Iran J Psychiatry Behav Sci. In Press(In Press):e113377. doi: 10.5812/ijpbs-113377.

Published online 2022 June 1. **Research Article**

Development and Validation of Redeemer's University Depression Scale (RUDS)

Bede Chinonye Akpunne [1,*], Ebenezer Olutope Akinnawo [1], Caroline Edekie Ofovwe [2] and Ibukunoluwa Busayo Bello [1]

[1]Department of Behavioural Studies, Faculty of Social Sciences, Redeemer's University, Ede, Osun State, Nigeria
[2]Department of Mental Health, School of Medicine, College of Medical Sciences, University of Benin, Benin City, Nigeria

[*]*Corresponding author*: Department of Behavioural Studies, Faculty of Social Sciences, Redeemer's University, Ede, Osun State, Nigeria. Email: akpunneb@run.edu.ng

Received 2021 February 06; **Revised** 2021 May 22; **Accepted** 2021 December 10.

Abstract

Background: Despite the high prevalence reported in the literature, there is a paucity of indigenous diagnostic tools to assess depression severities among the Nigerian population.
Objectives: This study aimed to develop and validate a depression scale entitled Redeemer's University Depression Scale (RUDS).
Methods: This research had four stages. The first stage involved the initial generation of 32 items based on a literature search. In the second stage, the items were reduced to 21 using content validity/expert assessments. In the third stage, the 21-item RUDS was administered to 86 University undergraduates and refined through an exploratory factor analysis (EFA). Also, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity (BTS) measured the factorability. At the fourth stage, 456 undergraduates responded to the 19-item RUDS, Center for Epidemiologic Studies Depression Scale (CES-D), and General Health Questionnaire (GHQ-12).
Results: The observed KMO measure was .88, and a significant sphericity test was observed ($\chi^2 = 1133.647$, df = 210, P = 0.000). The principal component analysis (PCA) extracted four components from items whose eigenvalues exceeded 1. Nineteen of the 21 items loaded best in the first component, two in the second component, and one on the third and fourth components. The scree plot analysis retained one component (depressive symptoms). Item-total correlation further showed that the values of two items in the first component fell below the very good discrimination and were deleted from the scale. The RUDS had a Cronbach's alpha of 0.91, concurrent validity of r = 0.787, P = 0.000. Also, r = 0.521 and P = 0.000 were observed between RUDS and CES-D, and between RUDS and GHQ-12, respectively.
Conclusions: The RUDS is gender-sensitive, has acceptable psychometric properties, and is recommended as a diagnostic tool for assessing depression in adolescents and adults.

Keywords: Depression Scale, Development, Nigeria, Validation

1. Background

Depression is enshrined and viewed in two official classifications: The International Classification of Diseases 10th edition (ICD-10) (1) and Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) (2). These official classifications address depression as a severe and widespread (2-4) clinical syndrome defined by the presence of specific clinical features not requiring a specific etiology but considers the possibility of both psychological and biological causative factors.

Depressive symptoms affecting thoughts, feelings, and activities of daily living, must be present for at least two weeks before a patient can be diagnosed as having depression (2, 4). Some symptoms of depression include persistent sadness, anxiety, hopelessness, worthlessness, loss of interest in previously pleasurable activities, pessimism, sleep disturbances, changes in appetite and weight, difficulty concentrating, as well as suicidal thoughts, plans, or attempts (1-4).

There is a high prevalence of depression in Nigeria (5-7). The World Health Organization (WHO) reported that seven million Nigerians and more than 322 million people globally suffer from depression (6). However, independent Nigerian studies reported higher prevalence rates of 26.2%, 17.5%, and 49.8% among the Nigerian elderly, internally displaced people (IDP) camp dwellers in Northern Nigeria, and university undergraduates in southwestern Nigeria, respectively (8-10).

Also, World Bank study reported that one in five Nigeri-

ans has depressive symptoms, and about 22% of Nigerians suffer chronic depression (11).

A growing concern is that depression among Nigerians is more common than is known, resulting from widespread ignorance and limited knowledge of depression and available mental health services (12). For instance, a study among Nigerian health practitioners reported that about 78% had limited knowledge of depression and difficulties working with depressed patients (13).

