount of habitual diet intake through, for example, biological markers [14]. The combination of different methods probably would give the most valid estimate [14]. The most common direct methods to assess habitual diet in a clinical setting are presented in this review. For more details, see Thompson and Subar [27].

Dietary Records or Food Diary
The dietary record method has the potential for providing quantitatively accurate information on food consumed during a recording period [26, 27]. For the dietary record approach, the respondent records the foods and beverages and the amounts consumed over one or more days. The amounts consumed may be measured using a scale or household measures (such as cups, tablespoons), or estimated using models,

pictures. Recording periods of more than 4 consecutive days are discouraged because of respondent fatigue [28, 29]. At the end of the recording period, a trained interviewer should review the records with the respondent to clarify entries and to probe for forgotten foods. Since the information should be recorded at the time of the eating occasion, the awareness of recording food may alter the dietary behaviors the tool is intended to measure [27]. This effect is a weakness when the aim is to measure unaltered dietary behavior. However, when the aim is to enhance awareness of dietary behavior and change that behavior this effect can be seen as an advantage. Recording, by itself, has been shown to be an effective weight loss technique [29]. Pilot study testing this approach found improved self-monitoring and adherence to dietary goals [30].

24-Hour Dietary Recall

A brief nutritional assessment tool commonly used in clinical setting is the 24-hour dietary recall. For the 24-hour dietary recall, the respondent is asked to remember and report all the foods and beverages consumed in the preceding 24 hours or in the preceding day. The rationale behind the utility of this instrument is that most people have little variability in dietary habits and are remarkably consistent with caloric intake and food choices. The recall typically is conducted by interview, in person or by telephone [31, 32], either computer assisted [33] or using a paper and pencil form. The 24-hour recall is probably the best-described quantitative method to assess dietary intake [14, 31]. An abbreviated assessment may be performed by obtaining only the previous evening's intake (the evening is when the majority of calories are consumed). Because there is relatively little burden on the respondents, the 24-hour recall method is useful across a wide range of populations. In addition, interviewers can be trained to capture the detail necessary by avoiding leading questions and helping in reporting portion sizes. In contrast to other record methods, dietary recalls occur after the food has been consumed, so there is less potential for the assessment method to interfere with dietary behavior [27]. The main weakness of the 24-hour recall approach is the high rate of underreporting: factors such as obesity, gender, social desirability, restrained eating, education, literacy, perceived health status, and race/ethnicity have been shown in various studies to be related to underestimation [27, 34–36].

Food Frequency Approach

If the clinician is especially short on time, another assessment tool for diet intake is the Food Frequency Questionnaire (see online suppl. appendix), which is the quickest way to identify dietary patterns. Used in combination with the 24-hour recall, this is the best way to identify protective and detrimental components of the patient diet. The food frequency approach [27, 37] asks respondents to report their usual frequency of consumption of each food from a list of foods (100 categories) and frequency of use response categories (usually over an extended period such as last

3 months or last year) in order to collect a qualitative, descriptive and non-quantitative information about habitual food consumption [14]. Clinicians should focus on one or more key diet areas that are correlated with their patient's health concerns [38]. Food frequency assessment can also reveal what is missing in the diet. This information is equally important from a clinical point of view. The major limitation of the food frequency approach method is that it contains a substantial amount of measurement error [14, 27] and the difficulty in making the distinction between frequency and quantity [14].

Behavioral and Psychosocial Factors
Cultural and behavioral factors that are pertinent to a patient's food choices should also be evaluated. They include: work and other time constraints, weekend planning, timing of intake and regularity of meals, travel, age and number of children, who cooks, who purchases food, the health of other family members, family diet habits, exercise habits, cultural and religious practices. The number of previous attempts to lose weight should be taken into account, and a referral to a psychologist should be considered in the case of very low or very high BMI or in the case of possible eating disorders [39].

Physical Activity and Health

The medical literature clearly demonstrates beneficial effects of physical activity on a number of parameters that affect health and longevity [40, 41]. However, most data on the benefits of exercise come from observational trials [42]. There are no high-quality, long-term, randomized, controlled trials of exercise for prevention of cardiovascular disease or death. Observational studies, however, suggest that all-cause mortality is decreased in those patients who exercise regularly [42–61]. Exercise may provide unpretentious protection against breast cancer [62–65], pancreatic cancer [66], and other intestinal cancers [67]. A greater reduction in body fat is associated with diet integrated with exercise compared with diet alone [68]. Exercise in the absence of reduction in caloric intake may still result in weight loss and a reduction in body fat [69–70]. Intense exercise modestly advances short- and longer-term smoking cessation in women when combined with a cognitive-behavioral smoking cessation program [71], and improves exercise capacity and delays weight gain following smoking cessation [72]. Regular exercise has been shown to reduce stress, anxiety and depression [73, 74]. In a randomized trial, higher exercise energy expenditure was associated with greater improvement in measures of both physical and psychological quality of life [75]. While exercise is also associated with a small increased medical risk during or just after activity, the health benefits of exercise overcome that risk [76–81].

Currently, there are twelve commonly used physical activity recommendation guidelines for what is seen as the lower limit of acceptable physical activity [82].

Nevertheless, lack of physical activity remains a major health problem [43]. The problem of inactivity is related to the fact that physicians do not routinely screen patients for physical activity or provide counseling [83, 84]: only 13% of sedentary individuals reported that their physicians gave them advice about increasing physical activity [85] and 34% of patients reported being counseled about exercise at their last physician visit [86].

Assessment of Physical Activity

Physical activity was defined by Caspersen et al. [87] as 'any bodily movement produced by skeletal muscles that results in energy expenditure'. Components of total energy expenditure include basal metabolic rate, which typically encompasses 50–70% of total energy expended, the thermic effect of food, which accounts for another 7–10%, and physical activity [88, 89]. This last component, physical activity, is the most variable component. Physical activity is measured in terms of the time it takes (duration), how often it occurs (frequency) and its intensity (the rate of energy expenditure – or rate at which calories are burnt) [90]. Although these components make up a physical activity profile, research has shown that the total amount of physical activity (minutes of moderate-intensity physical activity, for example) is more important for achieving health benefits than is any single component (frequency, intensity, or duration) [91, 92].

Valid and appropriate measurement of physical activity is a challenging task, because the relative contribution of each of these components can vary considerably both within and among individuals and populations. Therefore, in examining the relationship between physical activity and a disease or condition, it is important to focus on the dimension (or dimensions) of physical activity most likely to be associated with the specific outcome of interest [93]. Methods to assess physical activity can be divided into objective methods and subjective (self-rated or observer-rated) instruments [94].

Observer Methods

Observer-dependent methods based on biological and physiological approaches (e.g. heart rate monitoring, accelerometry and doubly labeled water) generally require some type of monitoring, and are thus harder to apply in large population studies than subjective assessments. Typically, these methods have been restricted to relatively small sample sizes and are considered 'gold standard' for the validation of other physical activity tools [93, 94]. Within this group we can find physiological approaches to measure energy expenditure (such as doubly labeled water, indirect calorimetry, heart rate monitors, ventilometry, cardiorespiratory fitness, calorimetry) and motion sensors. The latter method allows to get the best valid and real measure of habitual physical activity [14, 93–96].

Subjective Methods

The American College of Sports Medicine's journal devoted an entire supplement to describe more than 30 different instruments for subjective physical activity evaluation [94–97].

Physical activity tools can either ask about usual activity or ask about activity done within the past week, month, year, or even over a lifetime. This is the case of instruments such as physical activity logs and recalls. In the physical activity record, the patient is asked to report the time spent doing different types of activity during a given time period. Typically, physical activity logs provide a list of specific activities to choose from [89, 93]. There is a risk of losing important information, in particular, low-intensity activities tend to be underrepresented. In recalls, the study participant is asked to recall past activity, usually in an interview, in person or by phone [94–98]. The time frame could be anywhere between 24 h, a week, a year or a lifetime. Recall surveys may sometimes query the frequency and duration of activities performed over the past week. The disadvantage of the recall method is the time and cost of educating the interviewers, calling the study participants and coding the data.

Short time frames show two advantages over long time frames: the estimates are less vulnerable to recall bias and more practical to validate with objective tools. However, assessment over a short time period is less likely to reflect 'usual' behavior, as activity levels may vary with seasons or as a result of illness or time constraints. To obtain the best estimate of physical activity levels, some questionnaires include assessment over both a short and a long time period [93, 94].

An activity questionnaire can ask a study participant to assess his/her physical strain/fatigue on an ordinal scale when self-rating concurrent work load: this evaluation falls in the psychophysical rating scales sphere. The most popular psychophysical rating scale is the Borg scales [99].

Standardized questionnaires are also available for evaluating physical activity. Overall, standardized questionnaires are typically chosen for population studies because they possess the characteristics of non-reactiveness (they do not alter the behavior of the individual being surveyed), practicality (there are reasonable study costs and participant convenience), applicability (the instrument can be designed to suit the particular population in question), and accuracy (it is both reliable and valid) [93, 95, 96].

Standardized questionnaires for activity can have several formats: global close-ended multiple choice questions, single-item and comprehensive questionnaires [93].

Global close-ended multiple choice questions may ask individuals whether the person surveyed is more active compared to others of their age and sex [94].

Single-item questions ask about one's overall level of physical activity by ranking it on a 5-point scale [94]. Example of single-item questions can be: 'For how many hours per week, on average, do you engage in activity strenuous enough to build up

a sweat?' [94]. Single-item questions lack the ability to capture all daily activities, but give a quick estimate of some components of physical activity.

Comprehensive standardized questionnaires provide more complete information compared to global and single-item questions. Some give an extensive list of activities and ask participants to indicate the duration and frequency of the activities in which they participate. These questionnaires are often modeled after the Minnesota Leisure Time Physical Activity Questionnaire published in 1978 [94, 100].

Excessive Physical Activity

Recent research has also suggested that excessive exercise can become a compulsive behavior that may affect psychological health [101]. Excessive exercise can become a compulsive behavior, where individuals feel compelled to exercise despite injuries, obligations or attempts to reduce their activity [102]. Exercise dependence is considered to reflect a craving for physical activity characterized by a multidimensional and maladaptive pattern of exercise that can lead to both clinical impairment and psychological distress [102–105]. The Exercise Dependence Questionnaire (EDQ) [106] is a 29-item inventory where responses are rated on a 7-point Likert type scale (from 1 = strongly disagree to 7 = strongly agree). The EDQ contains 8 subscales that are considered to reflect the multidimensional nature of the construct. The first subscale assesses the experience of withdrawal symptoms following a period of abstinence from exercise, positive reward to be gained from exercise, awareness of abnormal exercise behavior (defined as insight to the problem and interference with social and family). Three subscales are considered to reflect different forms of motivational regulation that sustain exercise behavior: desire to control his or her weight, social reasons for exercise, physical health reasons to exercise. The remaining subscale evaluates the belief that the behavior is rigid, stereotyped and excessive. It has been designed to examine possible relations between exercise dependence and eating disorders and to discriminate between primary and secondary exercise dependence; its clinical utility therefore seems to be significant [106].

Alcohol, Smoking and Drug Consumption: A General Overview

Most of the data concerning drug and alcohol consumption and smoking research draw upon epidemiological data, where the main focus of the measurement is on the level of each product consumption and health problems or psychosocial functioning. More recent investigations pay attention to the interactive effects of the combination of different substances and health [14].

Instruments included in this domain are designed for two general clinical functions: screening and case finding or treatment planning and monitoring. Screening

measures may be useful in non-specialty settings in order to alert to the need for more extensive assessment of substance-related symptoms for patients who present for difficulties other than the substance use. The treatment planning and monitoring measures are designed to help clinician optimize the intensity of the therapy and the changes produced during the treatment [107].

Inaccurate information represents the main problem in assessing substance use consumption. Patient denial is a significant barrier to identifying patients needing help especially for alcohol and drugs abuse. Denial may exist even when the patient is directly asked about use or confronted with behaviors suspicious for substance abuse [108]. The major part of the measures in this area is however self-rated. In this case, it may be helpful and necessary, in order to increase the validity of the assessment, to obtain reports from significant others or use biological measures [107].

Alcohol Consumption and Health

Alcohol consumption has increased globally in recent decades, and today is the world's third largest risk factor for disease and disability in middle-income countries [108]. Alcohol is a causal factor for many medical diseases such as neurological and mental disorders [109], gastrointestinal diseases and cancer [110], and cardiovascular diseases [111]. Alcohol is also significantly associated with unintentional injuries (an alcohol intoxicated person can harm people by involving them in traffic accidents or by negatively affecting coworkers, relatives, friends or strangers) and intentional injuries (suicide and violence) [1]. Alcohol consumption and problems related to alcohol vary widely around the world, but the burden of disease and death remains significant in most countries [108]. The harmful use of alcohol is a particularly grave threat to men [108]. Overall, hazardous and harmful drinking patterns, such as drinking to intoxication and binge drinking, seem to be on the rise among adolescents and young adults [108, 112, 113]. Some studies suggest that moderate consumption may reduce the risk of myocardial infarction and other heart diseases, but what constitutes 'moderate' depends on age, sex, genetic characteristics, coexisting illnesses and other factors, and its benefit on health consequences is uncertain [114].

Assessment of Alcohol Consumption

Assessment of alcohol misuse requires a careful history that examines the quantity and frequency of alcohol consumed, its impact on functioning, psychological and physiologic effects of alcohol consumption and cessation [115].

The spectrum of alcohol use extends from abstinence and low-risk use (the most common patterns of alcohol use) to risky use, problem drinking, harmful use or alcohol abuse, and the less common but more severe alcoholism and alcohol dependence

[116–120]. Consumption and the severity of consequences increase according to the drinking habit: men who drink more than 4 standard drinks a day (or more than 14 per week) and women who drink more than 3 a day (or more than 7 per week) are at increased risk for alcohol-related problems [121].

The US Preventive Services Task Force recommends screening for alcohol misuse in all adult patients [114, 122]. In the clinical setting, the prevalence of unhealthy use of alcohol is 7–20% or more among outpatients, 30–40% among patients in emergency departments, and 50% among patients with trauma [115–116]. US Department of Health and Human Services Recommendations [123] suggest to clinicians to routinely consider the possibility of unhealthy alcohol use in patients with hypertension, depression, insomnia, abnormal liver enzyme levels, heartburn, anemia, thrombocytopenia, injury, or problems in social life or at work [113]. The assessment for alcohol consumption should be a part of a routine examination with particular attention before prescribing a medication that interacts with alcohol, or situations that require attention, coordination, or skill (e.g. driving). Special vigilance should be paid to patients who have a family history of alcoholism, who smoke cigarettes (comorbidity is common), who have anxiety or personality disorders (particularly antisocial and histrionic personality) [124, 125].

Standardized Tools for Alcohol Consumption
Several validated questionnaires have been developed to identify alcohol misuse [107, 115]. Questionnaires can be completed by the patient prior to the visit with clinician review at the visit, or questions can be posed at the time of the office encounter [115]. The most important screening and case finding tools in primary care (non-specialty settings) are [107, 126]: the Alcohol Use Disorder Identification Test (AUDIT; see online suppl. appendix) [127], the CAGE questionnaire (see online suppl. appendix) [128], TWEAK test [129] and the Michigan Alcohol Screening Test (MAST) [130]. The AUDIT is the tool preferred for evaluation by the National Institute on Alcohol Abuse and Alcoholism clinician's guide, and its psychometrics characteristics are better overall [107, 114, 131, 132]. CAGE and TWEAK are both extremely brief but are mainly focused on detecting alcohol-related use and dependence diagnoses [107]. In particular, TWEAK was specifically designed to detect women with alcohol use disorders, and it showed to be less specific in screening clinically significant alcohol use disorders in men [107]. The MAST is the longest screening tool for alcohol abuse and dependence [133, 134], and for this reason it is primarily used as a research tool rather than in clinical practice. The most commonly used standardized tools for alcohol consumption in clinical settings are described below: the AUDIT and the CAGE [107, 115].

Alcohol Use Disorder Identification Test
The AUDIT comes both in a clinical interview and self-report format consisting of ten questions [107, 127, 132]. Originally developed as a screening instrument for use

in primary setting to detect hazardous or harmful alcohol consumption, it is now used in a range of clinical and non-clinical settings. The 10-item core self-report or clinician-administered tool covers three different aspects of drinking: quantity and frequency, indicators of dependence and adverse consequences suggesting harmful use [107, 127, 132]. A positive score on the AUDIT (an optical cutoff score of 8 is accepted for identifying individuals with alcohol problems) alerts clinician to further investigation [107,132]. The full 10-item AUDIT has also been validated in shortened 3- or 4-item versions [132]. High face validity (that limits its utility for patients who are motivated to deny their problems related to alcohol abuse) and some gender bias (cutoff score of 8 showed to be too high for detecting alcohol problems in women) represent the major limitations of this instrument [107].

CAGE Questionnaire
The CAGE [128], where each of the letters in the acronym refers to one of the 4 questions concerning the lifetime history of clinically significant alcohol problems, can be administered in a self-report or clinician interview format. Because of its brevity (it takes 1 min to be administered and scored) is one of the most widely used methods to screen for alcohol use disorder [107]. One or two positive responses to any CAGE questions suggest the need for closer assessment [135–137] for alcohol-related disorder. However, the CAGE criteria have been criticized for being insufficiently sensitive for detecting alcohol consumption in populations who have not yet developed the social and psychological stigmata of severe alcohol use disorders and do not distinguish between current and past alcohol use [107, 138].

Single Question Screening
In order to detect alcohol consumption, one-item questions may be nearly as effective as longer questionnaires, while questionnaires are more effective for detecting alcohol abuse or dependence than general questions [115, 139, 140]. Single-question tools may facilitate screening in situations where time is limited. Open questions may facilitate the assessment ('Do you sometimes drink beer, wine, or other alcoholic beverages?') and then further evaluating only those patients who acknowledge any use. A positive response should be followed by a screening test. In appropriate cases, standardized interviews can determine whether an alcohol use disorder is present, and its severity. A strategy for screening proposed by the National Institute on Alcohol Abuse and Alcoholism is published [114].

Laboratory Tests
Laboratory tests (e.g. levels of glutamyltransferase and carbohydrate-deficient transferring) are not more sensitive than screening questionnaires in the outpatient setting for detecting heavy or problem drinking and do not provide incremental value over questionnaires [117,141]. While laboratory testing is not indicated for general screening for alcohol abuse, it may have a role in providing motivational feedback,

monitoring behavioral change, and it can greatly enhance the validity of patients' self-reports [107].

Other Measures

Other standardized interviews for treatment planning and monitoring are available to diagnose alcohol abuse and dependence, to help clinician optimize the intensity of the therapy and the changes produced during the treatment of an alcohol disorder. Clinicians may choose among Timeline Followback [142], Alcohol Dependence Scale [143], Addiction Severity Index [144], Clinical Institute Withdrawal Assessment for Alcohol [145], Alcohol Expectancy Questionnaire [146], Drinker Inventory Consequences [147] and Obsessive Compulsive Drinking Scale [148]. For further details, see Rush et al. [107].

Smoking and Health

Cigarette smoking is estimated to cause over five million deaths worldwide each year and over 400,000 deaths each year in the US, making it the leading preventable cause of death [7, 19, 149]. The three major causes of smoking-related mortality are atherosclerotic cardiovascular disease, lung cancer, and chronic obstructive pulmonary disease [150]. Despite the clear evidence that quitting smoking decreases the risk of lung cancer and many other cancers, heart disease, stroke, chronic lung disease, emphysema, and other respiratory illnesses, the likelihood of developing cardiovascular or chronic pulmonary disease remains high even after quitting [151].

By 2030, there will be at least another 2 billion people in the world. Even if prevalence rates fall, the absolute number of smokers will increase [152]. Cigarette smoking is widely viewed as an addiction influenced by a wide range of psychosocial and physiological factors, including (but not limited to) the pharmacologic effects of nicotine. These include the conditioning to numerous interoceptive and exteroceptive stimuli, including emotions and environmental triggers, various socioeconomic factors, personal characteristics, and social influence factors (e.g. the cultural differences with regard to acceptance of smoking) [153].

Assessment of Smoking Consumption and Nicotine Dependence

Despite the benefits of smoking cessation, clinicians are not adequately screening and treating patients who smoke. Only 50% of smokers seeing a primary care physician in the past year were asked about their smoking or urged to quit [154].

The Agency for Health Care Policy and Research guidelines recommend that the tobacco use status of every patient treated in a healthcare setting be assessed and documented at every visit [155]. This practice has been shown to increase the likelihood

of smoking-related discussions between patients and physicians and to increase smoking cessation rates [156–158]. A meta-analysis of trials assessing the impact of clinician tobacco counseling found that counseling was associated with a small but significant increase in overall cessation [159]. Smoking cessation clinician counseling has traditionally occurred in the setting of an outpatient office visit, but is also of benefit to hospitalized patients who smoke, particularly those admitted with acute myocardial infarction [160–162]. Despite the growing interest in the relationship between smoking and health, measures to assess smoking are still simple, hardly standardized and psychometrically not well evaluated [14]. Questions usually concern the number of cigarettes smoked in the last 24 hours, in the last 7 days and the last year. Smoking history is also collected together with the number of quitting attempts, the age at the first cigarette and the brand of the product. Today, many tobacco researchers and clinicians are interested in the concept of tobacco dependence, which is considered a hypothetical construct involved to explain smoking relapse, heavy drug use, and severe withdrawal symptoms. The extent of nicotine dependence is thus considered an alternative, even though more indirect, approach to relate smoking consumption to health. Nicotine dependence can be measured by qualitative, objective and quantitative measures [163].

Qualitative Methods
The simplest approach to measuring dependence on cigarettes is a basic qualitative approach that uses questions to find out whether the smoker has difficulty in refraining from smoking in circumstances when he or she would normally smoke or whether the smoker has made a serious attempt to stop in the past but failed [163].

Objective Methods
The concentration of nicotine or its metabolite, cotinine, in blood, urine, or saliva is often used in research as an objective index of dependence because it provides an accurate measure of the quantity of nicotine consumed, which is itself a marker of dependence. Carbon monoxide concentration of expired air is a measure of smoke intake over preceding hours; it is not as accurate an intake measure as nicotine-based measures, but it is much less expensive and gives immediate feedback to the smoker [163].

Quantitative Methods
The most commonly used tobacco dependence measures are the Fagerstrom Tolerance Questionnaire (FTQ) [164] and the Fagerstrom Test for Nicotine Dependence (FTND) [165]. The FTND assessment of physical dependence was derived from the FTQ and was intended to overcome the psychometric and validity limitations of the FTQ [164–166].

The FTND [165] was designed to provide an ordinal measure of nicotine dependence related to cigarette smoking. In its six items, the test evaluates the quantity

of cigarette consumption, the compulsion to use, and the dependence. The scale is useful as a screen but also as a severity rate for treatment planning and prognostic value. Scoring consists of yes/no items and multiple-choice items scored from 0 to 3. The total score yielded from the items range from 0 to 10. The average score in randomly selected smokers is 4–4.5, whereas in cigarette smokers seeking treatment the mean score is from 5.2 to 6.3. No specific cut points exist for the diagnosis of nicotine dependence. However, the total score of FTND can be used as a classification of the degree of severity of dependence as follows: very low (0–2); low (3–4); moderate (5); high (6–7); very high (8–10) [108]. Its brevity (it takes about 3 min to be completed) and the easy scoring make it an efficient method to obtain clinical information. The FTND can be incorporated into a general health and lifestyle screening questionnaires for clinical and community settings. Of all the items in the questionnaire, cigarettes per day and time to first cigarette of the day seem to be the most important indicators of dependence [163, 166].

The Cigarette Dependence Scale (CDS) was developed by evaluating smokers through mail and Internet to assess signs that smokers believed indicated addiction to cigarettes [167]. There are two versions of CDS: 5- and 12-item scales. The CDS is a continuous measure of dependence that appears to reflect both DSM-IV/ICD-10 as well as FTND measure. The CDS is a new instrument; therefore, only a modest amount of validity evidence supports its use. The face validity of its content, its high reliability, and the availability of brief forms should promote its clinical use when more validity data are available [166].

The Nicotine Dependence Syndrome Scale, a 19-item self-report measure, was developed as a multidimensional scale to assess nicotine dependence based on Edwards's theory of the dependence syndrome [168]. Applying this syndromal approach to tobacco dependence, Shiffman et al. [169] developed a 23-item scale (then revised into a 30-item scale and ultimately pared to a 19-item version) aimed at addressing five different dimensions of nicotine dependence. Drive reflects craving, withdrawal, and smoking compulsions; priority reflects preference for smoking over other reinforcers; tolerance reflects reduced sensitivity to the effects of smoking; continuity reflects the regularity of smoking rate, and stereotypy reflects the invariance of smoking.

The assessment of smoking habits to be reliable and valid cannot restrict itself to asking subjects to report the amount of tobacco products smoked, type or brand and the frequency of smoking, but should also involve a measurement of the subject's typical smoking style [14]. The Winsconsin Inventory of Smoking Dependence Motives (WISDM-70) is a 68-item measure developed to assess dependence as a motivational state [170]. In other words, this scale attempted to assess the processes that lead to dependence in the way that a physician would use blood pressure to predict end-state organ damage. The intent was to craft self-report measures that were relatively direct indicators of the motivational press to use drug in a dependent manner. This measure has 13 theoretically based subscales designed to tap different smoking

dependence motives: Affiliative attachment, Automaticity, Behavioral choice/melioration, Cognitive enhancement, Craving, Cue exposure/associative processes, Loss of control, Negative reinforcement, Positive reinforcement, Social/environmental goals, Taste/sensory properties, Tolerance, Weight control. The WISDM-68 has good psychometric properties that allow dependence to be assessed as a multidimensional motivational state. The clear theoretical basis of this measure and its length suggest that the WISDM-68 is more appropriate for theory-driven research than for clinical purposes [166].

More research on the suitability of these measures in different genders and races, and with psychiatric comorbidities is required. With more research into the construct validity of these new measures, researchers may develop a better understanding of mechanisms underlying tobacco dependence and their relation to various theoretically, societally, and clinically important criteria [166].

Illicit Drug Consumption and Health

According to several cross-sectional studies of the prevalence of alcohol/drug abuse and addiction, up to 40% of hospital admissions are related to substance abuse and its sequelae [171]. Patients who are intoxicated are more likely to be injured in traumatic accidents, and there is a significant association between having a substance use disorder and injury from physical trauma [172]. Drug abuse is more prevalent in patients who are depressed, anxious, or have any other psychiatric comorbidity (including personality disorders), and in those who smoke tobacco and who abuse alcohol. Drug use may be associated with other addictive patterns, such as gambling or sexual behaviors, that may require treatment in addition to the chemical dependence [120]. Special attention should be paid in the differential diagnosis of substance abuse in patients who are prescribed addictive drugs on a long-term basis for the treatment of a disease or a chronic pain syndrome. These patients develop physical dependence, but do not meet the behavioral criteria for drug dependence [120].

Assessment of Illicit Drug Consumption

An important advice should be taken into account in the evaluation of illicit drug consumption. In order to establish some level of comfort for the patient, it is often best to first ask about socially accepted substances, such as nicotine and caffeine (coffee, soda, energy drinks) and next about alcohol use (in particular beer, that is generally not considered to be 'alcohol'). Then you may ask about pills and herbal preparation consumption. The issue of illicit drugs should be the last to treat. By this time, the patient should have a sense that the practitioner is asking for information in a non-judgmental manner. Marijuana, which is considered less problematic by users, widely

prevalent, and carries less social stigma, should be asked about first. Inquiries should then be made about cocaine and heroin use, as well as prescription pain medications. For each substance, patients should be asked about quantity used, the amount of money spent on a daily/weekly/monthly basis for drugs, the frequency of drug use. It may be helpful to find out where, when, and with whom drugs or alcohol are most often used. Finally, it is of importance to evaluate the route of administration (e.g. oral, intranasal) and whether the patient has ever injected drugs in the past or shared needles [120].

Standardized Tools for Illicit Drug Consumption
The CAGE questionnaire, briefly described above as a screening tool for alcohol consumption, has been modified in order to screen for drug use only, and is called the CAGE-AID questionnaire (AID = adapted to include drugs) [173]. High numbers of affirmative responses are related to higher likelihood of chemical dependence, and further investigation by the clinician is warranted [174]. The CAGE-AID is especially useful in settings where there is a high likelihood of drug or alcohol use, such as emergency departments, sexually transmitted disease clinics, and student health centers. The Drug Abuse Screening Test (DAST; see online suppl. appendix) [175] adapted from the MAST [133], is a self-report instrument (20 or 28 items) created to identify a lifetime abuse or dependence drug diagnosis across a wide range of psychoactive substances other than alcohol. DAST covers a wide range of clinical consequences related to drug misuse without being specific about a drug, e.g. diminished control over the drug and tolerance and withdrawal symptomatology. Its total score provides a lifetime measure of drug problem severity. The DAST proved to be clinically relevant in mentally ill adult and in settings in which seeking treatment for drug use was not the main declared patient's goal [107].

Laboratory Tests
Urine, blood, breath, hair, saliva, and sweat are all types of lab tests for drug consumption. Urine testing is most widely used because it is noninvasive, simple to obtain, and yields a detectable concentration of most drugs; however, it does not measure impairment. Blood levels of drugs can provide more information about level of impairment, but must be obtained invasively, and drug metabolism may shorten the time in which a drug can be detected in the bloodstream, compared to urine sampling. The best evidence for long-term drug use is the combination of a good history and a urine toxicology screen [176].

Conclusion

Clinicians continue to be the most respected source of lifestyle modification information [15]. A number of psychological treatments have been found to be effective in

health-damaging behaviors [177]. A basic psychosomatic assumption is the consideration of patients as partners in managing disease. The partnership paradigm includes collaborative care (a patient-physician relationship in which physicians and patients make health decisions together) [178, 179] and self-management (a plan that provides patients with problem-solving skills to enhance their self-efficacy) [180, 181].

The assessments of lifestyle are underutilized despite considerable evidence of their effectiveness in both clinical and normal populations [8]. Methods for assessing lifestyles were presented in this review. To evaluate behaviors in clinical practice via interview, not only clinimetric and psychometric assessment is essential. Behavioral analysis should also include functional analysis of behavior. Several validated developmental and behavioral instruments that are easily and briefly administered are available. Questionnaires are typically chosen for population studies because they possess the characteristics of non-reactiveness (they do not alter the behavior of the individual being surveyed), practicality (there are reasonable study costs and participant convenience), applicability (the instrument can be designed to suit the particular population in question), and accuracy (it is both reliable and valid). However, currently methods to assess diet intake, physical activity, alcohol, smoking and other illicit drugs suffer from serious methodological defects such as underreporting and overreporting and the influence of cultural and social ideas in the definition of what it is considered acceptable consumption [14]. Assessment of the patient's behavior only based on the verbal report remains insufficient for a complete analysis and for prediction of his/her daily behavior; implementation of tools for assessing lifestyle has therefore been recommended [90].

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Assessment of Sexual Function in the Medically Ill: Psychosomatic Approach to Sexual Functioning

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Abstract

Good sexual functioning is a part of overall well-being. Assessment of sexual functioning should be part of any complete psychosomatic assessment. The cornerstone of this assessment is a comprehensive clinical interview of the patient, with, if possible, collateral information obtained from the partner or another clinician. In addition, comprehensive assessment of sexual function should include a physical examination with a special focus on sexual function, laboratory testing and possibly other specialized testing and, in some cases, psychometric assessment. The results of a thorough assessment may serve as a basis for considering possible etiology(ies) of sexual dysfunction, coexisting comorbidities and as a starting point of managing sexual dysfunction.

There are several reasons for addressing psychosomatic assessment of sexual function/dysfunction in this volume. First, this volume focuses on *psychosomatic* assessment. Lipowski [1] defined 'psychosomatic' as 'referring or related to the inseparability and interdependence of psychological and biologic (physiologic, somatic) aspects of human kind'. Balon [2] has argued that sexual function and dysfunction 'with its complex regulation, involving the central nervous system, peripheral nervous system, various hormones, as well as psychological factors, including relationship, the stage of a person's development and life circumstances, seems to be a prime example of the interdependence of psychosocial and biologic/physiologic factors'. Sexual function/dysfunction seems to almost perfectly fit into the biopsychosocial model of illness. It could be also argued that the sexual function/dysfunction area is quintessentially psychosomatic. Second, Fava and Sonino [3] and Lipowski [4] postulated that psychosomatic medicine may be defined as a comprehensive, interdisciplinary framework. Human sexuality, sexual function and dysfunction have become the focus of

many disciplines – psychiatry, psychology, sexology, obstetrics and gynecology, endo-crinology, urology and others. Actually, it seems that a new interdisciplinary field of sexual medicine is gradually emerging. Third, parts of this volume discuss psycho-logical well-being and lifestyle. As Stevenson and Elliott [5] emphasized, 'Sexuality is not a lifestyle issue; it is a quality-of-life issue. The psychiatrist's goal is to maintain, restore, or improve a patient's quality of life, and sexual function should be a routine part of that clinical service mandate'. Fourth, as Swartzendruber and Zenilman [6] stated while proposing a national strategy to improve sexual health, 'Sexual health is an integrated care-delivery and prevention concept that recognizes sexual expression as normative and encompasses preventive and treatment services throughout the life span'. Interestingly, in spite of all arguments that human sexuality and its impairments should clearly be one of its primary areas, psychosomatic medicine does not pay much attention to human sexuality. An example is a recently published well-written introductory book to psychosomatic medicine by Amos and Robinson [7] – it men-tions 'sexual disorders' only in one place, in relationship to the psychiatric aspects of Parkinson's disease. Research in various areas of sexuality is currently done by either psychologists or urologists or gynecologists. The annual meetings of the American Psychiatric Association have almost nothing presented in this area. Human sexuality, as pointed out by Wylie and Weerakoon [8], has limited representation in undergrad-uate and postgraduate health training programs, and training in the area of human sexuality is frequently non-standardized and inadequate [9–11]. The reasons for the psychiatry's and psychosomatic medicine's lack of attention to this important part of well-being and overall functioning are not totally clear. Maybe it is the perpetual stigma of sex, or the heavy emphasis on biology compared to psychology in this area lately, or the lack of solid evidence of the efficacy of psychological interventions for sexual dysfunctions, or the lack of reimbursement for psychological treatments, or the lack of research in this area in general (including imperfect diagnostic criteria), or the conservative politics, or probably all of the above and more. However, the large evidence of the connection of sexual functioning and mental and somatic illness, and of the importance of good sexual functioning for overall well-being underscore the need for psychosomatic medicine's need to reintegrate sexual function/dysfunction into its framework. Incorporating an assessment of sexual function into a regular comprehensive psychosomatic assessment should be the first step in this process.

General Issues

Considering the framework of psychosomatic medicine, impairment of sexual func-tion may occur: (1) as a primary sexual dysfunction in an otherwise healthy individual, or coexisting with other illness, either mental or physical; (2) connected to or inter-twined with another mental or physical illness (or both), either as a sequel of another illness, or triggering an impairment or disorder. Impairment of sexual functioning

may, in these interactions, either worsen the primary illness or be without any effect on it. Sexual dysfunction could, actually, at times, be a marker or predictor of another disease (e.g. erectile dysfunction may be the first sign of cardiovascular disease or diabetes mellitus). In addition, impairment of sexual functioning may occur due to medication for either mental or physical illness, or both. Impairment of sexual functioning due to mental and physical illness and due to medications and drugs of abuse has been summarized in numerous publications lately [e.g. 5, 12–16].

Thus, psychosomatic assessment of sexual function/dysfunction should focus on determining whether the impairment is a primary dysfunction, or whether there is a connection to another mental or physical illness, or to its treatment(s), or a connection to substance abuse; what the connection exactly is and what the possible consequences or impact of the dysfunction are. Psychosomatic assessment of sexual functioning should include all possible avenues such as using physical examination, laboratory testing and possibly various scales and other specialized tests, but one needs to realize that the cornerstone of a good psychosomatic assessment is a *comprehensive clinical or medical interview*. Two recent chapters [17, 18] reviewed clinical and research evaluation of sexual functioning. The following text draws from these chapters and from the vast body of literature on sexual medicine and psychosomatic medicine to propose a comprehensive psychosomatic assessment of sexual function/dysfunction applicable to clinical practice of psychosomatic medicine.

Psychosomatic Assessment of Sexual Functioning

Psychosomatic assessment of sexual functioning, as proposed here, should include the following components:

1 Comprehensive clinical interview of the patient. Obtaining collateral information from the partner or another clinician is desirable, though not always possible.
2 Physical examination with a special focus on sexual function.
3 Laboratory tests and possibly other specialized testing (e.g. neurological evaluation, penile plethysmography).
4 Psychometric assessment.

