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Translation and Re-Validation of Beck Depression Inventory Second (Edition BDI-II) for Hausa Population of Nigeria

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ABSTRACTS

This study translated and re-validated the Beck Depression Inventory second edition (BDI-II) for the Hausa population of Nigeria. A cross-sectional survey design was adopted. The study employed purposive sampling technique where four hundred and six (406) participants from six core Hausa States in Northwest Nigeria consisting of 322(81%) males and 72(19%) females. Were used for the study. Their ages ranged from 18 to 42 years with a mean age of 28.01 (Std.=5.79). A total of 140(34.5%) were married, 212(52.2%) were single, 44(10.8%) divorced, 6(1.5%) were widowed while 4(1%) did not indicate their marital status. Statistical Analysis involved the use of Pearson's correlation, Descriptive Statistics and Univariate Analysis. The result showed that the BDI-II Hausa Version yielded Cronbach's alpha coefficient of .86, the affective symptoms subscale of the Hausa BDI-II yielded a Cronbach's alpha coefficient of .78, the somatic symptoms subscale yielded a Cronbach's alpha coefficient of .75 and a corrected item-total correlation of.30. this indicated that the BDI-II Hausa version had a reasonably high internal consistency. It also indicated that the BDI-II Hausa Version significantly showed a high construct validity which demonstrated that the translation is appropriate for use in both medical and general population. It was concluded that the Beck Depression Inventory (BDI-II Hausa Version) is highly reliable, valid and fit for use among clinical and non-clinical samples in Nigeria. It was therefore recommended that further re-validation should include comparing the BDI-II (Hausa version) with other instruments to establish its convergent and discriminate validity as well as check the item total correlations as has been the standard practice. This will enhance the reliability and validity of the translated version. The fact that age and sex as demographic variables made significant contribution to depression in this study calls for need to identify risk factors for depression for which future clinical or treatment decisions can be made. The fact that participants in the study area were found to have severe depression reveals the need for regular assessment and screening for mental health challenges among this group of people.

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Keywords: Beck depression inventory, depression, translation, revalidation

INTRODUCTION

Depression is a global public health concern that now ranks first in the world for disability and contributes significantly to the overall global burden of disease. It affects individuals in all communities worldwide (World Health Organization WHO, 2021; Zenebe et al., 2021). Numerous chronic somatic ailments, such as diabetes, cardiovascular disease, hypertension, chronic respiratory disorders, and arthritis, have been established as an independent risk factors and negative prognostic factors (Kang et al,, 2015). Between 1990 and 2017, incident cases of depression had increased globally by 49.86% from 172 million to 258 million (Liu et., 2020). According to a recent research study, the COVID-19 pandemic may have contributed to an extra 53,2 million instances of major depressive illness worldwide (Santomauro et al., 2021). Therefore, we need a reliable tool to measure the severity of depression in order to combat this common mental health problem among the Hausa population of Nigeria. Since there is no particular scientific test to validate the diagnosis and level of depression validated Hausa-version of a rating scale for depression assessment like the Beck Depression Inventory-II (BDI-II) could meet this requirement.

According to Wolff et al, (2005), Hausa is the native language of 11 million people in Nigeria with a population exceeding 40 million, the Hausa language is spoken as a primary or second language and is a significant lingual franca throughout West and Central Africa. Most Hausa people in Nigeria can speak English yet many have limited English language literacy. Non-school attendance is highest among states in the Hausa-dominated Nigerian Northeast and Northwest zones has a large number of out-of-school children and young adults having limited English language literacy (United States Embassy in Nigeria, 2012).The need to eliminate the language barrier in the (BDI-II) usage among the Hausa-speaking Nigerians who cannot read and write in the English language when taken to a psychiatric hospital is the thrust of this translation and re-validation study.

