

Validation of Hospital Anxiety and Depression Rating Scale among HIV/ AIDS Patients in Aminu Kano Teaching Hospital, Kano, North-Western Nigeria

Shehu Sale^{1,*}, Faisal Saleh Dankishiya¹ and Muktar Ahmed Gadanya²

¹Department of Psychiatry, ²Department of Community Medicine, Bayero University Kano/Aminu Kano Teaching Hospital, Kano, Nigeria

Abstract: *Background:* The Hospital Anxiety and Depression (HAD) scale is an instrument used for the screening of depression and anxiety. The scale has not been validated for use among HIV/ AIDS patients in Northwestern Nigeria.

Aim: The study aimed to validate HAD scale for screening of depression in HIV/AIDS patients in Kano, Northwestern Nigeria.

Methods: It was a cross-sectional study carried out at Aminu Kano Teaching Hospital (AKTH), Kano in which 250 HIV/AIDS patients were recruited. The depression component of HAD scale was administered to them. Respondents who scored 8 and above on HAD scale were further assessed for depression using the depression module of Composite International Diagnostic Inventory (CIDI). The data was analyzed using SPSS 17.0.

Results: Of the patients recruited, 90(36%) had depression using HAD scale while 87 (34.8%) were confirmed using CIDI. HAD scale had sensitivity of 100%, specificity of 98.2%, positive predictive value of 96.7% and negative predictive value of 100%, and accuracy of 98.8%.

Conclusion: The HAD scale is a reliable screening tool with high level of precision and validity, and could be reliably used to detect depression among HIV/AIDS patients.

Keywords: Depression, HAD scale, CIDI, HIV AIDS, Nigeria.

INTRODUCTION

With the advent of Highly Active Antiretroviral Therapy (HAART), the life expectancy of People Living with HIV (PLWH) has improved. Consequently, more attention is now given to issues of quality of life of this people [1]. Depression is the most common psychiatric illness encountered among HIV patients [2-4]. However, despite the high rate of depression among these individuals, very few of them are detected by attending clinicians. In fact, of the 17 PLWH that were detected to be depressed by Song and his colleagues using Beck Depression Inventory (BDI), only three (17.6%) reported they were referred to psychiatric clinic by the attending physicians [2]. This is worrisome considering the fact that depression has been linked to poor adherence to antiretroviral therapy and worsening condition of PLWH [5].

Song and his colleagues explained the possible reason for under-diagnosis of depression as lack of recognition of psychiatric disorders by attending physicians [2]. They opined that physicians may find it difficult to ask their patients about symptoms of depression while the patients may try to conceal such

symptoms to avoid further prejudice against them. On their parts, Hahn and his colleagues gave the reasons for lower detection of mental illnesses in primary care settings to be due to the overlap between symptoms of medical diseases with those of psychiatric illness [6]. They further pointed that there was tendency among general physicians to under-estimate the influence of psychiatric illnesses on somatic diseases. A study by Oche and Adamu in North western Nigeria showed that there was high level of patient-doctor and patient-health personnel ratio in the area with an average consultation time of 7 minutes [7]. Consequently, it may be difficult for HIV caregivers to detect depression in their patients using the detailed DSM diagnostic criteria.

Hence, it has become necessary to validate and adopt a rapid diagnostic scale that can be used by health personnel taking care of HIV/ AIDS patients to screen for depression in these patients [8]. Validating such scale is necessary to make sure it can reliably bridge the gap of diagnosis of depression among HIV patients in non-psychiatric settings.

The Hospital Anxiety and Depression (HAD) scale has been used to detect patients that would benefit from psychiatric evaluation and/or anti-depressants [9]. It is an easy to administer scale which can be used even by non-professional health workers. It is

*Address correspondence to this author at the Department of Psychiatry, Bayero University Kano/Aminu Kano Teaching Hospital, Kano, Nigeria; Tel: +2 34 70 34 63 1928; E-mail: shehusale@yahoo.co

composed of 14 items, 7 of which are for detection of depression and the other 7 for anxiety. The HAD scale has been validated for use in various parts of the world [9].

In some cases, the scale was translated to local languages for easy administration [9]. The validity of this scale has been tested in various somatic diseases, including cardio-pulmonary diseases, cancers, neuromuscular disorders, orthopaedics, among others [6, 10]. Abiodun validated HAD scale in North central Nigeria [11]. He reported the sensitivity for depression sub-scale ranging from 98.5% in the community sample to 92.1% in the gynaecology clinic. Specificity for the depressive sub-scale ranged from 86.6% in the medical ward and surgical ward to 91.1% [11]. We could not find data on sensitivity and specificity of HAD for detection of depression in HIV AIDS patients despite extensive literature search.

To the best of our knowledge, the HAD scale has not been standardised for use in the North-western Nigeria. Therefore, this study was aimed at validating the HAD scale by comparing it with the gold standard diagnostic tool, the Composite International Diagnostic Interview (CIDI), at a tertiary hospital in the North-western region of Nigeria.

MATERIALS AND METHODS

The study was a cross-sectional study that was carried out in AKTH, a tertiary hospital in North-western Nigeria. The study was conducted over a six month period, from April 2004 to October, 2004.