Including all four components of the assessment would be ideal, but clearly it is not always possible or useful (e.g. see the discussion of psychometric assessment below).

Comprehensive Clinical Interview of the Patient

A clinical interview focused on sexual functioning and its relationship to 'psyche and soma' could be either part of a general evaluation (including the evaluation of patient well-being and/or lifestyle), or an evaluation of a specific illness with possible associated sexual dysfunction or a question about sexual dysfunction only. The

Fig. 1. Traditional model of female sexual response cycle demonstrating all phases (females may achieve more than one orgasm per sexual response cycle, males achieve one orgasm per cycle).
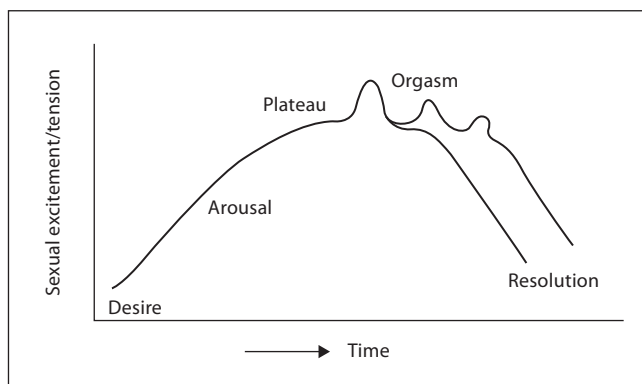
interviewing clinician should be clear about the focus of the assessment. Frequently, the focus is clarified up front by the question(s) posed by the referring clinician or by the patient him/herself. Thus, reviewing the chart, referring physician's note, previously filled-out questionnaire or any other materials should be done, if possible, prior to any interview. This pre-interview review should focus not only on sexual functioning, but also on other illnesses that may impact sexual functioning (almost all), the scope of functional impairment in other areas by any illness, and laboratory test results (see below). While the information obtained through this review provides one with guidance and is frequently invaluable, one should realize that not everything could be accepted at its face value for various reasons (cultural and religious issues, personal issues such as shyness, macho attitude or narcissism) and thus should be continuously probed, compared and viewed in a wider clinical and/or psychological context.

It is important to note that while mental status examination is frequently the crucial or core part of the interview during the usual consultation-liaison or psychosomatic medicine consultation, the 'present illness' description and history are much more important than mental status examination during the psychosomatic assessment of sexual function. Questioning about sexual function/dysfunction should be very specific: general, nonspecific questions like 'How is your sex life?' call for general, nonspecific answers, such as 'OK'. All parts of sexual response cycle should be probed by questioning (for illustration of sexual response cycle see fig. 1). Some examples of the specificity of questioning are [18]:

General: How often do you have sex? Who initiates sex, you or your partner? Do you masturbate?

In relationship to another illness/medication: Have you been more tired/exhausted when having sex lately? Has the frequency/desire/enjoyment/erection-arousal/orgasm changed since you started this medication? Are you afraid of having sex since you had a heart attack? Has the sensation in your genitalia changed lately?

About sexual desire/libido: Do you think about sex often? Do you feel like having sex often? Have there been any changes in your desire to have sex?

About arousal: Do you get easily aroused by your partner? Do you get wet easily (women)? Are you getting hard enough during intercourse (men)? Do you have erections when you wake up?

About orgasm: Do you have any difficulty reaching orgasm? Do you reach orgasm at all?

The interview should be conducted in a serious manner, the interviewer should be comfortable with asking questions about sexual functioning and should acknowledge that the patient may not be comfortable with all questions. The conduct of the interview should be semistructured, starting with open-ended questions and moving gradually, based on the obtained information, to more closed-ended questions. It may be useful to discuss possible connections between certain illnesses and impairment of sexual functioning, as it may help the patient to become more open in discussing his/her sexuality. Like in other areas of assessment, nothing should be assumed.

During the interview, the clinician may use two guiding principles. We describe the first one as a matrix for the interview with a focus on sexual dysfunction (the following is adapted from reference [18], p 31). The interview could be conceptualized as a matrix of three sequential levels of questioning with the following goals:

Level 1. Determine why the patient is seeing the clinician and what has prompted the visit or evaluation. Clarify whether sexual dysfunction is part of the overall complaint. Clarify whether the patient is currently complaining or has previously complained of impairment of sexual functioning. Partner questioning could be quite helpful at this level (difference of opinion as to whether sexual problem exists and in what context it occurs).

Level 2. Determine the patient's sexual dysfunction(s) (e.g. hypoactive sexual desire disorder, erectile disorder). If the patient has more than one dysfunction, determine whether one could be identified as the primary one (e.g. man with erectile dysfunction develops subsequent ejaculation problems). It should be ascertained whether the dysfunction is transient, fluctuating or permanent. Attempt to determine whether the *temporary* characterization of the dysfunction (transient etc.) is influenced by comorbid condition(s) such as cardiovascular or endocrine disease, depression or anxiety. Realize that primary anorgasmia, or organic versus psychological etiology of erectile dysfunction could be, at times, differentiated by temporal history, partner variables (erectile problem with one person and not another) or masturbatory function.

Level 3. Seek information about the possible etiology of sexual dysfunction (e.g. atherosclerosis, marital discord). An assessment of the distress associated with/due to sexual dysfunction could be done at this level, too. Partner involvement could be also helpful at this level.

The second interviewing guiding principle is intertwined with level 3 above and could be summarized in the word 'biopsychosocial'. This guiding principle is as important in the area of sexual functioning as it is important in the rest of psychosomatic

medicine. The etiology of sexual dysfunction could be biological (e.g. atherosclerosis; diabetes mellitus; hypothyroidism; urologic diseases; gynecological problems; medications), psychological (mental disorders such as anxiety disorders, depression, schizophrenia; stress; sexual abuse), or interpersonal/relational (childrearing demands; cultural differences; extramarital affair; marital discord; religious conflict), or multifactorial, involving two or all three possible areas of etiology (one could argue that for instance substance abuse-associated sexual dysfunctions have biopsychological roots or biopsychosocial roots). In addition, various etiologies could be connected one to another and one could influence the other (e.g. depressed patient's sexual desire could be low due to depression and could get even lower due to antidepressant medication, and all that could lead to marital discord that could, in a vicious circle, lower the desire even more). Thus, it is *imperative* that the clinicians probe *all* areas of possible etiology (biopsychosocial) and does not necessarily remain complacent by identifying just one.

The basic elements of comprehensive psychosomatic assessment interview should include (adapted from Derogatis and Balon [18]):

(1) Personal and general data; (2) Reason for consultation/evaluation; (3) Chief compliant in the patient's own words; (4) Information about general mental and physical illness, including review of systems (one could include pertinent laboratory test results, if available); (5) Clarification/delineation of possible sexual dysfunction; (6) Description of the patient's sexual fantasies and/or dreams; (7) Interpersonal issues; (8) Developmental issues; (9) Cultural, moral, religious and social issues pertinent to the patient's sexual functioning; (10) Partner interview whenever possible; (11) General assessment of the patient's sexual well-being. It is important that the interviewer actively searches for connections between illnesses, various functional impairments and sexual dysfunction(s), that he/she looks for pathophysiological links suggested by Fava and Sonino [19]. Complaints of erectile dysfunction in an older male should trigger questions and testing for possible atherosclerosis or diabetes mellitus. Complaints of lower sexual desire and fatigue should initiate questioning about depression and about symptoms of hypothyroidism.

Physical Examination with a Special Focus on Sexual Function

Physical examination is a very important part of a comprehensive psychosomatic assessment of sexual function. It should be performed only by a trained physician or nurse practitioner after the review of systems is obtained. Frequently, the results of physical examination done by the referring physician could be used, but should not be necessarily relied upon. It is possible that the referring physician was focused on a different medical problem and did not pay special attention to sexual organs. It may be desirable to have the physical evaluation of genitalia and/or pelvic examination done by a specialist, e.g. a gynecologist for women and an urologist for men. This specialized examination should focus on any anatomical changes (e.g. cryptorchism,

varicocele) or signs of infection or pain. In such cases, specific questions to the examining physician should be posed. In cases of suspected underlying illness/condition, an examination by another specialist may be required, e.g. a neurologist in cases of erectile dysfunction due to diabetic neuropathy or spinal cord injury, or an endocrinologist in cases of diabetes mellitus, hypothyroidism, prolactinoma and others.

Laboratory Tests and Possibly Other Specialized Testing

Laboratory tests may play a role in determining the underlying biological factors in the etiology of sexual dysfunction or in ruling out possible underlying biological etiology. Examples include determining testosterone level in a young male with low sexual desire (possible hypogonadism), fasting glucose in an older male with erectile dysfunction (possible diabetic neuropathy), prolactin level in a male patient with gradual decrease in sexual desire, erectile dysfunction, headaches, infertility or a female patient with gradual decrease of sexual desire, breast pain, menstrual disturbance (possible prolactinoma).

Recommended laboratory tests for patients with possible sexual dysfunction include total testosterone level, free testosterone level, thyroid-stimulating hormone, prolactin, sex hormone-binding globulin and plasma estradiol. Hopefully, some optional tests, such a complete blood count, fasting glucose, glycosylated hemoglobin A_{1C}, thyroid panel and lipid profile would be available upon referral. If not, they could be ordered based on the clinician's suspicion of the underlying pathophysiology. Further optional laboratory tests include various hormone levels, such as dihydroepiandrosterone, luteinizing hormone, and follicle-stimulating hormone.

In the past, various specialized tests for evaluating the vascular component of penile functioning were done. Those included, for instance, phalloplethysmography, Doppler sonography, dynamic cavernosometry and evaluations of nocturnal penile tumescence. Since the arrival of phosphodiesterase-5 inhibitors, the use of these tests decreased and is done by specialists only. The RigiScan for evaluation of nocturnal penile tumescence has some clinical utility as being helpful in ruling out an organic etiology of erectile dysfunction or, for the patient, 'confirming' the psychological cause(s) of his erectile problems.

As impairment of sexual functioning could be connected to various systems (CNS, endocrine, cardiovascular), consultations/specialist evaluations (e.g. neurological, endocrinological) may be required to complete the psychosomatic assessment.

Psychometric Assessment

Psychometric assessment may provide additional, though not crucial information for the overall psychosomatic assessment of sexual functioning. At the present time, there

are no structured *diagnostic* interviews, such as the Structured Clinical Interview for DSM-IV, or diagnostic scales available in the area of human sexuality. There are many sexual functioning assessment scales available, although not all of them have been properly validated. These scales (and a few structured or semistructured interviews) usually evaluate a certain area of sexual functioning (erectile functioning, female sexual functioning). The majority of these instruments are self-reported inventories [17] and were developed for clinical trials (more of them in the area of female sexual functioning).

Psychometric assessment could still be helpful in several areas: (a) it could help to clarify the symptomatology of sexual dysfunction, especially if the clinician discusses the individual scale items rating with the patient; (b) it may provide some quantification of sexual function/dysfunction; (c) it could serve as an organized and possibly quantifiable way of communication among clinicians, (d) it provides a clearer documentation of changes in sexual functioning (e.g. improvement during treatment) if done serially, and (e) it provides an organized, fairly structured documentation of symptomatology.

Some of the most frequently used measures of sexual functioning include:

Arizona Sexual Experience Scale (ASEX) [20]. A brief self-reported inventory (5 items) for rapid assessment of sexual functioning during administration of psychotropic drugs. It has been used mostly in clinical trials. The validation has no minimal, and there are no published norms.

Brief Male Sexual Function Inventory (BMSFI) [21]. An 11-item self-reported screening inventory assessing current sexual functioning in men.

Center for Marital and Sexual Health Sexual Functioning Questionnaire (CMSH-SFQ) [22]. A 21-item self-report inventory to assess sexual functioning in four instances: male patient, partner, baseline, follow-up.

The Changes in Sexual Functioning Questionnaire (CSFQ) [23]. A 36-item structured interview assessing changes in sexual functioning associated with mental illness and with psychotropic medications (two versions: female – 35 items, male – 36 items). This questionnaire fits well within the principles of clinimetrics. A self-report version is also available.

The Derogatis Interview for Sexual Functioning (DISF) [24]. A 25-item semi-structured interview evaluating the quality of sexual functioning and matching the self-reported version (DISF-SR); it has a male and a female version. This instrument is available in 12 languages.

The Female Sexual Distress Scale (FSDS) [25]. A 12-item self-reported inventory to measure and quantify sexually related personal distress.

The Female Sexual Functioning Index (FSFI) [26]. A 19-item self-reported inventory measuring the quality of female sexual functioning and profile core aspects of female sexual functioning.

Golombok Rust Inventory of Sexual Satisfaction (GRISS) [27]. A 28-item self-report inventory to assess the quality of a heterosexual relationship and both partners' sexual functioning. Six subscales of this instrument actually target domains specific to

DSM-IV sexual dysfunctions (female and male avoidance, female anorgasmia, vaginismus, premature ejaculation and male impotence).

The Index of Premature Ejaculation (IPE) [28]. A 10-item self-reported inventory focused on subjective aspects of premature ejaculation.

The International Index of Erectile Function (IIEF) [29]. A 15-item self-reported inventory devised to provide information about erectile function and capacity, widely used in clinical trials, used by various disciplines. This instrument is considered a gold standard in the area of erectile functioning instruments.

The Profile of Female Sexual Function (PFSF) [30]. A 37-item multi-domain inventory with focus on female sexual functioning, especially low sexual desire, devised for clinical trials by pharmaceutical industry.

The Sexual Function Questionnaire (SFQ) [31]. A 26-item self-reported inventory evaluating all aspects of the female sexual response cycle and dyspareunia.

This list does not include any measures of paraphilias or gender identity disorder, as these scales should be used in a very specialized assessment after these disorders are suspected. Most of these scales are not properly validated and are not very useful outside of the research setting. Clinicians should select one or two scales to become familiar with for their clinical practice. They should be aware of scales' area of use or indication and limitations. The Brief Male Sexual Function Inventory, Changes in Sexual Functioning Questionnaire, DISF, Female Sexual Functioning Index and the Golombok Rust Inventory of Sexual Satisfaction would be probably the most useful 'general' scales; some other scales may be used in more specific clinical situations (e.g. The Index of Premature Ejaculation, The International Index of Erectile Function).

Conclusion

Synthesis of the data obtained from some or all parts of the psychosomatic assessment (clinical interview, physical examination, laboratory testing, psychometric assessment) should be helpful in analysis, similar to the two-level functional analysis proposed by Emmelkamp [32]: macroanalysis, i.e. establishing links among coexisting symptoms, syndromes or diseases to determine which problem should be treated first, taking into account patients' priorities, and microanalysis, i.e. a careful analysis of all symptoms. Psychosomatic assessment of sexual functioning should definitely be a part of any general comprehensive psychosomatic assessment. The clinician should be probing all possible etiologies (bio-psycho-social!) and a possible relationship to any comorbid illness, stress or psychological problem. The questioning should be very specific and nothing should be assumed. Last but not least, clinicians should remember that good sexual functioning is a part of overall well-being. Thus, its assessment and management of its impairment should always be included in the overall management plan.

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Psychological Factors in Medical Disorders Assessed with the Diagnostic Criteria for Psychosomatic Research

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Abstract

The Diagnostic Criteria for Psychosomatic Research (DCPR) are a diagnostic and conceptual framework that aims to translate psychosocial variables that derived from psychosomatic research into operational tools whereby individual patients could be identified. A set of 12 syndromes was developed and grouped in the clusters of abnormal illness behavior (health anxiety, disease phobia, thanatophobia, and illness denial), somatization (functional somatic symptoms secondary to a psychiatric disorder, persistent somatization, conversion symptoms, and anniversary reaction), irritability (type A behavior, irritable mood), demoralization, and alexithymia. This chapter aims to illustrate the criteria for each of the 12 DCPR syndromes and how to diagnose them with the aid of the DCPR Structured Interview, as illustrated in a clinical example.   Copyright © 2012 S. Karger AG, Basel

The DSM-IV criteria for diagnosing somatoform disorders have attracted increasing and considerable criticism for several reasons, including the failure to represent adequately clinical reality, the restatement of the dualistic dichotomy between medical illnesses and psychosocial syndromes, the tendency to overpsychologize somatic symptoms (when axis I disorders are present) or to underestimate psychological aspects (when medical diagnoses are established), and the neglect of subsyndromal conditions, personality and behavioral factors [1, 2]. To the purpose of identifying patients within a given illness population whose psychological factors have a relevant relative weight of clinical significance, in the last decade an international group of investigators proposed the Diagnostic Criteria for Psychosomatic Research (DCPR) [3] that include 12 clusters of clinically important psychosomatic correlates of medical disorders. This paper aims to illustrate how to diagnose the DCPR syndromes by means of the DCPR Structured Interview (DCPR-SI).

The diagnostic criteria for each of the 12 DCPR syndromes are shown in online supplementary appendix A. The DCPR system has undergone extensive validation in the last 10 years from research studies recently summarized in a monograph [4] and two reviews [2, 5]. The DCPR system enables clinicians to identify psychological and subclinical problems in medical patients to a much higher extent than the DSM classification since patients diagnosed with DCPR but not DSM syndromes were 3.6 times more prevalent than patients with DSM but not DCPR diagnoses. Furthermore, it has been able to identify patients with poorer psychosocial functioning and maladaptive illness-related coping in several medical settings (dermatology, oncology, endocrinology, and consultation psychiatry) and to predict treatment outcome in gastroenterology and higher vulnerability for coronary heart disease in postmyocardial infarction [2, 4, 5].

The Diagnostic Criteria for Psychosomatic Research-Structured Interview

The DCPR categories listed in appendix A are assessed through the DCPR-SI (see online suppl. appendix B) which has shown good to excellent characteristics of reliability and validity. Used by trained investigators, the interview has resulted in substantial interrater agreement for all 12 syndromes (Cohen's k ranging from 0.69 to 0.97) [6]. Construct-related validity has been evaluated with sound external criteria by independent studies with different medical samples showing overall correct classification rate of 70–77% for alexithymia [7–9] and 61–73% for type A behavior (TAB) [9].

The DCPR-SI is administered during a face-to-face interview and takes about 15–30 min to be completed. It includes 58 items scored in a yes/no response format evaluating the presence of 1 or more of the 12 DCPR syndromes over the past 6 or 12 months. The interview requires the assessor's knowledge of the patient's main and comorbid medical diagnoses, clinical judgment, information on the course of the medical disorder, and familiarity with the DCPR literature. Psychiatric assessment is not strictly needed but is however suggested in conjunction with the DCPR-SI. Most questions are asked directly to the patient, while some items are to be answered by the interviewer because of the need of extra-interview information, such as the chronology of symptom onset for functional somatic symptoms secondary to a psychiatric disorder and the patient's extraverbal behavior for conversion disorder, TAB, and alexithymia. Items investigating these last aspects are italicized in the DCPR-SI form. Depending on the purpose of the interview (specific medical setting or disorder, or research hypotheses), the DCPR-SI might be administered in part by excluding selected DCPR categories. The duration of the interview may therefore vary. The main characteristic of each syndrome is inquired first, and if the criterion is not met, the interviewer has to skip to the following syndrome. In online supplementary appendix C, a clinical vignette is used as an example for scoring the DCPR-SI and reaching diagnostic conclusions.

In the following description of DCPR clusters, letters and numbers for criteria refer to the DCPR-SI (appendix B).

Abnormal Illness Behavior

The first 4 DCPR clusters (disease phobia, thanatophobia, health anxiety, and illness denial) are related to patients' ways of perceiving, experiencing, evaluating, and responding to their health status that are subsumed into the construct of abnormal illness behavior (AIB) [10] and are issued from Kellner's Illness Attitude Scale [11].

Health anxiety's main feature is the unfounded fear of having a severe disease even without experiencing specific somatic symptoms (A1), as in hypochondriasis, and/or the presence of common somatic symptoms (A2) – two features that are thought to relate to somatosensory amplification. If the patient does not meet these 2 characteristics, the interviewer has to skip to the following 'disease phobia'. Unlike hypochondriasis, worries and fears readily respond to appropriate reassurance (B), even though new worries may ensue after some time, and are short-lived (less than 6 months' duration; C). High prevalence of health anxiety has been found mostly in oncology (38%), consultation-liaison (CL) psychiatry (35%), and frequent attenders in primary care (28%), even though a substantial high proportion of about 10% was found in cardiology, gastroenterology, and dermatology [4]. Psychological treatments focused on explaining to the patient the mechanisms that link emotional distress to selective perceptions of somatic symptoms in a self-perpetuating vicious circle can be suggested for patients with health anxiety [12].

Disease phobia is defined by the experience of severe anxiety, even in the form of panic attack, of suffering from a specific disease (A), for instance AIDS or cancer, unlike the unfounded fear of a having whatever serious disease in the previous 'health anxiety'. Additionally, the patient reports that he or she has been provided with documentable medical reassurance (B) and that the phobic symptoms have lasted for at least 6 months (C). Disease phobia can be distinguished from hypochondriasis because of the phobic quality of fears (acute in disease phobia, constant in hypochondriasis) and the nature of the phobic object (stable over time in disease phobia, changeable in hypochondriasis). The differential diagnosis between hypochondriasis and disease phobia is relevant for treatment planning. The phobic quality of symptoms typically leads to avoidance, and may therefore be treated with in vitro or in vivo exposure strategies, while hypochondriacal patients do not respond to exposure because they tend to exhibit 'doctor-shopping behavior' rather than avoidance. In a sense, disease phobia is related to hypochondriasis as panic disorder is to generalized anxiety. Consistently, the prevalence of the DCPR category of disease phobia is very high in frequent attenders in primary care (34%) and trivial in a community sample (1%) [4].

Thanatophobia is defined by the main characteristic of a sense of impending death or even the firm belief of dying soon, without a real reason, interfering significantly with the patient's level of functioning (A). Differently from health anxiety and disease phobia that are focused on the fear of having a serious disease, thanatophobia is characterized by the frightened anxiety of death and the accompanying avoidant behavior focused on any news related to death (e.g. funerals and obituary notices; B) and any situation related to death, as changing TV channel, interrupting conversations concerning death people or disasters or accidents (criterion C). It is not frequent (prevalence of 0.6% in a community sample and 1.5–3% in clinical settings), even though it is present in a relevant proportion in patients with specific illnesses as myocardial infarction (7%) and cancer (11%), and who make high use of health care services (12%) [4].

Illness denial is placed at the opposite pole with respect to hypochondriasis within the AIB conceptual framework, and is characterized mainly by the minimization, or even conscious failure, of symptom reporting to the physician (A1) and the lack of adherence to appropriate medical advices regarding treatment or other recommendations (A2). Also, the patient has to be fully aware of his or her health condition as it would result from adequate medical explanation about diagnosis and treatment recommendations (B). The high prevalence of this DCPR category in primary care (up to 80%) and CL psychiatry (29%) suggests it might hide under the appearance of 'normality' or lead to hospitalization because of behaviors that foster doubts in the physicians. Denying the burden of physical disease might be an adaptive coping mechanism in some circumstances and at certain degrees, as in the early stage after diagnosis or in the terminal phase of a life-threatening disease because it may alleviate psychological distress. However, within the AIB framework, denying, distorting or minimizing clinical relevance, personal responsibility, long-term prognosis, and need for treatment may have serious health-related consequences [4].

Somatization

The four DCPR clusters of functional somatic symptoms secondary to psychiatric disorders, persistent somatization, conversion symptoms, and anniversary reaction are related to Lipowski's concept of somatization [13].

Functional somatic symptoms secondary to a psychiatric disorder are defined mainly by the lifetime experience of common somatic symptoms (e.g. palpitations, sweating, tremor, becoming flushed, gastrointestinal symptoms, dizziness, muscular pains, persistent tiredness) that often go unnoticed in most people or do not cause any consequence other than minor self-medication. In these patients, however, experiencing these symptoms greatly interferes with everyday life and prompts for repeated medical treatments (A). In the DCPR-SI, the 'no' answer to this item (that skips the interviews to 'persistent somatization') does not imply that the patient has never

had these symptoms but that he or she considers them as so common that are not taken into consideration when talking about his or her overall health condition. If the patient's attention paid to these symptoms is high, the interviewer has to check whether the physician has considered them as medically unexplained (B). The interviewer has also to note whether a psychiatric disorder has been diagnosed previously or the patient suffered from some defined form of psychopathology before (C): the diagnosis is placed if the onset of psychopathology occurred prior to the onset of the functional somatic symptoms (D). This DCPR category is very useful in clinical practice because in the DSM the diagnosis of a somatoform condition is excluded by the presence of another axis I disorder (hierarchical rule), while it is very likely that a patient with psychopathology (major depression, panic disorder) has also clinically relevant somatic symptoms requiring additional specific treatment. The prevalence of functional somatic symptoms secondary to psychiatric disorders has been found in the range of 30–45% in high health care users, medical inpatients referred for psychiatric consultation, and functional gastrointestinal disorders in which there is also a high proportion (75–90%) of DSM-IV disorders [5]. However, confirming the criticism toward the hierarchical rule [14], only one third of patients with DSM-IV mood and anxiety disorder were also diagnosed with functional somatic symptoms secondary to psychiatric disorders [4].

Persistent somatization is issued from Kellner's concept of symptom clustering [15] that highlights the fact that an individual with a psychosomatic condition (e.g. irritable bowel syndrome) is more likely to subsequently get another functional gastrointestinal (e.g. non-ulcer dyspepsia) or extragastrointestinal (e.g. chronic fatigue) syndrome over time. Persistent somatization is described by the main feature of a chronic (>6 months) somatic functional disorder causing psychosocial problem and medical care seeking (A). Moreover, the somatic disorder has to be medically unexplained (B) and the patient reports that, after the prescribed medical treatments, he or she experienced exaggerated side effects (C1) or even a worsening of his or her health status (C2), and/or additional symptoms of autonomic arousal (C3), suggesting a predisposition to chronic somatization, somatic amplification, lower pain threshold, and high suggestibility. The prevalence of persistent somatization was considerable (about 30%) in gastroenterology and CL psychiatry and in patients with comorbid DSM-IV mood, anxiety, and adjustment disorders [4]. It is noteworthy that 82% of patients meeting criteria for DCPR somatization clusters did not satisfy the criteria for any DSM-IV somatoform disorder [16].

Conversion symptoms is issued by Engel's criteria [17] and is defined mainly by symptoms or deficits affecting voluntary sensory-motor functioning as balance problems, localized paralysis or weakness, loss of voice, eating difficulty, double vision or loss of sight (A). These symptoms have not been explained by specific medical causes after appropriate examinations (B). Unlikely, the DSM-IV conversion disorder that requires the exclusion of another somatoform disorder or a medical condition and is differentiated from somatization disorder because of the number of symptoms,

this DCPR category requires at least 2 additional features related to the patient's past experience and personality features. The symptoms have to be preceded by some specific stressful events connected to symptoms (C1), already experienced in the past and/or observed in someone else close to patient (C2). Furthermore, the interviewer should notice if the patient shows a sort of ambivalence (the *belle indifference* often described in literature) in symptom reporting (e.g. the patient appears overtly relaxed or unconcerned while describing highly distressing symptoms; C3) and/or some features of histrionic personality (exhibitionist or inappropriately seductive behavior, seeking of reassurance or approval, exaggerated displays of emotions, high sensitivity to criticism or disapproval, excessive concern with physical appearance, a need to be the center of attention, low tolerance for frustration or delayed gratification, rapid shifting of emotional states, making rash decisions, self-centeredness). Consistently with the notion that false-positive cases of conversion symptoms are likely to be present in medical settings with a symptom-based only diagnosis neglecting the patient's psychological characteristics [18, 19], the DCPR category of conversion symptoms has been found in a proportion of 5–7% in gastroenterology and cardiology [4].

Anniversary reaction was described by Engel [20], and is often unrecognized because of the lack of awareness of the patient and the negligence of the clinician. The main characteristic is given by the fact that the patient, upon the interviewer's request, pays his or her attention to some specific events that occurred at a given time before the onset of somatic symptoms (A). The following questions of the interview focus therefore on further details: if symptoms occur at an important date in the patient's life (e.g. birthday, Christmas) or started when the patient had the same age that a family member developed a life-threatening disease (e.g. abdominal pain starting when the patient was aged 52, which was her sister's age when she developed the first symptoms of intestinal cancer 10 years ago; B) or a serious health problem (chest pain at the age of 41 when the patient's brother had his first heart attack) or died (e.g. dysuria at the age of 64 when the patient's father died because of prostate cancer). Anniversary reactions may be more frequent than believed in PTSD war veterans [21] and were found in more than 10% of patients in primary care and oncology [4].

Irritability

Type A Behavior (TAB) is part of the irritability cluster along with irritable mood. TAB has become a classic construct in psychosomatic medicine and indicates a 'specific emotion-action complex' of individuals aggressively committed to struggle for achieving more and more in less and less time [22]. As a complex, several characteristics are included in TAB, and they are enlisted in question A of the DCPR-SI (at least 5 of them are necessary for diagnosing TAB at the DCPR-SI): a strong commitment to work because of excessive responsibility (A1); a strong sense of ambition and need for achievement and approval (A8); a sense of time urgency for several activities (either at

work or not) that must be accomplished as soon as possible (A2); hostility and cynicism that may become aggressiveness when the patient needs to take others into consideration in pursuing a goal, particularly when he or she feels a strong sense of time urgency (e.g. driving fast, impatience at a traffic light stop; A4), and/or is evident in a strong sense of competitiveness (A9); speech and bodily movements (hands, arms, facial muscles, glances) characterized by tension, rapidity, fast pacing, and sometimes explosiveness, as shown at the interview (A3) and/or self-reported (A6); a general irritable attitude in coping with everyday life (A5); the feeling that mind is crowded with many ideas and thoughts, all important and all at the same time (A7). Clinical interest for TAB in medical patients requires however that the patient reports also somatic symptoms of autonomic arousal (palpitations, sweating, muscular and stomach pains, intestinal disorders, and/or breathing fast; B). Even though it is classically associated with cardiovascular disorders, the DCPR category of TAB was found highly frequent not only in cardiology (28%) but also in frequent attenders in primary care (52%), eating disorders (27%), CL psychiatry (25%) and also healthy people (25%), suggesting it might be considered as a relevant psychosomatic factor across a variety of clinical and preclinical conditions requiring a careful evaluation from clinicians [4].

Irritable mood is issued from Snaith and Taylor's [23] description of a feeling state of irritability which may be experienced as brief episodes or it may be prolonged and generalized, requiring an increased effort to control, while overt manifestations lack the cathartic effect of justified outbursts of anger, thus being always unpleasant for the subject. The main criteria of the DCPR-SI require that the subject is aware of his or her negative feeling state, even though he or she is unable to have full control over it (A1) and/or experiences verbal or behavioral outbursts of rage (A2; ego-dystonic condition). Furthermore, the patient reports that aggressive behavior lacks the usual cathartic effect, thus leaving him or her with a sense of uneasiness (B) and with acute symptoms of autonomic arousal as tachycardia (C). Because of the direct or mediating role played by irritability in several medical conditions and predisposing unhealthy behaviors, the DCPR irritable mood has been found to be frequent (about 15%) in all medical settings (particularly in patients with endocrinology illness, high health care use, and eating disorders) to the same extent as community subjects [4], and, although related, is independent of depression [24].

Demoralization

It is issued from Frank's [25] suggestion that demoralization results from the awareness of being unable to cope with a pressing problem or of having failed one's own or other's expectations, and is the main reason why subjects seek psychotherapeutic treatment. Subjective incompetence is considered as the clinical hallmark of demoralization and of related feelings of hopelessness and helplessness [26]. Indeed, the main DCPR criteria of demoralization include the sense of personal failure to meet

his or her or others' expectations (A1), a subjective feeling of incompetence to cope with urgent problems (A2), and perception of hopelessness and helplessness (A3). Additional aspects are the prolonged period of demoralized states lasting for longer than one month (B) and the patient's perception that his or her feeling state is related to his or her health status (C). The clinical relevance of demoralization in physical syndromes is highlighted by its high prevalence in all medical settings and low frequency in the community sample (3%) [4]. Demoralization and major depression, although overlapping, are distinct phenomena [27]: a depressed person is incapable of experiencing enjoyment of any sort because of a primary reduction in motivation and drive, whereas a demoralized individual is unable to acknowledge anticipatory pleasure because of inhibition in his or her initiative, but consummatory pleasure is unaffected [28].

Alexithymia

Like other DCPR syndromes, alexithymia is a classic theme in psychosomatic medicine. It is now recognized to be a multifaceted construct including two high-order factors (lack of affect awareness and operatory thinking) leading to a reduced ability to cognitively process feelings, and is considered one of the vulnerability factors for the development of medical and psychiatric disorders of affect regulation [29]. Some of the facets of the construct are inquired directly in the DCPR-SI, and at least 3 of them are necessary for the DCPR diagnosis of alexithymia, while some others (particularly the overall level of affect expression and communication) have to be inferred through clinical observation. Two direct questions concern the subject's ability to verbalize (A1) and to communicate emotional states (A2); two further questions are related to cognitive features as reduced ability to fantasizing (A3) and external-related thinking (A4); one further question concerns the manifestation of somatic problems (e.g. pain, sickness) subsequent to the experience of strong emotions (A5), and one last question concerns emotional, non-mentalized outbursts (e.g. sudden crying when the patient experiences a strong emotion, but he or she is unaware of the connection or not able to link; A6). The construct validity of the DCPR criteria of alexithymia has been confirmed in 3 independent studies [7–9]. As expected, a high rate of alexithymia was found in several medical settings such as oncology (26%), functional gastrointestinal disorders (48%), frequent attending patients in primary care (38%), CL psychiatry (25%), and eating disorders (27%) [4].

Conclusion

A large body of psychosomatic literature has shown definitely that psychosocial factors, psychopathology, and somatic symptoms are intertwined at multiple levels and

that the concept of illness is multifactorial in itself [30]. One of the main criticisms against the use of the traditional psychiatric classification with medical patients is the misleading assumption of the organic versus functional dichotomy claiming that the presence of an organic cause, as well as a hierarchical higher-order psychiatric disorder such as major depression or panic disorder, subsumes psychological disturbances and, vice versa, the absence of an organic cause strongly indicates the presence of a psychological or psychiatric reason. The development of the DCPR system focused on the task to translate psychological characteristics widely observed and studied in various medical settings into diagnostic criteria, which may entail clinical values and may be investigated through the reliable DCPR-SI across disorders, regardless of their presumed origin. By replacing the DSM-IV hierarchical rule with the concepts of association and coexistence of psychological, functional, and organic illnesses, not surprisingly the DCPR assessment was found to be more suitable than psychiatric criteria in identifying AIB, somatization, irritability, demoralization, and alexithymia in patients with a variety of medical disorders [2, 4, 5]. The accumulated evidence has led to the suggestion of replacing the DSM-IV category of 'psychological factors affecting medical condition' – a poorly defined diagnosis with little, if any, impact on clinical practice – with a new section including hypochondriasis and the most frequent DCPR syndromes [31, 32].

The application of DCPR through the structured interview presented in this paper might hopefully allow a more specific designation of problems that commonly present to both primary care as well as psychiatric physicians and a more accurate identification of psychosomatic distress across different somatic disorders (whether of functional or organic in nature). As DCPR reflects the need of adopting a global psychosomatic approach to health, the use of the DCPR-SI offers a unique comprehensive tool for eliciting meaningful clinical information that cannot be obtained otherwise and allows health care providers (general practitioners, medical specialists, psychiatrists, clinical psychologists, psychotherapists, psychosomatic specialists) to bring together a large number of seemingly unrelated disorders whose names have been scattered so far under the headings of the various anatomical systems and to pave the ground for multidisciplinary work in clinical medicine [33].

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Mood and Anxiety in the Medically Ill

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Abstract

In this review on rating scales for anxiety and depression, only instruments considered to be quantifiable, analogue to the measurement of hypertension in the medical setting, have been selected. The clinimetric method for validating these rating scales is the item response theory model in which the individual items are rank ordered on the dimensions of anxiety or depression, resulting in their total score being a sufficient statistic. The measurement of anxiety and mood on their respective dimensions of severity implies that we can speak of primary and secondary anxiety or depression in the same way as we speak about primary hypertension (without a medical explanation) and secondary hypertension (when caused be various medical conditions). Both clinician-rated scales and patient-rated questionnaires are discussed. The Clinical Interview for Depression and Related Syndromes (CIDRS) is included in the appendix as this CIDRS covers many of the rating scales measuring mood and anxiety.   Copyright © 2012 S. Karger AG, Basel

The measurement of anxiety and mood on a dimension of severity of affective states should be considered analogue to the measurement of blood pressure in the health screening setting. Consequently, we have to speak about primary and secondary anxiety or depression in the same way as we speak about primary or essential hypertension (without a medical explanation) versus secondary hypertension (when caused by various somatic disorders). With this background, the rating scales for anxiety and mood should be considered as quantifiable as the measurement of hypertension.

