

# OVERVIEW OF THE ASSESSMENT OF MEDICAL PATIENTS WITH THE BHI™ 2 TEST

Excerpted From The BHI 2 Manual

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The connection between the mind and the body is one of the most intriguing aspects of psychology and medicine. As a result of this connection, beliefs and emotional experiences are often related to physical events in the body and to the perception of symptoms, resulting in the simultaneous appearance of psychological and medical symptoms. The Battery for Health Improvement 2 (BHI 2) test is designed to provide information that promotes appropriate treatment of the psychomedical aspects of a patient's condition. Additionally, because the test was normed on physical rehabilitation patients (who often present special challenges for their treating professionals), the BHI 2 test is able to identify a variety of problems that may impede a patient's progress in a rehabilitation program, making it a useful tool for clinicians and health care providers who treat injured patients.

Each year, millions of Americans experience an injury that requires treatment in a physical rehabilitation program. According to the *DSM-IV®-TR*, "it is estimated that, in any given year, 10–15% of adults in the United States have some form of work disability due to back pain" (American Psychiatric Association, 2000, p. 501). Injuries can be life-altering events. An injured individual without a history of mental illness may become depressed, anxious, or hostile, and an individual with a history of mental illness may find that his/her condition is exacerbated by the injury. Left unrecognized and untreated, these feelings can lead to longlasting symptomatology and severely impaired quality of life (Borus, Howes, Devins, Rosenberg, & Livingston, 1988). Even minimal levels of depression have been shown to be associated with increased rates of social morbidity and service utilization (Broadhead, Blazer, George, & Tse, 1990). Undetected psychological symptoms often impede a person's progress in rehabilitation and lead to increased health care costs. Approximately 80% of the costs from back injury claims result from the 10% of claimants who experience more than one month of work incapacity (Battié & Bigos, 1991). Identifying these problematic patients is paramount to successful treatment outcome and cost containment.

It is estimated that one in four patients in primary care settings has a psychiatric problem (Higgins, 1994). One study reported that 55% of 98 consecutive patients who were admitted to a nonmalignant chronic pain management program were "definitely" or "probably" depressed (Maruta, 1989). Clearly, the average clinician who treats physical rehabilitation patients is likely to encounter patients with depression or other mental disorders. An analysis of five studies revealed that psychiatric disorders are overlooked by primary care physicians 33% to 79% of the time (Higgins, 1994). The Agency for Health Care Policy and Research issued clinical practice

guidelines suggesting that clinicians consider psychological and social factors in their interactions with patients and in their patient management strategies (Bigos, Bowyer, & Braen, 1994). Instruments that help primary care physicians and clinicians identify psychological factors in their patients are now being recognized as a means of reducing treatment time and improving treatment planning.

Self-report psychological instruments have traditionally been used to identify psychological factors in patients. However, because these instruments were not specifically designed for physical rehabilitation patients, they tend to overpathologize what is normal or expected for the average rehabilitation patient. The symptoms of the average patient are often labeled “extreme” or “highly problematic” because these labels are based on nonpatient norms. The BHI 2 test reduces the chance of overpathologizing patients by taking the experience of the average patient into account when making interpretations and treatment recommendations. In addition to assessing traditional psychological factors such as depression, anxiety, and hostility, the BHI 2 test covers a wide range of other factors that are particularly relevant to the physical rehabilitation patient (for example, pain complaints, somatic complaints, job dissatisfaction, family dysfunction, and substance abuse). The BHI 2 test offers clinicians a valuable, comprehensive, and appropriate instrument for use with injured patients.

## DESCRIPTION

The BHI 2 test is a 217-item, self-report, multiple-choice instrument designed for the psychological assessment of medical patients. The purpose of the test is to provide relevant information and treatment recommendations to professionals who treat injured patients in a variety of settings, including physical rehabilitation, vocational rehabilitation, and general medicine. The BHI 2 test has 18 scales organized into five domains: Validity scales, Physical Symptom scales, Affective scales, Character scales, and Psychosocial scales.

