

## The Validity of Beck Depression Inventory –Short Version in Depressed Patients Diagnosed According to ICD10

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### ABSTRACT:

#### BACKGROUND :

Beck Depression Inventory (often abbreviated asBDI) is an instrument to measure the severity and depth ofdepression symptoms. BDI was developed in a novel way for its time by collating patients' verbatim descriptions of their symptoms and using these to construct a scale which could reflect the intensity or severity of a givensymptom.

#### OBJECTIVE:

To measure the validity of Beck depression Inventory short version using ICD 10 criteria for major depression as a gold standard

#### METHOD AND PATIENTS :

The study was carried out in IbnRushd and Baghdad Teaching Hospitals. The sample was selected purposely among patients diagnosed to have major depressive disorder according to the ICD- 10 criteria for major depressive disorder. For each patient a clinical interview was done using the ICD 10 criteria for major depressive episode after being given beck depression inventory – short version in a paper

#### RESULTS :

The overall result indicates 'fair to good' agreement between both Beck and ICD-10 suggesting that Beck Depression Inventory is valid in assessing the degree of severity of depression

#### CONCLUSION:

Beck Depression Inventory short version (13 item ) is adequate in assessing the severity of depression in patients with ICD-10 diagnosis of depression

**KEY WORDS:** depression, Beck Depression Inventory.

### INTRODUCTION:

#### Psychiatric Rating Scales

Many different questionnaires, interviews, checklists, outcome assessments, and other instruments are used by psychiatrists and mental health professionals to aid in treatment planning by helping to establish a diagnosis, identify Co morbid conditions, and assess levels of functioning. They are collectively called psychiatric rating scales or rating instruments and hundreds of them have been developed, some are better than others <sup>(1)</sup>.

The Beck Depression Inventory (BDI) was designed to assess the intensity of depression in terms of 21 symptom-attitude categories <sup>(2)</sup>.

It is administered by an interviewer, although it has been adapted for use as self-administered instrument <sup>(3,4)</sup>.

The BDI may be given to the patient for self-administration or group administration, but it should be verified, so that the patient understands the purpose and the answering method for the test<sup>(5)</sup>

Beck and Beck (1972) created a short form of the scale by examining data from an earlier study of 598 patients who had been rated by clinicians for depth of depression. Thirteen items were selected based on their high correlations with the total BDI score and their correlation with the clinical ratings. The short form correlated. In their 1972 article, Beck and Beck suggested the following cutoffs; 0-4 ...none or minimal. 5-7...mild. 8-15...moderate. 16+ ...severe<sup>(2)</sup>. The short form requires approximately 5 minutes <sup>(6)</sup>

The item's content includes sadness , pessimism , sense of failure , dissatisfaction, guilt, self-dislike, self-harm, social withdrawal, indecisiveness , self -image , work difficulty , fatigue and appetite .Each item has four option responses , scored , 0 ,1, 2or3 .The patients score is the sum of items total <sup>(7)</sup>.The BDI is designed as a measure of severity, not as a diagnostic instrument <sup>(8)</sup>.

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The original BDI was developed to assess the severity of depression in adolescents and adults and was not intended to reflect any particular theory of depression. The scale was based on clinical observations and symptom descriptions that were reported frequently by depressed psychiatric patients but infrequently by non-depressed psychiatric patients.

BDI –IA in 1979 a revised version of the original was published. This version eliminated alternative wordings for the same symptoms and avoided double negatives. Six items remained unchanged, and the wording of the other 15 items was altered. The number of statements per item was reduced from four to three. A technical manual for the BDI –IA was first published in 1987 and was followed by a 1993 edition that includes only slight revision of recommended score ranges for determining the severity level of depressive symptoms.

The BDI measures do not include the full

coverage of DSM- IV criteria. For example, the original BDI does not contain questions regarding increased appetite, weight gain, hyposomnia, psychomotor agitation or retardation.

In the BDI – II revised version, four items (weight loss, body image change, somatic preoccupation, and work difficulty) were replaced with four new items (agitation, worthlessness, concentration difficulty, and loss of energy), two items were changed in order to permit increases as well as decreases in both appetite and sleep, and only three items were not re-worded<sup>(9)</sup>

### Depression

Depression is a common and a major psychiatric disorder.