Beck Depression Inventory second edition (BDI-II)is a 21-item self-report instrument for measuring the severity of depression in adults and adolescents aged 13 years and above. It is believed to be one of the most widely accepted standardized valid instruments for assessing the severity of depression in diagnosed patients and for detecting possible depression in the normal population, developed by Beck, Steer, and Brown(Beck, Steer, & Brown, 1996). Apart from containing basic symptoms of depression, one of its advantages is the fact that it is sensitive to clinical changes and therefore useful as a pre and post-assessment measure (Adebayo, 1996; Olley, 2001). Administration time is about 5-10 minutes Beck (1996). The BDI-II is consistent with the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders – 4th

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edition (DSM-IV; 1994). But since there is no crucial change made in the diagnostic criteria of Depression and Depressive Disorders in DSM 5, BDI-II can be well fitted with the current edition, it is used as an indicator of the presence and degree of depressive symptoms. The 21-item BDI-II covers both somatic and affective symptoms measuring items. In general, BDI is said to be the best of presently available self-report measures of the severity of depression.

Two comprehensive reviews concerning BDI's applications and psychometric properties across a broad spectrum of both clinical and nonclinical populations have reported its high reliability, regardless of clinical population (Beck & Steer, 1996).Some studies, using outpatients, found the mean coefficient alpha to be .92 for the BDI-II (Beck et al., 1996; Steer, 1997; Steer, 1999). The BDI-II has been translated from English to many languages such as Chinese, Korean, Turkish, Croatian, Japanese, Xhosa, Malay, Spanish, Norwegian, Icelandic, Persian, Swedish, Welsh, German, Lithuanian, French, Dutch, and Portuguese (Huang & Chen, 2014; Wang & Gorenstein, 2013), which has contributed to confirming its applicability in many countries, cultures, and sample profiles. It has also been translated and validated for the Arabic population where there is a cultural and religious similarity with the Hausas, Kraft, and Kirk-Green (1994) as reported in Unubi and Yusuf (2017 p 416) that Hausa are member of the Chadic group of the Afroasiatic family of languages. Therefore, related genetically to Arabic, Hebrew, Berber, and other members of the Afroasiatic family.

In general, no journal article was found regarding the translation and validation of BDI-II for the Hausa population to date, however, the Depression Anxiety Stress Scale-21 (DASS-21) has been translated and validated for the Hausa-speaking Nigerians. This research will help reduce physical and mental symptoms and improve quality of life as well as an overall economic burden to patients having depressive disorder or comorbid depression.

Hypotheses

The study is designed to test the following hypotheses;

I. The BDI-II Hausa version will have significantly high internal consistency (reliability).

II. The BDI-II Hausa version will have a significantly high construct validity

METHOD

Design

This adopted a cross-sectional survey because data for this research were collected from a large population all at a time. The justification for this was that the research will be carried out at a

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point in time, not a longitudinal study. It is also a survey, not an experiment, and no variables were manipulated.

Setting

This research was conducted in the Northwest region of Nigeria comprising seven states namely: Jigawa, Kano, Kaduna, Katsina, Kebbi, Sokoto, and Zamfara States. The choice of the study area is based on the fact that Northwest particularly Jigawa, Kano, Katsina, Kebbi, Sokoto, and Zamfara states respectively; are predominantly Hausas and are the core Hausa States. According to the National Population Commission of Nigeria and National Bureau of Statistics, the projected Population for 2022 for the above-mentioned states are; Jigawa 7,491,000; Kano 15,462, 200; Katsina 10,368,500; Kebbi 5,563,900; Sokoto 6,391,000 Zamfara 5,833,500 totaling 51,110,100. Three states namely Kano 15,462, 200, Katsina 10,368,500, and Jigawa 7,491,000 totaling 33,321,700 were selected for the study.

