

Scoring the BHI 2 Standardized Treatment Risk Scores

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v 9

Patient Name: _____

Date: _____

Referring Physician: _____

Proposed Treatment: _____

Risk Score Findings

	Raw Score	Patient Percentile Rank	Chronic Pain Percentile Rank (better for spinal cord stimulators and similar treatments for chronic conditions)
Primary Risks			
Secondary Risks			

Clinical Findings

Conclusions

Instructions

1. Beginning with the primary score worksheet, review the BHI 2 scale profile. Note any relevant scale scores > 72 on the worksheet. Similarly, review the content scores; then the critical item scores and demographics and record positive findings. Score the risk factors 0 or 1, and then calculate the total raw score. Remember that each individual primary risk was seen in only 1% of the BHI 2 normative sample¹.
2. Record clinical findings resulting from the interview or chart review. For example, a defensive patient may deny substance abuse on the BHI 2, but a chart review could reveal a positive drug test. Also note that the risk score criteria are psychometric scores, not diagnoses. Diagnostic information can be noted in the clinical findings.
3. Repeat the above using the secondary risk score criteria. Score the risk factors 0 or 1 (0 to 4 for biasing), and then calculate the total raw score. Remember that each individual secondary risk was seen in only 16% of the BHI 2 normative sample (one standard deviation above the mean).
4. Using the tables, identify the primary and secondary risk score percentile ranks and record them above. In most patients, the primary risk raw score will be 0.
5. To interpret the meaning and limitations of these scores, review the following document:
Bruns, D., & Disorbio, J. M. (2009). Assessment of Biopsychosocial Risk Factors For Medical Treatment: A Collaborative Approach. *Journal of Clinical Psychology in Medical Settings*, 16(2), 127-147.
<http://www.springerlink.com/openurl.asp?genre=article&id=doi:10.1007/s10880-009-9148-9>
6. Additional information can be gained by also calculating the community percentile rank. To understand the interpretation of double-normed scales, review the following document:
<http://www.healthpsych.com/bhi/doublenorm.html>
7. If the patient exhibits fake good testing profiles on the BHI 2 or other tests, reported risk factors will likely be spuriously low. Under these circumstances, patient history and clinical observations regarding the presence of these risk factors should be carefully weighed. These scores are adjusted for defensiveness in an attempt to correct for this.
8. Caveat: The selection of patients for medical treatment is a complex clinical decision-making process. Ultimately, the decision about whether or not to perform medical treatments should be made by the physician, with consideration for the assessment of psychosocial risks performed by appropriately-trained mental health professionals, as appropriate. While these risk scores were derived from a review of the literature, and convergence of evidence and opinion about important factors to assess, this specific scoring algorithm has only been empirically tested in one study. This risk assessment method can serve as one means of assessing biopsychosocial risk, which can inform treating professionals. However, the risk scores themselves are not intended to substitute for the clinical opinion of a trained professional. The risk score ranks (High, Very High, etc) are based on their statistical distribution, not on outcome data, and can be used for statistically describing the number of risk factors that are present.

¹ There are a few exceptions where the primary risk scores listed approached but did not quite reach the 99th percentile