ICD-10 is an essential classification system. ICD-10 diagnostic criteria for depression are important current tool for the diagnosis of depressive episode and in the assessment of severity of the disorder, as in table 1 below:

**Table 1: (ICD-10) <sup>(10)</sup> Symptoms needed to meet criteria for depressive episode in ICD-10.**

<b>A</b>
Depressed mood Loss of interest and enjoyment Reduced energy and decreased activity
<b>B</b>
Reduced concentration Reduced self -esteem and confidence Ideas of guilt and unworthiness Pessimistic thoughts Idea of self -harm Disturbed sleep Diminished appetite
Mild depressive episode : at least 2 of A and at least 2 of B
Moderate : at least 2 of A and at least 3 of B
Sever : all 3 of A and at least 3 of B

### The Concept of Validity

Validity, as applied to a test, is a judgment or estimate of how well a test measures what it purports to measure in a particular context. More specifically, it is a judgment based on evidence about the appropriateness of inferences drawn from test scores. An inference is a logical result or deduction.

Assessors may refer to a particular test as a “valid test.” However, what is really meant is that the test has been shown to be valid for a particular use with a particular population of test takers at a particular time. No test or measurement technique is “universally valid” for all time, for all uses,

with all types of test taker populations. Rather, tests may be shown to be valid within what we would characterize as *reasonable boundaries* of a contemplated usage. If those boundaries are exceeded, the validity of the test may be called into question. <sup>(11)</sup>

Further, as the validity of a test may diminish in response to changes in the culture or time, the validity of a test must be proven again from time to time.

Validity has several forms and is best thought of as a continuum – that is , a measure is not simply valid or invalid but rather has a degree of

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validation. One should not ask whether the questionnaire is valid, but rather, how valid is it? <sup>(12)</sup>

Kappa test is a useful tool for the assessment of validity by measuring the strength of agreement

between the different scales in use, and is intended to give the reader a quantitative measure of the magnitude of agreement between observers <sup>(13)</sup> and according to the interpretation in the table 2 below:

**Table 2: How good is the agreement – assessing Kappa <sup>(14)</sup>.**

Kappa	Strength of agreement
$\leq 0.20$	Poor
0.21-0.40	Fair
0.41-0.60	Moderate
0.61-0.80	Good
0.81-1.00	Very good

### AIM OF THE STUDY:

To assess the validity of Beck Depression Inventory short version using the ICD 10 criteria for major depressive episode as a gold standard.

### METHODS AND PATIENTS:

A cross sectional study conducted on 1<sup>th</sup> of April through 10<sup>th</sup> of December 2011, at (Ibn-Rushid Teaching hospital, Baghdad teaching hospital) in Baghdad city/Iraq, the sample consists of 80 patients met the ICD 10 criteria for major depressive episode, 33 females and 47 males. The mean age of cases was 40.83 ranging from (18 – 65) years.

#### Inclusion criteria:

1. Participant's age 15 years or more.
2. Patients diagnosed as having MDE
3. Participants are able to communicate and understand their interviewer.

#### Exclusion criteria:

1. Patients with comorbid psychiatric illness.
2. If the depression is classified as an episode of bipolar disorder.
3. Patients who had comorbid physical illnesses.

All selected subjects expressed willingness, and provide a verbal

Consent-to-participate-in-this-study.

Patients were selected purposely (already diagnosed as having depression) and for each patient an interview was conducted in the out-patients clinics in Ibn-Rushed and Baghdad teaching hospitals. The interviews were done every Monday of each week

For each patient, clinical interview was done by the investigators using the ICD -10 criteria for major depressive episode.

A questionnaire had been devised. It was an Arabic translation of the ICD- 10 criteria.

Meanwhile, each patient was given Beck Depression Inventory (BDI) - short version (13 items) in a paper. The patient would read the inventory by his own and responded by indicating the statement which best describes how he/she had felt in general over the past week.

For those who couldn't self-administer the test, either because they were illiterate or had a poor vision, the interviewer would read the inventory on his paper allowing the patient to respond by indicating the statement which best describes how he/she had felt, in general, over the past week.