Participants

The participants for this study were four hundred six (406) male and female normal samples of Hausa-speaking adults drawn from the total population of six core Hausa States in Northwest Nigeria. Their ages range between 18 and 42 years with a mean age of 28.01 (Std.=5.79). A total of 140(34.5%) of them were married, 212(52.2%) were single, 44(10.8%) divorced, 6(1.5%) were widowed while 4(1%) did not indicate their marital status. On their education, 16(3.9%) had no formal education, 24(5.9%) had primary education, 91(22.4%) had secondary education, 265(65.3%) received tertiary education, while 10(2.5%) did not indicate their level of education. By employment, 241(59.4%) were into different forms of self-employment, 156(38.4%) were employed by the government and 9(2.2%) did not indicate their employment status.

Population for Study

The targeted population for this research study was the Hausa people of Northwest Nigeria which had about six (6) states; Jigawa, Kano, Katsina, Kebbi, Sokoto, and Zamfara states. The estimated current population of the area was fifty-one million one hundred and ten thousand one hundred (51,110,100) Hausa indigenes across the six states according to the National Population Commission of Nigeria and National Bureau of Statistics projected Population 2022.

Table 1: Estimated 2022 Population for States in North West

State	2022 estimated population
Jigawa	7,491,000
Kano	15,462,200

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Kastina	5,563,900
Kebbi	10,368,500
Sokoto	6,391,000
Zamfara	5,833,500
Total	**51,110,100**

Sampling

To obtain participants for this study, a purposive sampling technique was utilized. To obtain participants for the research only those vast in the Hausa language were selected for the study and 480 copies of questionnaires were administered to them.

Sample Size Determination

The sample size in this study was determined in two stages; the first stage deals with the size of the states, while the second deals with the size of individual participants. Northwestern Nigeria has six core Hausa states namely: Jigawa, Kano, Katsina, Kebbi, Sokoto, and Zamfarastates. To further buttress the sample size figure from Krejcie and Morgan's (1970) sample size table, their formula was applied using the total population of 51,110,100 projected populations in 2022 for six core Hausa states in North-West Nigeria. The formula is stated below

$$S = \frac{X2\ NP\ (1-p)}{d2\ (N-1) + X2\ (1-P)}$$

Where

S = require sample size
X = Z Values (i.e. 1.96 for 95% confidence level)
N = Population size
P = Population proportion (expressed as a decimal; assumed to be 0.5 i.e 50%)
d = degree of accuracy (5%) expressed as a proportion (05) i.e. the margin of error.
Substituting from the formula:

$$S = \frac{1{,}96^2 \times 51{,}110{,}100 \times 0.5\ (1.05)}{0.05\ (51{,}110{,}100 - 1) + 1.96^2 \times 0.5\ (1-0.5)}$$

$$S = \frac{3.84 \times 51{,}110{,}100 \times 0.25}{0.0025 \times 51{,}110{,}100 + 3.84 \times 0.5}$$

$$S = \frac{49{,}065{,}696}{127{,}775.25 + 0.96}$$

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$$S = \frac{49,065,696}{127,776.21}$$

$$S = 383.997$$

Selected Sample size = 384

The researcher anticipated a non-response rate of 0.8%, so to compensate for the non-response, the researcher made use of a non-response formula which is:

$$Nx = \frac{n}{0.8}$$

Where n= the calculated sample size was selected. Therefore, the non-response rate is:

$$Nx = \frac{384}{0.8}$$

$$Nx = 480.$$

Therefore, 480 copies of questionnaires were issued to the respondents in the selected three Hausa States in Northern Nigeria.

A proportionate sampling method was applied. Halleck's (2001) formula for proportionate distribution was used to determine the sample for each state as shown below;

$$\left(\frac{n}{N}\right) \quad Ni$$

n= Population

N=Total Population

Ni determined the sample size

Jigawa =7,491,000

$$\frac{7,491,700 \times 480}{33,321,700}$$

$$\frac{3,595,680,000}{33,321,700}$$

$$=108$$

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Kano= 15,462,200

15,462,200 x 480
33,321,700

7,421,856, 000
33,321,700

=223.

Kastina= 10,368, 500

10,368,500 x 384
33,321,700

4,976,880,000
33,321,700
=149.
(223+149+108=480).