Primary Risk Score Worksheet

Adapted from Bruns and Disorbio, 2009

Type of Risk	Primary Factors	BHI 2 Sign	BHI 2 Risk (0 or 1)	Observations and Findings	
Affective	Active suicidal urges	Suicidal Ideation* = VH	0 1		
	Active homicidal urges	Violent Ideation* = VH	0 1		
	Severe depression	Depression > 72 or Vegetative Dep = VH	0 1		
	Severe anxiety (generalized, panic, PTSD, med. phobia/death fears, etc)	Anxiety > 72, Muscular Bracing > 72 or Autonomic Anxiety* = VH	0 1		
	Severe anger	Hostility > 72	0 1		
	Mood elevation/mania				
Other Psychological Risks	Psychosis/Delusions/Hallucinations	Psychosis** = MP/BP	0 1		
	Active substance abuse	Substance Abuse > 72	0 1		
	Somatization	Somatic Complaints > 72	0 1		
	Pain focused somatoform disorder	Pain Complaints > 72	0 1		
	Severe personality disorder	Borderline or Maladjust > 72	0 1		
	Extremely poor coping	Symptom Dep > 72 or Perseverance < 30	0 1		
	Severe social isolation, family dysfunction, or current severe abuse	Family Dysfunction or Survivor of Violence > 72	0 1		
Social	Litigation for pain and suffering, and pain-related treatment	Litigation*** and (Entitlement* or Comp Focus* = VH)	0 1		
	Intense Dr./patient conflict	Doctor Dissatisfaction > 72	0 1		
Biological	Pain	Unusual pain reports	Number body areas with pain = 10	0 1	
		Dysfunctional pain cognitions	Pain Fixation* = VH	0 1	
		Extreme, invariant pain	Highest Pain =10 with Pain Range =0	0 1	
		Extreme pain sensitivity	Pain Tolerance Index = - 10	0 1	
	Exam	Positive bias to information	Disclosure < 28 Or Defensiveness > 72	0 1	
		Medically impossible symptoms			
		Gross inconsistencies between objective findings, symptom reports, and patient behavior			
		Falsifying information, malingering, or factitious symptoms			
		Inability to cooperate with treatment due to cognitive or other problems			
	History	Same treatment failed multiple times in past			
		Abuse of prescription medications, violation of opioid contracts			
		History of gross noncompliance			
	Science	EB guidelines conclude treatment is injurious or of no benefit			
Primary Risk Raw Score Total					

* Content Area; ** Critical Item; *** Demographic variable; A=Agree; SA=Strongly Agree; BP =Big Problem; MP = Moderate Problem; VH =Very High

Secondary Risk Score Worksheet

Adapted from Bruns and Disorbio, 2009

Type of Risk	Secondary Factors	BHI 2 Sign	BHI 2 Or Clinical Risk	Observations and Findings	
Affective	Depression	Depression > 59 or Vegetative Depression* = H/VH	0 1		
	Anger	Hostility > 59	0 1		
	Anxiety (fears, phobias, PTSD, etc)	Anxiety > 59, Muscular Bracing > 59 or Autonomic Anxiety * = H/VH	0 1		
Psychological Vulnerability	Hx substance abuse	Substance Abuse > 59	0 1		
	Personality disorder	Borderline or Chronic Maladjustment > 59	0 1		
	Cognitive disorder or low education	Cognitive Dysfunction* = H/VH or Years Ed < high school graduate ***	0 1		
	Poor coping	Symptom Dep > 59 or Perseverance < 30	0 1		
	Diffuse somatic complaints	Somatic Complaints > 59	0 1		
Social	Conflict with Physicians	Doctor Dissatisfaction > 59	0 1		
	Job dissatisfaction	Job Dissatisfaction > 59	0 1		
	Family dysfunction	Family Dysfunction > 59	0 1		
	Hx abuse	Survivor of Violence > 59	0 1		
	Worker compensation	Work Comp***	0 1		
	Compensation focus	Comp Focus* or Entitlement* = H/VH	0 1		
	Represented by attorney	Has attorney***	0 1		
Biological	Pain & Disability	Extreme pain	Peak Pain = 10	0 1	
		Dysfunct. Pain Cognitions	Pain Fixation* = H/VH	0 1	
		Pain sensitivity	Pain Tolerance Index < -7	0 1	
		Pain invariance	Pain Range < 2	0 1	
		Diffuse pain	Pain Complaints > 59	0 1	
		Pain > 2 years	Demographic	0 1	
		Unexplained disability	Functional Complaints > 59	0 1	
	Exam	Positive bias to information	Disclosure < 40= +1, < 34= +2 or < 28= +3 PLUS Defensiveness > 66 or < 34 = +1 (ttl score 0-4)	0 1 2 3 4	
		No medical necessity of procedure to preserve life or function			
		Destructive/ high risk elective medical procedure			
		Procedure specific risks: Smoking, diet, attitude towards implant, etc			
	History	Similar procedure failed previously			
		No response to any treatment			
		History of nonadherence to conservative care			
		No objective medical findings			
	Science	EB guidelines find inconclusive evidence of benefit			
	Secondary Risk Raw Score Total				