1.1. Justification for the Study

Judging from the growing rate of depression due to challenges ranging from insecurity, insurgencies, poverty, and unemployment (6, 11), there is a need for a standardized scale to diagnose depression among the Nigerians. This will provide more accurate statistics and proffer workable policy statements to address it. This argument thus underscores the need for an indigenous scale to measure depression because the most available standardized depression scales used in Nigeria are imported and, at best, validated by Nigerian authors before use. Often, these imported scales fail to consider peculiar socio-cultural factors germane to Nigerians.

2. Objectives

We aimed to develop and validate an indigenous scale to measure depression.

3. Methods

3.1. Item Generation for Redeemer's University Depression Scale (RUDS)

Based on the clinical features of depression in both the DSM and ICD, the initial 32 items for Redeemer's University Depression Scale (RUDS) were generated (2, 14-17). Items were then subjected to 12 expert opinions, eight clinical psychologists, two developmental psychologists, and two industrial psychologists with a minimum of ten years of work experience. The justification was that the expert technique is an acceptable method for content validity (18). As summarized in Table 1, 21 items were generally agreed upon by the experts to meet face value at 75%. The concordance inter-rater reliability was 0.97, which was above the stated level of acceptance for face values. Acceptable inter-rater reliability ($r = 0.097$, $P = 0.000$) was observed in the scores of the 12 experts for the items of RUDS. Finally, the instrument included 21 items used for Item Refinement.

3.2. Exploratory Factor Analysis

The 21 items of the RUDS were subjected to an exploratory factor analysis (EFA). Principal components analysis (PCA) was used as the factor analysis technique. To confirm the adequacy of items for PCA, Bartlett's test (19) was used. In addition, to assess factorability, the KMO measure of sampling adequacy (20) was used.

3.3. Item Refinement

The 21 items of RUDS were subjected to EFA. Factors with eigenvalues > 1 were extracted at the first stage of EFA. Next, the statistics for factors with eigenvalues > 1 were scrutinized. Stevens (21) recommended 0.40 as the least factor loading. However, only items loading < 0.45 on the items of RUDS were removed to improve its interpretability. The different plausible factor solutions were evaluated considering the items' content and the proportional construct of interest.

3.4. Participants

In this study, 86 university undergraduates (male: 36 vs. female: 50) were drawn using the online survey method (google form) for the EFA of RUDS. The age range was between 15 and 34 years (mean = 19.72; SD = 3.61), 85 participants were single, and one was married. Twenty-eight participants were in 100 level of study, while 26, 20, and 12 participants were in 200, 300, and 400 levels of study, respectively.

A fresh sample of 456 undergraduates of a private university and a Federal Polytechnic, Osun State, Nigeria, was used to determine the psychometric properties of RUDS. A Google form was employed, generating responses from 300 university undergraduates, while questionnaires were administered to 156 polytechnic undergraduates.

Studies at both international (22) and Nigerian levels (5, 7, 23) showed that the age group of 18 - 29 years reported the highest prevalence of depression; thus, we selected this population. Although previous studies have not identified the sample as the riskiest students in Nigeria, they were selected as representative of the student population. A total number of 542 undergraduates (86 in the EFA and 456 in the validations) participated in the study.

3.5. Study Instruments

The participants responded to RUDS, The Center for Epidemiology Studies Depression Scale (CES-D) by Radloff (24), and the General Health Questionnaire 12 (GHQ-12) by Goldberg and Williams (25).

The CES-D is a twenty-item instrument that measures levels of depression. The items of CES-D are measured on a 4-point Likert scale, and scores range from zero to 60.

Table 1. Interclass Correlation Showing the Interrater Reliability Index for Redeemer's University Depression Scale

	Intraclass Correlation	95% CI			
		Lower Bound	Upper Bound	Value	Sig
Single Measures	0.496	0.318	0.745	29.487	0.000
Average Measures	0.966	0.931	0.988	29.487	0.000

Abbreviation: CI, Confidence Interval

Higher scores on CES-D indicate more symptomatology. The author reported a high internal consistency of CES-D with a Cronbach's α coefficient ranging from 0.85 to 0.90 (24).