The responses of the patients to BDI were analyzed, to find how it can verify symptoms.

Kappa test was used in this study to check the ability of BDI to measure the severity of depression in patients diagnosed according to ICD10 by measure the agreement between the Beck Depression Inventory and ICD-10 criteria as a gold standard.

In this study cases who were labeled as non-depressed indicate those who were diagnosed as having a major depressive episode but their severity of illness were below mild. They were either improved or had only few residual symptoms because they were under treatment.

#### Statistical analysis:

By using SPSS- V18, 1.US. Software for windows, data of all patients were entered and analyzed with appropriate statistical tests.

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### RESULTS:

**Table1: The distribution of patients according to age and gender.**

		No	%
Age (years)	<20years	2	2.5
	20—29	7	8.75
	30—39	28	35.0
	40—49	23	28.75
	50—59	17	21.25
	=>60years	3	3.75
Gender	Male	47	58.75
	Female	33	41.25

Table 1 shows

The range of ages of the sample for those <20y =>60years (3,3.75%) , from them male was (2,2.5%), 20-29y (7,8.75%), 30-39y (28,35%), (47,58.75%), female was (33, 41.25%), Mean  $\pm$ SD (Range) for male ( 41.74 $\pm$ 11.15), for female ((39.55 $\pm$ 9.47).

**Table 2: The distribution of patients according to occupation and education.**

		No	%
Occupation	Employed	24	30.0
	Private	20	25.0
	Student	3	3.75
	Retired	3	3.75
	House wife	17	21.25
	Unemployed	13	16.25
Education	Illiterate	4	5.0
	Primary	25	31.25
	Secondary	39	48.75
	Institute	3	3.75
	Bachelor	9	11.25

Table 2 shows that ( 24 , 30% ) of the sample were employed (governmental work) , (13,16.25%) were unemployed , (20,25%) have their own private work, (17,21.25%) was house wife . (39,48.75%) of the sample were at the secondary stage , (25,31.25%) were at the primary stage , while (9,11.25%) were post graduated (bachelor) , (3,3.75%) were graduated from institutes, (4,5%) were illiterate .

**Table 3: The distribution of patients according to the marital status and residence.**

		No	%
Marital status	Single	17	21.25
	Married	53	66.25
	Divorced	8	10.0
	Widow	2	2.5
Residence	Urban	61	76.25
	Suburban	13	16.25
	Rural	6	7.5

Table 3 shows that (53,66.25%) of the sample were married , (17,21.25%) were single , (8,10%) were divorced , (2,2.5%) were widowed .(61,76.25%) live in urban areas, (13,16.25%) live in the suburbs , (6,7.5%) were rural.

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**Table 4: The distribution of symptoms according to the ICD10.**

ICD-10	No	%
Depressed mood	67	83.75
Loss of interest	63	78.75
Reduce energy	65	81.25
Reduce concentration	54	67.5
Reduce appetite	51	63.75
Guilty feeling	43	53.75
Self-esteem	37	46.25
Pessimism	47	58.75
Suicide	44	55.0
Sleep disturbance	60	75.0

Table 4 shows that from the total sample of 80 patient , (67,83.75%) had depressed mood , (65,81.25% ) reported lower energy level compared with the period before the illness , (63,78.75%) had loss of interest , (54,67.5%) had reduced concentration and attention, (51,63.75%) had diminished appetite , (43,53.75%) had ideas

of guilt and unworthiness , ( 37,46.25%) had reduced self- esteem and self- confidence , (47,58.75%) expressed bleak and pessimistic view of the future , (44,55%) had ideas or acts of self- harm or suicide while (60,75%) had disturbed sleep



