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.

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 serious diseases. Barsky and Wyshak [66] conceived somatosensory amplification as an enduring and stable perceptual style that may lead to hypochondriasis and somatization. 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 concomitants of affect [66].

The Health Anxiety Questionnaire (HAQ) [68] is based on the cognitive-behavioral 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 interpretation 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) intolerance 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] consider hypochondriasis as the most serious form of health anxiety. This scale was subsequently 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 the 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].
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, non-compliance 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.
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.

References


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102 Robinson KR: Developing a scale to measure denial levels of clients with actual or potential myocardial infarctions. Heart Lung 1994;23:36–44.


121 Lysaker PH, Roe D, Yanos PT: Toward understanding the insight paradox: internalized stigma moderates the association between insight and social functioning, hope, and self-esteem among people with schizophrenia spectrum disorders. Schizophr Bull 2007;33:192–199.