The GHQ-12 was designed to assess psychological distress (19). The 12 items of the GHQ-12 are scored on a 4-point severity and frequency scale (0-3). Scores of the items of the GHQ-12 are added to derive the total score of psychological distress. GHQ-12 has acceptable psychometric properties (25).

4. Results

4.1. Exploratory Factor Analysis

According to Pallant (26), for factor analysis to be considered appropriate, Bartletts Test (BTS) should be significant ($P < 0.05$), KMO index should be in the 0 to 1 range, and the minimum value for suitable factor analysis should be set as 0.06 . The KMO and BTS were carried out to measure the factorability of the 21-item RUDS. The observed KMO measure of sampling adequacy was 0.89, which was within the recommended range of 0 to 1; the BTS was also significant ($\chi^2 = 1133.647$, df = 210, P = 0.000). This result supports the correlation matrix's factorability. Hence, the authors conducted the PCA. The principal component extraction method's test resulted in the extraction of four components (Table 2).

Table 2. Total Variance Explained

Components	Eigenvalues	% of Variance	Cumulative %
1	9.624	45.831	45.831
2	1.996	9.505	55.336
3	1.338	6.370	61.707
4	1.161	5.528	67.234

Table 2 shows the summary of PCA for the extracted four components for the 21-item measure for RUDS. The loading of the 21 items under the four components was presented in Table 3.

The four components extracted are summarized in Table 3; the eigenvalues of the items loaded on these components exceed 1. The eigenvalues of the four components range between 9.624 to 1.161, with a percentage ranging from 45.831 to 5.528 (see Table 2).

Table 3 indicated that 19 of the 21 items loaded best in the first component, two items loaded best in the second component, and one item loaded in the third and fourth components.

Of the 19 items loaded in the first component, two items loaded in more than one component, rendering those items as complex structures. The identified complex structures and the two items loading on the second component were deleted from the scale.

According to Cattell's scree test rule, the authors conducted the Cattell scree plot to ascertain and clarify the point to retain (27). The scree plot revealed a break after the first component with a cumulative percentage of 45.83 from the total variance. The first was retained for further investigation in the current research.

4.2. Measuring the of Reliability of Redeemer's University Depression Scale

Values of the corrected item/total correlations (point-biserial) indicated discriminations in the items of RUDS. Values between 0 and 0.19 imply poor discrimination, 0.2 and 0.39 indicate good discrimination, while $\geq$ 0.4 imply very good discrimination. As observed in Table 4, the item with a value between 0 and 0.19 in the RUDS is item 21 (0.11). Item had a point-biserial value between 0.2 and 0.39 (0.28). The observed values of the point-biserial suggest that items with values below the very good discrimination should be deleted from the scale as this could indicate an ambiguous and confusing item to participants.

Reliability analysis was carried out to determine the internal consistency of the extracted 18 items of the RUDS. The internal consistency of RUDS among the Nigerian sample revealed a Cronbach's coefficient (α) of 0.91, a Spearman-Brown coefficient of 0.90, and a Guttman Split-Half coefficient of 0.89.

The values of the corrected item/total correlations (point-biserial) of the refined items for RUDS showed a good discrimination value ($\geq$ 0.02).

Table 3. Component Matrix of 21 Items of Redeemer's University Depression Scale [a]

Component Matrix [b]				
	Component			
	1	2	3	4
11. I felt empty	0.833			
8. I felt worthless	0.831			
10. I felt sad	0.768			
15. I was easily fatigued	0.744			
9. I felt hopeless about the future	0.741			
19. I felt unworthy and unlovable	0.737			
18. I felt unworthy of a nice relationship	0.727			
14. I felt I was not just as good as other people	0.726			
3. My mind dwelt more on negative events in my environment	0.724			
1. I felt that most events around me will turn out bad	0.721			
4. I thought my chances of failing far outweigh my chances of succeeding	0.717			0.444
2. I had feeling that no matter what I did I would eventually lose everything	0.692			
5. I became worried about things that usually did not bother me	0.690			
13. I lost interest in things I used to find pleasurable	0.660			
12. I cried most of the time	0.655			
16. I had lost appetite and do not feel like eating	0.629			
7. I thought I was better off dead	0.610			
17. I had difficulty sleeping	0.610			
6. I found it difficult concentrating on what I was doing	0.597		0.409	
21. I had tried to kill myself		0.848		
20. I felt so guilty for my failures that I cannot forgive myself		0.732		