**Figure 1: The severity of depression according to the ICD10.**

**Table 5: The %distribution of symptoms according to the beck depression inventory.**

BDI	0		1		2		3		Total %
	No	%	No	%	No	%	No	%	
Depressed M	12	15.0	22	27.5	21	26.25	25	31.25	85.0
Pessimism	24	30.0	18	22.5	11	13.75	27	33.75	70.0
Sense of failure	26	32.5	15	18.75	19	23.75	20	25.0	67.5
Lack of satisfaction	19	23.75	33	41.25	9	11.25	19	23.75	76.25
Guilty feelings	32	40.0	7	8.75	27	33.75	14	17.5	60.0
Self- hate	35	43.75	16	20.0	10	12.5	19	23.75	56.25
Self -punitive wishes	40	50.0	9	11.25	18	22.5	13	16.25	50.0
Social withdrawal	34	42.5	12	15.0	12	15.0	22	27.5	57.5
Indecisiveness	23	28.75	15	18.75	28	35.0	14	17.5	71.25
Distorted Body image	28	35.0	36	45.0	8	10.0	8	10.0	65.0
Work inhibition	17	21.25	16	20.0	29	36.25	18	22.5	78.75
Fatigability	15	18.75	24	30.0	21	26.25	20	25.0	81.25
Loss of appetite	33	41.25	25	31.25	9	11.25	13	16.25	58.75

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Table 5 shows that from the total sample of 80 patients, (68, 85%) expresses sadness, 31.25% from the total sample were at score 3 (I am so sad or unhappy that I can't stand it).

(56, 70%) from the total sample (80) express pessimism and 33.75% were at score 3 (feel that the future is helpless and that things can't improve).

(54, 67.5%) from the total sample express a sense of failure and 25% were at score 3 (I feel I am a complete failure as a person –parent, husband, wife).

(61, 76.25%) from the total sample express lack of satisfaction and 41.25% were at score 1 (I feel bored most of the time).

(48, 60%) from the total sample express guilty feelings and 33.75% were at score 2 (I feel quite guilty).

(45, 56.25%) from the total sample express self-hate and 23.75% were at score 3 (I hate myself )

(40, 50%) from the total sample express self-punitive wishes and 22.5% were at score 2 (I feel I would be better off dead).

(46, 57.5%) from the total sample express social withdrawal and 27.5% were at score 3 (I have lost all my interest in other people and I don't care about them at all).

(57, 71.25%) from the total sample express indecisiveness and 35% were at score 2 (I can't make decisions any more without help) .

(52, 65%) from the total sample express distorted perception of body image and 45% were at score 1 (I am worried that I am looking old or unattractive).

(63, 78.75%) from the total sample express inability to work (work inhibition) and 36.25% were at score 2 (I have to push myself very hard to do anything).

(65, 81.25%) from the total sample express fatigability and 30% were at score 1 (I get tired more easily than I used to).

(33, 58.75%) from the total sample express loss of appetite and 37.5% were at score 1 (my appetite is not as good as it used to be).

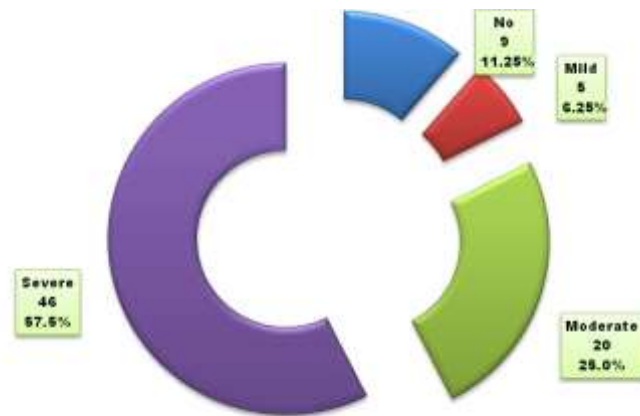


Figure 2: The severity of depression according to the BDI.

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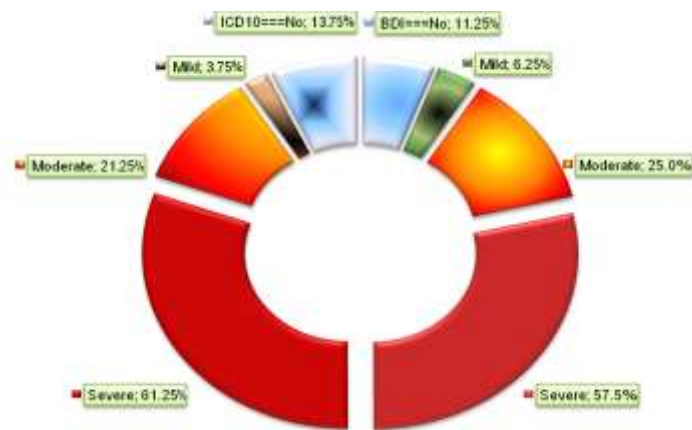


Figure 3: A comparison between the severity of depression according to the ICD10 and BDI.