The term 'somatization' in psychosomatic medicine can also be an indicator of severity of affective states. If complaints about symptoms of pain seem not to be secondary to medical disorders but rather as an indicator of primary affective states, it is important to identify accompanying symptoms of anxiety or mood. Indeed, pain is a purely subjective experience which to a varying degree takes both sensations (localized in different parts of the body) and anxiety or mood (unpleasant states) into account. From a narrow medical point of view, physicians often consider anxiety or depression as a misleading factor in the diagnostic process. However, it is important

to use a monistic, phenomenological approach by adding somatization and symptoms of anxiety or depression within the affective dimensions and hereafter to make a dualistic analysis when diagnosing primary versus secondary disorders.

With this background, this review on rating scales for anxiety and depression in the medically ill is developed to be of practical use at the phenomenological level of measuring severity of affective states. The symptoms are thus considered for their validity in their relation to the clinical syndrome (anxiety or depression). At the dualistic level of diagnosing the underlying disorder, the clinical syndrome precedes etiological reflections [1]. In other words, we consider a syndrome as an expression of a disordered function which might be produced by one or more disease processes.

The practical use of rating scales or questionnaires in psychosomatic medicine as captured in this review is on the one hand to describe syndromes by symptoms interpreted by psychometric analyses, and, on the other hand to make etiological considerations for mode-specific interventions in anxiety and depression [2].

The Hospital Anxiety and Depression Scale (HADS) was actually constructed to help physicians identify disorders of anxiety and/or depression in the medically ill patient [3]. The underlying consideration was to select symptoms of anxiety and depression which were as 'psychic' as possible to avoid symptoms with overlapping 'somatic' associations to medical disorders. Therefore, with regard to the 7 items in the HADS covering the syndrome of anxiety, only one single item ('butterflies in the stomach') was an expression of somatic anxiety, and among the remaining anxiety items the psychic anxiety symptoms in the HADS were being tense or wound up, worry thoughts, frightened feelings, restlessness, and panic. As regards the 7 items in the HADS covering the syndrome of depression, once more only one single item ('less care of my appearance') was an expression of somatic depression. However, the remaining items did not cover the psychic symptoms of depression but rather positive well-being feelings such as enjoying things, able to laugh at the funny side of things, being cheerful, looking forward with enjoyment to things, enjoy a good book.

When screening for depression in the medically ill patient, we therefore need to distinguish between measuring lack of well-being and measuring the syndrome of depression. Measuring well-being is a screening for health-related quality of life and thus falls outside the scope of this review. In the HADS, we have no item covering depressed mood or lack of interests in the daily functioning. The syndrome of depression as well as the syndrome of anxiety each has to cover the clinical theories of these states as shown in table 1. In primary and secondary depression (e.g. depression secondary to medical disorders), the three items in Beck's negative triad of depression [4] should be included (depressed mood or hopelessness, guilt feelings or feelings of failure, and lack of interests or helplessness). Likewise, in primary and secondary anxiety, Spielberger's psychic state of anxiety [5] should be included [nervousness, tension, worry, apprehension and fearfulness (panic)]. The psychic anxiety items in the Spielberger state anxiety scale can also be found, as indicated in table 1, in the

Table 1. Clinical theories of depression (A) and anxiety (B)

A The negative triad in depression (Beck) [4]
   Negative view of the future: Depressed mood (hopelessness)
   Negative view of the past: Guilt feelings (feeling a failure)
   Negative view of the present: Lack of interests (helplessness)

B The psychic state of anxiety (Spielberger) [5]

Spielberger, 1972	Taylor, 1959
Nervousness	+ (153)
Tension	+ (3)
Worry	+ (77)
Apprehension	+ (87)
Fearfulness (panic)	+ (117)

Figures in parentheses indicate the original Minnesota Multiphasic Personality Inventory item numbers.

briefer version of Taylor's manifest anxiety scale which was derived by their clinical validity from the items in the Minnesota Multiphasic Personality Inventory [6].

In contrast to the HADS, Kellner's Symptom Questionnaire [7], which is based on the same principle with symptom versus well-being items, does have Beck's negative triad in the depression subscale (see online suppl. appendix). Therefore, the Symptom Questionnaire is included in this review, whereas the HADS is not. It is, however, important to evaluate the standardization of the existing scales for anxiety and depression also in the medically ill patients.

There are many versions of even the most frequently used rating scales for anxiety and depression, and even when using the original standardization of these scales in primary affective disorders, this fact still gives rise to problems (see appendix). An illustrative example is the most archetypical scale for depression, the Hamilton Depression Scale (HAM-D) which during its 50 years in clinical use has grown into more as a family of scales than one single instrument [8]. In this review, the evolutional modifications of the HAM-D will be treated, including recent attempts to develop self-rating scales for the HAM-D. In the field of anxiety, the Hamilton Anxiety Scale (HAM-A) is also the archetypical anxiety scale, and its modification with corresponding self-rating versions will also be illustrated.

The modifications of the HAM-D and HAM-A have been made both on the basis of clinical validity (correspondence to experienced psychiatrists' global assessments as index of validity) and on the basis of psychometric validation analyses.

The clinical validity of a depression rating scale refers to how the total scores are standardized into the clinical categories of no depression, mild depression, moderate depression, and severe depression. Thus, the HAM-D$_{17}$ version has been standardized both in primary depression and in depression secondary to stroke, i.e. post-stroke
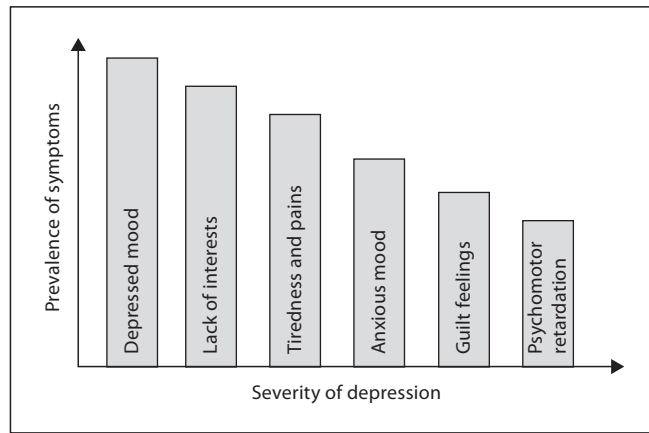
Fig. 1. Item response theory model analysis of the HAM-D$_6$.

depression. A score of 7 or less on HAM-D$_{17}$ equals no depression or remission. A score of 13 equals less than major depression, while a score of 18 or more equals moderate or major depression. A score of 25 or more equals severe depression.

The psychometric validation analysis refers to the ability of a scale to measure the same dimension in different groups of patients, e.g. primary depression or post-stroke depression, or in the same group of patients during a trial with weekly assessments. Therefore, the psychometric validation analysis is an important factor when using the total score of a scale for standardization.

The psychometric validation analysis used to evaluate whether the total score is a sufficient statistic for standardization is the item response theory model [8].

A sufficient statistic signifies that the total score provides us with information about the relation between the various symptoms on the dimension under examination. In depression, the symptoms of depressed mood (hopelessness), lack of interests or work functioning (helplessness), and guilt feelings (worthlessness) should be placed with increasing severity distances on the dimension of depression. The nonparametric item response analysis is the Mokken analysis and the one-parametric item response analysis is the Rasch analysis [8].

Figure 1 shows the item response theory model analysis of the HAM-D subscale (HAM-D$_6$) which has been found to have an adequate clinical as well as psychometric validity when measuring depressive states in both primary depression [9] and in post-stroke depression [10]. The three items within Beck's theory of depression (table 1), depressed mood, lack of interests, and guilt feelings, have different prevalence as illustrated in figure 1. Hence, depressed mood and lack of interests have the highest prevalence (i.e. are present even in the milder forms of depression), whereas guilt feelings have a rather low prevalence (i.e. are present in the more severe forms of depression). However, depressed patients with a positive score on guilt feelings also need to have a positive score on the items of depressed mood and lack of interests. If not, the patient

Table 2. Rating scales for anxiety and depression

Rating scales for depression	Clinician version (appendix A)	Patient version (appendix B)
HAM-D	HAM-D$_{17}$ (A-I) HAM-D$_6$	– HAM-D$_6$ (B-I) SCL-6 (B-II) MDI (B-III)
IDS	IDS	IDS-SR
Rating scales for anxiety	Clinician version (appendix A)	Patient version (appendix B)
HAM-A	HAM-A (A-II)	SCL-20 (B-IV)
CIDRS-GP	CIDRS-GP (A-III)	API (B-V)

The manuals and scoring sheets are listed in the appendix as indicated.

is not to be considered as a depressed patient. This requirement is the basic rule in the item response theory analysis. This hierarchy of the prevalence of the six items in figure 1 has been found to emerge when testing males versus females, young patients versus elderly patients.

The items in HAM-D$_6$ (fig. 1) can be considered as 'psychic' symptoms of depression apart from the item of tiredness and pains (general somatic symptoms). In a medical sense, the symptom of tiredness is a systemic symptom, i.e. it has no localization in the body, in contrast to pains. Thereby pains are more 'somatic' than tiredness. The diagnostic specificity of tiredness is low compared to pains in the medically ill patient. When placed in the order of prevalence as shown in figure 1, depressed mood, and tiredness or pains are important indicators of depression severity. However, depressed mood and tiredness or pain can be important indicators of cancer severity if ascribable to the cancer itself. It is, therefore, important to differentiate between psychic and somatic symptoms of depression or anxiety when evaluating the medically ill patient.

The psychometric analysis relevant for discrimination between psychic depression and neurovegetative depression at the level of symptoms is the Principal Component Analysis in which the bi-directional factor or component, via item loadings, can identify the negative loadings versus the positive loadings, thereby subdividing the HAM-D or HAM-A into two subscales [1].

Table 2 shows the rating scales for measuring severity of the states of depression and anxiety selected for this overview, also indicating which of these scales are to be found in the appendix. The platforms of this review are the HAM-D and HAM-A; however, the new developments (e.g. the Inventory for Depressive Symptomatology,

Table 3. CIDRS section F: primary versus secondary depression

No.	Item	Diagnostic implications
1	Lack of insight	Psychotic implications
2a	Psychological stressor (day-by-day)	Depression secondary to stressors
2b	Expose to a severe, traumatic event	PTSD
3	Neuroticism	Dysthymia
4	Increased reactivity towards environment	Atypical depression
5	Diurnal variation – symptoms worse in the evening	Atypical depression
6	Diurnal variation – symptoms worse in the morning	Primary depression
7	Distinct quality of depression	Primary depression
8	Persistency of depressive state	Primary depression
9	Depressive delusions	Psychotic depression
10	Previous depressive downswings	Unipolar depression, type II
11	Previous depressive episodes	Unipolar depression, type I
12	Previous hypomanic ups	Bipolar depression, type II
13	Previous manic episodes	Bipolar depression, type I
14	Previous mixed states	Bipolar depression, type I
15	Hereditary disposition	Primary depression
16	Somatic illness	Depression secondary to somatic illness, e.g. post-stroke depression
17	Drug-induced depression	Depression secondary to pharmacological drugs,e.g. interferon-α-induced depression

IDS [11]) and self-rating scales with reference to HAM-D and HAM-A have been considered as well.

Accepting [2] that the inescapably clinical nature of a diagnosis is to seek to distinguish between states of depression or anxiety in which a trigger is present (secondary to psychosocial stressors or to medical disease), and those which seem to arise out of nowhere (primary depression or primary anxiety), the etiological issues are collected in table 3, including bipolar versus unipolar depression.

Reliability

Reliability statistics are conventionally considered to provide consistency and stability of the rating scales as a platform on which the validation procedures can be evaluated. However, we need to know the clinical validity as well as to which extent the total score is a sufficient statistic before we can perform reliability statistics.

As discussed elsewhere [12], the item response theory model implies that rating scales with high validity, e.g. HAM-D$_6$, also have high inter-rater agreement. In both clinician-administered scales (e.g. HAM-D and HAM-A) and in patient-administered

questionnaires, reliability in the form of Cronbach's coefficient α is used to express internal consistency. However, the length of the scale is part of the α coefficient, so that briefer scales have lower internal consistency simply due to having fewer items. Test-retest reliability refers to stability of total scores over repeated testings. For symptom scales, the time interval between the test-retest evaluation is crucial because scales with a brief time frame like Spielberger's State anxiety scale by their nature give a more fluctuating total score than depressive states.

It is beyond the scope of this review to consider the various anti-anxiety or anti-depressive therapies. However, with reference to primary versus secondary hypertension, we can say that the rating scales for anxiety and depression selected in this review are as quantifiable as the clinical measures for antihypertensive drugs with regard to validity and reliability.

Rating Scales for Depression

Observer Scales

The HAM-D$_{17}$ is the archetypical scale for the measurement of depression severity. The first version of the HAM-D was released in 1960 [13], and over the years several attempts to improve the definitions of the seventeen items have been made [14]. Most of these attempts have been made with reference to the 1967 version [15] in which 8 items are scored on a 3-point Likert scale (0–2), while 9 items are scored on a 5-point Likert scale (0–4). In this version, the total score ranges from 0 (no depression) to 52 (maximum depression). The standardization of these versions of the HAM-D$_{17}$ is: 0–7 (no depression), 8–12 (doubtful depression), 13–17 (mild depression), 18–24 (major depression), and 25–52 (severe depression).

Experience with other symptom scales such as the Brief Psychiatric Rating Scale [16] has shown that most psychiatrists are able to score on Likert scales from 0 to 6, where 0 = no symptoms, 1 = doubtful, 2 = very mild, 3 = mild to moderate, 4 = moderate, 5 = marked to severe, and 6 = extreme. Paykel [17] developed a version of the HAM-D with Likert scales from 0–6 on all the items (Clinical Interview for Depression, CID). An overview of the CID has recently been released [18]. However, it is not possible to extract the HAM-D$_{17}$ from the CID. In the Clinical Interview for Depression and Related Syndromes (CIDRS) which is based on the CID [19], it is possible to derive the HAM-D$_{17}$ with Likert scales from 0 to 6 for all the items. The etiological issues from section F in CIDRS are shown in table 3.

From the CIDRS, it is also possible to extract the Montgomery Åsberg Rating Scale for Depression (MADRS) [20]. However, the MADRS derived from the CIDRS has Likert scales from 0 to 6 with anchored definitions, in contrast to the original MADRS in which the uneven points in the Likert scale (1, 3, 5) have no definitions, i.e. are empty boxes.

Table 4. Concordance between HAM-D6 and IDS6

HAM-D$_6$ items	IDS$_6$ items
Depressed mood	Mood (sad)
Lack of interests	Involvement
Tiredness	Fatigue
Anxious mood	Mood (anxious)
Guilt feelings	Outlook (self)
Psychomotor retardation	Psychomotor slowing

Validation studies on the HAM-D$_{17}$, in which clinical validity was evaluated using experienced psychiatrists as index of validity and psychometric validation was performed using item response theory models (total score being a sufficient statistic), have shown that only six of the seventeen items (fig. 1) are acceptable [19]. Table 4 shows the HAM-D$_6$ with the corresponding IDS$_6$. The rank-order from top to bottom in table 4 shows how each item provides information about the dimension of depression severity covered by it. Thus, the three top-listed items (depressed mood, lack of interests or involvement, and fatigue) cover the mild to moderate dimension of depression, i.e. are present in mild to moderate cases. The next three items (anxious mood, guilt feelings and psychomotor retardation or slowing) are especially present in the more severe cases. However, patients with positive scores on these down-listed items in table 4 also have to have positive scores on the three top-listed items (if not, then the patient is not a typical depressed patient).

Table 3 shows how each of the items is scored on the original HAM-D version (0–2/0–4), and on the CIDRS version (0–6). On the IDS$_6$, the quantifier is a Likert scale from 0 to 3.

As discussed by Marzolf [1], the syndrome is a central tendency which is best thought of in statistical terms. As regards the individual items in the syndrome, each item may become clinically significant only when it exists in an amount above a certain critical point [1]. It is therefore very important to use rating scales with definite anchoring points, and this is the reason why a scale such as the MADRS is not included in this review.

Self-Rating Scales

The IDS has both a clinician version corresponding to the HAM-D but with a different quantifier (as shown in table 5), and a patient version (self-rating version, IDS-SR).

Max Hamilton himself was not interested in developing a self-rating version of his scales (neither the HAM-D nor the HAM-A). Attempts to develop a self-rating

Table 5. Quantifier (item definition)

HAM-D$_6$				IDS$_6$	
Likert scales	0–2	0–4	0–6	Likert scales 0–3	
0 (not present)	not present	not present	not present	0	not present
1	doubtful	doubtful	doubtful	1	less than half of the time
2	present	present but mild	present, but very mild	2	more than half of the time
3	NA	present, moderate	present mild to moderate	3	all of the time
4	NA	present, severe	present moderate to marked		
5	NA	NA	present marked to severe		
6 (present to extreme degree)	NA	NA	present severe to extreme		

version of HAM-D covering all 17 items have not been successful, but the version corresponding to HAM-D$_6$ has been found acceptable [21, 22]. From the Symptom Check List (SCL-90) [23], we have derived an SCL$_6$ corresponding to HAM-D$_6$ [24].

The Major Depression Inventory (MDI) is a self-rating scale designed to cover the ten depression symptoms in ICD-10 [25] (see appendix). By combining two of the items into one single item of guilt feeling (item 4 = lack of self-confidence and item 5 = guilt) the MDI also covers the nine depression symptoms in DSM-IV major depressive episode. In a study on interferon-α-induced depression in patients with chronic hepatitis C [26], we obtained a baseline rate of 6% for major depression using the MDI. However, after 12 weeks of therapy 33% developed major depression on MDI [26]. A principal component analysis on the patients at the 12 weeks visit identified a general component (all items in the MDI correlated positively) and a second factor, a bi-factor according to Marzolf [1]. In this second factor, the five psychic depression items in MDI (depressed mood, lack of interests, lack of self-confidence, guilt feeling, and suicidal thoughts) were negatively loaded, while the neurovegetative items in MDI (tiredness, sleep, concentration, agitation, and appetite) were positively loaded.

The DMS-IV algorithm for major depression states that depressed mood and/or lack of interests have to be present. Using the total score of MDI in psychosomatic medicine should be supplemented by a subscale of the psychic versus neurovegetative items.

Table 6. Principal component analysis of the HAM-A [32] (n = 411)

Items	General factor	Dual factor
Anxious mood	0.50	−0.39
Tension	0.62	−0.35
Fears	0.45	−0.35
Insomnia	0.65	−0.26
Concentration	0.62	−0.27
Depressed mood	0.66	−0.38
Somatic (muscular)	0.54	0.25
Somatic (sensory)	0.58	0.40
Cardiovascular	0.53	0.48
Respiratory	0.52	0.43
Gastrointestinal	0.29	0.39
Genitourinary	0.33	0.31
Other autonomic	0.52	0.30
Behavior at interview	0.70	−0.09

Rating Scales for Anxiety

Observer Scales

The HAM-A is the most frequently used scale worldwide for the measurement of anxiety. This scale was developed by Max Hamilton in 1959 [27]. The original 1959 version included 13 items, but was revised by Hamilton in 1969 [28]. This 1969 version of the HAM-A included 14 items, as the item of somatic general symptoms was subdivided into muscular and sensory symptoms. Unfortunately, many handbooks on rating scales [e.g. 29, 30] recommend the 1959 version despite the fact that since the 1970s all intervention studies have used the 1969 version, which was also the one recommended by Hamilton himself [31] (see appendix).

From a practical psychometric point of view, the HAM-A$_{14}$ illustrates how principal component analysis can be used in the validation procedure. Hamilton used principal component analysis in his 1959 and 1969 versions of the HAM-A to show that the first factor or component is a general factor and the second factor or component is a bipolar or dual factor with negative loadings on the psychic anxiety items and positive loadings on the somatic anxiety items.

Table 6 shows the results obtained by Pichot et al. [32] when performing a principal component analysis on the baseline dataset of 411 patients with anxiety disorder. The first factor or component was a general factor because all items are positively correlated. The second factor or component was dual with negative loadings on the psychic anxiety items and positive loadings on the somatic anxiety items (table 6). This result is very much in harmony with Hamilton's own findings. Moreover, Pichot et al. [32] showed that a rotation of the factors did not provide more information.

Table 7. HAM-A$_6$

Anxious mood
Tension, psychic
Fears
Concentration difficulties
Tension, somatic (muscular)
Behavior at interview (nervousness)

Rasch [33] developed the first one-parameter item response theory model for the purpose of testing to what extent the total score of a rating scale is a sufficient statistic because he had realized [34] on the one hand that a general factor in itself is no argument for adding up items on a scale in order to measure a dimension such as intelligence or depression, and on the other hand that the many ways of performing factor rotations are without scientific basis (a matter of trial and error until the investigator feels satisfied).

The identification of the separation of psychic versus somatic anxiety symptoms in the HAM-A (table 6) was the background on which Rickels et al. [35] demonstrated that imipramine was superior to diazepam on the psychic anxiety symptom but not on the somatic. The total score on HAM-A is often too biased as to the somatic anxiety symptoms in patients with anxiety disorders. In patients with primary depression, the psychic anxiety symptom is much more present than the somatic anxiety symptoms [36, 37].

When validating the HAM-A with reference to the work by Snaith et al. [38], we showed that the six selected items of the HAM-A (table 7) fulfilled the item response theory model [39]. The factor of psychic anxiety symptoms (table 6) includes such items as depressed mood and sleep which are much more associated with depressive disorders than with anxiety disorders.

In the medical conditions associated with anxiety (e.g. hyperthyroidism or hypertension), it is the psychic anxiety symptoms that are most valid for the evaluation of specific anti-anxiety interventions. With regard to anxiety-inducing drugs, the β-adrenergic agonists used in the treatment of asthma are among the most well-known anxiogenic drugs.

Self-Rating Scales

Over the last decades, many psychologists have defined anxiety in terms of the patients' score on a self-rating scale found in Taylor's Manifest Anxiety Scale [6] or in Spielberger's State Trait Anxiety Scale [5]. As discussed by Spielberger et al. [5], five of the items can be considered as core items of psychic anxiety, covering nervousness,

worry, apprehension, fearfulness and tension (table 1). These items are included in the HAM-A$_6$ (table 7).

Among comprehensive anxiety scales are the Symptom Checklist (SCL-90) and Kellner's Symptom Questionnaire (SQ-92) [7]. Both of these self-rating scales include subscales measuring anxiety, depression and hostility. The SCL-90 is based on symptoms to be rated by the patients themselves on a Likert scale from 0 to 4, whereas SQ-92 is actually a checklist scale, i.e. each item is scored yes or no. Moreover, the SQ-92 has items measuring well-being analogue to the HADS. In both the anxiety and depression subscales of SQ-92, six items are well-being questions (see appendix). All the symptom-formulated anxiety items in SQ-92 cover psychic anxiety symptoms including the five anxiety symptoms Spielberger has found most important (nervous, tense, worried, panicky, feeling that something bad will happen). In a placebo-controlled study on the anti-anxiety effect of propanolol, the SQ-92 anxiety subscale was found more sensitive than the HAM-A in discriminating between active treatment and placebo [40], probably because the HAM-A includes too many somatic anxiety items.

The 17 items of the SQ-92 that measure depressive symptoms cover the psychic depression symptoms (see appendix).

Like the SQ-92, the SCL-90 has been developed with reference to factor analytic studies. Most studies employing SCL-90 have by use of principal component analysis identified a general factor with eigenvalues around 5 times higher than the second factor or component. However, most studies have then performed different rotations (orthogonal or oblique) with rather diverse outcomes. In a recent study with principal component analysis on 555 patients with anxiety disorders consecutively assessed at the Day Hospital of the Mental Health Centre North Zealand [41], we identified as the first component a general factor (in which all 90 items were positively correlated) and a second component which was a dual factor separating depression (negative loadings) and anxiety (positive loadings). The anxiety items of SCL-90 corresponded to HAM-A$_{14}$ (see appendix), whereas the SCL-6 items for depression were among the negative-loaded items.

In the *Sourcebook of Adult Assessment Strategies* [29], there are very few scales for depression (HAM-D, the Melancholia Scale for clinicians, the Center for Epidemiological Studies as well as the Zung Self-Rating Depression Scale for patient ratings), while there are around 15 self-rating scales for anxiety.

Scales for specific anxiety profiles such as panic, social phobia and obsessive-compulsive states can be adequately covered by global items rather than symptom scales. When describing panic attacks, Freud himself [42] noticed that one single symptom, e.g. 'my heart pounds', often dominates the clinical picture. Therefore, panic attacks are most practically measured by asking globally (on the verge of an attack versus a clear attack). Similarly, for obsessive thoughts or compulsive behavior, the time occupied or spent on these factors within a waking day is the clinically most valid measure.

The Anxiety Profile Inventory (API), which has been adopted for use in Denmark when screening for anxiety disorders in the family doctor setting, is shown in the appendix together with the interview version for the family doctor when assessing patients with common mental disorders in the GP setting.

The use of definite anchoring points in rating scales or questionnaires has special importance in the API scale and in the CIDRS-GP version. Thus, in the CIDRS-GP, a score of 4 or more on the suicidal items should result in the interviewer acting on this information. As regards item 14, a score of 4 or more has diagnostic consequences.

Negative versus Positive Phasing of Items in Anxiety Scales

Taylors Manifest Anxiety Scale, Spielberger's original state anxiety scale as well as Kellner's SQ-92 scale include items with both negative and positive formulations (symptoms versus well-being). This approach was used to ensure that the patients did not automatically complete these questionnaires 'without consciousness'. Among the few to study the validity of using both negative and positive phrasing in anxiety patients, Eysenck has shown with his Neuroticism questionnaire that the negative (symptom-like) formulation is more valid. We have shown that the sensitivity of anxiety scales in discriminating between active treatment and placebo treatment is much higher for the negatively formulated items [43]. In the Kellner SQ-92 (see appendix), most of the items in the anxiety or depression subscales are negatively formulated, and he has shown that the anxiety scale has a high sensitivity in discriminating between propanolol and placebo [40].

Discussion and Conclusion

When measuring anxiety or depression in the setting of the medically ill patient, we should stop trying to be physicians of the body and should recognize that we are physicians of the psyche (mind). There seems to be little doubt that there are such clinical phenomena as anxiety or depression for which the meaningful dimension is the degree of severity. In this review, we have focused on such dimensions of severity in anxiety and depression that at quantifiable, like the measurement of hypertension in the medical setting. Consequently, we can speak of primary and secondary anxiety and depression in the same way as we speak of primary and secondary hypertension.

The psychopathological symptomatology captured by the Hamilton Anxiety and Depression Scales can be clinimetrically validated for quantifiability by item response theory analysis. Such validated rating scales for anxiety and depression also have adequate reliability. The psychometric term sensitivity is not an extra characteristic, as this is part of the validation procedure.

We can consider the HAM-D$_6$ and HAM-A$_6$ as the most valid measures as to the core items of the states of depression and anxiety, respectively. However, the IDS$_{30}$ is relevant when discriminating between typical and atypical depression, while the HAM-A$_{14}$ and the SCL-20 are the most relevant scales when discriminating between psychic and somatic anxiety. The CIDRS-GP should be considered when covering the common mental disorders in the general practice setting.

As discussed elsewhere, the time has come to evaluate when a state of depression or anxiety is a clinical case for treatment, taking the primary or secondary etiology into account. The etiological issues covered by the CIDRS section (see appendix) should be consulted in this respect.

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Assessment of Personality in Psychosomatic Medicine: Current Concepts

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Abstract

The notion that personality variables can affect vulnerability to specific diseases has been widely promoted in psychosomatic medicine. Over the time, some personality patterns have been extensively studied. Among them, alexithymia, type A, and type D personality are the most relevant. However, also temperament and character has increasingly been object of studies. Alexithymia is currently recognized as a risk factor for medical, psychiatric, or behavioral problems; type A personality is recognized to increase the risk for coronary artery disease, and type D personality has been related to adverse cardiac events and cardiovascular outcomes. The growing interest and clinical role of the personality constructs in psychosomatic medicine has been favored by the revolutionary understanding that personality factors are not causes of medical disease but their moderators/mediators, and by the decline of the psychometric distinction between state and trait. Indeed, it is nowadays recognized that psychological constructs traditionally conceived as trait dimensions may surprisingly display sensitivity to change in specific clinical situations. Assessing personality, thus, has become worth pursuing since it may give unique information about individuals with medical conditions and contribute to completely understand medical patients and their global health as well as formulating optimal decision-making and treatment planning. In this framework, the present chapter has the aim to provide insight into personality dimensions in psychosomatic medicine and describe the main instruments to assess it.

The notion that personality variables can affect vulnerability to specific diseases was prevalent in the first phase of the development of psychosomatic medicine (1930–1960). Thereafter, this notion declined together with the prospects for psychosomatic medicine itself. In the last decades, changes in medicine provided a basis for an alternate approach to psychosomatic medicine [1]. Contributing to this process was the recognition of limitations of the narrow biomedical model and the emerging role of the biopsychosocial model of illness [2]. In this new psychosomatic perspective, personality received a relevant role.

Over the time, some personality patterns have been thought to be strictly linked to somatic illness and have been extensively studied. Moreover, new personality constellations have been developed attracting the attention of many researchers worldwide. One of the seminal personality constructs in psychosomatic medicine is undoubtedly alexithymia; one of the most influential constructs has certainly been type A personality, and one of the most promising constructs for the next years is type D personality.

The popularity of alexithymia in psychosomatic medicine has been highlighted by many authors. It has been conceived as a deficiency in the cognitive processing of emotions, which is not specific to psychosomatic disorders but it is currently recognized as a risk factor for medical, psychiatric, or behavioral problems that are influenced by difficulties modulating arousal, appropriately expressing or suppressing emotions, employing fantasy, and obtaining and using social support [3].

Type A personality has become a classic construct in psychosomatic medicine and indicates a 'specific emotion-action complex' of individuals aggressively committed to struggle to achieve more and more in less and less time [4]. Many data have accumulated, particularly in cardiology, according to which subjects with a type A personality might have an increased risk for coronary artery disease if compared to subjects without such personality characteristics.

Type D personality, a general propensity to distress that is defined by high scores on the 'negative affectivity' (NA) and 'social inhibition' traits, is increasingly studied, and a growing literature shows that it is related to adverse cardiac events and, being characterized also by a general propensity to psychological distress, to cardiovascular outcomes.

In general, the above-mentioned personality constructs, together with additional emerging ones, have earned a growing interest and an increasing clinical role in psychosomatic medicine. Their assessment has become worth pursuing because it can give unique information about individuals with medical conditions that traditional medical methods cannot reveal [5].

In this framework, the present chapter has the aim to provide insight into the assessment of personality dimensions in psychosomatic medicine as a contribution to the understanding of medical patients and their global health. The main instruments to assess personality in psychosomatic settings will be described to encourage their use in daily clinical practice.

Alexithymia

The term alexithymia literally means 'lacking words for feelings' and was coined to describe certain clinical characteristics observed among patients with psychosomatic disorders who had difficulty engaging in insight-oriented psychotherapy [6]. Alexithymic patients demonstrate deficiencies in emotional awareness and

communication and show little insight into their feelings, symptoms, and motivation. When asked about their feelings in emotional situations, they may experience confusion (e.g. 'I don't know'), give vague or simple answers (e.g. 'I feel bad'), report bodily states (e.g. 'my stomach hurts'), or talk about behavior (e.g. 'I want to punch the wall').

The alexithymia construct was originally conceptualized by Nemiah et al. [7] as encompassing a cluster of cognitive traits including difficulty identifying feelings and describing feelings to others, externally oriented thinking, and a limited imaginal capacity. This original view of alexithymia has been the most influential in contemporary theory and research [3]. An alternative conceptualization, that alexithymia is a global impairment in emotional processing resulting in limited emotional expression and recognition, has been less influential thus far [8]. Yet, both definitions agree that alexithymia is a deficit, inability, or deficiency in emotional processing rather than a defensive process, and this deficit view is gaining increasing support from basic laboratory and neuroimaging research [9, 10]. For more details on alexithymia conceptualizations, see Taylor [11].

Alexithymia was first described in people with psychosomatic disorders, and subsequent research has confirmed elevated levels of alexithymia in people with rheumatoid arthritis, essential hypertension, peptic ulcer, and inflammatory bowel disease [3]. Yet, studies have found elevated alexithymia in patients with a range of other conditions (e.g. cardiac disease, noncardiac chest pain, breast cancer, diabetes, chronic pain, eating disorders, substance dependence, kidney failure, stroke, HIV infection, fibromyalgia). The growing recognition that alexithymia is not specific to psychosomatic disorders has led to the view of alexithymia as a risk factor for those medical, psychiatric, or behavioral problems that are influenced by disordered affect regulation [3, 12]. Indeed, alexithymia has been associated with a failure to use adaptive affect regulation processes such as modulating arousal, appropriately expressing or suppressing emotions, employing fantasy, obtaining and using social support, tolerating painful emotions, cognitive assimilation, and accommodation. Evidence shows that the alexithymic deficit in processing feelings is likely to affect mental and somatic health through behavioral actions as ways to regulate affective states (e.g. alcohol abuse, eating behaviors), psychopathology directly related to emotional dysregulation (e.g. somatoform disorder, panic disorder), posttraumatic shutdown of emotions (e.g. posttraumatic stress disorder, acute reactions to severe organic diseases), altered autonomic, endocrine, and immune activity (e.g. vulnerability to inflammatory processes), somatosensory amplification, health care-seeking behavior, and negative treatment outcomes [13, 14]. More recently, treatment studies on alexithymia showed, for instance, that it is not appropriate to assume that alexithymic patients have reservations about entering into a psychotherapeutic treatment [15] and that cancer patients may benefit from a multicomponent psychological intervention in terms of cancer pain and alexithymia [16]. Similarly, prognostic studies showed that lower levels of childhood sexual abuse decreased the risk of being highly alexithymic,

thus reducing the likelihood and severity of depression [17], that the presence of alexithymia at the time of the percutaneous transluminal coronary angioplasty in coronary heart disease (CHD) patients is a unique significant psychological predictor of poorer physical functioning at 6 months [18], and that alexithymia is a strong risk factor for all-cause 5-year mortality in hemodialysis patients [19].

Several methods have been developed to measure alexithymia, including structured interviews, self-report scales, by proxy information, and the Rorschach. Currently, the most commonly used method is the 20-item version of the Toronto Alexithymia Scale (TAS-20), a self-report questionnaire. Extensive validation, replication of the factor structure in several languages and countries, short administration time, and ease of use have been among the reasons why the TAS-20 has become the reference standard for measuring alexithymia in several psychiatric and medical settings [14].

The Structured Interviews

The original method of assessing alexithymia was to make judgments after clinical interviews. Three interview-based alexithymia assessment approaches have been described.

First, several decades ago, Sifneos [20] recognized the need to rate alexithymia reliably and created the Beth Israel Hospital Questionnaire (BIQ), which consists of items that are rated dichotomously by a clinician. This measure was subsequently modified to become a 12-item rating scale which assesses both the lack of emotional awareness and the tendency for operational thinking [21]. Several studies have used the original or the modified BIQ as the criterion against which other alexithymia measures have been validated, perhaps because the BIQ captures the original, clinically based manifestations of alexithymia [21, 22]. Yet, the BIQ is not widely used, probably because of the challenges of training, the time needed for an interview, the lack of a standardized interview to elicit the information, and problems in obtaining acceptable inter-rater reliability. Moreover, even the modified BIQ is still rarely used probably because, although the preliminary findings were promising, studies are still needed to evaluate its reliability and construct validity (for details on the BIQ modified version, see online suppl. appendix A). Similarly, further scales have been proposed (e.g. the Alexithymia Provoked Response Questionnaire; the Karolinska Psychodynamic Profile) [23, 24], but they have been rarely used.

Second, alexithymia has been included in the set of psychological clusters described by the Diagnostic Criteria for Psychosomatic Research (DCPR) [25–28] (for details, see chapter 9).