[a] Extraction method: PCA
[b] Four components extracted

4.3. Measuring the Validity of the Redeemer's University Depression Scale

Using the concurrent validity technique, RUDS was validated using two existing standardized scales of depression (CES-D) and psychological distress (GHQ-12). The correlation matrix of the three scales is summarized in Table 5.

Table 5 summarizes Pearson's r of RUDS score, CES-D score, and GHQ-12 score. Significant positive validity coefficient exists between the RUDS score and the composite scores of CES-D and GHQ-12. The reported validity coefficient between RUDS and CES-D was r = 0.787, P = 0.000; while r = 0.521 and P = 0.000 was reported between RUDS and GHQ-12. This result proved that RUDS is valid among the Nigerian population in testing for depression.

4.4. Calculation of the Norms for the Redeemer's University Depression Scale

The cutoff points for the RUDS were determined using the 95% confidence interval (CI) method. As summarized in Table 6, considering a 95% CI, the male population mean ranged between 34.4 and 40.6, based on 184 samples [37.5 (95% CI 34.4 to 40.6)]. The derived mean for the female population was between 40.3 and 46.8, based on 272 samples [43.5368 (95% CI 40.3 to 46.8)], while the group mean was between a range of 25.6 and 28.8, based on 456 samples [27.2 (95% CI 25.6 to 28.8)]. The lower limit of these intervals (i.e., mean score minus 2 standard deviation) of $\geq$ 34.4; $\geq$ 40.3, and $\geq$ 25.6 is considered the cutoff points for the male, female, and group samples, respectively.

The final draft of the validated RUDS and the scores' interpretations are itemized in Tables 7 and 8, respectively.

The RUDS is scored by adding up the items scores. Table 8 is a summary of the interpretation of the scores based on

Table 4. Item-Total Statistics of Redeemer's University Depression Scale

Redeemer's University Depression Scale	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. I felt that most events around me will turn out bad	44.8333	271.707	0.680	0.928
2. I had feeling that no matter what I did I would eventually lose everything	45.2619	272.268	0.643	0.929
3. My mind dwelt more on negative events in my environment	44.8333	269.538	0.668	0.928
4. I think my chances of failing far outweigh my chances of succeeding	45.0476	271.588	0.647	0.929
5. I became worried about things that usually did not bother me	44.3929	269.567	0.625	0.929
6. I found it difficult concentrating on what I was doing	44.1667	275.369	0.524	0.930
7. I thought I was better off dead	45.3214	271.498	0.586	0.929
8. I felt worthless	45.1071	262.772	0.818	0.925
9. I felt hopeless about the future	45.1429	267.570	0.687	0.928
10. I felt sad	44.4048	262.316	0.714	0.927
11. I felt empty	44.6310	259.778	0.789	0.926
12. I cried most of the time	44.9881	268.349	0.617	0.929
13. I lost interest in things I used to find pleasurable	44.6310	269.947	0.612	0.929
14. I felt I was not just as good as other people	44.4762	263.168	0.676	0.928
15. I was easily fatigued	44.2976	266.187	0.692	0.928
16. I had lost appetite and do not feel like eating	44.8571	270.365	0.596	0.929
17. I had difficulty sleeping	44.7500	268.937	0.590	0.929
18. I felt unworthy of a nice relationship	44.7857	262.941	0.674	0.928
19. I felt unworthy and unlovable	44.8333	265.273	0.689	0.928
20. I felt so guilty for my failures that I cannot forgive myself	44.5595	280.346	0.282	0.936
21. I had tried to kill myself	45.3929	288.844	0.111	0.939

Table 5. Correlation Matrixes of Redeemer's University Depression Scale, Epidemiology Studies Depression Scale, and General Health Questionnaire 12

	RUDS	CES-D	GHQ-12	Mean ± SD
RUDS	1			27.19 ± 17.87
CES-D	0.787**	1		44.65 ± 10.74
GHQ-12	0.521**	0.511**	1	30.95 ± 7.79

group and individual samples. The individual samples are categorized by gender.