The BHI 2 test was designed for patients 18–65 years old who are being evaluated or treated for an injury. Clinicians should exercise judgment when testing patients outside this age range. The test was designed for patients with at least a 6th-grade reading level and is available on audio CD for patients who are unable to read the test for themselves. The BHI 2 test is easy to administer and can be completed in 35 to 45 minutes. Item response formats vary throughout the test, which is composed of four parts:

**Part I:** This section (Items 1–14) includes the 10 items that make up the Pain Complaints scale and four general pain items. Responses are on an 11-point continuum ranging from 0 (No Pain) to 10 (Worst Pain You Could Imagine).

**Part II:** This section (Items 15–40) includes the 26 items that make up the Somatic Complaints scale. Responses are on a four-point Likert scale: No Problem, Small Problem, Moderate Problem, Big Problem.

**Part III:** This section (Items 41–202) includes the four Validity Index items and the items that make up the Defensiveness (8 items), Functional Complaints (10 items), Muscular Bracing (8 items), Depression (14 items), Anxiety (13 items), Hostility (16 items), Borderline (14 items),

Symptom Dependency (9 items), Chronic Maladjustment (11 items), Substance Abuse (7 items), Perseverance (16 items), Family Dysfunction (10 items), Survivor of Violence (7 items), and Doctor Dissatisfaction (10 items) scales. Among these scales, 153 items appear on only one scale, and four items appear on two scales. Responses are on a four-point Likert scale: Strongly Disagree, Disagree, Agree, Strongly Agree. (For more specific information about item assignments, see Appendix A.) Throughout this section, 31 critical items are included to assess a wide variety of risk factors (22 of these are included on other scales, and nine are not associated with any other scales). These risk factors are suicidal ideation (Items 53, 155, and 172), violent tendencies (Items 100, 131, 150, and 185), death anxiety (Item 128), survivor of violence (Items 104, 127, 146, and 181), perceived disability (Item 190), entitlement (Items 122 and 161), compensation focus (Items 154 and 171), addiction concerns (Items 63 and 151), pain fixation (Items 46, 102, 125, 135, 197, and 200), sleep disorder (Item 129), home life problems (Item 48), satisfaction with care (Items 166 and 202), self-limitations (Item 65), and self-efficacy (Item 109). For more information about critical items, see page 111.

Part III also includes the Self-Disclosure scale, which is a composite of the 100 items that make up the Depression, Anxiety, Hostility, Borderline, Symptom Dependency, Chronic Maladjustment, Substance Abuse, and Perseverance scales.

**Part IV:** This section (Items 203–217) includes the 15 items that make up the Job Dissatisfaction scale. Responses are on a four-point Likert scale: Strongly Disagree, Disagree, Agree, Strongly Agree. This section is only completed by patients who are currently employed or who were employed at the time of their injury.

## PURPOSE

According to the American Psychological Association, psychological tests are useful for classification, description, intervention planning, tracking, and prediction (Turner, DeMers, Fox, & Reed, 2001). The BHI 2 test was designed to address each of these tasks in a physical rehabilitation setting as follows.

**Classification:** The BHI 2 test classifies a patient's condition by screening for physical, affective, character, and psychosocial factors and determining to what extent they may influence each other and the course of the patient's recovery.

**Description:** The BHI 2 test covers a wide range of physical, affective, character, and psychosocial factors, enabling the clinician to describe the patient's symptomatology on a number of useful dimensions.

**Intervention planning:** The BHI 2 test facilitates intervention planning by identifying risk factors that may interfere with a patient's recovery. In addition, the large number of possible BHI 2 profiles allows the caregiver to tailor a treatment plan to the patient's individual needs.

**Tracking:** The BHI 2 Progress Report (see page 127) shows a patient's progress over as many as five BHI 2 or BBHI™ 2 test administrations. This can greatly simplify the process of tracking changes in physical, affective, character, and psychosocial symptoms. The Progress

Report can be useful clinically to show how patients are responding to treatment and as an outcome measure for research.

**Prediction:** Because the BHI 2 test is a relatively new instrument, its predictive validity has not yet been established. However, a number of its scales have been found to correlate significantly with other measures that have demonstrated predictive validity (see Chapter 4).