As described in chapter 9, the DCPR have consisted not only of diagnostic criteria but also of a structured interview [29]. The 'diagnosis' or classification of alexithymia according to the DCPR can be made with high inter-rater reliability [30] and correlates well with self-reported alexithymia [31, 32]. As expected, a high rate of alexithymia,

according to the DCPR criteria, has been found in several settings, including oncology (26%) [33], functional gastrointestinal disorders (48%) [34], frequent attenders in primary care (38%) [35], consultation liaison psychiatry (25%) [36], and eating disorders (27%) [37].

Third, the Toronto group developed a standard set of items to rate alexithymia in an interview-based format. The 24-item Toronto Structured Interview for Alexithymia [12] has a four-factor structure and correlates modestly with self-reported alexithymia (r = 0.36). By far, the Toronto group also developed self-report scales which have been much more used than the structured interview and will be described below in detail.

By Proxy Information

A different approach to assess alexithymia is to obtain reports or ratings of collaterals or significant others. Two promising observer alexithymia measures – the Twelve-Item Modified Beth Israel Hospital Psychosomatic Questionnaire [3] and the California Q-set Alexithymia Prototype (CAQ-AP) [38, 39] (which can be either self- or observer administered) – are time consuming and, for some raters, difficult to complete. Thus, they have been rarely used.

A third observer measure is the 33-item Observer Alexithymia Scale (OAS) [40]. It was developed on the assumption that alexithymia manifests in features (i.e. lack of insight, distance, somatizing, lack of humor, rigidity) that can be reliably reported by those who know the target person well, such as family members, friends, or therapists. Item content was taken from the CAQ-AP definition of alexithymia [39]. In CAQ-AP terms, the prototypic alexithymic person has difficulties experiencing and expressing emotion, lacks imagination, and is literal, socially conforming, and utilitarian. He or she is not insightful, is humorless, has not found personal meaning in life, and anxiety and tension find outlet in bodily symptoms. The OAS taps five alexithymic features: (a) distant (unskilled in interpersonal matters and relationships); (b) uninsightful (lacking good stress tolerance and insight or self-understanding); (c) somatizing (having health worries and physical problems); (d) humorless (colorless and uninteresting); (e) rigid (too self-controlled). One of the OAS's greatest strengths is that it is an observer report with ordinary language items accessible to both clinical judges and a (target) person's acquaintances or relatives [41].

The reliability and validity of the OAS have been examined for people in clinical and nonclinical settings. Clinical reliability and validity data are similar to the initial data for those in nonclinical settings: total and subscale scores are reliable, and the five-factor structure is stable [40, 41]. This measure has been shown to correlate highly with the modified BIQ (r = 0.69) when both measures were completed by the same therapists about the same patients [22]; it also differentiates clinical from nonclinical cases [41], and predicts a lack of interference on the emotional Stroop Test [42]. According to some authors [20], however, this relatively new measure has not

been tested enough, so its validity for predicting criteria of clinical relevance is unknown. Furthermore, it has been argued that the scale assesses some features that are not part of the core of alexithymia, but rather are observed behaviors that are correlated with alexithymia, such as lack of humor, somatizing, and rigidity [14]. Finally, its insufficient inter-rater reliability compromises its use for clinical and research purposes [43] (for details on the OAS, see online suppl. appendix A).

Projective Tests

In addition to interview-based or collateral ratings of alexithymia, indices from projective tests, particularly the Rorschach Inkblot Test, have been explored as a measure of the alexithymic deficits in imagination, creativity, symbolism, and affect regulation.

The Rorschach seems to be an appropriate method for evaluating alexithymia because of its multifaceted nature. It is a broadband personality assessment instrument able to evaluate a number of psychological aspects that are included in the construct of alexithymia such as cognitive style, cognitive processing of perceptual stimuli, affective dimensions, ability to tolerate and control stress, and interpersonal representations [5, 44].

Several studies have investigated the assessment of alexithymia by the Rorschach. There have been two main approaches: group comparisons in which at least one group is expected to exhibit alexithymia (e.g. psychosomatic patients), and comparison with self-report measures of alexithymia. However, findings have been mixed and difficult to interpret given many methodological problems [45, 46]. Notwithstanding this, Acklin [47] argued that some Rorschach scores may represent the core features of alexithymia, indicating deficiency in fantasy life, reasoning, mature object relationships, and availability of emotional resources in coping and adaptation.

The Comprehensive System (CS) [48] is the most commonly used Rorschach scoring system and has shown excellent psychometric properties. Several indices from this system have been proposed, such as low response productivity and low human movement suggesting poor fantasy ability, low numbers of blends suggesting concrete thought, and limited use of color indicating reduced affectivity. A few studies have found that these indices are related to illness [49, 50] and obesity [51]. Moreover, Porcelli and Mihura [44] developed the Rorschach Alexithymia Scale to be used with protocols scored with the CS [48]. The authors clustered the CS variables into 3 variables: the percentage of pure form, the Coping Deficit Index, and the Popular responses. The three CS variables showed large associations with the TAS-20. The Rorschach Alexithymia Scale showed excellent diagnostic accuracy (hit rate of 92%, sensitivity of 88%, specificity of 94%, and area under the curve of 0.96); thus, it was suggested to be used as a reliable integrative tool in a multi-method assessment approach to measure alexithymia (see online suppl. appendix A).

Cosci

Self-Report Instruments

The self-report measures of alexithymia are the instruments which have been most largely used in the last decades. However, investigations in this field have been hampered by problems [52]. For example, several instruments (e.g. the Schalling-Sifneos Personality Scale, the Revised Schalling-Sifneos Personality Scale, the Minnesota Multiphasic Personality Inventory (MMPI) Alexithymia Scale, and the Thematic Apperception Test) have been shown to lack adequate reliability and validity, to have been developed without concern for construct validation and with virtually no consideration of standards of set construction [52, 53]. Thus, the Toronto Group developed a new self-report measure using a common empirical and rational method of scale construction. Initially, they proposed a 26-item TAS [54], which demonstrated good internal consistency and test-retest reliability, and a 4-factor structure theoretically congruent with the alexithymia constructs: difficulty identifying and distinguishing between feelings and bodily sensations (F1), difficulty describing feelings (F2), reduced daydreaming (F3), and externally oriented thinking (F4). Convergent, discriminant, and criterion validity of the TAS were also demonstrated [55]. Thereafter, Bagby et al. [21] developed the TAS-20 in an attempt to surmount the psychometric shortcomings of the original TAS and to improve upon an earlier revision of the scale (the TAS-R).

The TAS-20 is a self-report scale traditionally seen as consisting of three factors mirroring three of the most prominent clinical characteristics of alexithymia: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT). Although alexithymia scores are continuous, this measure has an empirically-derived cut score that identifies people who are alexithymic.

The TAS-20 is the best validated and most commonly used measure of alexithymia, and studies using it have contributed substantially in accumulating data supporting its validity to predict basic emotional processes and clinical criteria and its excellent factorial stability across different languages and cultures [56]. However, although all authors concluded that the original three-factor structure could be replicated satisfactorily, in all studies about half or more of the EOT items had very low factor loadings. The factor EOT seems also problematic from another perspective. Its internal consistency tends to be unsatisfactorily low (range: 0.45 < Cronbach's α < 0.76), and the individual factors (DIF, DDF, and EOT) were found to correlate positively with one another, which has been interpreted as these factors being interrelated aspects of the alexithymia construct. In particular, DIF and DDF were found to correlate strongly (r = 0.43–0.80). The correlations of these two with EOT are smaller and more variable (r = –0.06–0.51 and r = –0.03–0.59, respectively). This is probably partly due to the low internal consistency of the EOT scale. Because of all these shortcomings, Kooiman et al. [57] recommended to use the TAS-20 for the assessment of alexithymia in empirical research in combination with other instruments and not to use it in clinical practice. More recently, Gignac et al. [58] evaluated 335 nonclinical

individuals, and found that the TAS-20 measures a global alexithymia factor and that the commonly utilized subscales of the TAS-20 suffered from very low levels of internal consistency and reliability. Bagby et al. [59] commented on this issue, suggesting that it was premature to dismiss the wide body of results obtained worldwide on the basis of findings from a single sample. However, as we stated above, this was not the only criticism to the scale.

An increasingly used self-administered instrument is the Levels of Emotional Awareness Scale [60], in which participants write responses to 20 interpersonal scenarios that would typically elicit affect. Responses are coded based on a neo-Piagetian affective developmental scheme in which a lack of emotional answers obtains few points, basic emotions yield more points, and blends of emotions and differentiation of self from other yield the highest points. The LEAS has been tested in a number of experimental studies and predicts emotion-related criteria, such as the ability to identify emotions and physiological and brain activation in response to emotional stimuli [61]. Some studies suggested that it predicts clinical improvement of psychosomatic patients in psychodynamic treatment and differentiates eating disorder patients from healthy people [62, 63]. Although the construct measured by the LEAS may be partially independent from alexithymia, it appears that the LEAS has some clinical validity [14].

A relatively new self-report measure, the Bermond-Vorst Alexithymia Scale (BVAQ) [64] covers many of the same characteristics as the TAS-20, but the authors purported that it also assesses 'emotionalizing,' or whether a person is emotionally aroused by emotion-inducing events. Although it correlates moderately with the TAS-20 [65], very little research exists on the BVAQ, and its validity is still unclear [14].

Type A Personality

Evidence has been steadily accumulating that there are psychological and behavioral components involved in the predisposition to CHD. The integrated description and analysis of these psychological and behavioral factors is generally attributed to the pioneering work of Rosenman and Friedman, who have come to define the coronary-prone, type A behavior (TAB) pattern as 'a characteristic action-emotion complex which is exhibited by those individuals who are engaged in a relatively chronic struggle to obtain an unlimited number of poorly defined things from their environment in the shortest period of time and, if necessary, against the opposing efforts of other things or persons in this same environment' [66]. The behavior of type A individuals (typically male) has been characterized as 'aggressively involved in a chronic, incessant struggle to achieve more and more in less and less time' [4, p. 67]. The most relevant features of TAB encompass excessive involvement in work and activities subjected to deadlines, time urgency, rapid speech and movements, hostility, competitiveness, and desire for achievement. Conversely, these features are

reduced or relatively absent in the so-called type B individuals who are described as calm and easygoing [67].

The TAB pattern has been shown to be both retrospectively [67, 68] and prospectively [69, 70] associated with increased risk of CHD. After the National Heart, Lung, and Blood Institute recognized TAB as an independent risk factor for CHD in 1981 [71], many data have been accumulated, particularly in cardiology, and a large number of studies have been conducted on the pathogenetic role of TAB in CHD [72–74]. Various methods of assessment have been used, and the results have been rather controversial; hostility and time urgency appeared to be two key components [74, 75]. A substantial problem lies in the fact that the definition of TAB consists of a mixture of state and trait features, which cannot be ascribed to stable personality aspects [25]. However, the bulk of the literature seems to indicate that there is a pattern of behavior associated with CHD, even though this does not apply to every case and cannot be readily identified [3, 73].

The two type A personality aspects that have been more tightly linked to CHD are hostility and anger-in. Hostility has been conceptualized as a relatively stable predisposition in a variety of circumstances to experience varying degrees and combinations of anger, irritation, disgust, annoyance, contempt, resentment, and the like that may or may not be associated with overt behavior directed against the source of a frustration. Anger-in refers to the tendency to withhold expression of anger or irritation against others, even when such expression would be appropriate or merited [76].

Matthews et al. [77] found that hostility ratings have been the most potent psychosocial predictor of the incidence of CHD in the Western Collaborative Group Study (WCGS). The findings of Dembroski et al. [76, 78] were also in accord with the literature implicating the role of hostility in a variety of manifestations of CHD [79–81]. In addition, measures of anger-in successfully predicted the incidence of CHD for both men and women in the Framingham study [82], and the construct has been theoretically, empirically, and anecdotally linked with various manifestations of CHD [79].

The two major approaches used to assess the TAB are the structured interviews and the self-administered scales.

The Structured Interviews

The Structured Behavioral Interview (SI) [68] is the first structured interview ever proposed. It includes items intended to elicit and assess actual TABs within the context of the interview itself [83, 84]. For example, the interviewer at some point deliberately hesitates when asking a question to provide an impatient subject the opportunity to interrupt or complete the question for him. The interview-based type A rating is thus determined by the style as well as the content of the subjects' responses, and in actual practice, is likely to be more dependent on observed interview behavior than on a subject's self report. Some researches have documented that overt behavioral

characteristics such as speed and volume of speech are the primary predictors of the global type A classification [83, 84].

The SI was validated in the WCGS, a large prospective investigation in America of the development of CHD in middle-aged men [68, 69]. SI has been shown to be related to CHDs in both retrospective and prospective studies [67, 69].

This interview has also been used as a measure of hostility by evaluating subject's answers to questions involving a variety of potentially frustrating circumstances in daily life (the so called Potential for hostility). The SI at several points also explores the person's willingness to express anger or annoyance, thus making possible to score the anger-in dimension in a reliable fashion.

Operationally, anger-in can be assessed by directly questioning the respondents regarding how they showed their anger and how they responded to frustrating circumstances [76].

Although providing important information related to an individual's coronary susceptibility, the interview must be individually administered by a specially trained interviewer, requires a period of training for its appropriate administration and interpretation, and should preferably be video-recorded to enable an accurate assessment of behavior. Thus, this is an extensive technique in terms of expertise, time, and resources, and is unsuitable for use in large-scale studies. Moreover, its stability is, to great extent, unknown [85]. Indeed, Rosenman [86, p. 56] reported that after a period of 12–20 months, 80% of subjects 'had a similar categorical assessment', while Myrtek and Greenlee [85] in their estimates of inter-rater reliability found only modest levels of agreement.

An alternative structured interview assessing the TAB is the DCPR interview [29] (see chapter 9). It showed high levels of agreement with the Jenkins Activity Survey-Short Form in measuring TAB [75], good to excellent inter-rater reliability (with κ-values ranging from 0.69 to 0.97) [30], good correlations with dimensional instruments for the assessment of psychosocial distress (e.g. the TAS [32], the Psychosocial Index [87], the General Health Questionnaire [88]). Studies on this diagnostic feature disclosed that not all coronary artery disease patients display a TAB, and that the TAB is present in other settings including dermatology, gastroenterology, and cancer patients [25, 29, 89] as well as in healthy people [90].

Self-Report Instruments

The restrictions and difficulties that were associated with the SI had led to the development of self-administered measures of TAB. Only two questionnaires have been demonstrated to be predictive of CHD, these being the Jenkins Activity Survey for Health Prediction (JAS) [91] and the Framingham Type A Scale [82].

The JAS [91] is the first self-reported scale used to assess TAB. It consists of four subscales measuring TAB and its three hypothesized underlying factors: Speed and

impatience; Hard-driving and competitiveness; Job involvement [92]. Each item on the questionnaire is accompanied by 2–5 alternative responses, one of which the subject is asked to indicate as being most representative of himself or herself. For each scale, the relevant items are scored and the total scores are standardized. Positive scores on the Type A scale indicate TAB, whilst negative scores indicate the type B behavior.

The JAS was validated in the WCGS and was found to achieve only 20% agreement with the SI classification. These discrepancies were at first attributed to the failure of type A individuals to recognize or acknowledge type A traits in themselves [66]. Thereafter, Mathews [93] suggested that these measures tap different components of the type A construct. The SI appears to measure a general responsivity to provocative situations, while the JAS emphasizes a rapid pace of living and competitive achievement strivings. However, Jenkins et al. [94, p. 611] stated that 'the JAS somehow has captured certain corners of the truth but has missed other large portions of it'.

The JAS can be administered to large groups, is objectively scored, and yields a continuous Type A scale standardized. However, it suffers from several shortcomings that make it less desirable for clinical use. It takes approximately 20 min to be completed, and almost half to be scored using hand-scoring weights and a hand calculator. Although type A assessed by the JAS has been shown to be prospectively related to CHD [70] and to individual cases of new CHD [92], it is time consuming to administer, complete, and score it; thus, it is not well suited to large scale risk screening effort [95] (for details on the JAS, see online suppl. appendix B). **O S M**

The second prospectively validated type A questionnaire is the Framingham type A Scale [82]. It consists of 10 items followed by a dichotomous (yes/no) or a Likert type (very well, fairly well, somewhat, not at all) response. The respondent is asked to indicate the extent to which each item describes himself or herself. Responses to the questions are valued from 1 (complete presence of a type A trait) to 0 (complete absence of the trait). The Framingham Scale was found to be predictive of the development of CHD in middle-aged men and women in Framingham, USA [82], but has not been used in many further studies. Only one study compared its agreement with the other type A measures and found to agree with the SI ratings in 60% of cases and correlate significantly with the scores on the Type A subscale and the Speed and impatience subscale of the JAS [96] (for details on the Framingham Type A Scale, see **O S M** online suppl. appendix B).

In 1982, Young and Barboriak [97] proposed the so called Milwankee Coronary-Prone Behavior Attitude Scale. This is a 10-item self-administered scale whose responses are consistent with the definition of TAB and highly intercorrelated; thus, a reasonably homogenous response pattern can be projected. Several items (from 1 to 6) are very similar to items appearing on early versions of the JAS [91]. Young and co-workers found an agreement of 80% and a test-retest correlations of 0.79 and 0.80 between the 10-item score and the Jenkins score. However, although they suggested

to use this instrument to classify at least males in TAB and type B behavior, the Milwankee Coronary-Prone Behavior Attitude Scale has been rarely used.

In 1985, the Type A self-Report Inventory (TASRI) was proposed [95] to researchers and clinicians as a brief, easy to administer and score scale that performs in a similar manner to the JAS. It correlates well with the type A-B classifications based on the JAS and the SI, and its ability to identify subjects 'accurately' (by the criterion of the SI) appears generally to be comparable to that of the JAS. However, even the TASRI has been rarely used.

From 1980s, several researches sought to determine whether individuals high in Antagonistic hostility were at greater risk for cardiovascular disease. Studies led by Barefoot et al. [80] and Shekelle et al. [81] found that Antagonistic hostility, measured by the Cook-Medley Hostility Scale of the MMPI, predicted all-cause mortality. Later, Almada et al. [98] found that MMPI-defined Cynicism predicted all-cause mortality. In brief, the Cook and Medley hostility scale of the MMPI has been used as a measure of hostility showing that it correlates with the degree of coronary occlusion [99] and the incidence of CHD, suggesting that the attitude measured by this scale may play a role in the pathogenesis and course of CHD [100], and hostility scores predicted subsequent mortality from all causes [80].

The MMPI-based Cook and Medley Hostility is a 50-item scale with a true/false answer (for details, see online suppl. appendix B). It was originally devised to identify teachers who had difficulty getting along with their students [99] since those MMPI items discriminating between high and low scorers on the Minnesota Teacher Attitude Inventory were chosen for the initial item pool. Thereafter, refinements in item selection were performed since their empirical rather than theoretical choice led disagreement about the nature of the scale [101, 102]. For this reasons, Costa et al. [103] identified a two-factor solution consisting of Cynicism and Paranoid alienation. Because these subscales were moderately inter-correlated (r = 0.54) and were both related to similar measures, they concluded that the two factors were different variants of the same trait and that the Cook-Medley was an assessment of hostile cognition and not for experience or expression. On the other hand, in 1989 Barefoot and a group of clinical psychologists identified six subsets of items and labeled them as follows: Hostile attributions, Cynicism, Hostile affect, Aggressive responding, and Social avoidance, plus a group of miscellaneous items which we placed in an Other category [104].

Hostile attributions reflects a tendency to interpret the behavior of others as intended to harm the respondent. Cynicism items reflect a generally negative view of humankind, depicting others as unworthy, deceitful, and selfish. Items in the Hostile affect subset refer to the experience of negative emotions associated with social relationships. They are admissions of anger, impatience, and loathing when dealing with others. Aggressive responding items indicate the respondent's tendency to use anger and aggression as instrumental responses to problems or to endorse these behaviors as reasonable and justified. Items describing indirectly negative behaviors were grouped

in a subset termed Social avoidance. They indicate the respondent's tendency to avoid others, refrain from social interaction, or withdraw from interpersonal involvement [104].

Using rational item analysis, Barefoot et al. [104] identified 6 subscales in the instrument, with only 3 of them (Cynicism, Hostile affect, and Aggressive responding) showing strong relationships with cardiovascular outcomes. These three subscales (27 items) are frequently used in isolation, as a strategy for enhancing the 'signal' and reducing the 'noise' in this instrument. Barefoot et al. [104, 105] proposed that each subscale may tap different components of hostility. For instance, in a recent study Georgiades et al. [106] used the Cynicism subscale to examine whether the relationship of hostility to fasting glucose indices is moderated by sex and race and finding that the relationship is evident in African-American women.

Over the years, the initial excitement about the Cook and Medley Hostility scale has given way to a more critical analysis of its internal consistency and construct validity. Overall, strengths are the wealth of evidence supporting its construct validity, test-retest reliability and its association with health outcomes, especially in initially healthy samples. Weaknesses are the heterogeneity of item content and the fact that it is not an optimal measure of affective or behavioral components of hostility. In particular, in terms of test-retest reliability, the scale is quite stable over periods of several years among adult samples (1–4 year test-retest correlations >0.8) [80], but it is less so over longer periods [107]. Moreover, although the 50-item version appears quite reliable (with internal consistency of nearly 0.80) [108], this is largely due to the number of items, and the average item intercorrelations are quite low, suggesting that individuals with dissimilar characteristics may obtain the same scale score.

Type D Personality

In 1995, the concept of type D, or 'distressed' personality, was delineated according to the existing personality theory and the notion that the interaction of specific traits may have deleterious effects on health [72]. The term distressed referred to a discrete personality configuration designating individuals who are inclined to experience emotional and interpersonal difficulties, which is likely to affect physical health [109]. The distressed personality construct was introduced as a vulnerability characteristic of heart patients and distinguished from other psychological measures that are usually examined as predictors of prognosis in heart disease such as social support and major depressive disorder.

Type D personality is comprised of two dimensions: NA, conceived as the tendency to experience negative emotional states across time and situations, and social inhibition, conceived as the tendency to avoid potential dangers involved in social interaction due to anticipation of negative reactions from others, such as disapproval. This construct was proposed by Denollet [110] after studying subtypes of patients

with CHD. Thereafter, Kupper and Denollet [111] reviewed the wide body of the literature on the construct, and suggested that the refinement of this construct is likely to contribute substantially to enhance the knowledge of cardiovascular disorders.

The type D personality has shown to reliably predict adverse outcome in several groups of patients suffering from cardiovascular disease [112], to increase risk for a wide range of adverse health outcomes including mortality and morbidity [109, 113–116], posttraumatic stress [117] and vital exhaustion [118]. Physiological hyperreactivity [119], immune activation [71], and inadequate response to cardiac treatment [116, 118] are mechanisms that may explain this detrimental effect of type D. Type D may also be associated with early onset of CHD in men [120], and the combination of type D and younger age designates a poor prognosis in CHD [114]. Finally, type D patients are at risk for clustering of psychological risk factors, including depression, anxiety, and irritability, and low levels of self-esteem, well-being, and positive affect [114, 121–124].

Assessment of Type D Personality

Over the past years, several methods of assessment have been used to determine type D personality. In the beginning, a combination of scales was used to get the appropriate item set. Then, the Type D Scale-16 (DS16) [113] was developed based on a large database of items originating from the MMPI-2 [125], and self-constructed items [113]. The DS16 was revised to form the DS14, the most recent and parsimonious version of the type D questionnaire [126].

The DS16 is a self-administered scale that was developed with the purpose to meet with a lack in measurement tools that allow for adequate characterization of individual risk when looking at the impact of psychosocial factors on heart disease. It was introduced in 1998 as a 16-item questionnaire to assess the distressed personality. Items were selected from a pool of 66 statements derived from an item-level factor analysis of the MMPI-2 and statements that were specifically written for developing a type D assessment scale [114]. The ability of the items to differentiate between type D and non-type-D patients was tested, and the best differentiating items were entered into a principal components analysis that resulted in two sets of eight items that were clearly related to NA and Social inhibition (Cronbach's αs were 0.89 and 0.82, respectively). In the DS16, all items are answered on a 5-point Likert scale ranging from 0 (false) to 4 (true). It yields four personality types, but only those who score high on both subcomponents can be classified as having a type D personality. A retest after 3 months in 60 of the 400 initial participants allowed testing-retest reliability, which was high (r = 0.78 and 0.87 for NA and Social inhibition items, respectively). Cross-validation took place in a second, smaller sample of 100 CHD patients who were not involved in the scale construction study.

The DS14 (see online suppl. appendix B) differs from the earlier DS16 on several points since it includes new items developed to enhance the assessment of NA and

Social inhibition [127]. The DS 14 initially resulted in a pool of 24 self-administered items (12 for each subcomponent), from which the 14 highest loading items were then included in the final version: 7 items assessing NA and 7 items assessing Social inhibition. Inclusion of items in the DS14 was based on conceptual and psychometric grounds. Conceptually, the NA items had to cover the tendency to experience feelings of dysphoria, anxious apprehension, and irritability, while the Social inhibition items had to cover the tendency to experience social discomfort, reticence, and lack of social poise [127].

All items are answered on a 5-point Likert scale ranging from 0 (false) to 4 (true). The DS14 yields four personality types, but only those who score above a predetermined, standardized, cutoff score (i.e. equal or greater than 10) on both subcomponents are classified as having a type D personality.

The psychometric properties of the DS14 are good. Factor analysis in 3,678 respondents showed the presence of two personality domains, with all items on NA loading highly (between 0.69–0.82) on one factor, and all items on Social inhibition loading highly on the other factor (0.62–0.82). The subcomponents of the scale showed high internal consistency, reflected in a Cronbach's α of 0.88 and 0.86 for NA and Social inhibition, respectively, and the temporal stability over a 3-month period is high (r = 0.82, 0.72 for NA and Social inhibition, respectively) [126]. The type D construct has been validated in multiple languages.

Temperament and Character

About 20 years ago, Cloninger developed his unified psychobiological theory of personality [128, 129]. Within this approach, results, models, and theoretical assumptions from various fields of genetics, psychiatry, psychophysiology, psychology, anthropology, and sociology were combined into a comprehensive model. According to Cloninger's theory, personality represents the results of a life-long interaction between two major domains: temperament and character.

Temperament should reflect individual differences, percept-based habits and skills. Its four dimensions are defined to be genetically homogeneous and independently inherited tendencies. Novelty seeking is viewed as heritable bias in the activation or initiation of behaviors such as frequent exploratory activity in response to novelty, impulsive decision-making, extravagance in approach to cues of reward, and a quick loss of temper and active avoidance of frustration. A second temperament factor, Harm avoidance (HA), is viewed as a heritable bias in the inhibition or cessation of behaviors, such as pessimistic worry in anticipation of future problems, passive avoidant behaviors such as fear of uncertainty and shyness of strangers, and rapid fatigability. The third temperament, Reward dependence (RD), is viewed as a heritable bias in the maintenance or continuation of ongoing behaviors, and as sentimentality, social attachment, and dependent on the approval of others. Normative studies using the

Trimentional Personality Questionnaire (TPQ) [130], a self-report inventory measuring the three dimensions of temperament described, confirmed the proposed structure of temperament with the exception that Persistence emerged as a distinct fourth dimension [129, 130]. Persistence, originally thought to be a component of RD, was measured in terms of perseverance despite frustration and fatigue, and it was uncorrelated with other aspects of RD such as sentimentality, social attachment, and dependence on approval. Although no differences between patients successfully treated for Cushing's syndrome and healthy controls in personality variables have been detected, the TPQ has been for instance used in psychosomatic research by Sonino et al. [131].

Character development is defined in terms of insight learning or reorganizing of self-concepts [128]. Three aspects of development of self-concepts are distinguished according to the extent to which a person identifies the self as: (a) autonomous individual; (b) an integral part of humanity or society; (c) an integral part of the unity of all things (i.e. in the universe). Each aspect of self-concept corresponds to one of three character dimensions that Cloninger called: self-directedness, cooperativeness, and self-transcendence. For more details on these three characters, see Cloninger et al. [128].

Assessment of Temperament and Character

The Temperament and Character Inventory (TCI) [129] was constructed based on Cloninger's theory of personality and of the TPQ [130]. The TCI is a self-administered paper-pencil measure of the four temperament and the three character dimensions described above, as well as their related subscales. The inventory has been translated into several languages, and the psychometric properties of these versions have been estimated separately. The coefficient-α of the TCI ranged from 0.84 to 0.89 for temperament dimensions and from 0.65 to 0.87 for character dimensions in the original US normative samples [128] (for details, see online suppl. appendix B).

The TCI seems to allow a reliable assessment of the seven dimensions and subdimensions of Cloninger's model of personality, with a stable internal structure and numerous indices of external validity. However, some authors have suggested that the TCI reliability [132] could be increased and the factorial structure strengthened [133, 134]. The most frequent psychometric limitations emerging in validation studies of the TCI are the weak reliability parameters (test-retest reliability, internal structure and consistency) obtained for Persistence and RD, the unequal numbers of subscales for all dimensions, and the true/false response mode which is known to be less reliable than Likert modalities. These observations and the psychometric analyses emerging from more than 10 years of TCI utilization led Cloninger to propose a new version of this questionnaire, named TCI-Revised (TCI-R) [129]. The major differences between the two versions are the following:

- The response mode has been modified: true/false statements in the TCI, and five-point rating scale in the TCI-R (1 = definitively false; 2 = mostly or probably false; 3 = neither true nor false, or about equally true or false; 4 = mostly or probably true; 5 = definitively true). This modality is meant to improve the reliability of the responses, because moderate answers are possible. In particular, the more informative response set was designed to improve the precision of measuring the subscales without increasing the number of items.
- The total number of items is the same in both versions (i.e. 240) but only 189 items are common to TCI and TCI-R; 37 items have been eliminated (mostly related to character dimensions), and 51 new items have been introduced in the TCI-R, including five validity items.
- The constitution of the four temperament dimensions and the three character dimensions has been modified and homogenized, with an increase in subscales measuring RD and P for a total of 29 TCI-R subscales.

The last point is perhaps the most important because RD included P in the TPQ. These two dimensions were later distinguished for psychometric reasons, so there was only one short scale measuring P and three scales measuring RD. This may explain why RD and P are the least robust dimensions in most populations [135, 136]. Nevertheless, Persistence appeared to be a very relevant construct with, for example, a prognostic value for relapse in alcohol dependence following treatment [137].

The TCI and its revised version seem to be increasingly used to evaluate the personality characteristics of patients suffering from specific medical conditions. There is evidence on the possible relationship between migraine, tension-type headache (TTH), and the TCI. Nylander et al. [138] studied the personality profile of 26 adult migraine patients and 87 controls. On the subscale level of Novelty seeking, a slightly higher average in the Exploratory excitability subscale and a significantly higher average in the Impulsivity subscale were observed in migraine patients when compared to controls. Moreover, Boz et al. [139] evaluated 81 patients with TTH, 56 patients with migraine, and matched healthy controls, and found that TTH patients had higher HA scores than controls.

There is also evidence that certain temperament and character dimensions are more likely to be represented in patients with specific dermatologic diseases. Kim et al. [140] evaluated 50 male patients with atopic dermatitis (AD) and 83 healthy controls, and found that AD patients scored higher on HA and lower on RD, self-directedness, and cooperativeness than controls. It was suggested that AD patients might have distinctive temperament and character dimensions. In particular, those with high HA and a low RD might be cunning, devious, ineffectual, reserved, under-achieving, alienated, and cynical [141]; while the AD patients with low self-directedness and cooperativeness scores might show a higher tendency toward personality problems than the healthy controls [142]. Finally, Kiliç et al. [143] evaluated 105 psoriasis patients and 109 healthy individuals, and found that the psoriasis group had significantly higher scores of HA and lower scores on self-directedness than the control group. This study might provide a contribution in understanding the role of

personality characteristics in psoriasis, one of the psychosomatic disorders, which is still being investigated whether it is a hereditary or an acquired disease.

The Five-Factor Model

The five-factor model (FFM) of personality is a version of trait theory which holds that the many ways in which individuals differ in their enduring emotional, interpersonal, experiential, attitudinal, and motivational styles can be summarized in terms of five basic factors called Neuroticism, Extraversion, Openness to experience, Agreeableness, and Conscientiousness [144, 145].

N (for Neuroticism, NA, or nervousness) is the dimension underlying the chronic experience of distressing emotions, such as fear, guilt, and frustration. E (for Extraversion, energy, or enthusiasm) means interpersonally sociability and dominance and temperamentally high activity level and cheerfulness. O (for Openness to experience or originality) refers to individuals who are imaginative, aesthetically sensitive, intellectually curious, and attitudinally liberal. A (for Agreeableness or altruism) is a dimension that implies trust and sympathy but contrasts cooperation with cynicism, callousness, and antagonism. Finally, C (or Conscientiousness, control, or constraint) encompasses sense of competence and duty, need of achievement, organization, planning, and self-discipline.

After its initial development, little more was done with the FFM until 1980 when Goldberg [146] renewed interest in the field and led to the development of the five-factor NEO Personality Inventory (NEO-PI) [147].

Assessment of the Five-Factor Model

The NEO-PI was developed to measure the FFM using rational and factor analytic methods on large samples of normal adult volunteers. The questionnaire consisted of 181 items, answered on a 5-point scale ranging from strongly disagree (1) to strongly agree (5). Each of the three original domains (N, E, O) was assessed as the sum of six more specific facet scales. Total N, for example, was the sum of scores for the Anxiety, Hostility, Depression, Self-Consciousness, Impulsiveness, and Vulnerability (to stress) scales. Global 18-item scales were used to assess A and C [147]. The NEO-PI requires only a sixth-grade reading level and has been used by subjects ranging in age from 16 to the 90s. Respondents typically take 20–30 min to complete the questionnaire that can be also administered, scored, and interpreted by a personal computer. The NEO-PI has a good cross-observer validity and longitudinal stability, its scales are balanced to control for the effects of acquiescent responding and are not overly sensitive to social desirability effects. Internal consistency reliabilities for the five domain scales range from 0.76 to 0.93 in volunteer samples [148].

Form S is used for self-reports; a third-person version, Form R, can be used by raters and appears to have comparable reliability and validity when completed by knowledgeable raters, such as spouse or long-time friends. Separate profile sheets are available for male and female adult self-reports, college student self-reports, and adult ratings [148].

The most comprehensive, and perhaps the best validated, version of this instrument is the Revised NEO-PI [147]. It is a 240-item questionnaire developed using a top-down strategy, beginning with the five well-established factors or domains (N, E, O, A, C) and subdividing each into six more specific facet scales. Domains are defined as multifaceted collections of specific cognitive, affective, and behavioral tendencies that might be grouped in many different ways. Facets are designated as the lower level traits corresponding to these grouping. A short version of the instrument, the NEO-Five Factor Inventory, is a 60-item questionnaire which provides estimates of the five factors. Each domain is measured by 12 items. The five domains are: neuroticism which includes anxiety, angry hostility, depression, self-consciousness, impulsivity, and vulnerability; extraversion which includes warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotion; openness which includes fantasy, aesthetics, feelings, actions, ideas and values; agreeableness which includes altruism, trust, compliance, tender-mindedness, straightforwardness, and modesty, and conscientiousness which includes self-discipline, competence, order, dutifulness, achievement striving, and deliberation.

The same five dimensions measured via the NEO-PI are represented in whole or in part in other instruments such as the Eysenck Personality Questionnaire [149], the Guilford-Zimmerman Temperament Survey [150], the California Psychological Inventory [151], the Personality Research Form [152], and the Myers-Briggs Type Indicator [153]. However, such instruments, together with the commonly accepted psychopathology inventories such as the MMPI-2 [125] or the Personality Assessment Inventory [154], have been largely replaced by the NEO-PI since it has several potential advantages including the provision of a more detailed and comprehensive picture of personality structure [155, 107].

Given these findings, the NEO-PI and its subsequent versions would appear to be ideal, yet they have been criticized for their failure to include validity scales that would provide measures of response bias and distortion.

In psychosomatic medicine, an increasing number of studies have used the NEO-PI and its derived versions. For instance, Tanum and Malt [156] showed that patients with functional gastrointestinal disorders have significantly higher levels of NEO-PI Neuroticism than healthy controls. More recently, Nater et al. [157] observed that chronic fatigue syndrome patients have significantly higher scores on Neuroticism and lower scores on Extraversion than those with Insufficient fatigue or healthy controls. Finally, several researchers have become increasingly interested in the relationships between personality traits and mortality. For instance, Christensen et al. [158] found that patients suffering from chronic renal insufficiency who had

low Conscientiousness or high Neuroticism scores were more likely to have died during a 4-year follow-up period. Weiss and Costa [159] highlighted that NEO-Five Factor Inventory Neuroticism, Agreeableness, and Conscientiousness were significantly associated with a reduced mortality. Jonassaint et al. [160] showed that the facets Openness to feelings, actions, ideas, and aesthetics were protective against cardiac deaths. Taylor et al. [161] observed that people who died during a 10 year follow-up period had significantly lower Openness and Conscientiousness scores than people who survived. Finally, Sutin et al. [162] found that low Conscientiousness and traits related to Impulsivity were associated with lower HDL cholesterol and higher triglycerides.