5. Discussion

To measure the depression among adolescents and adults, we developed and validated the RUDS through considering the Nigerian socio-cultural setting and using the approach described by Lynn (28). Lynn (28) recommended a two-staged approach: Development and generation of instrument items and evaluating the instrument's item performance (validation). In generating the initial pool of items for the RUDS, the researchers reviewed clinical features of depression recorded in both the DSM-5 and ICD-10 (2, 14, 15, 16, 17).

The six main themes identified included 'biased perception' (selective attendance to adverse events and features in one's environments), 'cognitive distortions' (a description of self, the future, and the world in negative terms), and 'affective disturbances' (manifestation of low mood, diurnal variation, and anhedonia). Other subthemes included 'somatizations' (characterized by changes in somatic state, including loss of energy, disturbance of sleep and appetite, pain symptoms, weight loss or gain, and other vegetative features), 'relationship deterio-

Table 6. The 95% Confidence Interval of Cutoff Point Determination for RUDS by Sex

	Group Sample	Male	Female
Margin of Error	1.64	3.09	3.22
Sample size	456	184	272
Sample mean	27.193	37.5	43.5368
Standard deviation	17.87447	21.36925	27.13038
95% CI	27.2 (95% CI 25.6 to 28.8)	37.5 (95% CI 34.4 to 40.6)	43.5368 (95% CI 40.3 to 46.8)
Cutoff point	$\geq$ 25.6	$\geq$ 34.4	$\geq$ 40.3

ration' (characterized by poor interpersonal relationships, asociality, and perceiving the self as lonely and unworthy of love), and 'suicidality' (suicidal ideation, intention, and attempts) (2, 14-17). The generation of items relating to the agreed themes resulted in 32 items used for scale purification purposes. Also, a 6-point Likert scale was used to measure opinions, beliefs, and attitudes (29). Based on the decision to use a Likert response format, each item of the RUDS is a declarative statement (29).

As recommended by Flynn and Pearcy (30) and Derbaix and Pecheux (31), the combination of reliability analysis and EFA was used for the purification of RUDS.

The initial items generated by authors were subjected to content validity by a panel of experts. According to Streiner et al. (32), content validity presents currently available knowledge in the construct of interest. It is also the minimum quality requirement for an instrument (33, 34), an essential indicator of an instrument's validity, and a display of how feasible and practicable an instrument is (33, 35). The development process of RUDS supported its validity and formed a basis for further examination of its validity and reliability.

The Cronbach's α for RUDS was 0.91, and item-total correlation ranged from 0.52 to 0.81. The implication of this finding showed a good item inter-relatedness, unidimensionality, and homogeneity of the construct (36, 37) among the Nigerian population. In other words, the scores of Cronbach's α, Spearman-Brown coefficient, and Guttman Split-Half coefficient were not too high to render some items as redundant (38, 39). In summary, the high alpha score showed that RUDS has a strong reliability.

As a new scale, the RUDS was validated using the concurrent validity method as recommended by Cronbach and Meehl (40). RUDS positively correlated with two standardized scales for measuring depression and psychological distress among the general population. Based on the EFA results and the acceptable psychometric properties. The RUDS is an adequate measure of depression for both adolescents and adults in Nigeria and other areas with similar socio-cultural settings.

5.1. Conclusions

In this study, through stages involving initial items generation, experts' assessment (content validity) of the initial pool of items, and the use of EFA for items purification, a single factor scale with 18 items was extracted to make up the RUDS. The items of the RUDS showed an acceptable internal consistency (reliability coefficient). Also, RUDS had significant positive correlations with the CES-D and the GHQ-12, indicating an acceptable validity coefficient. Finally, the RUDS is gender-sensitive, as 95% CI revealed a lower cutoff point for male participants than females. We recommend the RUDS as a diagnostic tool for depression among adolescents and adults in Nigeria and other climes with similar socio-cultural settings.