Table 6: The shared degree of severity of depression in Beck and ICD10.

		Final result of ICD-10							
		Non		Mild		Moderate		Severe	
		No	%	No	%	No	%	No	%
Final result of BDI	Non	8	72.7	-	-	1	5.9	-	-
	Mild	2	18.2	1	33.3	1	5.9	1	2.05
	Moderate	1	9.1	1	33.3	12	70.6	6	12.25
	Severe	-	-	1	33.3	3	17.6	42	85.7

For Non → Kappa test=0.632 (good agreement) P=0.0001 (Highly significant)

For Mild → Kappa test=0.213 (fair agreement) P=0.024 (Significant)

For Moderate → Kappa test=0.544 (Moderate agreement) P=0.0001 (Highly significant)

For Severe → Kappa test=0.715 (good agreement) P=0.0001 (Highly significant)

Table 6 shows that those who were agreed on as being below mild (non-depressed) in both Beck and ICD10 account for (8,72.7%) from the non-depressed cases, with Kappa test equal to 0.632 indicating good agreement between the Beck and ICD10 in assessing the degree of severity of illness at this level.

Those who were agreed on as being mild in both Beck and ICD10 account for (1, 33.3%) from the mild cases according to ICD-10, with Kappa test equal to 0.213 indicating (fair agreement) between the Beck and ICD10 in assessing the degree of severity of illness at the mild cases.

Those who were agreed on as being moderate in both Beck and ICD10 account for (12, 70.6%) from moderate cases according to ICD10, with Kappa test equal to 0.544 indicating (moderate agreement) between the Beck and ICD10 in assessing the degree of severity of illness of moderate cases.

Those who were agreed on as being severe in both Beck and ICD10 account for (42, 85.7%) from the severe cases according to ICD-10, with Kappa test equal to 0.715 indicating (good agreement) between the Beck and ICD10 in assessing the degree of severity of illness of severe cases.

The overall result indicates fair to good agreement between both Beck and ICD10 suggesting that Beck is valid in assessing the degree of severity of depression, yet its validity is lower when it comes to assess the mild cases than when to assess the moderate or severe cases of depression.

### DISCUSSION:

In this study the symptoms of depression using ICD10 criteria for MDE were used as a control to assess the validity of BDI (13 item) to detect the severity and to verify symptom of depression. 83.75% of the sample reported having a depressed mood using the ICD-10 criteria, with

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beck depression inventory (BDI), 85 % reported having depressed mood. In a study conducted by Dr. Mustafa 1992, all the patients reported having a depressed mood on both the DSMIII criteria and the BDI <sup>(15)</sup>. The difference in reporting mood symptom could be explained in that the previous study discussed patients with moderate to severe stage of the illness while our study discussed the whole range of the severity of the illness, yet the difference (1.2%) between the BDI and the ICD10 criteria is still not that much and the results of both are still to be so close to each other indicating the ability of BDI to verify depressed mood.

The loss of interest may apply to work, home, family, former hobbies and appearance <sup>(16)</sup>

According to the ICD10 criteria 78.75% reported loss of interest, according to the BDI 76.25% of the total sample had a lack of satisfaction, 78.75% had work inhibition and 57.5% reported social withdrawal, this could be explained by the patient's tendency to deny being not interested in his family or close friends which might bring him the stigma of uncaring father or uncaring mother or unsocial person

Dr. Mustafa 1992, found that the mean percentage for the lack of satisfaction, social withdrawal and work inhibition is 93% which indicate that BDI is of 93% ability to verify loss of interest in our patients <sup>(15)</sup>.

The percentage of expressing loss of interest using the ICD10 and its reflection in the BDI was also close to each other.