Three instruments, a socio-demographic questionnaire, HAD scale and CIDI were used.

HAD is a screening instrument that is used to determine the present anxiety or depressive state of patients [12]. It can be easily administered within a few minutes [12]. The scale has been validated for screening of anxiety and depression in Nigeria [11]. The scores in HAD scale range from 0 to 21. Based on the score, patients were classified into non-cases, doubtful cases and cases. Respondents who scored 0-7 were identified as non-cases, those who scored 8-10 were classified as doubtful cases, while patients who scored 11-21 in the scale were identified as cases. For the current study, we used the depression component of the HAD scale.

The CIDI is a diagnostic interview schedule that is fully standardized for assessment of mental disorders.

It is based on the diagnostic criteria of the ICD and DSM, and hence used as a gold standard diagnostic instrument for mental illnesses [13]. The CIDI has been validated and used in Nigeria for detection of mental disorders [14, 15]. To facilitate comparison with HAD scale, we used the depression module of CIDI for the current study.

We translated the HAD scale and CIDI into Hausa language using back-iterative translation to facilitate their administration on the subjects, majority of whom could not understand English language. We then estimated the inter-rater reliability using the Agreement Method [16]. An inter-rater reliability of 75% was obtained and judged to be acceptable.

Before the commencement of the study, clearance was obtained from the Ethical Committee of AKTH. In addition, permission was obtained from the Head of Internal Medicine, and the consultant in charge of the HIV/AIDS clinic of the hospital. Informed consent was also obtained from each patient who agreed to participate in the study at the point of first contact.

We selected 250 patients from the patients attending the HIV/AIDS clinics using the systematic sampling method. The socio-demographic questionnaire was administered to the patients to obtain their socio-demographic data. This was followed by the administration of the depression components of HAD scale questionnaire to the patients. The study subjects who scored 8 and above on the HAD scale were further assessed for depression using the depression module of CIDI. In this study, all the participants had HAD score of 8 and above, and had CIDI further administered to them based on the study methodology. The data collected from the study was then analyzed using the Statistical Package for Social Sciences Version 17.0 (SPSS 17.0).

RESULTS

A total of 250 known HIV+ patients were selected for this study. The ages of the participants ranged between 15-54 years, with a mean of 32 years (S.D.= 8). Most of them (82%) were between 20-39 years. Of these, majority were males (52.4%) and married (54.0%) (Table 1). Few respondents, 9 (3.6%) had a past history of psychiatric illness while 39 (5.6%) had a family history of same. More than a quarter of the subjects were in W.H.O. clinical stage 3 of HIV/AIDS infection both at the point of diagnosis 109(43.6%) and at the time of the study 118(47.2%). All of the

participants scored at least 8 on HAD scale, and were all further reviewed for depression using CIDI. The prevalence of depression among these patients was found to be 34.8% using CIDI.

Table 1: Socio-Demographic Characteristics of the Subjects

| Variable n= 250 | Frequency | Percentage |
|--------------------|-----------|------------|
| Age | | |
| 15-19 | 4 | 1.6 |
| 20-24 | 28 | 11.2 |
| 25-29 | 64 | 25.6 |
| 30-34 | 70 | 28.0 |
| 35-39 | 45 | 18.0 |
| 40-45 | 23 | 9.2 |
| 46-49 | 8 | 3.2 |
| 50-54 | 8 | 3.2 |
| Sex | | |
| Male | 131 | 52.4 |
| Female | 119 | 47.6 |
| Marital Status | | |
| Married | 135 | 54.0 |
| Single | 50 | 20.8 |
| Widowed | 47 | 18.8 |
| Separated | 9 | 3.6 |
| Divorced | 7 | 2.8 |

Further analysis of the data obtained from this study revealed that the HAD scale had sensitivity and

specificity of 100% (C.I. 95.9-100) and 98.2% (C.I. 94.7-99.6) respectively. The positive predictive value of the scale was 96.7% (C.I. 90.6-99.3) while the negative predictive value was remarkably 100% (C.I. 97.7-100). The likelihood ratio was 54.3%, while the accuracy of the scale was 98.8% (Tables 2 & 3). There was no statistically significant difference between HAD scale and CIDI scale in detection of patients with depression. Of the 87 patients identified to be depressed using the screening tool, only 6 (6.9%) were diagnosed by the attending physicians, out of whom only 5 were referred for psychiatric evaluation (Table 4).