5.2. Limitations of the Study

This research was carried out based on the unique psycho-sociocultural setting of the Nigerian population. The generalization of the findings and the use of this scale on other populations with different social-cultural characteristics without scale re-validation should be approached with caution.

Footnotes

Authors' Contribution: Study concept and design: B. A., and O. A.; analysis and interpretation of data: B. A., and I. B.; drafting of the manuscript: B. A. and I. B.; critical revision of the manuscript for important intellectual content: C. O., O. A., and B. A.; statistical analysis: B. A.

Conflict of Interests: The authors declare no conflicts of interest.

Data Reproducibility: It was not declared by the authors.

Ethical Approval: The study was carried out in compliance with the Helsinki Declaration. The research intention and the proposed procedures were subjected to scrutiny by the Internal Research Ethics Committee of Redeemer's University, Nigeria. Ethical codes do not apply to this research type (See National Code of Health Research Ethics; National Health Research Ethics Committee of Nigeria (NHREC). Section B, item A. http://www.nhrec.net/nhrec/NCHRE10.pdf

Funding/Support: This study is self-funded by the authors.

Informed Consent: The respondents' informed consent was obtained before the administration of the instruments. The participants were intimated with the purpose

Table 7. The Final Draft of Redeemer's University Depression Scale

	Items	Never	Hardly Ever (Less Than One Day)	A Little of the Time (1 - 2 Days in a Week)	Sometimes (3 - 4 Days a Week)	Most or All the Time (5 - 7 Days a Week)	Always (All Week Long)
	Please indicate how often you have felt this way during the past weeks.						
1	I felt that most events around me would turn out bad	0	1	2	3	4	5
2	I had the feeling that no matter what I did, I would eventually lose everything	0	1	2	3	4	5
3	My mind dwelt more on negative events in my environment	0	1	2	3	4	5
4	I think my chances of failing far outweigh my chances of succeeding	0	1	2	3	4	5
5	I became worried about things that usually did not bother me	0	1	2	3	4	5
6	I thought I was better off dead	0	1	2	3	4	5
7	I felt worthless	0	1	2	3	4	5
8	I felt hopeless about the future	0	1	2	3	4	5
9	I felt sad	0	1	2	3	4	5
10	I felt empty	0	1	2	3	4	5
11	I cried most of the time	0	1	2	3	4	5
12	I lost interest in things I used to find pleasurable	0	1	2	3	4	5
13	I felt I was not just as good as other people	0	1	2	3	4	5
14	I was easily fatigued	0	1	2	3	4	5
15	I had lost appetite and did not feel like eating	0	1	2	3	4	5
16	I had difficulty sleeping	0	1	2	3	4	5
17	I felt unworthy of a nice relationship	0	1	2	3	4	5
18	I felt unworthy and unlovable	0	1	2	3	4	5

Table 8. Interpretation of Redeemer's University Depression Scale Scores

	Group sample	Male	Female
Normal	0 - 8	0 - 13	0 - 13
Mild depression	9 - 25	14 - 33	14 - 39
Mild to moderate depression	26 - 29	34 - 41	40 - 47
Moderate to severe depression	30 - 77	42 - 74	48 - 68
Severe depression	78 and above	75 and above	69 and above

of the research; only those willing partook in the study. Participation was voluntary, confidentiality was assured, and the respondents were free to leave at any stage of the study.

References

1. World Health Organization. *The ICD-10 Classification of Mental and Behavioural Disorders: Clinical descriptions and diagnostic guidelines*. 10th ed. Geneva, Switzerland: World Health Organization; 1992.
2. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. Washington, D.C., USA: American Psychiatric Association Publishing; 2013. doi: 10.1176/appi.books.9780890425596.
3. Gelenberg A. *Help with Depression*. Washington, D.C., USA: American Psychiatric Association; 2020. Available from: https://psychiatry.org/patients-families/depression.
4. National Institute of Mental Health (NIMH). *Major depression*. Bethesda, Maryland, U.S: National Institute of Mental Health (NIMH); 2019, [updated January 2022].
5. Ndubisi CD, Ogunsemi JO, Babatunde SI, Ayodele AO, Akpunne B. Associations Between Exposure to Domestic Violence, Depression and Cyberbullying Among Secondary School Adolescents. *Eur J Med Health Sci*. 2020;**2**(4). doi: 10.24018/ejmed.2020.2.4.376.