Conclusions

The present chapter reviewed the personality constructs having a fundamental role in psychosomatic medicine and their instruments of assessment. The aim was to encourage a proper assessment to contribute in completely understanding medical patients and their global health, and in formulating optimal decision-making and treatment planning.

Such a role of personality has developed particularly in the last decade thanks to the philosophical and scientific revolution. Indeed, first, personality factors have been no longer treated as causes of medical disease but as moderators/mediators that variously influence preclinical and clinical levels of illness from risk factors and vulnerability to maintenance of symptoms and recovery. Second, the psychometric distinction between state and trait has declined supporting the evidence that psychological constructs traditionally conceived as trait dimensions may surprisingly display sensitivity to change in a specific clinical situation, whereas constructs viewed as state dimensions may display unexpected stability throughout the longitudinal development of the disorder [163]. Thus, the psychometric distinction between state and trait may be feasible in a healthy population, but seems to run against a large body of evidence in clinical populations [164, 165] including the occurrence of episodic personality dysfunction [166]. As a confirmation, the state/trait dichotomy does not appear to apply anymore to clinical studies concerned with psychological well-being and resilience and their modifications [167, 168]. Moreover, there is already evidence suggesting that cognitive behavioral interventions might teach alexithymic patients to learn emotion terms, label emotional situations, observe their own symptoms, and link emotional labels with their symptoms [169], and that variations of psychodynamic therapy, such as labeling feelings for patients rather than asking them how they feel, might help alexithymic patients [3].

In brief, since personality is a moderator/mediator that can variously influence preclinical and clinical levels of illness and can be changed in specific clinical situations, it seems relevant to assess it in clinical settings in order to formulate a proper

treatment planning, thus influencing the outcome of the medical illness. Of course, such an assessment should be realized according to the emerging guidelines which highlight the need for repeated measures, clinimetric methods, using macro- and microanalysis, individualized treatment, and multidisciplinary team treatment [170].

In this framework, we hope the present chapter will shed some light on the value of personality in medical settings and increase its assessment in clinical practice.

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Illness Behavior

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Abstract

The term *illness behavior* was introduced by Mechanic and Volkart to describe the individuals' different ways to respond to their own health status. Pilowsky's concept of *abnormal illness behavior* encompasses several clinical conditions characterized by a maladaptive mode of experiencing, perceiving, evaluating and responding to one's own health status. The concept of *somatization* was criticized because it implies the presence of psychological distress or an underlying psychiatric disturbance when an organic cause for somatic symptoms is not found. Thus, more atheoretical terms, such as *functional somatic symptoms* and *medically unexplained symptoms*, were introduced. Both Kellner's Symptom Questionnaire and Derogatis' Symptom Checklist-90 include a scale for somatic symptoms, and other questionnaires were specifically designed to measure their frequency and severity. Kellner's Illness Attitude Scales appear to be the gold standard for the measurement of the hypochondriacal spectrum, which includes several clinical conditions, such as *nosophobia*, *thanatophobia* and *health anxiety*. The assessment of *illness denial* should consider that a certain degree of denial may sometimes prevent patients from overwhelming psychological distress resulting from life-threatening or stigmatized diseases. Denial may concern both physical and psychiatric symptoms. Specific instruments are available for both types of denial. The cognitive and emotional representations developed by subjects when they have to cope with an illness or a perceived health threat are subsumed under the concept of *illness perception* and may be assessed by the Brief Illness Perception Questionnaire.   Copyright © 2012 S. Karger AG, Basel

Sick Role and Illness Behavior

In the last century, some historians and sociologists evidenced that each disorder does not merely correspond to the presence of some pathophysiological processes, but it also entails both a psychological and a social dimension.

In 1929, the medical historian Henry Sigerist was the first to observe how the different societies have ascribed a special status to sick persons characterized by specific privileges and obligations [1]. Later, the sociologist Talcott Parsons [2] expanded the description of these privileges and obligations and introduced the term *sick role* to

describe the social status recognized by a society to sick persons. Examples of obligations and privileges are the acceptance of the need to cooperate with others to achieve health and being regarded as someone requiring care, respectively.

According to Susser and Watson [3], the differentiation between the biomedical, psychological and social dimensions of disorders is witnessed by the terms *disease*, *illness* and *sickness*. *Disease* refers to the 'objective physiological or mental disorder at the organic level and confined to the individual organism' [4]. Also the term *illness* is confined to the individual level, but it concerns the subjective experience, 'a psychological awareness of dysfunction at the personal level' [4]. The word *sickness* introduces the social level and was defined following Sigerist and Parsons' thought as 'a social role assumed by the individual that is variously specified according to the expectations of a given society, and that thereby extends beyond the individual to include relations with others' [4].

In the early 1960s, two sociologists, Mechanic and Volkart, were interested in studying the different ways to react to one's own physical symptoms displayed by people [5]. They noticed that some subjects seek medical care even for the mildest symptoms, while others tend to ignore symptoms. The majority shows behaviors between these two extremes [6]. These observations led Mechanic and Volkart to introduce the term *illness behavior* to describe 'the ways in which individuals experience, perceive, evaluate and respond to their own health status' [5]. Illness behavior is influenced by subjective, social and cultural determinants and may vary from a subject to another one and within the same individual according to the situation and the kind of disease he/she has to cope with.

Abnormal Illness Behavior

In 1969, Issy Pilowsky introduced the term *abnormal illness behavior* (dysnosognosia) and defined it as 'the persistence of a maladaptive mode of experiencing, perceiving, evaluating and responding to one's own health status, despite the fact that a doctor has provided a lucid and accurate appraisal of the situation and management to be followed (if any), with opportunities for discussion, negotiation and clarification, based on adequate assessment of all relevant biological, psychological, social and cultural factors' [6, 7].

Several clinical conditions fall within the concept of abnormal illness behavior and may be classified according to 3 criteria: (a) somatic or psychological focus, (b) whether illness is affirmed or denied, (c) predominantly conscious rather than unconscious motivation [8]. This classification allows to encompass several syndromes and clinical problems, some of which have been neglected by the psychiatric nosography [9, 10]. Persistent somatization and hypochondriasis may be conceptualized as forms of abnormal illness behavior where somatic symptoms are affirmed with a motivation predominantly unconscious. The denial of a psychiatric disorder to obtain an

employment is an example of illness-denying abnormal illness behavior focused on psychological symptoms and with a motivation predominantly conscious.

Pilowsky and Spence [11] developed a self-rating instrument for the assessment of the main dimensions of abnormal illness behavior: the Illness Behaviour Questionnaire (IBQ). The IBQ consists of 7 factorial-derived scales: (a) general hypochondriasis, (b) disease conviction, (c) psychological versus somatic focusing, (d) affective inhibition, (e) affective disturbance, (f) denial, (g) irritability. The IBQ contains 62 items with a dichotomous response format ('yes/no').

Assessment of Somatization

The term *somatization* was introduced in the early 20th century by the psychoanalyst Stekel to describe a hypothetical process through which a 'deep-seated' neurosis could result in a somatic disorder [12]. This mechanism was very similar to that of conversion. Nemiah criticized the concept of conversion and proposed dissociation as the basic psychological process leading to the development of the symptoms of somatization [13, 14]. Furthermore, Steckel's view reflected the theory of psychogenesis, which characterized the early stages of psychosomatic medicine. The aim of the psychogenetic theory was to identify a subgroup of physical diseases which were thought to be caused by psychological factors, the 'psychosomatic disorders', and to differentiate them from the 'organic' disorders [15].

In the 1960s, Kissen, Engel and Lipowski paved the way for the overcoming of the psychogenetic theory and its consequent dichotomy between organic and psychosomatic disorders [16–22]. Engel's biopsychosocial model views illness as a result of the interaction between biological, psychological, social and environmental factors [23].

In this renewed conceptual framework, Lipowski proposed a definition of somatization as 'the tendency to experience and communicate psychological distress in the form of somatic symptoms and to seek medical help for them' [24]. According to Lipowski, somatization is a process that may subsume several clinical phenomena [25]. It is not a disorder or a diagnostic category, and subjects with somatization do not necessarily suffer from a psychiatric disorder. Somatization may mask a physical illness and, vice versa, the presence of a medical disease does not exclude, but rather increases, the probability of somatization and abnormal illness behavior [19, 25]. Physical symptoms which may result from a process of somatization may also affect the course of medical conditions. In some prospective studies, somatic symptoms of depression significantly predicted subsequent mortality and cardiac events in patients with cardiovascular diseases [26–31].

Somatization does not merely refer to all physical symptoms not accounted for by an identified medical disease. We can speak of somatization when the subject attributes perceived somatic symptoms without evidence of an organic pathology to a physical illness and then he/she searches for medical advice or treatments [25].

According to Bridges and Goldberg [32], somatization is the somatic manifestation of a mental disorder, and it responds to a psychiatric treatment. These definitions of somatization [24, 32] imply the presence of psychological distress or a psychiatric disorder underlying the physical symptoms. However, if an organic cause for perceived somatic symptoms is not found, there are not necessarily some psychological determinants accounting for them [19, 33]. Furthermore, in clinical practice concomitant somatic symptoms may significantly predict a worse prognosis of depressive and anxious symptoms. However, it may be very difficult to ascertain whether these physical symptoms are due to a medical condition or to somatization [34].

In order to provide more general and atheoretical terms, Kellner [35] introduced the concepts of *functional somatic symptoms* and *psychosomatic syndromes*. Following the DSM category of undifferentiated somatoform disorder, Kellner conceived functional somatic symptoms as those physical symptoms for which an appropriate evaluation cannot identify a medical disorder or a pathophysiological mechanism (e.g. an injury) fully accounting for them. Furthermore, if there is a physical illness, the symptoms or the resulting psychosocial impairments exceed what it could be expected by medical findings [36]. A psychosomatic syndrome is a syndrome in which, at least in some patients, psychological processes play a substantial role in its etiology [35]. Kellner described a series of psychosomatic syndromes, including fibromyalgia, chronic fatigue, nonulcer dyspepsia, irritable bowel syndrome and urethral syndrome. Both biological and psychosocial factors may be involved in the development and maintenance of these syndromes and their relative weights may vary among the different syndromes and among subjects with the same syndrome. As an example, according to a staging approach, functional abdominal pain in childhood results from the interaction of both inflammatory and psychosocial factors [37]. The close relationship between biological and psychological factors is also witnessed by the usefulness of cognitive-behavioral therapy and other psychosocial interventions not only in somatoform disorders but also in medical diseases [38]. The concepts of functional somatic symptoms and psychosomatic syndromes converged in the Diagnostic Criteria for Psychosomatic Research (DCPR) [39] clusters concerning somatization.

Mayou preferred to use the term *medically unexplained symptoms* to capture the whole range of patients presenting with physical symptoms without an identified disorder accounting for them, but not necessarily attributable to or accompanied by overt psychological symptoms [40].

Several self-rating instruments were developed for the assessment of functional somatic symptoms. Both Kellner's Symptom Questionnaire (SQ) [41] and Derogatis' Symptom Checklist-90 (SCL-90) [42] include a scale concerning somatization.

The SQ comprises 92 items and is made of 4 scales assessing the main dimensions of psychological distress: anxiety, depression, somatization and hostility. Each scale contains 23 items and is formed by 2 subscales: one assessing distress (17 items) and one concerning well-being (6 items). The 4 subscales of distress regard depressive

symptoms, anxiety symptoms, hostility, somatic symptoms. The corresponding subscales of well-being evaluate contentment, relaxation, friendliness, physical well-being. The SQ can be very easily completed, because each item is made of an adjective or a brief statement. Subjects are asked whether they had experienced the listed symptoms with a dichotomous response format ('yes/no' or 'true/false'). Kellner proposed 3 versions of the SQ according to the time frame focusing on the last hour, day and week (the most used), respectively. The SQ has been frequently administered to psychiatric patients, subjects with medical disorders and normal controls. It is characterized by an excellent sensitivity in detecting both differences between groups and changes in psychological distress after treatments [41, 43].

The SCL-90, previously known as the Hopkins Symptom Checklist [44], is made of 9 scales concerning: somatic symptoms, obsessive-compulsive symptoms, interpersonal sensitivity, depressive symptoms, anxiety symptoms, hostility, phobic anxiety, paranoid ideation, psychoticism. A global severity index may also be computed. Subjects are asked with what degree the listed symptoms have been present during the past week. The 90 items are rated on a 5-point Likert scale ranging from 'not at all' to 'extremely'. The SCL-90 has been widely used in several countries both in medical and psychiatric populations. Its good test-retest reliability and discriminant validity have been proven [42, 45].

The Bradford Somatic Inventory (BSI) [46] was intended to be a multiethnic inventory of somatic symptoms reported by anxious and depressed patients recruited both in Britain and in the Indo-Pakistan subcontinent. The BSI consists of 46 items (2 applying only to men) describing somatic symptoms which frequently occur in depressive and anxious disorders (e.g. 'Have you had pain or tension in your neck and shoulders?', 'Have you felt pain in the chest or heart?'). Mumford et al. [46] tested different response formats focusing either on intensity or on frequency of each symptom during the past month. A 3-choice format was found to be easy to use: (a) 'symptom absent', (b) 'present on less than 15 days during the past month', (c) 'present on more than 15 days during the past month'.

The Screening for Somatoform Symptoms (SOMS) [47] contains a list of 53 physical symptoms with a dichotomous response format ('yes/no'). The items reflect the possible symptoms of somatization disorder and somatoform autonomic dysfunction, as well as the somatic symptoms that frequently occur during panic attacks and depressive states. The SOMS may be useful as a screening tool for somatization disorder according to DSM-IV-TR [9] and ICD-10 [10] and somatoform autonomic dysfunction according to ICD-10, because of the presence of items regarding the inclusion and exclusion criteria for these diagnoses. For each symptom, patients have to answer 'yes' if they had experienced it during the last 2 years and if the symptom both significantly worsened their quality of life and was not explained by doctors.

In 2003, Rief and Hiller [48] proposed a modified version of the SOMS, the SOMS-7, to assess not only the frequency but also the severity of the 53 symptoms. The time

frame of the SOMS-7 was reduced to the last 7 days and the response format became a 5-point Likert scale (from 'not at all' to 'very severe'). The SOMS-7 provides 2 scores: the number of existing symptoms (somatization symptom count) and the intensity of symptoms (somatization severity index). The introduction of the severity index resulted in a higher sensitivity both in discriminating patients with different degrees of somatization and in detecting changes after treatments.

The Health Attitude Survey (HAS) [49] assesses attitudes and perceptions of patients with somatization. It differs from the other self-rating instruments for somatization, because it does not contain items concerning specific somatic symptoms (which may be influenced by physical diseases) and it evaluates dimensions usually neglected, such as interaction with physicians and satisfaction with medical care. The HAS consists of 27 items developed mainly by reviewing Lipowski's literature on somatization [24, 25]. Six scales were identified by factorial analysis: (a) 'dissatisfaction with care' (e.g. 'I have been satisfied with the medical care I have received'), (b) 'frustration with ill health' (e.g. 'I am tired of feeling sick and would like to get to the bottom of my health problems'), (c) 'high utilization of care' (e.g. 'I have seen many different doctors over the years'), (d) 'excessive health worry' (e.g. 'I sometimes worry too much about my health'), (e) 'psychological distress' (e.g. 'Sometimes I feel depressed and cannot seem to shake it off'), (f) 'discordant communication of distress' (e.g. 'Some people think that I am capable of more work than I feel able to do'). Each item is rated on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Some items are worded negatively and their scores should be reversed. The HAS was proposed for both multidimensional assessment of somatization in clinical populations and screening for somatizing subjects in nonclinical settings.

The Patient Health Questionnaire-15 (PHQ-15) [50] is made of 15 items describing physical symptoms accounting for more than 90% of symptoms presented by primary care patients. It was derived from the full PHQ [51], a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders [52]. The PHQ [51] concerns 8 disorders: (a) major depressive disorder, (b) panic disorder, (c) bulimia nervosa, (d) other depressive disorder, (e) other anxiety disorder, (f) probable alcohol abuse/dependence, (g) binge-eating disorder, (h) probable somatoform disorder. The PHQ-15 assesses the severity of somatic symptoms and subjects have to answer how much they have been bothered by each symptom during the past month. Each item is rated on a 3-point Likert scale: (a) 'not at all', (b) 'a little', (c) 'a lot'. The score of the PHQ-15 may range from 0 to 30. Scores equal to 5, 10 and 15 were identified as cutoff points for mild, moderate and severe somatic symptoms severity, respectively.

Besides the aforementioned instruments specifically designed to assess somatization, the Hamilton Anxiety Scale [53] and the Hamilton Depression Scale [54] provide a detailed list of the somatic symptoms most frequently accompanying anxious and depressive disorders [55].

Assessment of the Hypochondriacal Spectrum

According to the DSM-IV-TR [9], *hypochondriasis* is 'the preoccupation with the fear of having, or the idea that one has, a serious disease based on the person's misinterpretation of bodily symptoms or bodily functions' and is characterized by resistance to medical reassurance. This definition clearly differentiates hypochondriasis from other mental disorders. However, it covers only the most serious disorder of a wide spectrum of preoccupations and fears regarding one's own health [56]. Other clinical phenomena, namely nosophobia, thanatophobia and health anxiety, are often components of the hypochondriacal disorder, yet they may be observed in the absence of other psychiatric disorders. These illness-related fears and beliefs deserve a clinical differentiation from hypochondriasis, because they entail specific prognostic and therapeutic implications [56–58]. Unfortunately, they are virtually ignored by the psychiatric nosography [9, 10].

In the 1980s, Kellner provided a psychometric tool for the clinical differentiation of several attitudes, fears and beliefs related to hypochondriasis, namely the Illness Attitude Scales (IAS; see online suppl. appendix) [59, 60]. The IAS are 9 self-rating scales regarding the following features: (a) worry about illness, (b) concerns about pain, (c) health habits, (d) hypochondriacal beliefs, (e) thanatophobia, (f) disease phobia, (g) bodily preoccupations, (h) treatment experience, (i) effects of symptoms. The clinimetric properties of the IAS, in particular the high content validity and sensitivity, make them the gold standard for the self-rated assessment of the hypochondriacal spectrum [60, 61]. Some of the IAS inspired the subsequent development of the DCPR concerning disease phobia, thanatophobia and health anxiety [39].

Other self-rating instruments were designed for the assessment of the cognitive, emotional, perceptual and behavioral features of hypochondriasis and severe health anxiety.

The Whiteley Index (WI) [62], developed by Pilowsky in the mid-1960s, is easy to administer, because it is made up of 14 items with a dichotomous response format ('yes/no'). Subsequently, the WI paved the way for the development of the IBQ [11] which incorporated its items. Thus, the WI may be administered by itself, as a separate questionnaire, but its score may also be obtained from the IBQ. Factorial analysis of the WI found 3 factors: (a) disease phobia, (b) bodily preoccupations, (c) disease conviction. The first factor reflects the fear of having or developing a serious illness. The bodily preoccupation factor concerns the presence of multiple bodily symptoms and pains. The disease conviction factor refers to the belief to be ill despite evidence for the contrary. Fink et al. [63] proposed a 7-item version of the WI, the Whiteley-7 scale, which resulted more suitable as a screening tool in medical settings [64].

The Somatosensory Amplification Scale (SAS) [65] was developed by Barsky, Wyshak and Klerman to assess how much subjects are bothered by different

uncomfortable somatic and visceral sensations, most of which are not typical of seri-ous diseases. Barsky and Wyshak [66] conceived somatosensory amplification as an enduring and stable perceptual style that may lead to hypochondriasis and somatiza-tion. Somatosensory amplification has 3 components: (a) bodily hypervigilance to unpleasant somatic sensations, (b) selective focusing on weak and infrequent bodily sensations, (c) a tendency to appraise mild visceral and somatic sensations as more threatening than they are [67]. The SAS contains 10 items rated on a 5-point Likert scale and provides a total score of somatosensory amplification. Subjects with a high score on the SAS tend to experience more intense and noxious mild symptoms of benign and transient ailments, normal physiological sensations and somatic concom-itants of affect [66].

The Health Anxiety Questionnaire (HAQ) [68] is based on the cognitive-behav-ioral model of health anxiety and hypochondriasis. It includes 21 items rated on a 4-point Likert scale ranging from 'not at all or rarely' to 'most of the time'. Most of the items of the HAQ were derived from Kellner's IAS [59, 60]. Cluster and factorial analyses found 4 dimensions: (a) health worry and preoccupation (e.g. 'Do you ever worry about your health?'), (b) fear of illness and death (e.g. 'Are you ever worried that you may get a serious illness in the future?'), (c) reassurance-seeking behavior (e.g. 'Do you ever examine your body to find whether there is something wrong?'), (d) interference with life (e.g. 'Have your bodily symptoms stopped you from working during the past 6 months or so?').

The Cognitions About Body and Health Questionnaire (CABAH) [69] contains 68 items rated on a 4-point Likert scale ranging from 'completely wrong' to 'completely right'. Nine items of the CABAH are taken from the SAS [65]. According to factorial analysis, the CABAH assesses the following dimensions: (a) catastrophizing interpre-tation of bodily complaints (e.g. 'A suddenly appearing joint pain can be a sign of a beginning paralysis'), (b) perception of autonomic sensations (e.g. 'I can sometimes hear my pulse or my heartbeat throbbing in my ear'), (c) bodily weakness (e.g. 'I can't take much physical exertion as my ability to perform is slowly decreasing'), (d) intol-erance of bodily complaints (e.g. 'If something is wrong with my bodily sensations, it upsets me at once'), (e) health habits (e.g. 'I'm always careful to live really healthily').

In 1989, Warwick and Salkovskis [70] started the development of a scale for the assessment of health anxiety and hypochondriasis. Warwick and Salkovskis [71] con-sider hypochondriasis as the most serious form of health anxiety. This scale was sub-sequently validated and named Health Anxiety Inventory (HAI) [72]. A brief version of the HAI, made of 14 items, was also developed and may be used as a screening instrument in medical settings. Each item contains 4 statements and the subject has to select the one which best describes his/her feelings [72].

The Multidimensional Inventory of Hypochondriacal Traits (MIHT) [73] was developed by Longley, Watson and Noyes to assess the 4 dimensions of the hypochondriacal syndrome suggested by Warwick and Salkovskis' model [71]. The MIHT consists of 4 factorial-derived scales named 'hypochondriacal alienation',

'hypochondriacal dependency', 'hypochondriacal absorption', 'hypochondriacal worry', which assess the cognitive, behavioral, perceptual and affective components of hypochondriasis, respectively. The first scale contains 7 items reflecting the belief to be ill despite reassurance (e.g. 'People seem unconvinced my symptoms are signs of illness'). The second scale includes 8 items concerning the tendency to seek social support for perceived health concerns (e.g. 'Telling people about my health problems makes me feel better'). The third scale is made of 9 items regarding an increased awareness of one's own bodily sensations (e.g. 'I am aware of how my body feels after a big meal'). The fourth scale contains 7 items assessing the tendency to worry about illness (e.g. 'I try to avoid things that make me think of illness or death'). The 31 items of the MIHT have a 5-point response format.

Disease Phobia (Nosophobia)

Bianchi [74] defined *disease phobia* as 'a persistent, unfounded fear of suffering from a disease, with some doubt remaining despite examination and reassurance'. According to Ryle [75], disease phobia may include the fear of inheriting or acquiring a disease and the medical articles published in the lay press may play a causal role in its development.

Each disorder may be virtually the object of disease phobia. Most of the cases described in literature concern phobia about cancer, AIDS and heart diseases (cardiophobia) [76–78]. Disease phobia may regard disorders receiving massive media attention, as it was observed for AIDS in the 1980s [76] or BSE in the 1990s [79]. It may also be focused on the complications, progression or possible outcomes of an existing illness in the subject [80].

According to Fava and Grandi [57], 2 clinical features differentiate disease phobia from hypochondriasis. The first is the specificity and longitudinal stability of the symptoms. Patients with disease phobia are afraid of a specific disease, for example cancer, and are unlikely to transfer their fear to other diseases or organ systems. The second feature is the phobic quality of the fears that tend to manifest themselves in attacks rather than in continuous worries as in hypochondriasis. These characteristics make the relationship between disease phobia and hypochondriasis similar to that between panic disorder and generalized anxiety [57]. Disease phobia and hypochondriasis seem also to differ according to their behavioral manifestations. The former is usually associated with avoidance of internal and external illness stimuli, while hypochondriasis often results in reassurance-seeking or checking behaviors [80]. These clinical differences lead to different therapeutic approaches. Disease phobia successfully responded to a behavioral treatment based on exposure in vivo to illness cues plus prevention of reassurance [81, 82]. Hypochondriasis was more responsive to cognitive-behavioral and explanatory therapy [83, 84].

Thanatophobia

In 1928, Ryle described *thanatophobia* for the first time as the sense of dying *(angor animi)* [85]. About 20 years later, he provided the following autobiographical description 'It had never occurred to me that I should have an actual opportunity of observing the symptom in my own person until the autumn of 1942, when I developed angina pectoris … My first manifestation (…) was a sudden and intense attack of the sense of dying. I had just climbed the stairs of the refectory in the medical school at Guy's and sat down to lunch when it swept upon me. I remember thinking to myself, in the very words employed over the radio by a gallant fighter pilot as he fell to his death, 'This is it', and I could not doubt that I was about to die. The sensation then, as afterwards, passed within a few seconds. On several subsequent occasions I was almost as convinced that the end had come. Thereafter I must have experienced the symptom, in very varying degree, probably on two hundred or more occasions within a period of 5 or 6 years, and I have long since come to accept it philosophically …' [86]. Thus, the term thanatophobia means an irrational and sudden sense or conviction of being on the point of dying and not the inevitable human fear of death.

As long ago as 1891, Morselli [57, 87] differentiated the occurrence of isolated and intense attacks of fear of dying in patients with phobic disorders from the chronic worry related to death in melancholic patients.

According to Kellner [88], the irrational (without any medical reasons) conviction of dying soon may result in the fear and avoidance of stimuli related to death, such as funerals and obituary notices. He also differentiated primary from secondary thanatophobia [88]. The latter may result from panic disorder, hypochondriasis and disease phobia. Primary thanatophobia occurs in the absence of another mental disorder and is more rarely observed [57].

Health Anxiety

This term covers a variety of attitudes and preoccupations about illness less specific than hypochondriasis, nosophobia and thanatophobia. However, especially when prolonged, health anxiety may severely impair subjects' quality of life, resulting in increased body checking and health care utilization [88].

Health anxiety differs from hypochondriasis according to responsiveness to medical reassurance. However, both hypochondriasis and health anxiety belong to the same psychopathological continuum, and they probably share the same etiological and maintenance mechanisms [71].

Health anxiety may be a short-lived reaction to medical procedures [89]. When it persists, patients often develop new preoccupations about their health and ask for further medical examinations straight after they have been reassured by their physicians.

The IAS [59, 60] distinguish between several facets of health anxiety, such as worry about illness, concerns about pain and bodily preoccupations. Other self-report instruments for the assessment of health anxiety are described in the section on the assessment of hypochondriasis.

Health anxiety has been ignored by the psychiatric nosography [9, 10]. The DCPR [39] provide specific criteria for health anxiety, which was frequently found in the setting of life-threatening disorders [90].

Assessment of Illness Denial

According to Pilowsky's abnormal illness behavior model, denial of illness may range from conscious disguise of symptoms to lack of insight [6].

In neurology, Babinski introduced the term *anosognosia* to describe the unawareness of neurological deficits in patients with left-sided hemiplegia [91]. The lack of illness awareness was subsequently observed also in other medical disorders [92]. The psychological approaches focused on the concept of *denial*, which is considered a more 'active' phenomenon compared to anosognosia. According to the psychoanalytic theory, denial is an immature ego-defense mechanism against some overwhelming aspects of the external reality [93]. The cognitive approach viewed denial as an emotion-focused coping strategy engaged by people facing a stressful event [94].

The first feature to examine in the assessment of a patient with illness denial is the possibility of an adaptive value of denial. According to Lazarus [94], illness denial may have not only negative but also beneficial effects that can be determined only after a thorough assessment of each patient. For example, after the diagnosis or in the terminal phase of a life-threatening disease, a certain degree of denial may prevent the patient from overwhelming psychological distress [95, 96]. Illness denial is maladaptive when it results in non-adherence to therapeutic regimens, delay in undergoing medical examinations or the adoption of unhealthy behaviors [56].

Furthermore, in a same patient the value of illness denial seems to vary according to its duration. Denial may be an adaptive response to illness when short-lived, but it becomes maladaptive if it persists [94]. A study by Levine et al. [97] in patients with coronary heart disease supported this hypothesis. During the hospital stay, illness denial was significantly associated with fewer days spent in the intensive care unit and fewer signs of cardiac dysfunction. However, in the year after discharge, patients with higher levels of illness denial had a worse compliance with the rehabilitation program and were rehospitalized for more days than low deniers. Another feature that should be examined in the assessment of illness denial is the object of denial. Illness denial may be considered a multidimensional, rather than a unitary, phenomenon. Patients may deny (or minimize) the diagnosis itself or other features, including implications of symptoms, need for treatment, urgency, prognosis, vulnerability and emotional consequences [98].

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Illness denial may be displayed by different ways. They were reviewed by Goldbeck [98] and include poor compliance, criticisms toward the physicians or the hospital, discrepancy between reported affect and psychophysiological measures and history of risk-taking behaviors. Denial or minimization of illness may result in delay in seeking medical care or in counterphobic behavior, as in the case of a hemophilic patient who engages in risky behaviors [56, 99].

Denial of Physical Symptoms

In the literature, the assessment of denial of medical illness relied on researchers' clinical judgment, psychophysiological data, self-report questionnaires and semi-structured interviews [98]. This variety of methods reflects the lack of consensus in defining illness denial and identifying reliable tools for its assessment [100].

The use of self-report questionnaires is questionable, because deniers may be only partially aware of denying important features of their illness. The identification of illness denial by the discrepancy between subjects' verbal reports and psychophysiological markers of increased arousal was also criticized [98]. Most of the psychometric instruments (self-report questionnaires and semi-structured interviews) may be administered to any clinical population. Some tools were developed to assess denial in patients with specific disorders, such as cardiac diseases [101, 102] or alcoholism [103].

Two semi-structured interviews, namely the Hackett-Cassem (H-C) Denial Scale [104] and the Levine Denial of Illness Scale [97], are the most widely used instruments for the dimensional assessment of illness denial.

The H-C Denial Scale [104] provides a global score of illness denial. It was criticized because some items refer to personality traits and behaviors not concerning the patient's illness (e.g. general risk-taking behaviors) and its score is only modestly correlated with other markers of denial, such as verbal repudiation of illness [98, 105].

The Levine Denial of Illness Scale [97] was developed to overcome the shortcomings of the H-C Denial Scale. It assesses the following 24 dimensions: dissatisfaction with hospital care, dissatisfaction with physicians, disavowal of sleep disturbance, displacement of relevant symptoms, minimization of illness, lack of knowledge of diagnosis, lack of knowledge of prognosis, information avoidance, avoidance of health problems, delay in seeking treatment, cheerful mood, disavowal of anxiety, overt signs of anxiety, disavowal of depression, disavowal of fear regarding death, disavowal of anger or resentment, exaggerated self-confidence, preoccupation with irrelevant concerns, rejection of continued treatment, unrealistic optimism, noncompliance with current treatment, disavowal of dependence, detachment or indifference, use of humor. Ten items are similar to those of the H-C Denial Scale. The remaining 14 were identified by reviewing the literature on illness denial. Each item is rated on a 7-point Likert scale, where the higher the score the more severe the

illness denial. The interviewer rates the items by asking the patients a series of probing questions concerning cognitive, affective and behavioral reactions to their present illness.

Maladaptive illness denial was ignored by the psychiatric nosography [9, 10], although some authors proposed its inclusion in the DSM [106–109]. The DCPR provide distinctive criteria for the identification of illness denial, which are focused on its behavioral manifestations.

Denial of Psychological Symptoms

Denial of mental illness has received less attention compared to that of physical symptoms. However, many patients with psychotic disorders show a certain degree of unawareness of their illness. According to Amador and Strauss [110], unawareness of illness should be differentiated from misattribution of symptoms. The former describes a patient who does not acknowledge the presence of a symptom. In the second case, the subject recognizes to have a symptom, but he/she does not attribute it to a psychiatric condition.

As it was for denial of medical diseases, the view of denial of psychiatric symptoms shifted from a unitary to a multifaceted phenomenon. Amador and Strauss [110] identified 3 kinds of awareness in schizophrenic patients: (a) of having a mental illness, (b) of the benefits of psychiatric treatments, (c) of the social consequences of illness. According to Mintz et al. [111], insight in schizophrenia may concern 5 dimensions: (a) the presence of a mental disorder, (b) the social consequences of the disorder, (c) the need for psychiatric treatments, (d) the symptoms, (e) the attribution of symptoms to a mental disorder.

The role of awareness in patients' quality of life is controversial. Patients with poor awareness of their illness had a worse long-term treatment outcome [112], inadequate compliance to drug treatments [113], more hospital admissions [114] and a decreased psychosocial functioning [115]. However, other studies found increased awareness of illness significantly associated with higher anxious and depressive symptoms [116–118], as well as suicidal ideation [119, 120]. According to Lysaker et al. [121], internalized stigma moderates the relationship between insight and psychosocial functioning. Insight may result in a better rather than a worse functioning according to the presence of low or high internalized stigma, respectively.

The awareness of psychiatric symptoms has been assessed with both rating scales and self-rating instruments [122, 123].

The Insight and Treatment Attitudes Questionnaire (ITAQ) [124] is a semi-structured interview focused on the awareness of the need for treatment. The ITAQ consists of 11 items concerning recognition of having a mental disorder (5 items) and attitudes toward medication, hospitalization and follow-up evaluations (6 items). For

each item, the interviewer has to rate the patient's response on a 3-point Likert scale ranging from 'no insight' to 'good insight'.

The Schedule for the Assessment of Insight [125] is a structured interview which examines 3 dimensions of insight in psychotic patients: (a) awareness of illness, (b) capacity to regard psychotic experiences as abnormal, (c) treatment compliance. Each dimension is assessed with 2 or 3 questions rated on a 3-point Likert scale ranging from 'no insight' to 'good insight'. Subsequently, Kemp and David [126] developed the Schedule for the Assessment of Insight-Expanded version by adding items concerning awareness of change, difficulties resulting from the mental condition and key symptoms.

The Scale to assess Unawareness of Mental Disorder (SUMD) [127] is a semi-structured interview that assesses along a 5-point scale the awareness regarding: (a) having a mental illness, (b) benefits of medication, (c) social consequences of the mental disorder, (d) prominent symptoms, (e) attribution of prominent symptoms to a mental disorder. The SUMD examines both current and retrospective awareness.

A measure of insight is also provided by one item (G12) included in the Positive and Negative Syndrome Scale for Schizophrenia (PANSS) [128]. The PANSS is a rating scale and it infers impaired insight mainly from the patient's failure to recognize past or present mental disorders or symptoms and his/her denial of need for psychiatric hospitalization or treatment. The interviewer has to rate the patient's insight on a 7-point Likert scale from 'no impairment' to 'extreme lack of insight'.

Self-rating tools include the Markova and Berrios Insight Scale [129], the Insight Scale [130] and the Beck Cognitive Insight Scale (BCIS) [131].

The Markova and Berrios Insight Scale [129] views insight as the patient's self-knowledge about his/her illness and how it affects his/her ability to interact with the environment. It comprises 32 items rated as 'yes', 'no' or 'don't know'. The Markova and Berrios' scale may be completed by the patient or administered by an interviewer. In 2003, Markova et al. [132] revised and restandardized the scale, because some items of the original version were ambiguous or did not reflect the concept of insight. The revised version contains 30 items rated with a dichotomous response format ('yes/no').

The Insight Scale [130] consists of 8 items regarding 3 dimensions of insight: (a) awareness of illness (2 items), (b) awareness of need for treatment (4 items), (c) attribution of symptoms to a mental illness (2 items). Higher scores indicate a better insight.