Norms And Reliability of Risk Scores for Patients and Community Members

Adapted from Bruns and Disorbio, 2009

<i>Statistic</i>	<i>BHI 2</i>					
	<i>Primary Risk Score Norms</i>			<i>Secondary Risk Score Norms</i>		
	Community	Patient	Chronic Pain	Community	Patient	Chronic Pain
N	725	527	229	725	527	229
Mean	0.67	1.30	1.87	3.21	5.23	7.12
Median	0	1	1	2	4	6
Mode	0	0	0	1	2	3
Standard Deviation	1.248	1.899	2.330	2.924	4.139	4.596
Test-retest Reliability (N=82)	-	.91		-	.89	
Risk score range	0-10	0-11	0-13	0-17	0-18	0-18
<i>Raw Score Cutoffs For Benchmark Risk Levels</i>						
<i>Raw scores =</i>						
Moderately High (High for healthy person, high average for patients): Raw score equaling 84 th percentile (elevated one standard deviation) compared to community	1			5		
High: Raw score equaling 84 th percentile (elevated one standard deviation) compared to other patients in rehabilitation		3	4		10	12.2
Very High: Raw score equaling 95 th percentile compared to other patients in rehabilitation		5.6	6.5		14	16
Extremely High: Raw score equaling 99 th percentile compared to other patients in rehabilitation		9	10.4		17	17.7

Percentile Ranks Using Community Norms						
	BHI Primary Risk Factors			BHI Secondary Risk Factors		
Raw Risk Score	Observed Frequency	Percent With This Response	Percentile Rank	Observed Frequency	Percent With This Response	Percentile Rank
0	447	61.7	*61.7	83	11.4	11.4
1	188	25.9	87.6	142	19.6	31.0
2	39	5.4	93.0	139	19.2	50.2
3	21	2.9	95.9	116	16.0	66.2
4	15	2.1	97.9	88	12.1	78.3
5	6	.8	98.8	44	6.1	84.4
6	3	.4	99.2	33	4.6	89.0
7	2	.3	99.4	14	1.9	90.9
8	1	.1	99.6	16	2.2	93.1
9	2	.3	99.9	11	1.5	94.6
10	1	.1	100.0	15	2.1	96.7
11				7	1.0	97.7
12				4	.6	98.2
13				3	.4	98.6
14				5	.7	99.3
15				4	.6	99.9
16				0	0	99.9
17				1	.1	100.0
Total	725	100.0		725	100.0	
Missing	0	0		0	0	
Grand Total	725	100.0		725	100.0	

* Since all of the individual primary risk factors are extreme and relatively rare, the distribution of the primary risk score is highly skewed. Note that because 61.7% of patients have 0 primary risks, a score of 0 corresponds with a percentile rank of 61.7%. This percentile rank is somewhat misleading though, as it is also the lowest possible percentile rank on this measure.

Percentile Ranks Using BHI 2 Patient Norms						
	BHI Primary Risk Scores			BHI Secondary Risk Scores		
Raw Risk Score	Observed Frequency	Percent With This Response	Percentile Rank	Observed Frequency	Percent With This Response	Percentile Rank
0	234	44.4	44.4	24	4.6	4.6
1	152	28.8	73.2	69	13.1	17.6
2	53	10.1	83.3	76	14.4	32.1
3	28	5.3	88.6	62	11.8	43.8
4	18	3.4	92.0	51	9.7	53.5
5	16	3.0	95.1	53	10.1	63.6
6	12	2.3	97.3	29	5.5	69.1
7	4	.8	98.1	31	5.9	75.0
8	3	.6	98.7	24	4.6	79.5
9	4	.8	99.4	20	3.8	83.3
10	1	.2	99.6	21	4.0	87.3
11	2	.4	100.0	11	2.1	89.4
12				18	3.4	92.8
13				10	1.9	94.7
14				7	1.3	96.0
15				6	1.1	97.2
16				8	1.5	98.7
17				4	.8	99.4
18				3	.6	100.0
Total	527	100.0		527	100.0	
Missing	0	0		0	0	
Grand Total	527	100.0		527	100.0	