Therefore, a total of 480 questionnaires were proportionately issued to the respondents the three (3) states across North-West Nigeria.

Sampling Techniques

The researcher employed a simple random sampling technique in selecting the participating states and selecting the participants for the study. In using sample random sampling, three states were randomly selected from a list of the entire core Hausa States in the Northwest, through the balloting system. YES, and NO were written alongside the name of a state on separate pieces of papers and carefully folded while three states were randomly picked which indicated yes Kastina, Yes Kano, and yes Jigawa.

In sampling the participants, the researcher employed a simple random sampling technique. To achieve this aim, the research used a list of randomly generated numbers, from internet-based random number generators. This list was generated according to the sample frame from each of the selected states. The researcher collected the total population of the states sampled before data collection with the questionnaire. This means that the total number of participants from the three (3) states was ascertained, and perspective proportions in the ample size of 480 participants were also determined using Halleck's (2001) formula for proportionate sampling.

Instrument

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Questionnaires were used to collect data. The questionnaire was divided into two sections, section 'A' contained demographic data of the participants. Section 'B' is the Beck Depression Inventory-II (BDI-II) which measures the level of depression.

Beck Depression Inventory Second Edition (BDI-II)

Beck Depression Inventory Second Edition (BDI-II) was developed by Beck, (1996) as a revised version of BDI-I and BDI-IA which were earlier formed in 1961 and 1978 respectively. BDI-II was developed to assess an individual's level or severity of depression in various domains that are being used to determine one's level of depression. BDI-II is the most widely used instrument or tool for measuring the severity of depression. It consists of 21 multiple choice questions and is designed for individuals aged 13 and above, it consists of items relating to symptoms of depression such as hopelessness and irritability, cognitions such as guilt or feeling of being punished as well as physical symptoms such as fatigue, weight loss and lack of interest in sex. It is sensitive to clinical change therefore useful as a pre and post-assessment measure (Alarape, 2001) it is self-administered and is scored on a scale of 0-3 in a list of four statements arranged in increasing severity about a particular symptom of depression. The cutoff is 0-13: minimal depression; 14-19: mild depression; 20-29 moderate depression; and 30-63: severe depression. Higher total scores indicate more severe depressive symptoms. The questionnaire has two subscales: Affective and Somatic symptoms; eight (8) items for Affective symptoms 2,3,5,6,7,8,9,14 and thirteen (13) items for Somatic symptoms that are 1,4,10,11,12,13,15,16,17,18,19,20,21. Psychometric properties reported a coefficient alpha of 91 and 97 for Nigerian out-patients and adolescents respectively (Adewuya, 2007).

However, the comparison of its structure across countries and languages remains unstudied and this has informed this thesis. Measurement in variance is a prerequisite for considering the BDI equivalent across versions, and for using it to make valid and interpretable comparisons of the severity of the depression among different groups. The mean score for American male-5.5; the standard deviation- was 6.7 while the mean score for American females- was 4.7; the standard deviation-6.0. However, the mean scores and the standard deviation for both males and female will be based on Nigerians as will be applied to the study.

Internal consistency was demonstrated by a significant relationship between each item and BDI total score. An odd-even item correlation of 0.85 is obtained from Spearman-Brown's correlation of 0.93. No test-retest reliability data is reported in the original report. The test-retest correlation of 0.75 was cited as part of some unpublished data from a pilot study with 23 normal undergraduates (Pehn, 1968). Miller and Seligman (1973) reported a test-retest reliability of 0.75 from 31 normal undergraduates within a three-month interval. Beck, (1987), reported split-half reliability ranging from .79-.93. The mean coefficient alpha reported was .87 (Steer, 1985) with a

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test-retest correlation of .75 for one month and .75 from undergraduates after three months (Beck, 1987). Several pieces of evidence for the construct validity of the BDI are reviewed by Beck (1972) with a sample of 608 patients, a correlation of 0.72 was observed between BDI-II scores and clinicians' rating of depression, but only 0.14 between BDI and clinicians' anxiety rating.