The BCIS [131] departs from the traditional view of insight as the awareness of having a mental disorder and of the need for psychiatric treatment. The BCIS is focused on 'cognitive insight': the cognitive processes (e.g. distancing) involved in patients' evaluation and correction of distorted beliefs and misinterpretations of their anomalous experiences.

The BCIS is made of 15 items rated on a 4-point Likert scale ranging from 'do not agree at all' to 'agree completely'. Factorial analysis found 2 subscales concerning self-

reflectiveness (e.g. 'If someone points out that my beliefs are wrong I am willing to consider it') and self-certainty (e.g. 'I know better than anyone else what my problems are'). According to Beck et al. [131], self-reflectiveness refers to the patient's capacity and willingness to observe his/her mental productions and to consider alternative explanations. A high score on this subscale indicates a better cognitive insight. Self-certainty concerns the patient's overconfidence in the validity of his/her beliefs. Subjects scoring high on this subscale have a poorer cognitive insight, because they are more resistant to correction.

Illness Perception

A concept related to illness behavior which may be useful for the understanding of subjects' ways to react to illness is that of *illness perception*. Illness perception is based on the self-regulatory model developed by Leventhal et al. [133] to describe the cognitive and affective processes through which individuals respond to a perceived health threat.

According to this model, subjects are active processors of information and, when exposed to certain stimuli (e.g. somatic symptoms), they develop both cognitive and emotional representations of the possible health threat through 3 stages. When the representations are formed (stage I), subjects adopt behaviors to cope with the source of threat (stage II), and then they appraise the efficacy of these behaviors (stage III). Both the representations and the coping strategies may subsequently change according to the appraisal process, through a continuous feedback. It follows that representations of illness directly affect how people behave towards an illness they either suffer from or fear. They may decide to undergo clinical examinations or to adhere to treatments rather than to engage in avoidant coping strategies and noncompliant behaviors.

Emotional representations include all the affective reactions, such as fear or anger. Leventhal et al. [133] suggested that cognitive representation of illness concerns 4 dimensions: (a) 'identity' (the words used by the subject to define the illness and the symptoms he/she thinks are part of the illness), (b) 'causes' (the beliefs about the possible causes of the illness), (c) 'consequences' (the beliefs about severity and outcomes of the illness and its effect on one's own life), (d) 'timeline' (the beliefs about the duration and course of the illness). Lau and Hartman [134] introduced a fifth dimension: 'cure and control' (the beliefs concerning how much the illness may be treatable and under control).

Individuals' illness representations may be determined by several personal and social factors, such as previous experiences with illness and information received by media or significant others [135].

The assessment of illness perception was initially based on semi-structured interviews, which unfortunately turned out to have poor psychometric validity. For this

reason, in 1996 Weinman et al. [136] developed the Illness Perception Questionnaire (IPQ), a self-rating instrument concerning the aforementioned 5 dimensions of illness perception [133, 134].

Subsequently, the same research group revised the IPQ, by adding some subscales for the assessment of further features of illness perception. The revised instrument was named Illness Perception Questionnaire-Revised (IPQ-R) [137]. The IPQ-R comprises 12 subscales: (a) illness identity (14 items), (b) timeline acute/chronic (6 items), (c) timeline cyclical (6 items), (d) consequences (6 items), (e) personal control (6 items), (f) treatment control (5 items), (g) illness coherence (5 items), (h) emotional representations (6 items), (i) psychological attributions (6 items), (j) risk factors (7 items), (k) immunity (3 items), (l) accidental or chance (2 items). The items of the IPQ-R are rated on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree', with the exception of a dichotomous ('yes/no') response format for the first subscale.

The IPQ-R was used in several studies, but its length did not make it suitable for very ill patients and research settings where time available is scarce. Thus, Broadbent et al. [138] developed the Brief Illness Perception Questionnaire (Brief IPQ), which includes 9 items scored on a continuous linear scale ranging from 0 to 10. The first 5 items refer to cognitive representations of illness: consequences, timeline, personal control, treatment control, identity. Items 6 and 8 assess emotional representations: concern and emotions, respectively. Item 7 measures illness comprehensibility. The last item is an open question, and respondents have to list the 3 most important perceived causes of their illness. The Brief IPQ, as the previous versions, may be focused on a specific disorder or medical condition.

Illness perception, as assessed by the IPQ and its subsequent versions, turned out to be significantly related to several outcome measures in chronic illnesses, including self-management behaviors, psychological well-being and physical functioning [139]. In patients with acute myocardial infarction, as an example, dimensions of illness perception, such as perception of control, significantly predicted attendance at cardiac rehabilitation [140].

Conclusions

In the early 1960s, Mechanic and Volkart introduced the term illness behavior to describe the different ways to react to one's own physical symptoms displayed by people.

Pilowsky's concept of abnormal illness behavior includes several clinical phenomena, ranging from hypochondriasis to illness denial; some of them were neglected by the psychiatric nosography. Somatization is one of the most important, but also criticized, forms of abnormal illness behavior affirming physical symptoms. Some self-rating scales were proposed to assess both frequency and severity of somatic

symptoms. These instruments may be used as screening tools for the identification of somatization or to examine symptom severity in clinical practice. However, the incremental amount of information they provide is minimal. The PHQ-15 seems to be a promising tool: it assesses those somatic symptoms most frequently reported by primary care patients, is easy to complete, given the reasonable number of items, and provides 3 cutoffs for different degrees of severity. However, further validation studies are required. In particular, the sensitivity of the PHQ-15 in recognizing differences between populations and therapeutic gains after successful treatments should be proven. Both the SQ and the SCL-90 include a scale concerning somatization. The SQ, in particular, is very sensitive in identifying both differences between groups and changes in psychological distress after treatments.

The IAS are the gold standard for the assessment of the hypochondriacal spectrum. The high content validity and sensitivity of the IAS made them superior to the other instruments for the measurement of hypochondriacal fears and beliefs.

The assessment of illness-denying abnormal illness behavior is more difficult, because patients may be unaware of denying important features of their disorders. According to Lazarus, illness denial is not necessarily a maladaptive phenomenon. It may prevent the patient from overwhelming psychological distress, especially after the diagnosis or in the terminal phase of a life-threatening disease. The use of semi-structured interviews, such as the Levine Denial of Illness Scale, should be preferred to self-rating tools. Some instruments were specifically designed to assess the denial of mental disorders. Both the Schedule for the Assessment of Insight-Expanded version and the SUMD allow the interviewer to rate psychotic patients' awareness of the main features of their disorder.

The concept of illness perception is based on Leventhal and colleagues' self-regulatory model, and is very useful to explain individuals' differences in responding to both feared and identified diseases. The IPQ was developed to assess the dimensions of cognitive representation of illness, and it may be focused on a specific disorder or medical condition. A shortened version of the IPQ, the Brief IPQ, seems to be a rapid and easy to complete self-rating instrument.

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Assessment of Psychological Well-Being in Psychosomatic Medicine

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Abstract

The measures of disease status alone are insufficient to describe the burden of illness or one's atti-tudes toward illness and life. The subjective health status including psychological resources and well-being is as valid as that of the clinician when it comes to evaluating outcomes. The aim of this chapter is to provide a theoretical framework for the assessment of psychological well-being and positive functioning and to review the literature supporting the influence of these positive dimen-sions on illness development and health protection. We selected the assessment tools such as Kellner's Symptom Questionnaire, Antonovsky's Sense of Coherence, Ryff's Psychological Well-Being Scales and Psychosocial Index that we found most helpful in clinical and psychosomatic practice and that displayed clinimetric properties of sensitivity in research.

A considerable body of evidence has accumulated in psychosomatic medicine related to both psychosocial correlates of medical disease, such as quality of life (QoL), and psychosocial factors affecting individual vulnerability, such as psychological well-being [1]. The measures of disease status alone are in fact insufficient to describe the burden of illness or one's attitudes and psychological resources toward illness and life. The subjective health status including well-being, demoralization, difficulties fulfill-ing personal and family responsibilities, is as valid as that of the clinician when it comes to evaluating outcomes [2–5]. These are not new concepts. In 1948, the World Health Organization defined health as a 'state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' [6]. On the other hand, early experts in psychosomatic realm, such as Kissen [7], Engel [8], and Lipowski [9] suggested the importance of evaluating the complexity of clinical phenomena [10]. Kissen [7] clarified that the relative weight of psychosocial factors may vary consid-erably from one individual to another within the same illness, and underscored the basic conceptual flaw of considering diseases as homogeneous entities. Engel devel-oped a biopsychosocial model of illness [11] resulting from interacting systems at

the cellular, tissue, organismic, interpersonal and environmental levels. In Engel's view, the study of the diseases must then include the individual, his/her body and his/her surrounding environment as essential components of the total system [11]. In the same vein, Lipowski [9] underlined the importance of studying the relationships of biological, psychological and social determinants of health and disease. Thus, researchers recognized the need for multiple indicators in assessing health and treatment outcomes [12–15]. The area of research that has resulted from this recognition is termed 'health related quality of life' [16]. Research in this field seeks essentially two kinds of information: the functional status of the individual and the patient's appraisal of health [2]. The model proposed by Wilson and Cleary [17] is an example of a classification scheme for different measures of health outcome. The authors divided these outcomes into five levels: biological and physiological factors, symptoms, functioning, general health perceptions, and overall QoL. The concept of QoL is substantially based on the classic psychosomatic concept of disease: 'How a person experiences the pathological process, what it means to him, and how this meaning influences his behavior and his interaction with others are all integral components of disease viewed as a total human response' [18]. Even though the concept of QoL has rapidly become an integral variable of outcome in clinical research, it is often difficult to know what is being measured since there are no agreed criteria for what constitutes QoL, and such instruments lack validity [14]. As a result, skepticism remains about its usefulness in medical research [19].

The central document of health promotion, the Ottawa Charter [20], introduced the concept of 'good quality of life', paving the way to research and clinical developments in psychosomatic medicine. The document declared that health promotion is the process of enabling the individuals to increase control over and to improve their health in order to reach a state of complete physical, mental and social well-being and to lead an active and productive life, that is, a good QoL [20]. This means that individuals must be able to identify and realize aspirations, as well as to satisfy needs and cope with their environment [21]. The direction is clear, that is, to focus on health rather than disease [22, 23]. The essence of the Ottawa Charter harmonizes well with the philosophy behind the salutogenic theory introduced by Antonovsky in 1987, focusing on resources for health and health-promoting processes [24]. He describes a state of health and well-being, characterized by the presence of competence, internal and external resources and active use of coping strategies. Antonovsky introduced the salutogenic concept of 'Sense of Coherence' (SOC) [24, 25]. He was intrigued by the question why some people, regardless of major stressful situations and severe hardships, stay healthy while others do not. According to Antonovsky, these people have a certain life orientation, precisely called sense of coherence, which helps them dealing and coping with external stressors. SOC refers to an enduring personal attitude and measures how people view life and, in stressful situations, identify and use their resources to maintain and develop their health. It consists of at least three dimensions: comprehensibility, manageability and meaningfulness. A large body of research

has documented how SOC is strongly related to perceived health, especially mental health, and is an important contributor for health maintenance [26]. Along the same line, Ryff and Singer [27] proposed the concept of 'positive human health', which refers to a comprehensive – holistic consideration of health, where stressors but also positive resources are taken into account. Accordingly, health is maintained by good health habits (i.e. good nutrition, regular physical activity, no smoking, or use of drugs and other risky habits) and by the presence of emotional and psychological well-being. Ryff and Singer [28] have suggested that, by an etiological point of view, the presence of stress and negativity as well as the absence of well-being work together to influence human health. The absence of positivity represents a vulnerability factor, whereas the presence of well-being and flourishing can be considered a protective factor in case of adversities. There is substantial evidence [28–30] that psychological well-being is an important contributor to general QoL and it plays a buffering role in coping with stress. Psychological well-being has a favorable impact on disease course, and important immunological and endocrine connotations. For instance, maintenance of psychological well-being following the onset of breast cancer implies longer survival time [31], whereas impaired well-being tends to shorten it [32]. Other examples may be concerned with the role of optimism and coping style in transplantation outcome [33], anxiety and hope in the course of medical disorders [34], and the relationship between life satisfaction and cardiac variables [35, 36].

The aim of this chapter is to provide a theoretical framework for the assessment of psychological well-being and positive functioning and to review the literature supporting the influence of these positive dimensions on illness development and health protection. We selected the assessment tools that we found most helpful in clinical and psychosomatic practice and that displayed clinimetric properties of sensitivity in research [37, 38].

Relationship between Well-Being and Symptomatology: Kellner's Symptom Questionnaire

In a naive conceptualization, yet the one implicitly endorsed by DSM-IV, well-being and distress may be seen as mutually exclusive (i.e. well-being is lack of distress). According to this model, well-being should result from removal of distress. Yet, there is evidence, both in psychiatric [30, 39, 40] and psychosomatic research [29, 41], to call such views in question. Early in the 1980s Robert Kellner developed a simple, self-rated questionnaire to be used in psychiatric and psychosomatic settings, for assessing both symptomatology and emotional well-being and their relationship. Kellner's Symptom Questionnaire (SQ) [42] (see online suppl. appendix) is a self-report questionnaire which originates from Symptom Rating Test [43], but is simpler and briefer than the previous version (i.e. it contains single word items instead of questions). The total number of items (92 items) has been increased in order to

Table 1. SQ scales and subscales

Scale (92 total items)	Symptom subscales (68 items)	Well-being subscale (24 items)
Depression	Depressive symptoms	Contentment
Anxiety	Anxious symptoms	Relaxation
Somatization	Somatic symptoms	Physical well-being
Hostility	Hostility-irritability symptoms	Friendliness

improve scale's sensitivity [44]. Responders should answer yes/no or true/false to the item, instead of measuring frequency and severity of symptoms. The main novelty introduced by Kellner is the presence of items assessing emotional well-being. They were introduced to obtain a more complete evaluation of patients' clinical status and improving scales' internal consistency. The final SQ version yields 4 principal scales: Anxiety, Depression, Somatization and Hostility-Irritability, which can be divided into 8 subscales: 4 symptom subscales (Anxiety, Depression, Somatization, Hostility) and 4 corresponding well-being subscales (Relaxation, Contentment, Physical well-being and Friendliness; see table 1).

The Depression scale includes items such as 'hopeless' from the Depressive symptoms subscale and items as 'happy' from the Contentment subscale. Each symptom item is scored 1 when the answer is yes/true; well-being items are reverse coded (i.e. they are scored 1 when the answer is no/false). Each symptom scale score may range from 0 to 17; each well-being scale score from 0 to 6, so that the higher the total score, the higher the distress. However, a single high score cannot be equated with a diagnosis of psychopathology, without further clinical assessment. High scores on the Somatization scale can indicate the presence of somatization only after exclusion of other medical conditions. Further, well-being scales can also be scored separately (scoring 1 when the answer indicates the presence of well-being), so that the higher the score, the higher the well-being. The total scale internal consistency can be computed by comparing symptom subscale score with the corresponding well-being one. Through this scoring procedure, it is possible to measure also the balance of positive and negative affects, which was described in major depression [45] and was found to be affected by cognitive-behavioral therapy [46]. In another clinical trial [42], the treatment of psychiatric symptoms induced improvement of well-being and, in this case, the SQ subscales describing well-being were more sensitive to drug effects than subscales describing symptoms.

Use of the SQ in Psychosomatic Settings

The SQ has been applied in many clinical investigations, as well as in the psychosomatic setting, and it was found to be able to discriminate between patients with

different medical disorders. In 5 trials in endocrinology [47–51], many of the SQ scales discriminated between women with normal vs. high prolactin levels. Women with elevated prolactin levels after childbirth displayed higher score in SQ Hostility-Irritability compared to controls [50]. In a double-blind investigation [52], SQ Depression, Anxiety, and Hostility discriminated hyperprolactinemic patients treated with bromocriptine from those treated with placebo. In this investigation, the Beck Depression Inventory was not able to measure differences in the two groups. Further, compared to the original Symptom Rating Test, the SQ discriminated patients with amenorrhea from healthy controls [51]. In gynecological settings, the SQ was used in longitudinal investigations for assessing the changes in symptomatology in women undergoing amniocentesis [53, 54]. These results were replicated in a similar investigation [55] and in a longitudinal one involving women undergoing fetoscopy [56]. More recently [57], the SQ assessed the psychological response in women undergoing conservative vs. non-conservative surgery to uterus. The evaluation was conducted before and after the intervention (follow-up at 3, 6 and 12 months) in 60 women who underwent biopsy compared with 40 patients undergoing hysterectomy. The SQ was able to significantly discriminate the reduction in anxious and depressive symptoms of both types of patients during the follow-up. In cardiology, the SQ was used to assess the role of psychological distress and subclinical depressive symptoms in the short-term prognosis of heart failure [58]. Sixty-eight patients showed a high level of somatic symptoms, not necessarily linked to heart disease, but only the diagnosis of minor depression was predictive of adverse cardiac events (such as hospitalization and cardiac death) during a follow-up of 2 months. The SQ was also administered to patients with coronary artery diseases. Lavie and Milani [59] found that younger patients manifested 2.5 higher hostility symptoms and a greater association of cardiovascular risk profiles compared to older patients. The SQ was also used for testing the effect of cardiac rehabilitation in decreasing psychological distress in patients with cardiac disorders [60]. In another study [61], the SQ was administered to examine the predictive effect of anxiety in the medium term (mean follow-up of 3.4 years) on the occurrence of adverse cardiac events (e.g. mortality and nonfatal myocardial infarction). The persistence of high levels of anxiety over time after diagnosis was found to be a powerful cardiac risk factor for mortality and infarction. In other medical settings, the SQ was administered consecutively to patients with epidemic flu [42]. Patients with upper respiratory tract infection were significantly more anxious, depressed, hostile and had more somatic symptoms than patients without this infection localization, regardless of its severity. The groups were not discriminated by Eysenck Personality Inventory. Robinson et al. [62] selected three groups of patients with cancer before being treated with chemotherapy and radiotherapy: a group without symptoms of depression (or depressive symptoms equal to those of normal subjects), a group suffering from depressive symptoms because of the tumor and a third group of patients with depressive symptoms due to other causes. The latter group presented higher scores of depression, anxiety and somatization at the SQ scales. The SQ

is also very much used in psychiatric settings, for discriminating psychiatric patients from healthy controls [63, 64]. In some trials with bipolar patients assessed with the SQ [64, 65], it was found that patients taking lithium were more depressed, anxious and hostile than the control subjects. These differences were not detected by other self-rated instruments. This suggests that the SQ is more sensitive than other psychological tests to assess psychopathology. For this sensitivity, the SQ has been used to evaluate the long-term stability in antidepressive response in a research on SSRI withdrawal syndrome [66]. SQ scores were significantly consistent with observed rated questionnaire. In a group of depressed patients, Papakostas et al. [67] evaluated the relationship between anxiety and somatic symptoms at the beginning of treatment with fluoxetine (20 mg per day) and the subsequent onset of drug's side effects, using the SQ. They found that high scores on SQ Somatization were predictors of at least one mild to severe side effect during treatment. Many other investigations have demonstrated SQ's high sensitivity in discriminating drug's effects from placebo, particularly in treating anxiety disorders [44, 68]. In all studies, the SQ well-being subscales were negatively correlated with symptoms. Further, in the cited crossover study [44], patients taking chlordiazepoxide were compared with patients receiving placebo: the well-being subscales tended to be more sensitive to drug effects than the symptom subscales. In other investigations, the SQ was able to detect significant changes also after psychological interventions, with both clinical and non-clinical populations. In the first case [69], the SQ was administered to test the efficacy of a sequential psychotherapeutic strategy, involving cognitive-behavioral techniques followed by well-being therapy, in reducing anxiety symptomatology in a group of patients with generalized anxiety disorder. The SQ was also used in school settings, with younger populations who underwent a psychological program addressed to enhancing psychological well-being and resilience. In these investigations, the SQ displayed significant changes before/after intervention particularly in the anxiety and somatization subscales [70–72]. Finally, Willis et al. [73] found that the SQ total score of distress (i.e. the sum of the scores of the 4 scales) tend to be more strongly associated with other indicators of distress, such as blood levels of cortisol and the absorption of calories, compared to the scores of the individual subscales. The total score also discriminates more accurately one population from another.

Clinical Suggestions

The sensitivity of the scales of the SQ appears to be due to the empiric selection of both simple, sensitive items and responses. In studies where the sensitivity of the scales is important, including small samples or populations with poor verbal skills, as often happens in clinical practice, the use of the SQ appears to be beneficial. The SQ can be used in psychiatric and psychosomatic investigations, where the measurement of a particular change in the patient's psychological condition is required, with a

test-retest assessment procedure. SQ brevity and simplicity make it extremely suitable also for epidemiological screening procedures and other clinical routines. In any case, the SQ score, as other self-assessment questionnaires, provides important data for the quantification of a patient's levels of distress and well-being. Two patients may both meet the diagnostic criteria for major depression, but they may present very different scores on a self-assessment questionnaire. What they do not share may be as important as what they share: their different scores may reflect different symptom severity, perception, and illness attitudes, and these variables may affect the clinical course of the disorder in these two patients. Frequently, in fact, patients with affective disorders, even though treated effectively with psychotherapy or pharmacological interventions, can continue to present high subclinical symptomatology and impaired levels of psychological well-being compared to healthy control subjects [74, 75]. The persistence of this impairment after drug treatment of depression is likely to be a poor prognostic index [76].

Salutogenesis and Its Influence on Health: The Sense of Coherence Scale

Starting from the hypothesis that the way people view their life has a positive influence on their health, Aaron Antonovsky introduced his salutogenic theory of 'sense of coherence' as a global orientation to view the world and the individual environment as comprehensible, manageable, and meaningful [24–26]. Antonovsky began his investigations with a group of subjects who stayed healthy, despite the fact that they have had experiences from the concentration camps of the Second World War. He postulated that this happened as the result of the way they were able to fully understand life around them, to manage the situation on their own or with the support of others, and to find meaning in the situation. The concept of sense of coherence was then built on these three elements: comprehensibility (cognitive), manageability (instrumental/behavioral), and meaningfulness (motivational). Antonovsky emphasizes that the sense of coherence concept is a dispositional orientation rather than a personality trait/type or a coping strategy, which reflects a person's capacity to respond to stressful situations. Subsequently, Antonovsky developed the SOC scale, a self-rated questionnaire for assessing the cited construct [25, 26]. The original version contains 29 items measuring the three cited salutogenic factors. Each item is rated on a 7-point scale giving a maximum score of 203. The higher the score, the higher the SOC. Antonovsky suggested to use the SOC questionnaire as a measurement of the whole not examining the three subscales separately (see online suppl. appendix). Other shorter versions with 13 and 9 items have also been developed. The SOC scale has been translated into many different languages and has been used in Western, Eastern and African countries, suggesting the questionnaire to be a cross-culturally applicable instrument. The SOC scale showed high internal consistency, with Cronbach's α ranging from 0.70 to 0.95, and from 0.70 to 0.92 using the SOC-29 and

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SOC-13, respectively. Also SOC test-retest reliability values are very good, ranging from 0.92 (one week) to 0.77 (6 months) using the SOC-29 [21, 26, 77]. A large body of literature compares the SOC questionnaire with other standardized instruments for assessing health, generalized perceptions of self and environment, perceived stressors, QoL and well-being, attitudes and behaviors, with both adult and younger populations, healthy subjects and medically ill-patients, psychiatric patients, and recently with burnout/work-stressed populations, as described below.

Use of the SOC Scale in Psychosomatics

The SOC questionnaire has been mainly used together with other instruments for assessing QoL in many different settings [21, 77]. Findings from cross-sectional studies on various samples, such as patients with heart diseases [78–80], HIV infection [81], cancer [82], injures [83], Meniere's disease [84, 85] and patients receiving home mechanical ventilation [86], support an influence of SOC on the overall QoL. These findings showed that the stronger the SOC, the better the perceived QoL. Furthermore, the findings confirm other results with different populations, such as children [87], older adults [88] and families [89]. The results from longitudinal studies are similar, suggesting predictive validity of the SOC scale on QoL in patients with schizophrenia [90], coronary heart disease [79] and ischemia [91], elderly patients with hip fracture [92] and among middle-aged subjects at high risk of psychiatric disturbances [93]. The SOC instrument has also been used in many investigations in the settings of autoimmune diseases for assessing the physical and psychological impacts of arthritis and other rheumatic disorders on people's QoL [94–96], or for assessing adherence to treatment in patients with lupus [97]. In chronically ill patients receiving mindfulness-based stress reduction intervention, it has been observed that an increase in mindfulness was significantly related to reductions in depressive symptoms, stress, medical symptoms and an increase in overall sense of coherence [98]. Further, the SOC questionnaire was used to assess coping resources and QoL in patients with chronic fatigue syndrome receiving short-term group therapy [99]. In cardiology, it has been used with emotional state indicators as indirect measures of QoL in relation to coronary artery bypass grafting surgery (1-year follow-up) [100] and to coping capacity up to 3 years of follow-up [101]. In a recent prospective study of women with myocardial infarction [102], the SOC scale did not predict adverse events. Further, the use of this tool was also feasible with adolescent patients suffering from cardiac disease [103]. In oncology, the SOC questionnaire has been used to investigate the relationships with the QoL of patients with acute leukemia and malignant lymphoma [104] or colorectal cancer [105], and the relationships with psychological well-being in patients with breast cancers [106]. In other patients with breast cancers, who were administered a mindfulness-based stress reduction intervention, increases in mindfulness and the SOC predicted reductions in stress [107].

More recently, the SOC instrument has been used to assess the adaptation to surgery in patients with gastrointestinal cancer [108]. In psychiatry, sense of coherence has been investigated in patients with different DSM diagnoses: for instance, in a sample of individuals with schizophrenia living in the community (18-month follow-up) [90], or in traumatized patients for analyzing potential relationships between SOC, QoL and the presence of post-traumatic stress symptoms (2- to 6-month follow-up) [109]. Some investigators have examined the role of SOC in relation to stress, adjustment disorders and coping strategies following accidental injuries [110–112]. These investigators have also analyzed the stability of SOC as a measure of personality trait, in connection with depression and anxiety following traumatic events or chronic illnesses. They observed that even though SOC scores tend to be stable over time, some stressful events may change a person's world view and thus their SOC, despite the remission of psychiatric symptoms [113]. More recently, it has been found that a strong sense of coherence is associated with reduced risk of psychiatric disorders during a long time (20 years) period [114]. This protective role of SOC has been confirmed in another investigation examining the impact of sense of coherence on psychiatric events in the context of organizational merger [115]. Previous research has also found the important protective role of SOC in the case of burnout syndrome [116]. Interestingly, SOC has been applied also to therapists suffering from trauma work. A greater sense of coherence was associated with fewer negative changes and more positive changes [117]. Finally, the SOC questionnaire has also been used with children and adolescents dealing with different illnesses: adolescents and young adults with uncomplicated epilepsy [118], children with psychosomatic complaints or children managing different health conditions [87]. In this latter study, SOC was associated with resiliency process. Henje Blom et al. [119] administered the SOC questionnaire together with measures of anxiety and depression in a group of clinical and nonclinical adolescents. Affective symptoms were better captured with SOC than by the specialized scales for anxiety and depression. With this young sample, the SOC scale did not appear to be a measure of a distinct salutogenic construct, but an inverse measure of persistent depressive symptoms and generalized social anxiety similar to the diagnostic criteria.

Clinical Suggestions

The SOC questionnaire has been demonstrated to be a valid and reliable instrument, easily administered with different populations (such as clinical, psychiatric, children), with different cultural backgrounds. The SOC scale should not be used as a screening instrument. Instead, the SOC concept could be implemented as a systematic orientation and perspective in the daily activities and actions of the professionals who need a complete evaluation of their patients, encompassing both problems and resources [21, 77]. Even though SOC has been found inversely correlated with anxiety and

depressive symptoms, it could not be merely considered a proxy measure of psycho-pathology, but rather a partially independent, general measure of a person's world view [113]. In psychosomatics, it is now well established that SOC is related to the psychosocial effects of health problems. It may be understood as a mediator between disability and handicap. The SOC scale can thus be used as an outcome predictor with regard to psychosocial adaptation, in acute as well as in chronic health problems [120].

Psychological Well-Being and Health

Ryff and Singer [28] remark that, historically, mental research is dramatically weighted on the side of psychological dysfunction, and that health is equated with the absence of illness rather than the presence of wellness. A further impediment to the science of well-being has been the paucity of reliable and valid assessment tools. In the 1980s, Ryff [121] started reviewing all the literature on positive functioning and realized that there were many points of convergence among various formulations. Looking back to humanistic psychology, concepts such as self-realization [122], full functioning [123], maturity [124], and individualization [125] have been proposed. Authors such as Erikson [126] and Neugarten [127] have also demonstrated how people continue to challenge and develop their potential across various phases of their lives. Finally, Jahoda [128] has proposed positive criteria for defining mental health. Referring to these theoretical formulations of well-being and positive psychological functioning, Ryff suggested that it derives from the interaction of several intercorrelated dimensions [28, 121]. She proposed a multidimensional model of psychological well-being that distilled six psychological dimensions:

- Autonomy. The autonomy construct refers to independence, self-determination and the ability to resist social pressure to think or act in certain ways. The person who has autonomy possesses an internal locus of control and can evaluate the self by a personal standard.
- Environmental mastery. This consists of taking advantage of environmental opportunities, participating in work and familial activities and possessing a sense of competence in managing everyday activities.
- Personal growth. This construct consists of being open to new experiences, being capable of facing challenges and tasks at different periods of life and considering the self as growing and expanding over time (process of self-realization).
- Positive relations with others. This consists of possessing warm and trusting relationships with others, being capable of strong empathy, affection and intimacy.
- Purpose in life. A person who has a purpose in life has goals, intentions, and a sense of direction which contributes to the feeling that life is meaningful.

- Self-acceptance. This construct consists of possessing a positive attitude toward the self, recognizing various parts of oneself, such as one's good and bad qualities, feeling self-confident and accepting one's past life and all its positive and negative experiences.

After defining these dimensions, Ryff created a self-rating questionnaire (Psychological Well-Being Scales, PWB) with the aim of measuring these constructs. She proposed various items containing definitions of both optimal and impaired functioning in a certain dimension. The correlation of each item with their scale was then calculated and all items that correlated more strongly with other scales than their own, or that have low correlations with their scale, were removed. The final validated instrument encompasses 84 items. Subjects respond with a 6-point format ranging from strongly disagree to strongly agree. Responses to negatively formulated items are reversed in the final scoring procedure, so that high scores indicate high self-rating on the dimension assessed. Each scale score may range from 14 to 84. The internal consistency for each scale was as follows: self-acceptance = 0.93, positive relations with others = 0.91, autonomy = 0.86, environmental mastery = 0.90, purpose in life = 0.90, personal growth = 0.87 [121]. The test-retest reliability coefficients after a period of 6 weeks were as follows: self-acceptance = 0.85, positive relations with others = 0.83, autonomy = 0.88, environmental mastery = 0.81, purpose in life = 0.82, personal growth = 0.81 [121]. Other shorter versions have been later validated, encompassing 3 items [129] or 7 items per scale. Further, Fava and Tomba [130] have recently proposed a structured interview based on PWB item content for providing an observer-rated evaluation of psychological well-being for clinical populations. The PWB questionnaire (7 items per scale) and the PWB interview are reported in the online supplementary appendix.

PWB has been used in several investigations, in different countries. The first ones showed how the six dimensions varied by age, sex and cultural level [121,129,131]. Other studies have explored the relationship between psychological well-being and personality traits [132, 133], aging process [134], life changes [135], stressful life events and resilience [130, 136]. All these studies emphasize the multidimensional nature of well-being and its differentiated relationships with distress, negative emotions and personality traits [74, 133]. Previous research showed negative correlations between psychological well-being, depression, neuroticism [132] and personality disorders [133]; yet, some dimensions of Ryff's model are positively correlated with other personality traits, such as extroversion and openness to experience [132]. These investigations underlie the importance of assessing psychological well-being in samples with different sociodemographic characteristics, for example in cases in which high levels of psychological well-being could compensate for educational or economic disadvantages. These findings promote the idea that the presence of psychological well-being may well constitute a protective resource against various risk factors and sustain a conception of human health that is fundamentally anchored in psychological and social well-being.

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Use of the PWB Scale in Psychosomatics

Seeman et al. [134] have investigated the role of social support and interpersonal relationships in psychosomatics. They concluded that the presence of positive relationships, assessed by the PWB scale, is associated with lower levels of allostatic load, which reflects the cumulative effects of stressful experiences in daily life [135]. As conditions of psychosocial distress and mental illness have been found to be associated with specific alterations of certain biological indicators of allostatic load [135], Ryff and Singer [27, 28] have therefore suggested that the presence of psychological well-being is a protective factor that could be associated with variations in the same biological parameters of allostatic load. When the cost of chronic exposure to fluctuating or heightened neural or neuroendocrine responses exceeds the coping resources of an individual, allostatic overload ensues [136]. Among clinimetric criteria suggested by Fava et al. [136] in psychosomatic research for the determination of allostatic overload, the absence of psychological well-being plays a crucial role, in particular when concerning the dimension of environmental mastery. Determination of the presence of allostatic overload requires therefore careful exploration of both the patient's life circumstances and psychological well-being. The Psychosocial Index [137], a short clinimetric tool tailored to a busy clinical setting, offers a synthesis of previously validated instruments for evaluating stress, related psychosocial distress and psychological well-being (six items assessing each of the Ryff's dimensions have been included) [137] (see online suppl. appendix). There have been several attempts O S M to identify allostatic load and psychological well-being by the use of their biological markers. Allostatic load has been evaluated considering systolic and diastolic blood pressure as indices of cardiovascular activity, waist-hip ratio as an index of metabolism and adipose tissue deposition, serum HDL and total cholesterol as indices of atherosclerotic risk, plasma levels of glycosylated hemoglobin as an indication of glucose metabolism, 12-hour urinary cortisol excretion as an indicator of hypothalamic-pituitary-adrenal axis activity, urinary epinephrine and norepinephrine levels as index of sympathetic nervous system activity. In the same vein, Ryff et al. [138, 139] have found a complex relationship between well-being, ill-being and biological indicators associated with cardiovascular, immunological, neuroendocrine and sleep functioning:

- Weight: people presenting higher score in positive relations and purpose in life have lower body weight [138, 139].
- Waist-hip ratio: people presenting higher score in positive relations, environmental mastery and purpose in life have lower waist-hip ratio, and thus a diminished risk of developing cardiovascular diseases, diabetes and hypertension [138, 139].
- Glycosylated hemoglobin (HbA1c): people presenting higher score in environmental mastery and self-acceptance have lower glycosylated hemoglobin, and thus a diminished risk of developing diabetes and other associated

cardiovascular diseases [138]. Further, increased levels of glycosylated hemoglobin have been recently found associated with impaired psychological well-being and adverse socioeconomic status [140, 141].

- HDL (high-density lipoprotein) cholesterol: increased levels of 'good' cholesterol have been found to be related to high levels of positive relations, environmental mastery, purpose in life and personal growth [138, 139].
- Salivary cortisol: it has been found [138] that women having high levels of personal growth and purpose in life have a decreased level of salivary cortisol throughout all day, indicating a good neuroendocrine regulation.
- Catecholamine (noradrenaline and adrenaline): recent findings [138, 139] suggest that high levels are associated with certain dimensions of PWB, i.e. autonomy.
- Interleukin-6: this inflammatory biomarker has been found to be decreased in people attending religious institutions [142] or having a sense of environmental mastery and objective to be reached in life [138, 143]. Thus, it has been proposed that this protective effect on the inflammatory parameter is associated with better coping strategies [144] and a strong meaning in life [145].
- Natural killer cells: women reporting higher levels on PWB, despite recent bereavement, displayed a better immunological functioning compared to women with lower PWB [138, 146].
- Sleep efficiency: it has been recently found to be connected with good interpersonal functioning, and is correlated with better physical health. Thus, psychosocial factors (such as the presence of positive relations) and behavioral ones (such as sleep efficiency) may contribute to protect and improve the health [143, 147].
- Platelet count: an Italian study [148] conducted on a sample of healthy individuals confirms a positive association between the presence of high levels of stress, symptoms of anxiety/depression and elevated platelet count (indicative of increased cardiovascular risk). Platelet count, on the other hand, is negatively associated with the dimension of environmental mastery, confirming the potentially protective effect of psychological well-being.