Percentile Ranks Using BHI 2 Chronic Pain Norms						
	BHI Primary Risk Scores			BHI Secondary Risk Scores		
Raw Risk Score	Observed Frequency	Percent With This Response	Percentile Rank	Observed Frequency	Percent With This Response	Percentile Rank
0	76	33.2	33.2	4	1.7	1.7
1	67	29.3	62.4	8	3.5	5.2
2	21	9.2	71.6	20	8.7	14.0
3	20	8.7	80.3	29	12.7	26.6
4	17	7.4	87.8	24	10.5	37.1
5	10	4.4	92.1	20	8.7	45.9
6	7	3.1	95.2	20	8.7	54.6
7	1	.4	95.6	13	5.7	60.3
8	3	1.3	96.9	16	7.0	67.2
9	5	2.2	99.1	6	2.6	69.9
10	0	0	99.1	15	6.6	76.4
11	1	.4	99.6	4	1.7	78.2
12	0	0	99.6	14	6.1	84.3
13	1	.4	100.0	6	2.6	86.9
14				9	3.9	90.8
15				5	2.2	93.0
16				8	3.5	96.5
17				6	2.6	99.1
18				2	.9	100.0
Total	229	100.0		229	100.0	
Missing	0	0		0	0	
Grand Total	229	100.0		229	100.0	

Key To Abbreviations of BHI 2 Measures

Listed in worksheet	BHI 2 Scale or Measure
Anxiety	Anxiety Scale
Autonomic Anxiety	Autonomic Anxiety Content Scale
Borderline	Borderline Scale
Cognitive Dysfunction	Cognitive Dysfunction Content Score
Comp Focus	Compensation Focus Content Scale
Defensiveness	Defensiveness Scale
Depression	Depression Scale
Disclosure	Disclosure Scale
Doctor Dissatisfaction	Doctor Dissatisfaction Scale
Entitlement	Entitlement Content Scale
Family Dys	Family Dysfunction Scale
Functional Complaints	Functional Complaints Scale
Hostility	Hostility Scale
Job Dissatisfaction	Job Dissatisfaction Scale
Maladjust	Chronic Maladjustment Scale
Muscular Bracing	Muscular Bracing Scale
Number of body areas with pain	Number of body areas with pain > 0
Pain Complaints	Pain Complaints Scale
Pain Fixation	Pain Fixation Content Scale
Pain Range	Pain Range Score
Pain Tolerance Index	Pain Tolerance Index score
Peak Pain	Peak Pain score
Perseverance	Perseverance Scale
Psychosis	Psychosis Critical Item
Somatic Complaints	Somatic Complaints Scale
Substance Abuse	Substance Abuse Scale
Suicidal Ideation	Suicidal Ideation Content Scale
Survivor of Violence	Survivor of Violence Scale
Symptom Dep	Symptom Dependency Scale
Vegetative Dep	Vegetative Depression Content Scale
Violent Ideation	Violent Ideation Content Scale
Work Comp	Worker compensation insurance system

Key To Abbreviations of Cutoffs

Listed in worksheet	Interpretation of cutoff level
> 59	Scale T score > 59 (more than 1 standard deviation above the mean and above the 84 th percentile)
> 66	Scale T score > 66 (above 95 th percentile)
> 72	Scale T score > 72 (above 99 th percentile)
H	High content score rating = above 84 th percentile
VH	Very High content score rating = above 95 th percentile
BP	Big Problem: Somatic complaint critical item response of “big problem”
MP	Moderate Problem: Somatic complaint critical item response of “moderate problem”