Procedure

The research was conducted in two stages, the translation phase and the validation stage. As prior permission was taken from the copyright holder National Computer System (NCS) Pearson, Incorporation (INC)for translation and validation, no additional permission was taken from the author according to the patent rules. Ethical clearance was obtained from Department of Psychology Benue State University, Makurdi.

Translation phase

This segment was carried out from June to November 2022. The translation process was according to guidelines stipulated in the US Census Bureau Guideline (Pan & Puente, 2005) and standards of the American Psychological Association (2014). Forward and backward translations; forward translation into Hausa was done by a group of professionals. And was it edited by a psychologist with sound knowledge of depression and its socio-cultural variations. Backward translation was done by other groups of professionals without the knowledge of the original English version of BDI-II and was finally translated back to the Hausa language. The first and the second copies were compared to see if there were any major discrepancies. All persons involved in the translation process were Hausa professionals with sound knowledge of both Hausa and English. Sentence revision was done by experts (Professors and Doctors from department of Nigeria languages Usman Danfodio University Sokoto) in a panel discussion after the reconciliation of the forward and backward translations. Then, a multidisciplinary expert committee comprised of psychiatrists, psychologists, psychosocial workers, language experts, and all the translators reviewed the original version and translated materials of BDI-II in meetings. A preliminary Hausa version of BDI-II (BDI-II EA) was produced at the end of these processes. The translated BDI-II Hausa version (BDI-II EA) was pilot-tested before finally, being administered to the targeted population after observing the ethical protocols. The questionnaire were administered to the respondents with the help of seven male research assistants in the three states.

Data Analysis

For data analysis, frequencies, mean and standard deviations were used to summarize the demographic data of the respondents. The correlation statistic and factor analysis were used to

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test the reliability and validity of the BDI-Hausa. Also, the independent t-test was used to compare the mean scores of the respondents on BDI-Hausa based on different demographic factors. The final statistic used was the One-Way Analysis of Variance. Statistical Package for Social Science (SPSS) version 27was used to analyze the data collected.

Results

Descriptive Statistics

The participants were between the ages of 18 and 42 years with a mean age of 28.01 (Std.=5.79). A total of 140(34.5%) of them were married, 212(52.2%) were single, 44(10.8%) divorced, 6(1.5%) were widowed while 4(1%) did not indicate their marital status. On their education, 16(3.9%) had no formal education, 24(5.9%) had primary education, 91(22.4%) had secondary education, 265(65.3%) received tertiary education, while 10(2.5%) did not indicate their level of education. By employment, 241(59.4%) were into different forms of self-employment, 156(38.4%) were employed by the government and 9(2.2%) did not indicate their employment status.

Assessment of the general prevalence of depression among the study population was done using mean statistics and the result indicated that 144(35.5%) of the respondents had minimal depression with mean scores 7.61(Std.=3.88), 88(21.7%) had mild depression with mean scores of 16.40(Std.=1.81), 99(24.4%) had moderate depression with mean scores of 23.89(Std.=3.02), while 75(18.5%) had severe depression with mean scores of 37.29(Std.=6.21). This indicates a high incidence of depression among the study population. This finding is consistent with that of Adamu, Oche, Abel, Garba, and Zubairu (2021) who assessed the prevalence, pattern, and risk factors associated with affective depression among women in rural areas of Sokoto state and found that the overall prevalence of depression was high in this study and the prevalence was slightly higher in a monogamous group than polygamous; most respondents in both groups had mild depression. The result is presented in table 1 below.