However, these results have been rather controversial not only because the cited markers do not come close to a comprehensive measure of dysregulation in the whole organism [149], but also because they are nonspecific mediators and may be affected by other variables that change from one individual to another. Further research is indeed needed.

Positive emotions and well-being, with the contribution of other factors, can also influence the healing process of various diseases and longevity [150]. A review of the literature conducted by Chida and Steptoe in 2008 [151] on 26 studies with healthy subjects and 28 studies with people who had received a diagnosis of HIV/AIDS showed that positive affect and positive traits (such as optimism and hope) are associated with longer life expectancy, especially among healthy people. Another study by Moskowitz et al. [152] showed an association between subjective well-being and reduced risk factors of mortality in people with type II diabetes. In clinical psychiatry,

some investigations have documented impaired levels of psychological well-being in remitted patients with affective disorders [74, 75]. Patients in the remission phase of anxiety and mood disorders still display more residual symptoms and less well-being compared to healthy control subjects [74, 75]. These residual symptoms are associated with increased risk for relapse and recurrences [74, 75]. This lent feasibility to a new psychotherapeutic strategy based on Ryff's model of psychological well-being [153]. The aim of well-being therapy is improving psychological well-being by using cognitive-behavioral techniques. It has been applied to the remission phase of affective disorders [154], to the prevention of relapse in major depression [155, 156], to loss of clinical effects during long-term antidepressant treatment [157], and to the treatment of generalized anxiety disorder [69]. By increasing patients' levels of well-being, this psychotherapeutic intervention displayed a protective factor for relapse and recurrences in affective disorders (i.e. better recovery and less vulnerability).

Clinical Suggestions

PWB is a self-rated instrument with good psychometric properties and clinical sensitivity which assesses positive functioning across different domains (cognitive, interpersonal, behavioral). It has been validated across different countries and with different populations, also in clinical settings. It has been found to be sensitive to improvements in well-being following psychosocial interventions [69–72, 153–157]. Recently, according to the concept of positive health [28], it has been used to investigate specific biological correlates of psychological well-being. Its scales have displayed a specific pattern of correlations with different biological indicators of cardiovascular, immunological and neuroendocrine parameters. All these investigations have recently provided a scientific support to the biopsychosocial model of illness, which calls for a complete evaluation of both the stressor and negative factor affecting health, and subjective/interpersonal resources providing protection. The increasing interest in resilience to psychological distress focuses upon external variables such as environmental and family support, absence of prior psychological and physical distress. From a clinical perspective, there are major advantages of applying the Ryff and Singer [27] conceptualization of resilience. Issues such as leading a meaningful and purposeful life as well as having quality ties to others seem to affect the physiological substrates of health [130].

Conclusions

Recent literature [28, 138, 139, 158] suggests that positive affect and well-being represent protective factors for health. Their presence could reduce the activation of neuroendocrine, autonomic and cardiovascular systems through the deactivation of the limbic prefrontal circuits responsible for the reactions to stressful events [159]. The

results of the previous studies confirm the hypothesis that well-being and ill-being are two separate but related concepts [27, 28, 138, 139]. They both contribute to influence health, as confirmed by different biological parameters which are involved. In the psychosomatic setting, where the biopsychosocial model of health has been proposed long time ago, the assessment of psychological well-being together with the assessment of distress thus becomes crucial and could be easily performed using instruments such as the SQ, the SOC, the Psychological Well-Being Scales and the Psychosocial Index, provided in the online supplementary appendix. These tools examine different aspects of positive functioning (i.e. positive affectivity, salutogenesis, positive psychological well-being), providing different sets of information which are all important in defining a patient's complete health status. These instruments could also highlight specific impairments in well-being, which constitute vulnerability factors for health and influence other issues such as motivation, compliance to treatment and health risk behaviors. The identification of these impairments in well-being could then be addressed by psychosocial interventions aimed at increasing positive functioning such as well-being therapy [153]. An increase in psychological well-being may counteract the feelings of demoralization and loss which are part of chronic disease and thus improve the individual coping. Disorders related to somatization – defined as the tendency to experience and communicate psychological distress in the form of physical symptoms and to seek medical help for them [9] – may also derive some benefit from well-being-enhancing strategies. It is thus conceivable that well-being therapy or other similar positive interventions [160] may yield clinical benefits in improving QoL, coping style and social support in chronic and life-threatening illnesses, as was shown for cognitive behavioral strategies [161].

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Family Assessment in the Medical Setting

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Abstract

Acute and chronic illness exists in a social context. A biopsychosocial assessment should include an evaluation of the patient's social situation, the nature of the patient's interpersonal connections, and his/her family's functioning. Families can influence health by direct biological pathways, health behavior pathways, and psychophysiological pathways. There are a large number of family-based risks factors as well as many protective relational factors that influence the onset and course of illness. A family assessment is the first step in determining both the need for further intervention and the specific areas of family life that might need to be addressed. A family assessment provides information about the social substrate for the evolution of the presenting complaint as well as information to better understand the patient's problems. There are many ways to assess families, and there are a variety of family assessment instruments to help with the assessments. Clinician will be best served by becoming familiar and comfortable with at least one assessment model that is consistent, structured, and evaluates a wide range of family functions. Such an assessment can be incorporated into routine clinical care. A good family assessment can be therapeutic in and of itself even if the decision is made that no further family intervention is indicated.   Copyright © 2012 S. Karger AG, Basel

Acute and chronic illness exists in a social context. The importance of developing a biopsychosocial formulation leading to treatment that addresses the biological, psychological and social components of a patient's illness is well established. A biopsychosocial assessment should include an evaluation of the patient's social situation, the nature of the patient's interpersonal connections and particularly his/her family's functioning. A patient's most important resource is the family, the group that helps the patient to function [1]. Families have a powerful influence on health equal to traditional medical risk factors [2].

Improved health care has led to prolonged periods of living with disease. Longer periods of illness increase strain on patients and their significant others leading to caregiver burden which in turn impacts on the ability of caregivers to provide support for ill family members [3]. Emotional support (being listened to, cared for and empathized with) is the most important and influential type of support provided by

Table 1. Family relational factors that have adverse effects on illness

- High interpersonal conflict
- Low relationship satisfaction
- Poor problem solving skills
- High levels of criticism and blame
- Intrafamilial hostility
- Poor family organization
- Inconsistent family structure
- Family perfectionism and rigidity
- Low family cohesion and closeness
- Lack of extrafamilial support system

families. Negative, critical or hostile family relationships, in turn, have a stronger, detrimental, influence on health than positive or supportive relationships [2].

Families can influence health by direct biological pathways, health behavior pathways and psychophysiological pathways. Examples of direct biological pathways include spreading of infectious agents, sharing similar toxic environments and genetic vulnerabilities. Health behavior pathways include lifestyle behaviors such as smoking, exercise, diet and substance abuse. Healthcare behaviors include adherence to treatment as well as family caregiving. Pathophysiological pathways refer to the effects of family environment on neuroendocrine and psychoimmunological pathways [2].

There are a large number of family-based risk factors that adversely influence the onset and course of illness. These include: poor conflict resolution, low relationship satisfaction, high interpersonal conflict, criticism and blame, intra-familial hostility, lack of congruence in disease beliefs and expectations, poor problem solving, extra-familial stress, lack of extra-familial support systems, poor organization, inconsistent family structure, family perfectionism and rigidity, low cohesion and closeness, and presence of psychopathology in family members [4] (table 1). Conversely, there are many protective relational factors. These include: good communications, good problem solving skills, adaptability, clear roles, achievement of family developmental tasks, mutual support, open expression of appreciation, commitment to the family, extra familial social connections, spending time together, religious and spiritual orientation [5] (table 2).

Most patients prefer that physicians involve their family in their medical care. Family members can provide valuable information about the patient's functioning at home and can help patients to comply with treatment recommendations [1]. Families can also help to keep track of medication side effects and prodromal and residual symptoms. They can help in sharing responsibilities, lessen the patient's anxieties and facilitate as well as encourage communication between providers [6]. Family interventions have been found to be helpful in the management of chronic physical

Table 2. Family relational factors that have a protective effect on illness

- Good communication
- Adaptability
- Clear rules
- Mutual support
- Open expression of appreciation
- Commitment to the family
- Spending time together
- Good problem solving skills
- Extrafamilial social connections

diseases. Hartmann et al. [7] undertook a meta-analysis of 52 methodologically sound randomized clinical trials involving 8,896 patients with cardiovascular diseases, cancer, arthritis, diabetes, AIDS and systemic lupus erythematosus. They found that the physical health of the patient was significantly improved with family interventions compared to standard treatment. They also noted that the mental health of the medically ill patient was significantly improved with family interventions in comparison to standard treatment. Family interventions, in addition, had a significant effect on improving the health of other family members.

A comprehensive biopsychosocial approach to patient care involves a shift of focus from the patient to the social setting in which the disease takes place. A family-focused approach to the management of illness, particularly chronic illness, emphasizes assessing the relational context, and includes the family as potential targets for intervention. A family-focused approach addresses the educational, relational and personal needs of the patient and their family members, and includes the patient and their family members in treatment and the assessment of outcome [5]. The first step in this process is undertaking a family assessment.

Family assessment and intervention in medical settings for somatic and/or psychosomatic illnesses is the exception rather than the rule in spite of the evidence for its importance for the treatment and management of diseases. The medical home has been identified as the main vehicle for providing 'comprehensive primary care in a way that facilitates partnerships between individual patients and their personal providers and when appropriate the patient's family' [8]. There is a general recognition of the important role that families can play in supporting or undermining treatment efforts, but even the concept of the medical home relegates the family to a peripheral position. The major goals of the medical home are to ensure a personal physician, a physician-directed medical practice, a whole person orientation, coordinated/integrated care, emphasis on quality and safety and enhanced access to care. An additional goal should be the involvement of the patient's family in the assessment and treatment of their illness.

Family Assessment

The essential task in meeting with family members for the first time in family assessment is to evaluate and assess their functioning in the context of understanding their problem. Family assessment is the first step in determining both the need for further interventions and the specific areas of family life that might need to be addressed. The family assessment provides not only information about the social system, the substrate for the evolution of the problem, and how it may be currently contributing to improving or maintaining the problem, but also information to better understand the patient's problem(s). Family assessment should focus on adjustments related to the diagnosis of medical illness, clarification of treatment options, and collaboration in carrying out the treatment plan. A proper assessment should also identify family strengths.

Individual Life Cycle Tasks

A family faces different demands at different points of time. Understanding the stage of the family life cycle helps in understanding both the challenges that a family faces and in evaluating their effectiveness in meeting those challenges. Adult developmental phases can be divided roughly into early adulthood (age 20–40 years), mid adulthood (age 40–60 years), and older adulthood (age 60 years and older).

Early Adulthood

The tasks of early adulthood include launching from one's family of origin and developing a sense of identity, life structure, career track, and movement toward an intimate and committed relationship. Relationships with parents are renegotiated. The birth of children creates the need to be able to handle multiple responsibilities. The struggle is to find a balance between the pleasures and pressures of taking care of the family, advancing in the workplace, while finding enough time for individual pursuits.

Mid-Adulthood

In this stage, individuals become more comfortable with their multiple roles and, if successful, have a greater sense of effectiveness and competence. There may be a need to reevaluate work goals and relationships, leading at times to some mid-life transitions and anxiety surrounding this reevaluation. There is a tendency over time to accept what one has become and to begin to deal with the reality of aging and mortality. It is also a time when individuals may need to take care not only of their children but also their parents.

Older Adulthood

In this stage, individuals begin to review their lives more systematically. They may gradually transition from feeling a need to be in charge to providing more support for the next generation. Medical problems and the reality of physical limitations as a result of aging need new accommodations. With the possibility of retirement, finding new meaning in life becomes important.

Family Life Cycle Tasks

Marriages and families also go through various stages of evolution and development, each of which presents its own unique challenges and satisfactions. It is helpful to have some conception of these different phases to better understand the issues that a particular family may be presenting.

Courtship and Early Marriage

Couple formation is best done when both individuals have completed the task of restructuring relationships with their parents, learned enough about themselves to become aware of their characteristic problems and had enough freedom and adventure that the demands of an intense relationship feel comforting rather than constrictive. They must establish an identity as a couple, developed effective ways of communicating and solving problems and begin to establish a mutual pattern of relating to parents, friends and work. Common stress points in early adult marriages are childbearing, attempting an egalitarian marriage in a nonegalitarian culture, and enduring midlife transitions as one or both partners go through a period of reevaluating themselves. Individuals often enter into a marriage with unrealistic expectations. Individuals tend to want somebody who is familiar and comfortable – in other words, like themselves – while at the same time hoping that the other person will complement and complete those parts of themselves that they feel are deficient or problematic. A lack of acceptance of individual differences between couples leads to attempts by one individual to make the other more like them, often resulting in conflict and disappointment.

Children

With the arrival of children, families tend to become closer, with an intense inward focus on the children. Roles need to be redefined. Family boundaries need to be loosened to allow extended family members to participate in the enjoyment of and the

sharing of responsibilities of caring for the children. It can be difficult for parents to find sufficient time for each other with multiple demands of work, home maintenance and parenting. As children become adolescents, they press for greater autonomy. Families at this stage must be strong, flexible and able to support growth. They need to be able to maintain boundaries and limits, while at the same time allowing their children increasing exploration and autonomy.

Empty Nest

As children leave home, parents need to be able to redefine their roles and priorities. It is an opportunity for parents to spend more time together, to feel less pressure, and to explore individual interests. It is also a time of potential distress when interpersonal problems between the parents that had been sidelined by focusing on the needs of the children may surface. There is a need at this stage to redefine goals and meaning, while at the same time finding ways of connecting more closely to one's partner.

Retirement

Retirement requires individuals to redefine their identity and place in society. The solution to these challenges inevitably affects relationships. Finding new interests and goals and feeling connected and useful allow for successful enjoyment of new leisure time. Couples have to find ways of managing the increased amount of time they spend together. They have to find ways of being together that are supportive without being enmeshed or too confining. The health and financial stability of the couple will have a major impact on their ability to experience this stage of their lives in a satisfying way.

Death and Grieving

As couples age and health problems increase, they will increasingly have to deal with the death of friends, their partner and eventually themselves. Individuals have to come to terms with their own mortality and find ways of resolving issues of importance to them before dying. They are likely to be worried about the health of their partner and experience fears of loss, dependence and isolation. Couples need to find ways of discussing their concerns and plan together how they want to deal with the problems they are likely to face. The involvement of children and extended family members can ease many concerns. Unresolved family problems can make this process difficult.

Including the Family in the Evaluation of a Patient

When should family assessments take place in the context of providing routine clinical care? Is a family assessment a routine component of the evaluation of a patient's presenting problem(s) or should it be scheduled as a separate assessment process? Does it matter if the presenting problem is primarily physical, emotional or psychosomatic? The answer to these questions is going to be determined largely by the orientation, interest and skill level of the assessing clinician as well as the reality of time constraints in a busy clinical practice.

In an ideal situation, the patient's significant other(s) should be seen with the patient if a patient presents for an initial evaluation of a complicated medical problem or if the patient is scheduled for follow-up visits for persisting or chronic problems. During that visit, a brief assessment of the nature of the patient's relationships, following the guidelines outlined bellow, will disclose whether a more comprehensive family assessment is indicated. At a minimum, such a preliminary meeting may highlight new and helpful information to guide treatment and co-opt the significant other in supporting the treatment plan or make evident the problems that the patient is likely to encounter at home. If the initial meeting with the patient's significant other suggests more significant relationship issues then a comprehensive family assessment session can be scheduled. The initial visit should not take much longer than a usual first assessment or a usual follow-up session. A comprehensive family assessment session can take 30–90 min depending on the skill of the clinician and the complexity of the family's problems.

Assessment of the Family

There are three main goals when conducting a family assessment. The first is to orient the family to the interview process and to establish an open and collaborative relationship with the family. The second goal is to have family members identify all current problems in the family including the problem(s) that precipitated the meeting. The third goal is to identify the families' transactional style that appears to be related to the family's functioning. Dysfunctional transactional patterns are repetitive interactional processes that prevent effective resolution of ongoing interpersonal problems. The amount of time taken to assess the family, as well as the number of assessment sessions, will vary according to the level of experience of the evaluator and the nature of the family's problem(s). It can range from 30 min to 2 h.

There are many different ways to assess a family and many different kinds of information that can be gathered. Some clinicians begin with a long history of the family's life, connections and evolution as a unit. They gather information on families of origin and may develop a genogram. Other clinicians are more interested in a here and now view of how the family functions and the current problems they are dealing with. Still,

Table 3. General principles

• Include as many family members as possible
• Establish connection with all family members
• Do not blame the family
• Do not identify with the patient's perspective
• Evaluate a wide range of family functions
• Be sensitive to cultural and religious issues

other clinicians focus primarily on process issues in the family session. They address what they observe as the current family interactional pattern and assume that this is representative of the way in which the family deals with issues outside of the assessment session. All three approaches have merit, and they are not mutually exclusive. The challenge for the clinician is to integrate these three approaches in such a way as to meet the goals of the evaluation without getting unduly sidetracked by peripheral issues or take so long to complete the evaluation that the family loses interest.

The most important step in meeting with the family for the first time is to establish connection with the family (table 3). The family needs to feel understood, respected, and validated. They do not want to be blamed for their loved one's problems or judged for their perceived deficiencies. It is the job of the clinician to put families at ease and to make them feel comfortable enough to participate openly in the assessment process. The assessment is used to gain a better understanding of how everybody sees the problem(s) at hand, to gather information to allow for a more comprehensive formulation, to provide an opportunity for all members involved in trying to cope with the illness to ask questions and to solicit the help of all involved in setting up a meaningful treatment plan. As a rule, it is useful to have as many family members and significant others in the patient's social field included in an assessment as possible. In addition to the most immediate family members living with the patient, it is often helpful to meet with others who are significantly involved in the patient's life. These could involve extended family members, good friends, coworkers, mental healthcare providers, and spiritual counselors.

The assessment process consists of four identifiable components: Orientation, Data gathering, Problem description, and Problem clarification (table 4).

Orientation

The orientation explains the purpose of the evaluation and establishes goals for the assessment process. It is often helpful to start off the meeting with introductions of the participants. The meeting is normalized with an explanation that family meetings are a regular part of the assessment and treatment of most patients. This assures the

Table 4. Goals of family assessment

- Orient the family to the assessment process
- Help all family members to identify all current problems
- Identify family transactional patterns

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family that they are not being singled out for blame or that there is anything uniquely problematic about their family. The family can be further oriented by clarifying why they came for help, what they expected would happen, and what they would like to get out of the meeting. The therapist should provide feedback to the family about their responses to questions to make sure the family knows that they had been heard and understood correctly.

The clinician explains that the goal of the meeting is to provide an opportunity for all family members to identify what they see as problems and to bring up any areas of concern. The family's cooperation in the assessment process is enhanced by letting them know that they will also have an opportunity to ask questions of the therapist and to have input into the development of a treatment plan.

The clinician should obtain information about family members' names, ages, relationships within the family, and living arrangements. It is also helpful to ascertain the correct phase of the family life cycle to anticipate the kinds of problems and issues that the family may be struggling with in addition to the presenting problems.

Data Gathering

The clinician begins by asking family members what they think are the problems in the family. Each family member is given the opportunity to express his or her concerns without being interrupted by others. The clinician should spend enough time with each family member to ensure that each individual has an opportunity to outline any problems that he/she is concerned about. The challenge for the clinician at this stage is to not get sidetracked by beginning to deal with problems before everybody has had an opportunity to present their perspectives. The clinician also has to make sure the problems are not described in such great detail as to leave no time for the exploration of other problems and the concerns of other family members. Individual family members can be kept on track and their comments focused by feeding back to the individual what the clinician heard, to ensure that the correct information has been transmitted and to let the person know that his/her concerns have been understood. As a result, he or she does not have to give too may examples of the same problem. The clinician also reassures other family members that their concerns will also be addressed in due time as the goal is to develop a problem list from all family members.

Table 5. Dimensions of family functioning

- Problem solving
- Communication
- Affective involvement
- Affective responsiveness
- Roles
- Behavior control

Listening carefully, limiting the amount of detail provided to exemplify each problem, summarizing the clinician's understanding of the problems to reassure family members that they have been heard, and giving everyone the opportunity to speak without interruption should allow for the development of an overview of the range of family concerns within a reasonable period of time. Once the presenting problems are clearly delineated by the various family members and once the clinician has summarized his or her understanding of these problems with consensus of all participants that the problems are understood and agreed upon, the therapist moves on to assess broader dimensions of family functioning [9].

Overall Family Functioning

The clinician orients the family to this new stage of the assessment process by letting them know that he/she will be asking a series of questions about different aspects of their family's life. These include: problem-solving, communication, affective involvement, affective responsiveness, roles, and behavior control [9] (table 5).

Problem-Solving

Problem-solving refers to a family's ability to resolve problems to a level that maintains effective family functioning. A family problem is one that threatens the integrity and functional capacity of the family and the family has difficulty solving. Family problems can be instrumental or affective. Instrumental problems refer to problems of everyday life, such as managing money and obtaining food, clothing and housing. Affective problems concern issues of emotion or feeling, such as anger or depression.

Questions about problem-solving skills of the family may be general, or, if the family has trouble abstracting about their problem-solving procedures, family members can be asked to think of family problems that have come up within the past few weeks to use as an example. Stages of effective problem-solving include identifying a problem, communicating about it with an appropriate person, developing alternatives, deciding on an alternative, acting on that decision and evaluating the process at its conclusion.

The following questions may be helpful in exploring the family's effectiveness in managing problems: Who first notices problems? What was done after the problem was noticed? Did you discuss it with anybody? What did you decide to do about the problem? Did you think of any alternatives? Did you review how you dealt with the problem once you had taken care of it? How do you handle practical problems? How do you handle problems that involve emotions?

Communication

Communication refers to the verbal exchange of information within the family. Nonverbal communication is very important as well, but it is more difficult to quantify and monitor. Communication can be affective or instrumental. Families can have marked difficulties with affective communication while functioning very well in the instrumental area. Families who experience poor instrumental communication can rarely communicate effectively about emotional issues. Communication can also be thought of as clear versus masked. Masked communication tends to be muddied or vague. Communication can further be direct or indirect. Indirect communication tends to get deflected from the intended target to someone else. Families with poor functioning tend to have unclear and/or indirect form of communication.

The following are questions that can be used to assess communication in a family: Do you talk with one another? Can you talk about practical things with each other? Can you talk about emotional issues with each other? Do you feel that you can say what you want or do you have to be guarded about what you say? Can you tell things to each other directly or do you have to use someone else to let others know how you feel and think?

Affective Involvement

Affective involvement refers to the extent to which the family shows interest in and values the activities of individual family members. Families can lack involvement with each other and not show any interest in each other. They coexist in the same space without much connection. Some family members are narcissistically involved. The investment in others is only in terms of what that individual can get out of it without concern for the other. With empathic involvement, family members demonstrate true concern for the interest of others in the family, even though these concerns may be peripheral to their own interests. Over involvement and symbiotic involvement is overintrusive and overprotective, sometimes to the point that boundaries between family members are significantly blurred.

The following questions can help explore aspects of affective involvement: Who cares about what is important to you? Do you think that other family members are interested in you? Do they ever show too much interest? Do you think that others are truly interested in you because it is important to you or only because they think that they should be? Do you feel that other members of the family go their own way and do not care or notice what happens to you?

Table 6. Roles

- Provision of resources – food, shelter, clothing
- Nurture and support – warmth and reassurance
- Adult sexual gratification – mutually respectful
- Personal development – school, career, social skills
- Maintenance and management of the family system – decision making, dealing with other systems, financial planning
- Health-related functions – indentifying problems, appointments, compliance, promoting health behaviors
- Role allocation – appropriateness, fairness
- Role accountability – monitoring and corrective measures

Affective Responsiveness

Affective responsiveness refers to whether family members are able to respond to the full spectrum of feelings experienced in emotional life and whether the emotion experienced is consistent or appropriate with the stimulus, situation, or context. This dimension assesses an individual's capacity to a greater extent than do the other family dimensions. It refers to the person's capacity to experience particular kinds of emotions. It is assessed in order to determine whether family members tend to be overcome with feelings or are not sufficiently capable of experiencing them. It is useful to know if some of the family difficulties may be a function of particular individuals' under- or overresponsiveness to affective stimuli. Two types of affect are assessed. Welfare emotions consist of affection, warmth, tenderness, support, love, happiness and joy. Emergency emotions include fear, anger, sadness, disappointment and depression.

The following questions can elicit information regarding emotional responsiveness: Are you a family that responds to situations with a lot of feeling? Do you feel that you are a family that does not respond with enough emotions? Which kinds of emotions do you think that you overrespond or underrespond to? Do others sense that you do not experience feelings that you should feel? Are there any feelings that you experience more intensely than you think is reasonable given the situation?

Roles

Roles are the repetitive patterns of behavior by which family members fulfill family functions. Family functions include the provision of resources, nurturance and support, sexual gratification, personal development, and maintenance and management of the family system. These include decision making, boundaries and membership functions as well as household finances and management (table 6).

Questions to explore roles in the family include the following: How do you divide responsibilities? Who works and for how many hours? Who handles the money? Who buys the groceries and prepares the meals? Who does the housework? Who looks

after the home and cars? Who oversees what happens with the children's education? Who gets involved with the schools? Who is involved in major decisions? Who has the final say? How do you decide who does what job? Do you feel that some people have too many jobs? Do any of you feel overburdened by your jobs? Are the responsibilities fairly shared between family members? If not, how would you like to see it done differently?

Behavior Control

The behavior control dimension evaluates the ways in which a family establishes rules about acceptable behavior related to physically dangerous situations, situations involving meeting and expressing psychological needs and drives, and situations involving socializing behavior between family members and people outside the family. It concerns parental discipline toward children as well as standards and expectations of behavior that adults set for each other. There are a variety of styles of behavior control including rigid behavior control, flexible behavior control, laissez-faire behavior control (where there are no standards or direction), and chaotic behavior control (where standards shift in a random and unpredictable fashion between rigid, flexible and laissez-fair and family members do not know which standards apply at any one time).

The following questions can be used to explore the behavior control dimension of family functioning: Do you have rules in your family about how to handle different situations? How do you handle dangerous situations? Do you have rules for table manners and for bedtime? Do you allow hitting or yelling at each other? Do you know what is expected of you in terms of behavior with people outside the family? Do you have rules about drinking? Driving too fast? Letting people know where you are when away from home? Are the rules clear? Are the rules the same for everybody? Can you discuss the rules to change them? Do you always know what the family expects? Do you know what to expect if the rules are broken?

It is important not to get side tracked by a particular problem before understanding the whole system. Often, further exploration of the family system allows the identification of dysfunctional patterns in which a similar problem surfaces in other areas of family functioning.

Additional Investigations

A comprehensive family assessment should not preclude a diagnostic workup that also includes psychological and biological information and data. For adults, this includes a psychosocial history, psychiatric examination, medical history and physical examination. Laboratory and radiology tests as well as neurological and psychological assessments should be ordered as indicated. Information from any of these sources may add to the understanding of the family's functioning.

Problem Description

After the thorough assessment described above, family problems are likely to be clear to the clinician and to the family. It is helpful to group a variety of different problems into related clusters in order to focus the family and to avoid the risk of getting bogged down into excessive detail. What may seem to be many different problems often emanate from a few core problems.

Problem Clarification

The final step in the assessment process is to obtain agreement between the clinician and family members on the problems identified. If the clinician has been careful to listen to each family member and has checked out his or her understanding of the problems with the family, there should be good agreement on the final problem list. If there are disagreements about the problem list between the clinician and various family members these should be resolved before proceeding to any recommendations for treatment.

Tools for Family Assessment

A variety of instruments are available to evaluate families systematically. Family assessment instruments allow for numerical quantification of family functioning, so as to track change over time, make comparisons with other families and carry out quantitative research. There are subjective and objective family assessment tools.

Subjective Family Rating Scales

These scales are self-report paper and pencil or computer touch screen instruments filled out by individual family members. They elicit individual family members' views of their own family's functioning. Self-report instruments are cost-effective as family members can fill them out at their leisure, and the assessment does not require trained interviewer time. Most questionnaires can be filled out in less than 30 min. They do not require manuals to complete, can be easily transported to a variety of settings and can be compared over time. One potential problem in understanding subjective perspectives of family functioning is how to integrate the views of different family members, especially if they are different from each other. One way is to average individual scores and arrive at an overall family score. Another way is to look at differences in the perceptions of various family members. The disadvantage of self-report instruments is that they are restricted to an internal perspective of family functioning

Table 7. Self-report instruments of family functioning

- Dyadic Adjustment Scale
- Self-Report Family Inventory
- Family Environment Scale
- Family Adaptability and Cohesion Evaluation Scale III
- Family Assessment Device

and may not reflect the way a family appears to function to an outside observer. In addition, not all family assessment instruments are reliable or have been validated. Different scales also emphasize different aspects of family functioning or measure the same concept differently depending on the model from which they are derived.

There are a number of useful self-report measures of marital adjustment/satisfaction and family functioning. Family members can fill these out in the waiting room or at home, before the first session or during a course of treatment as a way of monitoring progress. The following are examples of commonly used instruments (table 7).

Dyadic Adjustment Scale [10]: Measures satisfaction, cohesion, consensus, and affectional expression in couples.

Self-Report Family Inventory [11]: Assesses conflict resolution, styles of relating, intergenerational boundaries, and family competence.

Family Environment Scale [12]: Assesses relationship (cohesion, expressiveness, conflict), personal growth (independence, achievement, mortality/religion), and system maintenance (organization, control).

Family Adaptability and Cohesion Evaluation Scale III [13]: Measures adaptability (rules, power structure, roles) and cohesion (emotional bonding, autonomy, boundaries).

Family Assessment Device [14]: Assesses the dimensions of the McMaster Model of Family Functioning – problem solving, communication, role allocation, affective responsiveness, affective involvement, behavior control, and general functioning.

The Dyadic Adjustment Scale can be filled out in 5–10 min and provides a measure of relationship satisfaction/dissatisfaction. The Family Assessment Device can also be filled out fairly quickly (15–20 min) and explores a wider range of family functions. It has good validity and reliability, has been used in numerous outcome studies and has been translated into more than 25 languages.

Externally Rated Instruments of Family Functioning

These instruments are administered by trained interviewers and provide a more objective view of the family's functioning. These structured or semistructured interview instruments are independent of the family's tendency to want to see themselves

Table 8. Externally rated instruments of family functioning

- GARF
- Beaver's International Styles Scale
- Camberwell Family Interview
- McMaster Clinical Rating Scale

in a particular way. They provide more reliable assessments for comparisons between different families and comparisons with established population norms. A disadvantage of externally rated family assessment instruments is their relative expense. Interviewers have to be trained to rate families reliably and these instruments take a longer time to administer.

Observer-rated couples and family interaction instruments provide a more objective perspective of a family's way of dealing with each other and the world around them. The following are some of the commonly used instruments (table 8).

Global Assessment of Relational Functioning

The Global Assessment of Relational Functioning (GARF) scale is similar to the individual focused Global Assessment of Functioning but focuses instead on relational adjustment and also on the quality of the family environment [15]. The GARF measures relational functioning on a scale of 1–99. Scores of 1–28 apply to a family that is too dysfunctional to retain continuity, contact, and attachment to each other; scores of 21–40 described a family that is obviously and seriously dysfunctional; scores of 41–60 define a family that has occasional times of satisfactory functioning but unsatisfactory relationships predominate; scores of 61–80 suggest that family functioning is somewhat unsatisfactory; scores of 81–99 define a family where family functioning is satisfactory. Three areas are assessed: interactional problem solving, organization and emotional climate. The GARF allows a clinician to document relational functioning on a scale that includes healthy family functioning and is an important step toward the recognition of family strengths as important components of the patient's presentation.

Beaver's Interactional Styles Scale

The Beaver's Interactional Styles Scale [11] evaluates a family's competence and style. It also assesses power, parental coalitions, clarity of expression, conflict, negotiation, responsibility, and empathy.

Keitner

Camberwell Family Interview

The Camberwell Family Interview [16] measures expressed emotion, the amount of criticism expressed by family members about each other, and emotional over involvement (the extent to which family members are involved in each other's lives and concerns).

McMaster Clinical Rating Scale

The McMaster Clinical Rating Scale [17] is an interviewer assessment (with the aid of the McMaster Structured Interview of Family Functioning, if desired) of a family's communications, problem solving, affective involvement, affective responsiveness, roles, behavior control, and general functioning.

The GARF is easy to learn and can help to quantify overall family functioning. The McMaster Clinical Scale takes more time to learn and administer, but provides a more detailed assessment of a wide range of family functions. It is interconnected with the McMaster Model of Family Functioning, the Family Assessment Device and the Problem Centered Systems Therapy of the Family allowing for a comprehensive integration of a model of family functioning, ways of assessing it and a treatment approach for dealing with identified problems.

There is no absolute advantage to either an external or internal perspective on family functioning. Both perspectives are important, and each may be relatively more useful to answer different kinds of questions. A family's view of itself for instance may be just as important as an external observer's evaluation of the family even if the two views are different. A discrepancy between an outside evaluator and family members' perception of their family's functioning and differences between individual family members' view of their own family's functioning may provide particularly useful clinical information about that family's problems over and above the specific results of either form of assessment. The information from both kinds of assessments can be complementary to each other. Which one is used will depend on the questions being asked and the time and resources available to undertake the evaluation.

General Assessment Issues

Throughout the assessment process, the therapist should also identify potentially dysfunctional transactional patterns. These patterns are repetitive interactional processes that prevent effective resolution of ongoing interpersonal problems. If the pattern recurs, it is often in association with the presenting problem. A transactional pattern that is disruptive may need to be identified early in order to allow for the assessment to continue without being derailed. The clinician however should not be

sidetracked with trying to deal with these patterns too early in the assessment process before a full understanding of the family has been achieved.

In the case of a crisis (suicidality, homicidality, spousal abuse, acute substance abuse), a comprehensive assessment may need to be suspended until the acute crisis has been contained and managed. It is also important to learn the family's functioning on a day-to-day basis and not just when reacting to a crisis situation.

Some family members may be overly talkative and controlling. It is important for the clinician not to become engaged in a power struggle with family members about the direction of the assessment. The clinician needs to respectfully focus the assessment to ensure that all family members have an opportunity to express their own perspectives. Different individuals in the family may have very different ideas of what is happening in the family, but all perspectives are legitimate.

Some families, in contrast, are very quiet and reluctant to participate in a family discussion. The clinician has to be careful in this situation to not fill in the vacuum by taking on too much responsibility for defining the family's problems. The clinician should identify that one of the problems in the family is a lack of ability or willingness to contribute to the understanding and exploration of their problems. If the family is still unwilling to participate, the clinician has to outline the reality that without their participation and help it will not be possible to arrive at a clear understanding of the issues at hand and a family assessment cannot continue. The clinician may have to be more directive if the family members are unable to engage more fully in the assessment process because of limitations in social competence and/or intellectual capacity.

When doing a family assessment, it is important to keep in mind that the assessment is of the family as a unit. The clinician must think systemically about the relationships within the family rather than focusing on the individuals making up the family unit. What matters most is how well the family functions as a system. The key is to try to understand how an individual affects the family system and how the family reacts to the individual.

A common problem in family assessment is the potential of defensiveness manifested as irritability and anger on the part of family members. This is usually a function of their sense of vulnerability and worry about being blamed for family problems. Much of this can be dealt with by a proper orientation to the assessment process which reassures the family that they are there to be heard and not to be blamed. A proper framing of the evaluation process will put the family at ease and create a collaborative environment that reduces resistance and defensiveness. If family members persist in being angry and disruptive, the family assessment should stop. The family needs to understand that without their cooperation and willingness to discuss differences and problems in a socially appropriate manner there can be no assessment.

The challenge for the clinician is to maintain control of the family meeting without being authoritarian or inhibiting a family's willingness to express their concerns. The family usually responds well if the clinician stays focused and provides a structure for the assessment.

Conclusion

A systematic assessment of the family is central to understanding the pertinent issues in the family and its potential role in shaping a patient's presenting problem. This understanding contributes to a comprehensive biopsychosocial formulation leading to a treatment plan that is likely to address most of the variables that may need and could benefit from clinical interventions [18]. The clinician needs a consistent, broadly based and structured assessment template to be able to perform a systematic family assessment. Such a template ensures that a wide range of family dimensions are assessed and helps the clinician stay on track. There are also subjective and objective assessment instruments, in addition to the standard clinical interview, to help in the evaluation process. These instruments complement the clinical evaluation. A good family assessment can be therapeutic in and of itself even if the decision is made that no further family intervention is indicated.