## THE PSYCHOLOGICAL FALLACY

It would be a mistake to assume that all physical symptoms are psychological in origin. We will refer to this mistake throughout the manual as the “psychological fallacy.” This fallacy is often evident in psychological assessment. Many psychological test items are based on the assumption that certain physical symptoms are signs of psychological disorders. In many cases, this seemingly innocuous presumption is a reasonable one, but it becomes problematic in the psychological assessment of individuals with known medical conditions because medical conditions can cause many of the symptoms seen in psychological disorders. There are a number of psychiatric diagnoses that include physical symptoms as part of their diagnostic criteria. When such symptoms are endorsed on psychological tests, the presumption is that they indicate the presence of a psychological condition. For example, complaints of fatigue, insomnia, and loss of appetite would contribute to an elevated depression score on a number of psychological measures. However, they may also be due to a medical disorder. When the person being assessed has a known medical condition, the assumption that such symptoms are psychogenic in nature is unwarranted. This problem has been widely discussed in the literature, in particular with regard to measures of depression, anxiety, and somatoform disorders. Specifically, studies have found that up to 30% of the score variance of psychological scales may be attributable to physical factors (Naliboff, Cohen, & Yellin, 1982, 1983). Turk and Melzack (1992b) found that psychological scale elevations in medical patients are more likely to be a function of the disease or injury, its sequelae, and the medications used than of the patients’ psychological experiences. Thus, psychological tests that use physical symptoms as indicators of psychiatric problems without controlling for medical disorders increase the risk of mistakenly diagnosing the presence of psychological phenomena in patients who are only reporting their medical symptoms. If this problem is not controlled for, it leads to the attribution of a higher level of mental health problems in the patient population than is actually present. This will negatively affect a test’s validity, making its generalizability to the assessment of medical patients suspect at best (Turk & Melzack, 1992b). The BHI 2 Affective scales were constructed to avoid this problem by not asking about the physical symptoms that are commonly associated with affective distress. (See Chapter 3 for details about how each scale was constructed.)

## DISTINGUISHING FEATURES

The BHI 2 test has several features that set it apart from other psychological instruments that are currently available for physical rehabilitation patients.

1. The BHI 2 test was developed in a clinical setting over the past 18 years. Evaluation, treatment, and research involving more than 4,000 community subjects and patients with a variety of medical and physical problems contributed to the development of the test.

2. The BHI 2 test was designed to be descriptive and to generate practical treatment strategies across a variety of domains that might not be assessed by other psychological instruments.

3. The BHI 2 test is designed to reduce the problem of overpathologizing rehabilitation patients. Two scales in particular (Somatic Complaints and Pain Complaints) were specifically designed to serve as a link between mental health professionals and physicians treating the same patient. These scales are reported in such a way as to facilitate the communication necessary to check psychological findings against physical findings. This system for checking physical findings with the treating physician reduces the risk that organically based medical concerns will be incorrectly labeled psychological.

4. The BHI 2 test was normed on two large census-matched samples; a community sample and a national sample of physical rehabilitation patients. Because it was normed on these two groups, it provides the clinician with valuable information about how a patient compares to the average patient and to the average community subject. The average patient is used as a benchmark for interpretations and recommendations, thereby reducing the risk that what is normal or expected for patients will be labeled abnormal (i.e., overpathologized).

5. In addition to the community and patient norm groups, the BHI 2 test uses a variety of other clinically relevant reference groups for even more diagnostic specificity. For instance, national samples of patients with chronic pain, head injury/headache, neck injury, upper extremity injury, back injury, and lower extremity injury are also available for score comparisons.

6. The BHI 2 test offers computer-generated interpretive reports that provide the clinician with a detailed analysis of the patient's responses and offer suggestions for treatment planning. The reports are available in three formats: Profile, Basic Interpretive, and Enhanced Interpretive. The Profile Report is intended for those who wish to receive only the most rudimentary psychometric information, the Basic Interpretive Report is intended for those who prefer a concise format with the addition of an interpretive component, and the Enhanced Interpretive Report is for those who wish to see more comprehensive and detailed profile information. The Basic and Enhanced Interpretive Reports include an optional Patient Summary designed specifically for the patient. The Patient Summary is a brief report, written in layman's terms, designed to provide information about the test and the individual's results in a nonthreatening way. The Basic and Enhanced Interpretive Reports also include an optional Treatment Recommendations section. (Samples of the BHI 2 reports can be found in Appendixes B, C, and D.) Additionally, a Progress Report is available with all reports. The Progress Report is a graphical illustration of changes in a patient's scale scores over time for up to five administrations. (A sample BHI 2 Progress Report can be found in Appendix E.)