In depression decrease energy and fatigue are common, sometimes with diurnal variation in energy level. <sup>(17)</sup>, according to the ICD-10, 81.25% of the total sample reported reduced energy and according to the BDI, 81.25% reported fatigability, the percentages were almost identical.

In the previous study 81% of patients show fatigue or loss of energy nearly every day according to the DSM III –R criteria for depression, in Beck Depression Inventory, 67% of the patients get tired from doing anything. 9% get too tired to do anything <sup>(15)</sup>

In ICD10, 63.75% of all patients reported reduction in appetite, while in BDI, 58.75% of all patients reported this symptom so there is an underestimation of this symptom according to BDI.

Similar results were obtained in the previous study conducted by Dr. Mustafa although with less difference between the results obtained

according to the DSMIII-R (78% of all patients) and those obtained according to the BDI (77%).

In this study according to ICD10, 67.5% of all patients reported reduction in concentration, while in BDI, 71.25% of all patients reported indecisiveness.

Dr. Mustafa 1992 found that, 87% of patients in the DSMIII-R had diminished ability to think, 90% were unable to concentrate. In Beck Depression Inventory 56% of the patients can't make a decision anymore without help. 24% are less sure of themselves now and try to put off making decisions <sup>(15)</sup>.

This study show that 53.75 % of all patients reported ideas of guilt or unworthiness according to the ICD10 criteria, while 60 % reported guilty feeling in the BDI.

Dr. Mustafa 1992, found that in Beck 77% patients with guilty feelings, in DSM –III-R 64% of them with excessive guilt. This difference because the item of guilt in BDI include sense of worthlessness while in DSM III-R they are separated <sup>(15)</sup>.

The previous explanation could also explain the approximation between results obtained by the BDI and ICD10 criteria in this study as the item of guilty feeling in the ICD10 include both ideas of guilt and unworthiness, yet the still higher results of the BDI could be due to that unworthiness may be expressed under the item of reduced self- esteem and lack of confidence in the ICD10 rather than unworthiness per se.

In this study, according to ICD10 criteria (44, 55%) of patients reported ideas or acts of self-harm or suicide, while (40, 50%) of patients reported self- punitive wishes in BDI.

Because of religious and social factors that prohibit suicide in our culture, patients are inclined to deny this symptom when asked to report it by their own while more likely to admit it in front of an understanding, empathic person who could account for the difference in reporting this symptom.

Similarly in the study conducted by Dr. Mustafa 1992, found that suicidal ideas account for 78% of the total sample according to the DSM III – R, while in BDI self- punitive wishes account for 66% of patients <sup>(15)</sup>.

Table 6: shows that the degree of agreement between the results obtained by beck depression inventory and ICD10 for moderate and sever levels of the illness was moderate to good agreement respectively while the agreement obtained at mild level was less than this



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although still acceptable as fair agreement .this indicate that beck depression inventory is valid for measuring the degree of severity of depression yet its validity in estimating the mild cases of depression is much less than when it is used to measure the severity of the illness in moderate and sever cases and as an explanation for the above result

1-The BDI suffers from the same problems as other self-report inventories, in that score can be easily exaggerated or minimized by the person completing them. Like all questionnaires, the way the instrument is administered can have an effect on the final score. If a patient is asked to fill out the form in front of other people in a clinical environment, for instance, social expectations have been shown to elicit a different response compared to administration via a postal survey<sup>(18)</sup>.

2-higher prevalence of anxiety symptom in women than in men

It is known that high BDI scores in the absence of clinical depression can occur when there are non-depressive symptoms like anxiety symptoms<sup>(19)</sup>

Women (30.5 percent lifetime prevalence) are more likely to have an anxiety disorder than are men (19.2 percent lifetime prevalence).<sup>(1)</sup>

The higher occurrence of anxiety disorder in females than males beginning early in life might explain in large part the higher female risk for major depression<sup>(20)</sup>.It could also suggest the tendency of interpreting the beck items in exaggerated manner that could account for the above result especially when we put in our mind that 66% of mild cases according to the ICD10 were females.