6. World Health Organization. *Depression and Other Common Mental Disorders, Global Health Estimates*. Geneva, Switzerland: World Health Organization; 2017.
7. Akpunne B, Uzonwanne F. Problematic smartphone use as a predictor of depression, anxiety and psychological distress among undergraduate students in four selected Nigerian universities. *J Commun Media Res*. 2020;**12**(2).
8. Gureje O, Kola L, Afolabi E. Epidemiology of major depressive disorder in elderly Nigerians in the Ibadan Study of Ageing: a community-based survey. *Lancet*. 2007;**370**(9591):957–64. doi: 10.1016/S0140-6736(07)61446-9. [PubMed: 17869636]. [PubMed Central: PMC2880490].
9. Sheikh TL, Abdulaziz M, Agunbiade S, Joseph I, Ebiti B, Adekeye O. Correlates of depression among internally displaced persons after post-election violence in Kaduna, North Western Nigeria. *J Affect Disord*. 2015;**170**:46–51. doi: 10.1016/j.jad.2014.08.050. [PubMed: 25233238].
10. Akinnawo OE, Akpunne BC. Internet Addiction, Problematic Smartphone Use and Psychological Health of Nigerian University Undergraduates. *Int Neuropsychiatr Dis J*. 2019;**12**(3):1–13. doi: 10.9734/indj/2018/v12i330093.
11. World Bank Group. *Nigeria Depression Brief*. Washington, D.C., U.S: The Mind, Behavior, and Development Unit (eMBeD); 2018.
12. Jack-Ide IO, Uys L. Barriers to mental health services utilization in the Niger Delta region of Nigeria: service users' perspectives. *Pan Afr Med J*. 2013;**14**:159. doi: 10.11604/pamj.2013.14.159.1970. [PubMed: 23785564]. [PubMed Central: PMC3683509].
13. James BO, Jenkins R, Lawani AO, Omoaregba JO. Depression in primary care: the knowledge, attitudes and practice of general practitioners in Benin City, Nigeria. *S Afr Fam Pract*. 2014;**54**(1):55–60. doi: 10.1080/20786204.2012.10874176.
14. Bech P. Clinical features of mood disorders and mania. *New Oxford Textbook of Psychiatry*. Oxford, England: Oxford: Oxford University Press; 2012. p. 632–7. doi: 10.1093/med/9780199696758.003.0084.
15. Brent D, Weersing VR. Depressive Disorders in Childhood and Adolescence. *Rutter's Child and Adolescent Psychiatry*. Oxford, England, UK: London Blackwell; 2008. p. 587–612. doi: 10.1002/9781444300895.ch37.
16. Gotlib IH, Hammen CL. *Handbook of depression*. 2nd ed. New York City, NY, USA: New York Guilford Press; 2009.
17. Carr A. *Clinical Psychology*. London, England: Routledge, Taylor and Francis Group; 2012. doi: 10.4324/9780203097632.
18. Nunnally JC, Nunnaly JC. *Psychometric Theory*. 2nd ed. New York City, NY, USA: McGraw-Hill; 1978.
19. Bartlett MS. A Note on the Multiplying Factors for Various $\chi 2$ Approximations. *J R Stat Soc Series B Methodol*. 1954;**16**(2):296–8. doi: 10.1111/j.2517-6161.1954.tb00174.x.
20. Kaiser HF. An index of factorial simplicity. *Psychometrika*. 1974;**39**(1):31–6. doi: 10.1007/bf02291575.
21. Stevens J. *Applied Multivariate Statistics for the Social Sciences*. New Jersey, United States: Lawrence Erlbaum Associates; 2009.
22. Villarroel MA, Terlizzi EP. Symptoms of Depression Among Adults: United States, 2019. *NCHS Data Brief*. 2020;(379):1–8. [PubMed: 33054920].