Table 1: Mean statistics showing levels of depression among the respondents

Levels of Depression	N	Percent (%)	Mean	Standard Deviation
Minimal Depression	144	35.5	7.61	3.88
Mild Depression	88	21.7	16.40	1.81
Moderate Depression	99	24.4	23.89	3.02
Severe Depression	75	18.5	37.29	6.21
Total	406	100.0	-	-

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The first hypothesis stated that the BDI-II Hausa version will have significantly high internal consistency (reliability).The reliability of the BDI-II Hausa version was tested using Cronbach's alpha statistics, the result revealed that 8 items on the affective symptoms subscale of the Hausa BDI-II yielded a Cronbach's alpha coefficient of .78 based on standardized items.13 items on the somatic symptoms subscale yielded a Cronbach's alpha coefficient of .75 based on standardized items. While 21 items on the total BDI-II Hausa version yielded Cronbach's alpha coefficient of .86, even though the result is slightly below the original English version. Internal consistency of this version was very high it is similar with original English where internal consistency on student sample was α .93 and among psychiatric sample was α .92 (Beck et al., 1996). This finding is also consistent with that of Spanish and Xhosa version where the coefficients were α .91 (Wiebe&Penley, 2005) and α .93 (Steele & Edwards, 2008). And the result is presented in table 2 below.

Table 2: Cronbach's alpha coefficients showing the reliability of the BDI-II Hausa version

Scale	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No of Items
Affective symptoms	.777	.784	8
Somatic symptoms	.728	.752	13
Total BDI-II Hausa	.850	.862	21

The corrected item-total correlation revealed that all the items have loadings above .30 on the overall BDI-II Hausa and the two components except item 20 which has a corrected item-total correlation of less than .30. According to George and Mallery (2003), an instrument should have Cronbach's alpha coefficient of at least .70 and above with corrected item-total correlation of .30 and above for it to be reliable. Therefore, it can be agreed that the BDI-II Hausa has reasonably high internal consistency, which makes it reliable for use on the Hausa-speaking population. This finding is in line with that of Abdel-Khalek (1998) who found the internal consistency of the BDI-II Arab Version to be .67 among the Lebanon population. The finding is also in line with that of Wiebe et al., (2005) who focused on a comparison of the psychometric properties of English and Spanish language versions of the Beck Depression Inventory and found strong internal consistency of the Spanish translation slightly exceeded the original English version with the Spanish translation producing a coefficient of 0.91 and the English version yielding a coefficient of 0.89 (Wiebe, 2005). These finding implies that psychopathological symptoms can be explained, understood, and expressed better within the context of a patient's culture.

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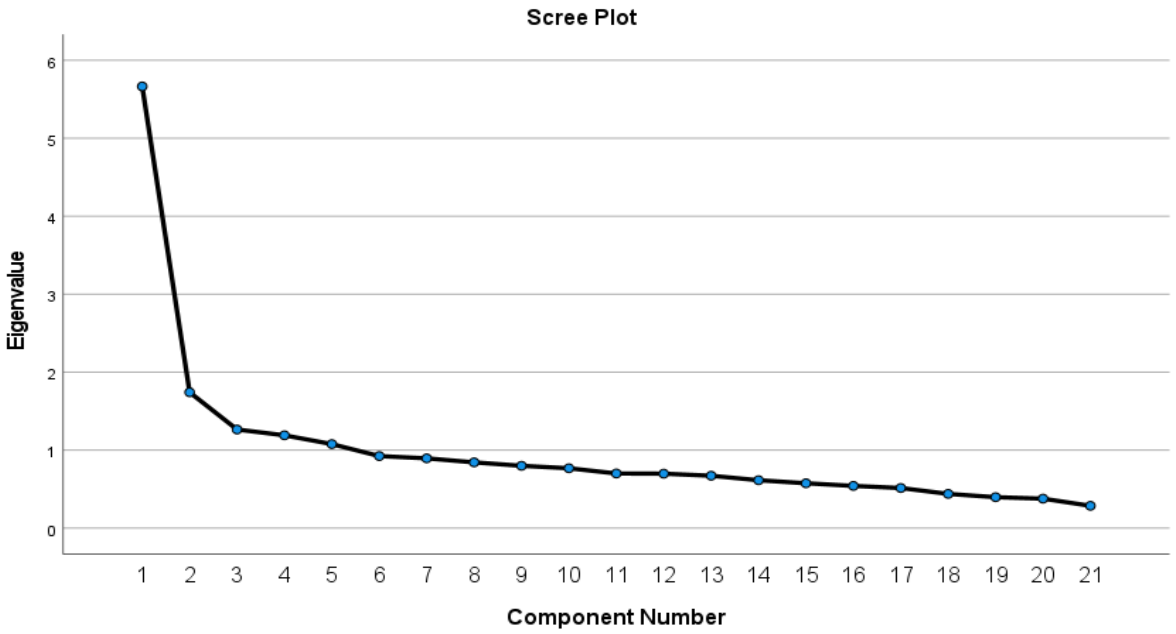
Results of Factor Analysis