7. The BHI 2 test contains a nationally standardized numerical pain rating scale that uses sophisticated statistical algorithms to match the patient's distribution of pain complaints to the caregiver-assigned Pain Diagnostic Category, which helps clinicians identify patients who report anomalous pain complaints.

8. Because the BHI 2 Affective scales assess depression, anxiety, and hostility without asking

about physical symptoms, the test avoids confounding depressive and anxious thoughts and feelings with physical symptomatology, minimizing the risk of returning falsepositive findings. For example, if a patient complains of weight loss, fatigue, and loss of libido after undergoing chemotherapy, the clinician might incorrectly conclude that he/she is depressed when the symptoms are actually the side effects of chemotherapy.

9. The BHI 2 test incorporates a variety of validity checks. The Defensiveness scale detects tendencies to minimize or magnify distress, the Self-Disclosure scale assesses willingness to reveal information about psychological functioning, and the validity items check for random responding and a pattern of extreme responses.

10. The BHI 2 test can be used with the shorter BBHI™ 2 (Brief Battery for Health Improvement 2) test. For example, the lengthier BHI 2 test can be administered to determine a patient's readiness for a medical procedure. After the procedure, the BBHI 2 test can be administered to monitor the patient's progress. Using two tests within the same family of instruments enables the clinician to compare "apples to apples." (A sample Progress Report based on several BHI 2 and BBHI 2 administrations can be found in Appendix F.)

11. The BHI 2 test includes 40 content areas that allow the clinician to make finer discriminations of a patient's symptomatology for 13 of the test's 18 scales. For example, the Doctor Dissatisfaction content areas reflect a patient's perceptions of his/her doctor's empathy and competence.

## **THE BHI 2 TEST AND EVIDENCE-BASED MEDICINE**

The BHI 2 test can play a useful role in evidence-based medicine, which is founded on the belief that whenever possible, medical caregivers should rely on treatments that have scientific evidence of being effective. Typically, scientific evidence is based on the results of such objective measures as x-rays and blood tests. However, because there are no objective measures of pain or other somatic sensations, a subjective self-report is the only means available for assessment. Although assessing subjective patient reports can be challenging, the field of psychometrics provides the scientific means for doing so. Psychometrics relies on quantitative methods to develop assessments that measure subjective psychological states. In an extensive review of the medical and psychological literature, the validity of medical tests and psychometric assessments was compared. Drawing on 125 meta-analyses and 800 multimethod studies, it was concluded that psychological test validity is comparable to that of medical test validity. Further, it was found that psychological tests offer unique information that is not available through objective methods (Meyer et al., 2001).

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Although comparable to the field of medicine, psychometric science has not often been applied in the area of pain. In lieu of psychometric instruments, one measure that has been routinely used in medical settings is the Visual Analogue Scale (VAS). Its unclear origins and many unofficial variations have made the VAS the target of scientific scrutiny over the years (Seymour, Simpson, Charlton, & Phillips, 1985). Like many of the measures used to assess pain, the VAS is not

standardized, making it extremely difficult for practitioners to effectively assess the level of pain in their patients (Price, McGrath, Rafii, & Buckingham, 1983). Using a nonstandardized measure of pain is like using a thermometer without knowing if it is Fahrenheit or Celsius. A reading can be obtained, but its meaning cannot be determined. The use of nonstandardized measures has made it more difficult for practitioners in the field to effectively assess the level of pain in their patients.

In the same way that medical standards dictate that medications should be safe and effective, psychometric standards dictate that a standardized test should be valid (i.e., it should measure what it purports to measure) and reliable (i.e., results should be similar from administration to administration) and should have clinically relevant norms that serve as a comparison group. For the most part, the majority of pain rating scales commonly used in medical settings do not have these features. These shortcomings have been noted in the literature: The appropriateness of norms has rarely even been considered in the pain literature.