23. Dabana A, Gobir A. Depression among students of a Nigerian University: Prevalence and academic correlates. *Arch Med Surg*. 2018;**3**(1). doi: 10.4103/archms.archms_5_18.
24. Radloff LS. The CES-D Scale. *Appl Psychol Meas*. 2016;**1**(3):385–401. doi: 10.1177/014662167700100306.
25. Goldberg DP, Williams P. *A User's guide to the General Health Questionnaire*. Slough, Berkshire, England: NFER-NELSON Publishing Company; 1991.
26. Pallant J. *SPSS survival manual*. 2nd ed. New York, USA: Open University Press; 2005.
27. Cattell RB. The Scree Test For The Number Of Factors. *Multivariate Behav Res*. 1966;**1**(2):245–76. doi: 10.1207/s15327906mbr0102_10. [PubMed: 26828106].
28. Lynn MR. Determination and quantification of content validity. *Nurs Res*. 1986;**35**(6):382–5. [PubMed: 3640358].
29. DeVellis RF. *Scale development: Theory and applications*. 2nd ed. Thousand Oaks, CA, USA: Sage Publications; 2003.
30. Flynn LR, Pearcy D. Four Subtle Sins in Scale Development: Some Suggestions for Strengthening the Current Paradigm. *Int J Mark Res*. 2018;**43**(4):1–14. doi: 10.1177/147078530104300404.
31. Derbaix C, Pecheux C. Mood and children: Proposition of a measurement scale. *J Econ Psychol*. 1999;**20**(5):571–91. doi: 10.1016/s0167-4870(99)00025-2.
32. Streiner DL, Norman GR, Cairney J. *Health measurement scales: A practical guide to their development and use*. Oxford, England: Oxford University Press; 2015. doi: 10.1093/med/9780199685219.001.0001.
33. DeVon HA, Block ME, Moyle-Wright P, Ernst DM, Hayden SJ, Lazzara DJ, et al. A psychometric toolbox for testing validity and reliability. *J Nurs Scholarsh*. 2007;**39**(2):155–64. doi: 10.1111/j.1547-5069.2007.00161.x. [PubMed: 17535316].
34. Beckstead JW. Content validity is naught. *Int J Nurs Stud*. 2009;**46**(9):1274–83. doi: 10.1016/j.ijnurstu.2009.04.014. [PubMed: 19486976].
35. Haynes SN, Richard DCS, Kubany ES. Content validity in psychological assessment: A functional approach to concepts and methods. *Psychol Assess*. 1995;**7**(3):238–47. doi: 10.1037/1040-3590.7.3.238.
36. Bland JM, Altman DG. Cronbach's alpha. *BMJ*. 1997;**314**(7080):572. doi: 10.1136/bmj.314.7080.572. [PubMed: 9055718]. [PubMed Central: PMC2126061].
37. Streiner DL. Starting at the beginning: an introduction to coefficient alpha and internal consistency. *J Pers Assess*. 2003;**80**(1):99–103. doi: 10.1207/S15327752JPA8001_18. [PubMed: 12584072].
38. Lai CM, Mak KK, Watanabe H, Ang RP, Pang JS, Ho RC. Psychometric properties of the internet addiction test in Chinese adolescents. *J Pediatr Psychol*. 2013;**38**(7):794–807. doi: 10.1093/jpepsy/jst022. [PubMed: 23671059].
39. Panayides P, Walker MJ. Evaluation of the Psychometric Properties of the Internet Addiction Test (IAT) in a Sample of Cypriot High School Students: The Rasch Measurement Perspective. *Eur J Psychol*. 2012;**8**(3):327–51. doi: 10.5964/ejop.v8i3.474.
40. Cronbach LJ, Meehl PE. Construct validity in psychological tests. *Psychol Bull*. 1955;**52**(4):281–302. doi: 10.1037/h0040957. [PubMed: 13245896].