The second hypothesis stated that the BDI-II Hausa version will have a significantly high construct validity. The validity of the BDI-II Hausa was tested using factor analysis, a Confirmatory Factor Analysis (CFA) was performed to assess the construct validity of the BDI-II Hausa version to ascertain if the instrument measures the construct it was developed to measure. First, the suitability of the data set was examined through a correlation matrix and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. Observation of the correlation matrix revealed multiple items with correlation coefficients of .30 and above. Similarly, the KMO value of .871 was well above the recommended minimum of .60 and Bartlett's Test of Sphericity value of $x^2(210) = 2166.841, p < .01$ was statistically significant. These clearly show that the sample size and the data set were suitable for factor analysis.

Factor analysis was performed on the data collected to assess the factor structure and factor loadings as well as the variances explained by the factors extracted. Principal Component Analysis (PCA) was used as the extraction method. Results revealed the presence of two major components on the BDI-II Hausa with Eigen values above 1 which together explained 35.277% of the total variance observed with the first component accounting for 26.978% and the second component 8.229% of the variance respectively. This two-component solution is also confirmed in the Scree Plot in Fig.1 below.

Figure 1: Scree Plot showing factors extracted



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The scree plot shows the eigen value against the number of factors (components). It can be seen that from the third factor on, the line is almost flat, which shows a clear break after the second component, meaning that each successive factors account for smaller and smaller amounts of the total variance. Therefore, retaining the two factors with the highest Eigenvalues is considered appropriate, which also tallies with the proposed two-factor BDI-II Hausa version.

Table 3: Pattern and structure matrix for Principal Component Analysis with Oblimin Rotation of two-factor solution for BDI-II Hausa

Item	Pattern coefficients		Structure coefficients		Communalities
	Component 1	Component 2	Component 1	Component 2	
BDI17	**.626**	-.070	**.652**	-.304	.515
BDI16	**.606**	.102	**.568**	-.124	.332
BDI19	**.601**	.031	**.589**	-.193	.348
BDI12	**.577**	-.212	**.656**	-.427	.469
BDI13	**.574**	-.149	**.630**	-.363	.416
BDI15	**.560**	-.004	**.561**	-.213	.315
BDI21	**.512**	.050	**.493**	-.140	.245
BDI11	**.467**	-.163	**.527**	-.337	.301
BDI20	**.439**	.195	**.367**	-.031	.167
BDI18	**.437**	-.213	**.516**	-.376	.306
BDI1	**.384**	-.255	**.479**	-.398	.286
BDI10	**.382**	-.171	**.446**	-.313	.224
BDI4	**.363**	-.254	**.458**	-.390	.265
BDI3	.044	**-.722**	.314	**-.739**	.548
BDI7	.021	**-.709**	.286	**-.717**	.430
BDI2	.031	**-.678**	.284	**-.689**	.476
BDI14	.046	**-.678**	.298	**-.692**	.481
BDI9	.090	**-.664**	.338	**-.698**	.494
BDI8	.118	**-.559**	.327	**-.603**	.376
BDI6	-.117	**-.484**	.064	**-.441**	.206
BDI5	.041	**-.441**	.205	**-.456**	.210