Anxiety is frequent though not invariable in moderate depression<sup>(21)</sup> which could explain the lower agreement between the ICD10 and Beck in moderate than in sever level of depression

3-cross cultural validity of the tool

One shortcoming of the Beck Depression Inventory arises with linguistic translations of its questions. In their study of the Spanish translation of the Beck Depression Inventory, Azocar and colleagues observed that although the inventory has internal consistency, it lacks cultural validity and applicability due to translations that ignore semantic differences between Spanish and English<sup>(21)</sup>.

This could be also applied for Arabic language, although a study by West J, shows that Correlations between Arabic-BDI scores and Arab clinicians' ratings indicated a high degree of validity. The results of the cross-cultural

validation study agree favorably with those of the original American validation. Although the Arabic inventory makes possible an assessment of the level and intensity of a reactive type depression suffered by Saudi Arab psychiatric outpatients living in the Eastern Province, it must be adapted dialectically for other Arab-speaking regions<sup>(22)</sup>

Dr. Mustafa 1992 found that the beck depression inventory short version (13 items) is adequate in assessing the severity of depression in patient with DSM III –R diagnosis of depression<sup>(15)</sup>.

Furlanetto LM, Mendlowicz MV, RomildoBueno J. 2005, found that The BDI-SF is a valid instrument for detecting moderate and severe depression in medical inpatients. For screening purposes, a 9/10 cutoff score is indicated, but if a high specificity is desired, a 13/14 cutoff score is warranted<sup>(23)</sup>

Kühner C, Bürger C, Keller F, Hautzinger M. 2007 ,found that The German BDI-II demonstrates good reliability and validity in clinical and nonclinical samples. It may now replace the older version of the BDI for assessing self-rated severity of depression and course of depressed symptoms under treatment.<sup>(24)</sup>

Steer RA, Ball R, Ranieri WF, Beck AT. 1997 , To provide further information about the construct validity of the Beck Depression Inventory-II the inventory was administered to 210 psychiatric outpatients along with Derogatis' SCL 90-R. As hypothesized, the Beck Depression Inventory-II was more positively correlated with scores on the Depression subscale ( $r = .89$ ) Then it was with scores on the Anxiety subscale of the SCL-90-R ( $r = .71$ )<sup>(25)</sup>.

Only one study conducted by Kearns et al (1982), found that neither the long nor the short versions of the beck Depression Inventory could discriminate between grades of severity of depression and advised that both should be abandoned<sup>(26)</sup>.

In a study conducted by Marcos Serrano-Due, Sabrina Sevilla, Paola Lastra,to examine the concurrent validity of the Hamilton Depression Rating Scale and the Beck Depression Inventory for quantifying depression in patients with Parkinsons disease, using the ICD-10 Diagnostic Criteria as the gold standard, Both scales were found to be poor at recognizing mild depression, whether or not somatic items were considered<sup>(27)</sup>.

In another study Martine Visser , Albert F.G. Leentjens, Johan Marinus 2006, found The BDI is a valid, reliable, and potentially responsive instrument to assess the severity of depression in

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PD. However, an adjusted cutoff is recommended<sup>(28)</sup>.

Scogin F, Beutler L, Corbishley A, Hamblin D. 1988 found that, congruent validity estimates were less satisfactory, as the correlation between the BDI and the HRSD was statistically significant, but low. Criterion group validity, diagnostic sensitivity, and sensitivity to change estimates were all acceptable. Thus, the short form BDI is adequately reliable to suggest its use as a research and clinical tool with older adults, although further study of the instrument's validity is needed<sup>(29)</sup>.

Be, Kelley L. 1996, found that Correlations of scores on Beck's scale with other scores provide additional support for Beck's scale as a valid measure of depression<sup>(30)</sup>.

Schotte CK, Maes M, Cludys R et al. 1997, found that their findings generally lend support to the construct validity of the BDI in depressive populations<sup>(31)</sup>.

Adewuya AO, Ola BA, Aloba OO. 2007, found that the BDI is a valid instrument for screening for MDD among Nigerian adolescents<sup>(32)</sup>.

So the majority of previous studies support the validity of Beck depression inventory to measure the severity of depression, and this study is consistent with the previous results.

### CONCLUSION:

The study showed that the Beck Depression Inventory short version (13 items) is adequate in assessing the severity of depression in patients with ICD10 diagnosis of depression.

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