Given the absence of normative information, the raw score on any test is essentially meaningless. For example, little information is conveyed to a clinician who learns that a patient with a migraine headache scores an intensity level of 10 on a Visual Analogue Scale because he/she has nothing with which to compare the score. However, if it is known that the average pain intensity for 100 migraine headache patients is 5.4 with a standard deviation of 1.0, this information would allow the clinician to conclude that the patient is expressing a very high level of pain relative to other migraine sufferers. (Turk & Melzack, 1992b, p. 475)

The BHI 2 test was designed to provide a psychometrically sound means of assessing a patient's perception of pain, avoiding the pitfalls noted by Turk and Melzack (1992b). It was also designed to assess disability and general somatic problems within the psychosocial context in which they appear. Further, the BHI 2 test was intended to help caregivers track changes in symptoms over time. In doing so, the BHI 2 test can provide physicians with a means of tracking treatment progress, determining the effects of procedures and interventions, and assessing outcomes. By providing a psychometrically sound tool for the assessment of medical patients, the BHI 2 test can play an important role in evidence-based medicine.

## USES

The BHI 2 test is intended for use by a variety of clinicians and medical specialists including psychologists, physicians, and other health care professionals involved in the treatment and care of injured patients. A description of areas in which the BHI 2 test is especially relevant follows.

1. The BHI 2 test can be useful in assessment and treatment planning for patients with pain or injuries who are undergoing interventional procedures. Assessment is recommended after six to 12 weeks if a patient is not showing improvement.

The use of nonstandardized measures has made it more difficult for practitioners in the field to effectively assess the level of pain in their patients.

2. The BHI 2 test can be useful in multidisciplinary rehabilitation and chronic pain treatment programs. It can play an important role in assessment and can be used to help meet CARF

(Counsel on the Accreditation of Rehabilitation Facilities) requirements for assessment in these facilities.

3. The BHI 2 test can be used for both disability and independent medical evaluations. It can provide a means for understanding the psychological, environmental, and physical factors that influence a patient's condition. The BHI 2 test can also facilitate comparisons between patient reports and medical records.

4. The BHI 2 test can be useful for assessing readiness for surgery. It can also be used for suggesting treatment strategies that can be implemented prior to surgery to increase the likelihood of a positive surgical outcome.

5. The BHI 2 test can be used to facilitate the integration of psychological and medical findings. The test accomplishes this by providing a means for mental health and medical professionals to discuss a patient's psychological findings in conjunction with his/her physical findings before making treatment plans.

6. The BHI 2 test can be useful in assessment and treatment planning for patients with chronic illnesses because many of these patients have the same problems as rehabilitation patients. 7. The BHI 2 test can be used as an outcome measure in medical treatment settings. Reducing pain and improving functioning are two of the most common goals of medical treatment, and reducing depression and anxiety are two of the most common goals of psychiatric treatment.

8. The BHI 2 test can be useful for tracking changes in individual patients during treatment. By clearly documenting changes in symptom levels, the clinician can more easily see the effects of interventions.

9. The BHI 2 community norms make it a useful measure for performing general mental and physical health screens. In particular, the Somatic Complaints scale measures many general illness symptoms commonly associated with stress, while the other scales deal with more specific concerns.

## **LIMITATIONS**

The BHI 2 test report is intended to provide one source of clinical hypotheses that professionals can use to explore the interrelationships between a patient's psychological and medical conditions. The BHI 2 test is not intended to replace the clinical judgment of a trained clinician. The results should be interpreted in the context of the administration and all other available information about the patient. The BHI 2 test should be used only by trained professionals and should be combined with other sources of information to reach any final conclusions. The BHI 2 test was normed on patients in the 18–65 age range. Clinical judgment should be used when administering it to patients outside this range. No clinical decisions should be made solely on the basis of the BHI 2 test; it is not intended for making diagnoses.

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about the various qualification levels. The BHI 2 test requires at least an M-level qualification. Level-M users must provide credentials indicating: a specialized degree in the health care field and accompanying licensure or certification OR proof that they have been granted the right to administer tests at this level in their jurisdiction.