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Relational Ethics and Psychosomatic Assessment

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Abstract

The main ethical perspective in the clinical relationship takes into consideration the vulnerability of the clinical condition before threats and risks that can undermine the integrity and dignity of the person. Psychosomatic medicine faces complex cases whose ethical problems cannot only be solved by applying top-down deontological or utilitarian approaches, principlism, which is limited mainly to easing ethical tensions, or a bottom-up approach, the casuistic model, case-based reasoning. In introducing vulnerability as the core of ethical questioning as a principle ontological priority over other principles, relational ethics refers to the appreciation of the responsibility of health professionals through which a health care professional and the patient 'together' can construct more reasonable and prudential courses of action with, for, and by the patient. The model of relational ethics is based on three main aspects, clinically integrated approach, science/philosophy partnership, and deliberative process, that when taken together, form an intermediate model that ensures prudent and reasonable decision-making. The three structural elements and characteristics of relational ethics create and maintain a responsible relationship between the professional and the patient being aware that the mutual vulnerability of health professional and the patient has a moral value and recognizing that their relationship will allow for personal development of each. I conceptualized the model of relational ethics as one that embraces the meta-ethical principles of vulnerability, dignity, responsibility, and respect for autonomy as they are considered by many international declarations or conventions. This model integrates three key polarities: ensure conditions of authenticity, facilitate a process of cooperative mutuality, and promote opportunities for growth and development. Relational ethics can be used to solve major ethical problems in psychosomatic medicine, capacity, informed consent, and confidentiality.   Copyright © 2012 S. Karger AG, Basel

Ethical Foundations

Bioethics in its essence is an experience of duty or obligation that arises from an intelligent facing of events, given a virtually unlimited range of possibilities against which

one has to freely do his own adjustment. That is, one's actions must be justified. This justified or *facere-iustum* ('to make just') basis of actions is precisely the moral life [1].

Otherwise, bioethics should be understood as a category in itself, without trying to reduce it to any of its components. Contributions from biology, psychology, psychiatry, psychosomatics, and other disciplines provide necessary but not sufficient conditions for ethical conduct. Ethical conduct is irreducible to any other conduct. There is a pathology of morality, but that does not mean that morality is always pathological.

In the field of ethics, therefore, it is necessary to distinguish between the specific contributions of psychiatry and of psychosomatic medicine. Sometimes, these contributions are interrelated, as in, for example, the following circumstances in which a health professional (1) believes that all conflicts of values (arising, for example, when a patient has different values from professional values and feels compelled to assert them in his relationship with the health professional) come from a mental disorder such as disease phobia; (2) systematically puts the patient under suspicion of having a psychological or mental problem and is unable to decide, as in illness denial, and (3) considers that ethical problems are misplaced technical problems or unresolved psychological or mental conflicts, such as demoralization.

In short, we are led to regard ethics as pathologic and its management as to be treated psychiatrically, which constitutes an unacceptable reductionism. This reductionism is often merely the result of a health professional's anxiety, lack of knowledge of ethics and even of psychology.

Reflecting on the ethical problems in the practice of psychosomatic medicine will improve the patient's functioning, improve the care of his family and community, and lead to a better assessing of the patient's function. Such reflection will increase the understanding that the psychosomatic patient must be respected in his autonomy despite his having malfunctions or disturbances.

Some ethicists continue to consider the psychiatric substrate irrelevant to a discussion of values (as in the genetic fallacy). Others, however, recognize the important role of psychological factors in cognition. They find that the role of psychological factors to be useful because it enriches the dialogue between ethics and psychosomatics.

Psychosomatic medicine has specialized in understanding not only the rational elements of ethical reasoning but also the irrational elements, and also the psychological, developmental, and environmental factors determining the elements of ethical reasoning. Ethical conflicts commonly arise in the context of emotional stress, such as intolerable anxiety and confusion, and in the context of conflict. With their allostatic load, ethical conflicts can make some patients, families and even the teams exacerbate dysfunctional preexisting problems. This distress can lead to malfunctions and even also to psychiatric disorders. Although these consequences of distress do not prevent the process of decision-making, they do inject confusion and distortion. These situations require specific assessments with new ethical methods.

Psychosomatic medicine faces complex cases entailing the following: (1) multisystem evaluation both in type and number of organ systems involved, and

interconnection or interdependence between the systems involved and the biological, psychological, and social impact in the disease; (2) multiple therapies that are not always well defined and articulated in a plan of care with mutual responsibility between patient and professional, and (3) a multidisciplinary approach involving health professionals trained in an atmosphere of rigid discipline and overspecialization that controls the extents of their knowledge and practice and that uses specific theories and terminologies.

These characteristics of patients and health systems create technical-professional problems but also, increasingly, ethical problems that cannot be entirely solved by the mechanical application of top-down models such as the determination of a deontological or a utilitarian model.

In the deontologic model, it is difficult to apply a single moral principle with reference to a particular difficult and complex clinical case given. The reason is that the deontologic model rejects the idea of paying attention to anthropological and situational assessment of the circumstances of the case. It is difficult to apply the Kantian categorical imperative to particular cases without an intermediate approach. Kantian ethics is especially powerful for the application of a second formulation of the categorical imperative (humanity as an end in itself) that serves to protect patients' rights against forms of exploitation of human beings.

Moreover, despite that the consequentialist-teleologic model and utilitarian approaches pay more attention to the anthropological data and the assessment of the circumstances, they have some constraints on the two following aspects: (1) in a strict limitation of the consequences of particular actions, it is not always appropriate to leave out the intentions of the actors, and (2) consequences such as 'the greatest good for the greatest number' may endanger respect for the problems of minority populations.

One of the rules of ethics applied to health practices forms what became known as 'principlism'. The principles outlined in the Belmont report served as a guide to many of the ethical discussions of the 1970s and 1980s [2]. Markedly influenced by the use of technology in medicine, such as in treatment options, principlism is limited mainly to the mere resolution of ethical tension among the rights of the patient (respect for autonomy), the virtue of the professionals (beneficence and nonmaleficence), and social responsibility of fairness (justice). However, in the reality of clinical practice, these principles are often synergistic and do not explicitly incorporate the principles of vulnerability and responsibility, which are fundamental dimensions of the clinical relationship.

Some of the disadvantages of principlism are offset by a bottom-up model such as the casuistic model, case-based reasoning. The casuistic model is more sensitive to particular aspects of particular cases than is the application of abstract universal norms or of general rules to paradigmatic cases. By being based directly on particular cases, the casuistic model has the great advantage of practical relevance. Furthermore, reasoning about cases is something that all practitioners are familiar with in other clinical contexts, and casuistic reasoning can often lead to agreement.

However, the casuistic model raises some problems, starting with the definition of what a paradigmatic case is.

Unless a health professional has some references to universal principles, the casuistic model risks falling into relativism by focusing on the expectations and values that are culturally and communally determined. Another problem with the casuistic model is that it can be overly loose and unstructured.

And yet a more significant difficulty of the casuistic model, especially considering the importance of different value perspectives in mental health, is its danger of reinforcing prejudices. Casuistic reasoning arrives at agreement only when the perspectives and values of those concerned are shared. This is not always the case [3].

Given these limitations in the casuistic model, it is desirable that in ethical decision-making, justified reasons can be made. This means that the arguments can call up some universal agreement leaving the conviction that the decision is not fully processed by contingent facts as dependent on certain contexts. It must assume some form of 'universality', i.e. make the decision available to all persons connected with the same situation.

Casuistry was developed in part as a response to the misuse of principlism, and it is more compatible with clinical medical practice and narrative ethics than is principlism. Casuistry regards experiential and interpersonal aspects such as vital issues in clinical practice as it also occurs with the recent development of care ethics, hermeneutics, and responsibility ethics (fig. 1).

The clinical relationship is created in a space and time that are necessary conditions for the emergence of patients' and professionals' experiential values through which they can build a relationship of trust. It is from observing that the clinical relationship is not merely a procedural application of principles, such as obtaining formal informed consent, through which other ethical perspectives have emerged.

The main ethical perspective in the clinical relationship is taking into consideration the vulnerability of the clinical condition before threats and risks that can undermine the integrity and dignity of the person. These aspects are deepened by a responsibility ethics (principles of precaution/security) and with care/narrative/hermeneutic ethics (principle of solicitude). The vulnerability of the patient is also approached by the principles of protection, solidarity, and nondiscrimination. In the relationship between society with individuals and families, some important regulatory processes can be ethically processed by the rules of discussion ethics.

Relational Ethics

The key vector of the new outlook is a shift from focusing on reifying patient autonomy to focusing precisely on the problems of limitation of autonomy that are related to loss and to risks and to threats to the integrity and dignity of human beings. This refocus introduces such vulnerability as the core of ethical questioning, as a principle ontological priority over other principles [1].

Barbosa
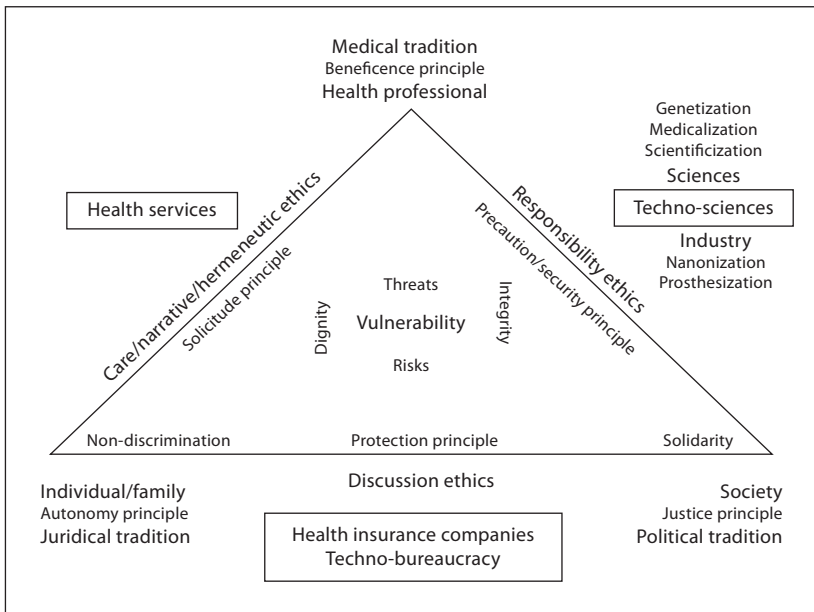
Fig. 1. Ethical principles: theoretical framework.

In the clinical relationship, the interactive process between the health professional and the patient often begins by the awakening of the ethical core (ethical concern). This core allows a climate of mutuality and creative cooperation that underpins the formulation of a commitment and a promise of help in a sequenced scientific-technical and human action. Within a deontologic context of good practice, technical means appropriate to clinical situations are mobilized. This process begins in creating conditions for developing confidence in the relationship between the health professional and the patient. It is through this process (which comprises authenticity, cooperative mutuality, and the opportunity for personal development) that the health professional and the patient can, within a fixed set of principles, share interpretations of situations such as current experiences and their historical and contextual backgrounds, while at the same time affording openness and flexibility to accommodate new, emerging possibilities.

By referring to different theoretical frameworks, we can better apply relevant ethical issues in analyzing a situation. However, it is also necessary to give importance to relational responsibility.

In the ethical practice of psychosomatic medicine, relational ethics refers to the appreciation of the responsibility of health professionals. This appreciation is not only to terms of fidelity to duty and obligation of respect for the person or to submission to general rules, such as 'the best for the majority', but also to the development of a relational commitment between the caregiver and one for whom he or she is responsible.

It is through this middle range theory, which I refer to as relational ethics, which a health care professional can define the ethical conditions that through a relational process between the health care professional and the patient, each can come into contact with the authentic reality of the other. In this way, a health care professional and the patient 'together' can construct more reasonable and prudential courses of action with, for, and by the patient. It is therefore necessary to establish the possible conditions that allow an integrated deliberative process.

Meta-analytically, I refer my relational model of ethics to an ethics of dialogue, narrative, hermeneutics, and pragmatics that requires openness to the perspectives of others to the contingency, to the context, and to the specific/pragmatic situation. The importance of the practical processes of the production of meaning is stressed.

This model distinguishes itself from other models, such as principlism, in which ethical problems are often discussed strictly in terms of defined principles, are formulated through broad ahistorical interpretations, and are resolved through abstract procedures.

This model of relational ethics is based on three main aspects: clinically integrated approach, science/philosophy partnership, and deliberative process.

Clinically integrated approach:
1 The problems in health are complex but simultaneously concrete (practical rationality). The ethical dimension is fulfilled only in a specific situation (pragmatic) that takes shape only through clarification dialogue/narrative of this particular ethos [4], and understood by a hermeneutical perspective because understanding is always interpret and to interpret is to apply.
2 An approach centered on a case is more consistent with the way health professionals approach diagnosis and treatment than is an emphasis on rules, principles, and generalizations. Such an emphasis obscures the importance of an individual case and its concrete situation.
3 A focus on each stage of the clinical process, particularly on issues of treatment choice and ethical reasoning, is fully integrated with other clinical practice skills. A focus on traditional bioethics lacks this integration.

Science/philosophy partnership:
1 The relationship between ethics and science is mainly regarded as one of partnership rather than of moral guardianship.
2 Work in the philosophy of science, in this instance on epistemic values in psychiatric classification, becomes partnered with the philosophy of mind, such as on rationality, meaning, agency, and identity [5].

Deliberative process:
1 The Other is regarded as not a threat but instead as a factor for expanding the horizon of freedom. Regarding the Other as such a factor enables meeting the

imperative of developing an attitude of acceptance ('hospitality') when facing the unexpected (a 'foreigner'), and to regarding information from the unexpected as relevant to and valid for ourselves. Regarding such information in this way is through a dialogical process of understanding, recognizing, and possibly integrating or transforming the point of view of the Other: 'opening to the other involves recognizing that I myself should accept something against me...' [6].

2   A problem is formulated in the way that it must be developed, through a deliberative process in dialogue, to reach an interpretation shared by the health care professional and the patient. Framing a problem in this way recognizes that ethics is not a matter of individual arguments or of ahistorical interpretation, but instead is a joint process involving the healthcare professional and the patient in learning. Such a process can happen only in dialogue, in a conversation with an intention of understanding, within a relationship of proximity that allows for comparisons of unexpected claims.

3   The result is not a theoretical knowledge of ethical principles and maxims or of abstract procedures, but rather a practical knowledge about what is best for a particular situation based on a casuistic-pragmatic perspective.

I conceptualized the model of relational ethics as one that embraces the meta-ethical principles of vulnerability, dignity, responsibility, and respect for autonomy as they are considered by many international declarations or conventions. It is an intermediate model that ensures prudent and reasonable decision-making (fig. 2).

The three structural elements and characteristics of relational ethics are (1) creating and maintaining a genuine, authentic, fair, respectful, and responsible relationship between the professional and the patient; (2) being aware that the mutual vulnerability between the professional and the patient has a moral value; (3) recognizing that their relationship will allow for personal development of each. This model integrates three key polarities: (1) ensure conditions of authenticity; (2) facilitate a process of cooperative mutuality; (3) promote opportunities for growth and development, taking into account the contingent and contextual relativity [7].

Conditions of Authenticity

The Other-sick person is temporarily unable to assume his or her own ontological autonomy for the attractive power of pain, other symptoms or suffering. It is the condition of authenticity [8] that provides for being surprised and for paying attention to live carnal, linguistic or cultural subjectivity that enables the professional, a subjective host, to be open to the infinity of the patient and to accept the patient's impatience imprisoned by suffering.

This condition of authenticity is manifested in a relational congruence in the questioning and dialogue, i.e. to a harmony between the health professional's inner attitude
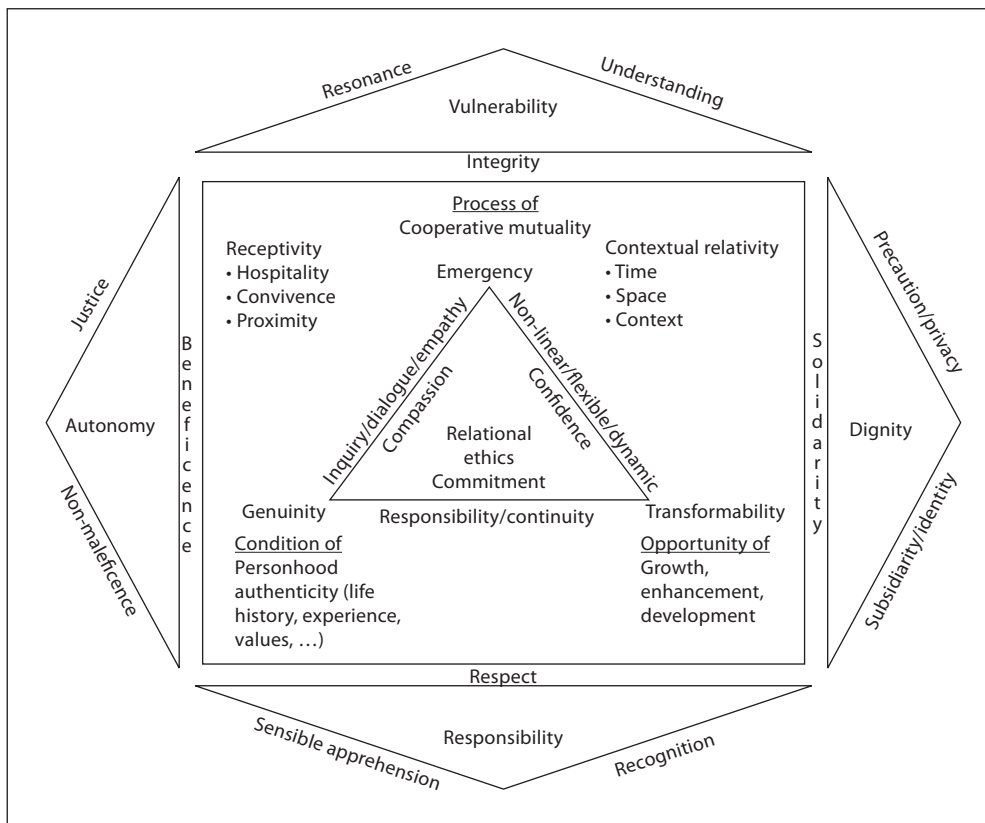
Fig. 2. Relational ethics model: theoretical framework.

and actual explicit behavior of the health professional. It is indispensable for openness to empathic accompaniment. Within the condition of authenticity, the health professional houses and at the same time approaches the patient's frame of reference and emotions, without dissolving or losing his or her own references. This condition creates a dynamics of mutual vulnerability resonance that becomes an indispensable 'existential and relational surveillance' that every health professional should internalize to minimize exploitation of the patient by the health professional and to ensure compliance.

If not viewed in this light, this relationship of 'asymmetric' vulnerability, in which health professionals and the patients have vulnerabilities, but patients are usually more vulnerable, can revive processes of projection, and denial, echoing in regressive and traumatic nuclei of health professionals. They risk being insensitive to and ignoring the real needs of others, or projecting their own suffering nuclei onto the patient. In so doing, they forget subconsciously or unconsciously the internal morality of the profession or the limits of ethical respect, or both, by reducing their attention and their care and solicitude, or by 'plastering' the normal life of the patient, or both.

Identifying the emotional dimension in the relationship is crucial because it avoids different forms of manipulation arising from the following: inducing guilt and depreciation; sharing an alliance with the patient's pathological nuclei; delegating unfulfilled desires and unfinished tasks, or submitting the patient to one's own narcissistic gains. In another way, the relationship can deteriorate into deleterious therapeutic manipulations such as mechanical advice or suggestibility, thereby avoiding the deepening of the emotional and relational experience. It is basically through ethical work processes that the clinical work proceeds, and vice-versa.

So, what fundamentally characterizes the ethical stance of the health professional is to be inherently subject to the same determinants as what fundamentally characterizes the ethical stance of the patient. Only a constant questioning of oneself, which is sometimes difficult, can maintain respect for the frailty of physical, mental, and moral survival, but also that for the otherness.

Process of Cooperative Mutuality

The process of cooperative mutuality assumes that the principle of cooperation advocates that conversational postulates allow for resolving many problems of understanding the meanings of statements and declarations. The principle of cooperation promotes that communicators say things that are true and that are sufficiently informative, providing relevant information and avoiding unnecessary obscurities and ambiguities [9]. The principle holds that communicators do not say things for which there is lack of evidence.

The principle of cooperation also holds that communication should also be complemented by the principle of gentleness (tact, modesty, generosity). During the interactive process of communication, the principle of gentleness can be displayed by the countenance of the participants, who use courtesy as a sign of the absorption capacity of modes of housing being and doing, based on tenderness and sensitivity.

Stories and narratives of experiences expressed, restated, extended gradually, and made increasingly genuine through dialogue [10] will make explicit the implicit meaning of lived experiences [11]. Stories and narratives always contain a moral vision of the world. They present relevant information about who participates in those lived situations, about the relationships among and the responsibilities of participants. Stories and narratives promote the clarifying of problems and of moral responsibilities, asking for an interpretation. Ethical practice triggers the possibility of confrontation with patients' narratives, and in so doing, urges professionals to deal with situations that are often different from those that they know about, thus extending their perspectives and enabling internal change.

A disease defines and isolates a range of possibilities, such as obtaining secondary benefit, the aesthetics of suffering, masochism, and depression. This process of mutual coprocessing between professional and patient will allow this range of possibilities to

extend the closed circle of the single mode condition of oneself (for which are given to understand the world and live in the real structure) to other existential possibilities.

What develops in a dual process involving patient and professional is exactly what develops in group processes of moral deliberation such as ethical reflection on the health care team in ethics committees. These group processes in which the participants' individual perspectives are extended by mutual confrontation of participants' views lead to the emergence of perspectives in which the individual views change to a common interpretation – a fusion of horizons in hermeneutics [6].

An intersubjective relationship requires both the removal of the primacy of the self as separate from the other. Therefore, intersubjectivity and mutual understanding have a tension and unstable dimension that is the real engine of any human relationship.

Opportunities for Growth and Development

The dimension of opportunities for growth and development arises from the argument that every human being has the potential to be transformed by interaction with others. Therefore, it is imperative that the opportunity for growth and development in a growing movement of interiority that relational involvement allows, stimulate the development of a new attitude to life, in which the individual is questioned more deeply about his or her values.

A disease can be understood as a disruption of an appropriate relationship with one self's integrity and unity. And it is from the creation of conditions of authenticity and from a process of cooperative mutuality that enlarging and transforming meanings of broken or distorted relationships may emerge as growth. It is the only condition for the patient to grow emotionally and ethically, and the same should happen to the health professional, as a sign that he established an ethically validated relationship.

Through the model of relational ethics, it is possible to evaluate positive and negative aspects of health, life events, and the context of bereavement reactions, and it is possible to check allostatic load and the role of interpersonal relationships in a process that facilitates self-management and shared decision making.

The health professional and patient jointly work on a discovery process that is collaborative, continuous, and flexibly revalued. This process allows for growth and development of both participants in respecting the complexity of the clinical situation and its organizational and environmental matrix [7].

Process of Deliberation

Relational ethics, which springs from perception of others' suffering and vulnerability, is aiming to build a response to a concern seeking correction of actions in clinical

situations, searching the best for the patient, considering him as an end rather than a means (the Other as I), and taking into account the intention of the action.

The process of ethical decision is not limited to mere 'indifferent' compliance to the right principle (ignoring the singular circumstances) or to conduct that 'must be done' (reducing the uncertainty that is always present). It seeks the best possible understanding of all factors that influence the action. The process of ethical decision involves, through a relational ethics, listening to the patient's history and getting into a helical loop in which the professional and the patient together weigh values, beliefs, expectations, standards, and principles, with a focus on moral responsibility for each other in a life situation within a particular environmental context [12].

In clinical ethics there are no dogmas, no dilemmas, and no moral predicament. Instead, there are problems [13]. Decisions about solving these problems might not be fully rational, but they are more or less reasonable in the same way that values that give meaning to life might not be fully rational but are reasonable. Solutions might not be entirely certain, but they are likely to be certain in that a given problem might have multiple solutions. Decision-making is based on the principle that moral problems cannot always be solved, and that solutions to moral problems do not always have only one answer that is always the same. The deliberative process acts as a mode of knowledge and as a process that is not split of evolution and of changing an existing viewpoint from which it might have departed.

Instead, the deliberative process is one that emerges enriched in knowledge, understanding, and recognition of others.

The deliberative process is a procedure that seeks to enrich the analysis of a clinical situation to increase prudence in decision-making. It aims to improve the quality of clinical decision making by proper managing values. It optimizes solving conflicts of values. Its overall objective is to learn how to deal with moral uncertainty with the same sufficiency with which health professionals deal with clinical uncertainty. The deliberation process specifically seeks to identify the conflicting values, to make prudent and reasonable decisions that are not necessarily uniform, unanimous, or consensual, and to adopt optimal decisions that are the best possible and most mature. This process is not only from the standpoint of clinical facts but also from the standpoint of values.

The process of deliberation undergoes three steps: (1) analysis of clinical facts; (2) analysis of conflict of values, and (3) deliberation about courses of action.

In the first step, health professionals analyze the clinical facts relevant to the outcome and then identify the arising of ethical problems, selecting those most pertinent to the situation.

In the second step, health professionals analyze relevant values held by themselves and by others, who include patients, family members, caregivers, other heath professionals, organizations, and the community. In analyzing relevant values, health professionals understand that an ethical problem is always a problem of conflicts of values that must be identified while taking into account that the duty of

a health professional is the achievement of values that are not fully rational but reasonable.

In a third step, health professionals decide on the various possible courses of action to achieve the best possible solution. After evaluating the courses of action and having checked them against their consequences, a health professional elects the optimal course of action that will be defended from the values underlying it. The process is completed by taking into account three types of proofs of consistency: legality, publicity, and temporality [12].

The detailed procedures for ethics deliberation are as follows:
1 Identifying medical problems through a biopsychosocial perspective
2 Identifying the relevant data of ethical problems
3 Identifying values involved
4 Identifying possible courses of action
5 Comparing courses of action with the ethical principles involved
6 Appreciating the consequences of actions, which includes justifying possible exceptions
7 Contrasting the course of action with the canon
8 Implementing all actions taken through relational ethics procedures.

Major Ethical Problems in Psychosomatic Medicine

Psychosomatic medicine professionals are largely engaged in clinical problems that often are ethics consultations [14] in which they are called to play the role of experts in clinical ethics [15]. Examples of main ethical problems in this regard are capacity, informed consent, and confidentiality.

Capacity

Capacity is an ability to perform a given task. It refers to mental abilities, cognitive or behavioral requirements, to perform an action or a task with specific legal implications or to set a civilian role [16]. Capacity is specific to a given situation and may vary over time. In relation to specific tasks, capacity may vary from one context to another: Although someone might (or might not) have the capacity to decide about financial issues, that person might (or might not) have the capacity to decide about health issues, such as agreeing to undergo recommended diagnostic or therapeutic procedures or to participate in research.

Health professionals in the field of psychosomatic medicine are often requested to assess patients' capacities in the context of ethical decision-making in various situations. These situations include procedural matters, such as informed consent, accepting undergoing diagnostic or treatment procedures or refusing to undergo them or

hospital discharge. Or the situations can relate to a patient's condition, such as illness denial, type A behavior, irritable mood, anorexia, demoralization, disease phobia, or persistent somatization.

In the context of various difficulties and the possibility of bias, health professionals need to have clarified some levels, criteria, and basic parameters for assessing the various components of capacity: communication of a decision, understanding the information provided, assessing the options provided, and a process of rational decision [17, 18], and doing so the three components of relational ethics are particularly pertinent.

The ability to decide is the ability to appreciate the significance of the decision in the context of one's personal history and personal values [19]. This ability is deeply shaped by the history of each individual and his or her neurocognitive capacity for insight. The focus is not the rationality of a decision. It is on the rationality of the thought process leading to a decision.

Several clinical factors can contribute to determining the capacity to consent to recommended diagnostic or treatment procedures, and they need to be taken into consideration: quantity and quality of information available, stability of patient's mental status, and psychopathological and psychodynamic factors.

Quantity and Quality of Information Available to the Patient
The quantity and quality of information available to a patient should be evaluated because a patient who has been uninformed or misinformed may seem to lack capacity. Limiting the provision of information directly to the patient as the sole benchmark for assessing capacity can lead to errors because the patient might not disclose or even deliberately hide information and symptoms. It is essential to compare and contrast patient-provided information with that from informants.

Stability of a Patient's Mental Status
A patient's mental status is sometimes not very stable, varying with clinical course and requiring additional evaluations. Incompetence can be temporary when level of consciousness fluctuates with or depends on disease course. Sometimes the cause of incapacity, such as pain, can be treated or relieved. Stimulants can restore a depressed patient's perspective. Neuroleptics may alleviate a patient's confusion [20]. In such situations, a professional can wait before carrying out further assessments of capacity. Even a psychotic patient may have reasons to refuse treatment.

Psychopathological and Psychodynamic Factors
The main psychiatric aspects usually attributed to promoting ethical difficulties are as follows: diagnosable psychopathology in any of the stakeholders of an ethical conflict; personality styles and psychodynamic issues; family dysfunction; interpersonal conflicts among patient, family, and health professionals; conflict within or lack of cooperation among members of the healthcare team, and countertransference reactions

of health professionals or disproportionate involvement in, or rejection by the health team toward patients, families and other staff.

In medical ethics, most problems with practical clinical implications require resolution of conflicts between patients, physicians, and nurses. Naturally, often unconscious intrapersonal conflicts are behind these problems [21]. Issues of ethical conflicts are apparently caused by faulty emotional or ethical difficulties and problems that mask patients' emotional problems [22]. The psychiatrist's recognizing these emotional or psychiatric factors is essential to understanding and resolving the ethical conflict.

Some treatments and procedures arouse fear and anxiety in some patients, sometimes leading patients to control these emotions by regressive movements, including psychotic ones. For example, a patient with ulcerative colitis with an indication for colostomy may fear being abandoned by his or her immediate family after the operation. This fear can lead the patient to defend himself or herself in an ever more regressive and even psychotic denial of disease and distortion of reality. Some traits or diseases may also skew the assessment of capacity such as alexithymia traits, psychosis, or cognitive distortions in depression [23].

One of the primary responsibilities of psychiatrists in dealing with ethical conflicts in medical treatment is not only to assess the patient's capacity, but also to correct the diminished capacity [24], and also to treat reversible mental disorders whose relief might enable the entire process of informed consent. The following situations can trigger different types of psychiatric interventions: dealing with individual psychological problems; evaluating the ability to decide; restoring, enhancing, stabilizing decision-making capacity; improving the dynamics of dysfunctional families; diagnosing and reducing interface problems within the health care team and among the health care team, the patient, and family; involving other caregivers if necessary; recognizing and minimizing cultural or religious inconsistencies, and evaluating and optimizing the contribution of the society or community to the patient's well-being.

Incapacity cannot be assumed simply because patient is under psychiatric treatment, hospitalized, or institutionalized. A disability or a mental disorder by itself does not render a person incapable in every area of functioning. Therefore, patients should be rigorously evaluated to detect specific functional impairments that render them unable to take a particular type of decision or to perform certain type of tasks.

Informed Consent

From the perspective of relational ethics, informed consent should be regarded not as a moment but as a process, a relational opportunity, and a moment of personal growth and development. This process prioritizes the aspects of communication, interaction, and relationship, referring to the formal consent into the background.

Informed consent is an act, an authorization of an autonomous person [25] allowing a health professional to perform a diagnostic or therapeutic procedure that has

been explained. The three conditions to be met in informed consent are capacity, voluntariness, and consistency.

For the condition of capacity to be met, the patient must have the mental capacity to, in view of concrete situations that he or she is facing, perform functions of analyzing, understanding, and deciding.

The condition of voluntariness (willingness) has to do with free choice. The decision to choose from several options should be voluntary, and this decision must be checked to find out if it has been made under coercion or threat. Coercion can occur, sometimes defended on the grounds that there is valid justification that a particular choice is in the patient's best interest, so that the application of coercion is in the patient's best interest [26].

We must check also if a decision is made in response to intense fears. In such an instance, it is necessary to evaluate the proportion between natural and understandable fears and irrational fears. The patient may also be paranoid or have other psychological problems, such as major depression with its feelings of profound helplessness, worthlessness, and demoralization. Paranoia and depression seriously affect free choice. The presence of depression may influence how the patient tolerates uncomfortable symptoms and maintains hope in relation to the risk and benefit of treatment, but it cannot make him incapable of making decisions for himself or herself.

The condition of consistency has to do with a patient's ability to make a decision and adhere to it. Hesitation or indecision is considered as the patient's not being sure. The health care professional should evaluate the consistency or inconsistency in a patient's decisions if the patient changes his or her mind with new information. In regard to the health care professional's fiduciary responsibility, he or she should serve as the trusted guardian because of the profound consequences of some medical decisions and because the patient's reasoning and reasoning and decision-making processes can be affected by fear and distorted beliefs, somatic illnesses, and medications.

Confidentiality

Confidentiality is one of the most solid foundations of the trust between health professional and patient. It is essential for achieving the goals of a clinical relationship. The patient has the right to confidentiality, and the health professional has a duty, the professional obligation, of keeping secret the information given by the patient. Simultaneously, maintaining confidentiality is also a way to build feelings of trust and safety in working with the medical profession.

It is very difficult to maintain confidentiality in the hospital or inpatient psychosomatic settings in which many professionals are seeing the same patient [27]. In this context, there may be a tendency not to protect the patient's confidentiality with the same zeal as that within outpatient settings. Considering the complexity and severity of clinical situations, it is natural that the anxiety and high stress may interfere

with professional judgment. Moreover, the need for involvement of family and for other medical and nonmedical staff in a hospital means that a lot of information is collected from various sources. In such situations, confidentiality cannot be assured zealously.

The psychiatrist working with the medical team has a duty to provide relevant information to various team members to enable them to develop more accurate assessments and to plan appropriate treatments. Disclosure of confidential information that contextualizes some of the patients' behaviors and attitudes may be particularly important to avoid misunderstandings and miscommunications. Such disclosure may facilitate a cooperative team relationship that will benefit the patient.

But on the other hand, it is essential to retain a degree of intimacy [28] that does not need to be shared with the entire team. Some subjects covered by the patient cannot be disclosed because they are not sufficiently relevant to the work of other medical professionals and to nursing decision-making. The psychiatrist needs to balance between the need for information for the medical team to assess the patient's condition and the need to maintain patient's privacy. The psychiatrist must be very scrupulous in filtering information that should be held confidential from information needed to help the team.

Conclusions

In the context of a health system with a tendency to fragmentation, psychosomatic medicine approaches often complex cases for which it is necessary to use new clinical assessment methods that lead directly to integrated therapeutic interventions.

These complex cases, demanding multisystem evaluations, multidisciplinary approaches, and multiple therapies require the development of methods of inquiry and of appropriate ethical deliberation that allow early identification of problems and determination of optimal courses of action.

The method of clinically centered relational ethics, involving a partnership with science and philosophy and promoting a deliberative process, is particularly suitable to comprehensively address common ethical problems in the practice of and research in psychosomatic medicine.

Relational ethics ensures conditions of authenticity to facilitate a process of cooperative mutuality to promote opportunities for growth and development of the health professional and patient partners. In doing so, relational ethics takes into account contingent and contextual relativity. These are the basic premises that allow for ethical reflection by integrating the main theoretical principles and perspectives not only from the standpoint of clinical facts but also from that of values to make prudential and reasonable decisions [7].

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Subject Index

Psychosomatic medicine has developed methods to increase diagnostic accuracy and improve targeted therapeutic approaches in all fields of medicine. In this context, clinimetrics, the science of clinical measurements, provides unprecedented opportunities for psychosomatic assessment.

This volume illustrates how this approach can be translated into everyday practice complementing and improving the medical interview. The most sensitive and reliable clinical methods are presented for evaluating specific psychosocial aspects of disease, i.e. childhood adversities, life events and chronic stress, lifestyle, sexual function, subclinical and affective disturbances, personality, illness behavior, well-being and family dynamics. Each chapter provides practical illustrations as to how crucial information can be obtained with specific methods individualized according to the patients' needs. A hyperlink is provided to a website that contains many of the instruments assessed in the volume.

This book enables the reader to understand the value of the psychosomatic approach in clinical practice. It is intended to expand and refine the skills of clinicians who work in general and specialized medicine and psychiatry, whether physicians, psychologists or other health professionals.

Cover illustration: Assessment by macroanalysis. For details see Fava et al., pp. 1–18.

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