To further aid the interpretation of the two components extracted, Oblimin rotation was performed and the result is presented in Table 4.3. The rotated solution revealed a simple structure with both components showing several items loading substantially on only one component as shown in the highlighted coefficients in both the pattern matrix and the structure matrix. For instance, the thirteen (13) items on the somatic symptoms of depression (i.e. items 1,4,10,11,12,13,15,16,17,18,19,20,21) all showed high loadings on the first component while all the eight (8) items on the affective symptoms of depression (i.e. items 2,3,5,6,7,8,9,14) showed high loading on the second component. This is consistent with previous research on the BDI-II

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scale with items on affective symptoms loading strongly on component 1 and those on somatic symptoms loading strongly on component 2. Communality shows the proportion of variance explained by the two factors for each indicator (item) of the BDI-II Hausa. The factors closer to 1 are considered better. The two factors explain the most variance for item 17 (0.515) and the least for 20 (0.167) respectively.

Generally, the majority of the participants were male because of the Muslim culture of not exposing their women, where a woman is meant to stay at home. This could be why most of the hypotheses were not significant because the percentage of males 81% and 19% showed that the difference between males and females is 62%.

Conclusion

This research has succeeded in translating and validating the BDI-II for the Hausa population in Nigeria, setting the platform for future psychometric research, The BDI-II (Hausa Version) demonstrated satisfactory reliability and validity and therefore may be useful in measuring the severity of depression and in clinical assessments/management among Hausa population. The BDI-II Hausa version is a multidimensional Inventory for assessing and managing Depression, just like the original (English Version) inventory. It can therefore be used for the assessment and management of different symptoms of depression among the Hausa population. The high prevalence of depression among participants in this study underscores the need for an appropriate screening tool to enable physicians to assess their patients' psychological conditions and treat them as necessary. The overall pattern of results demonstrates the reliability of the Hausa BDI-II to be used as a screening instrument for depression among the Hausa people. The construct validity of the Hausa BDI-II was acceptable

Recommendations

This study was focused on translating and revalidating the Beck Depression Inventory (BDI-II) for the Hausa population of Nigeria, hypotheses were formulated, tested and the results presented. Based on the findings it is recommended that:

i. The fact that participants in the study area were found to have severe depression reveals the need for regular assessment and screening for mental health challenges among this group of people.

ii. There is a need for more studies to further explore the psychometric features and correlates of this scale among other Nigerian ethnic groups in addition to other medical patient populations.

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iii. Further re-validation of the maiden version of the BDI-II (Hausa version) be carried out using more samples that are diverse (population-based and depressed patients) to refine the instrument.

iv. Further re-validation should include comparing the BDI-II (Hausa version) with other instruments to establish its convergent and discriminate validity and well as to check the item total correlations as is the standard practice. This will enhance the reliability and validity of the translated version

v. The people should be educated on the importance of female participation in research to avoid the huge disparity between males and women in this research.

vi. More effort should be made to translate the Beck Depression Inventory (BDI-II) into other local languages to ease the assessment of psychological problems among local ethnic groups in Northern Nigeria.

Limitations

It is important to note that the study was conducted with a relatively small sample (403) which can limit the generalization of the findings, the findings need to be replicated with larger samples before drawing concrete conclusions. The population was drawn from three (3) states out of the seven (7) states in Northwest Nigeria that are dominated by the Hausa Hausa-speaking population. The majority of the participants were male because of the Muslim culture of restricting women from mingling, not exposing them to outsiders, where a woman is meant to stay at home, this may have affected the findings. Because of the insecurity of kidnapping and banditry in the north, it took the researcher about four months to complete the administration of questionnaires. The time it took participants to complete the questionnaire was fifty minutes to one hour and thirty minutes. Some participants felt the questionnaires were too long and time-consuming, which may have affected their responses. Some persons refused to participate in the research for fear of the unknown. The majority of the participants are self-employed

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