DISCUSSION

Our study found that the HAD scale had a very high level of sensitivity and specificity in detecting depression among the cohorts studied. This confirmed previous studies in different parts of the world which demonstrated the reliability of HAD scale as a screening tool in patients with mental illnesses [6-11]. This might explain why the scale has been adopted for screening of mental illness in various settings [6, 10]. In addition, the scale has a high validity as demonstrated by the values of Positive Predictive Value and Negative Predictive Value. This implies that the patients identified by this scale to be either having depression or not will be identified as such when a proper psychiatric assessment is carried out. To our knowledge, this was the first study that validated HAD in HIV AIDS patients using sensitivity, specificity and accuracy of the scale. Other studies used different statistical parameters. In his validation study of HAD in HIV infected patients in Ethiopia, Reda reported

Table 2: Proportion of Depressed Patients Identified by HAD Scale and CIDI

| | HAD SCALE | | CIDI | |
|----------|-----------|------------|-----------|------------|
| | Frequency | Percentage | Frequency | Percentage |
| Case | 90 | 36 | 87 | 34.8 |
| Non-Case | 160 | 64 | 163 | 65.2 |
| Total | 250 | 100 | 250 | 100 |

Table 3: Standardization of the Depression Items of HAD Scale with CIDI

| | CASES (CIDI) | NON-CASES (CIDI) | TOTAL |
|-----------------|--------------|------------------|-------|
| CASES (HAD) | 87 | 3 | 90 |
| NON-CASES (HAD) | 0 | 160 | 160 |
| TOTAL | 87 | 163 | 250 |

Sensitivity 100% (C.I. – 95.9-100); Specificity 98.2% (C.I. – 94.7-99.6); Positive Predictive Value 96.7% (C.I. – 90.6-99.3%); Negative Predictive Value 100% (C.I. – 97.7- 100%); Accuracy 98.8%; Likelihood Ratio 54.3%.

Cronbach's alpha and internal consistency of the depression subscale to be 0.76 and 86.1% respectively [17].

Table 4: Number of Depressed Patients Identified by the Attending Physicians

| | Frequency | Percent |
|---------------|-----------|---------|
| Depressed | 6 | 6.9 |
| Non Depressed | 81 | 93.1 |
| Total | 87 | 100 |

We observed that of the 90 patients detected to be having depression using HAD scale, 87 were confirmed by CIDI. This tendency of a screening instrument to detect larger number of patients to be depressed compared to diagnostic evaluation has been recognised in the literature [18]. However, statistical analysis revealed that there was no significant difference between the two scales in detection of depression among the patients. This was similar to other studies that demonstrated that HAD scale and CIDI had similar psychometric abilities in detection of depression [6-11].

The rate of depression in this study was 34.8% using CIDI. This was within the reported prevalence of depression (15-40%) among HIV AIDS from many parts of the world, including Nigeria [19-21]. However, it was slightly higher than the prevalence of 29.3% reported by Chikezie and his colleagues in Benin City, Nigeria using SCAN [22]. The observed higher rate in our study might be due to the fact that the two studies used different instruments to detect depression. In addition, majority of our study participants (66%) had at least WHO stage 3 of HIV AIDS, compared to 33% of their study participants. Stage of HIV AIDS has been shown to be a risk factor for depression in HIV AIDS patients [23].

It was alarming that of the 87 patients identified by HAD scale and confirmed by CIDI to be having depression, only 6 (6.9%) were detected as such by the attending physicians. This might be due to inability of the physicians to recognise psychiatric disorders as a result of the overlap between symptoms of medical diseases with those of psychiatric illness [2, 6]. Physicians in AKTH spend only one month in the psychiatry department during their clinical rotations. This might not allow them enough time to get the basic training in identifying common psychiatric illnesses. The result was similar to the findings from other studies

that demonstrated low detection of mental illness in non-psychiatric settings [2]. The level of under-diagnosis was much higher than 17.6% reported by Song and his colleagues in Korea. This might be explained by the fact that Nigeria has larger number of PLWH than Korea, coupled with high patient-doctor ratio [7], which does not allow much time for HIV AIDS clinicians to detect patients with depression. Therefore, adopting this scale is necessary to detect PLWH that would benefit from psychiatric evaluation in order to reduce the burden of depression among these patients.

In this study, all the participants had HAD score of 8 and above, and had CIDI further administered to them based on the study methodology. That all the participants were either doubtful cases or cases according to HAD scale was not surprising since studies have shown that depressive symptoms tend to manifest long before the clinical diagnosis of AIDS [23].

CONCLUSION

The HAD scale is valid for use in the screening of depression in HIV AIDS patients due to its high level of accuracy and precision. It should be widely used in HIV clinics for early detection of depression among HIV patients with the aim of referring depressed patients for psychiatric care. Notwithstanding its accuracy, it still remains a screening tool.

CONFLICTS OF INTEREST

There was no conflict of interest for this study.

ACKNOWLEDGEMENTS

The authors wish to acknowledge the residents in the department of Psychiatry, Aminu Kano Teaching Hospital (AKTH) for their assistance in data collection. We would also like to acknowledge the willingness of the HIV/AIDS patients and their caregivers for participating in the study and for their cooperation. Our gratitude also goes to the heads of the various units of Department of Internal Medicine of AKTH as well as the HIV clinic staff for their supports.

AUTHORS' CONTRIBUTIONS

SS conceptualized the idea of the study and supervised data collection. FSD and MAG carried out data analysis and interpretation. All of the authors were significantly involved in drafting the research manuscript, as well as proof reading of the final draft of the manuscript.

REFERENCES

- [1] Centers for Disease Control and Prevention. Incorporating HIV prevention into the medical care of persons living with HIV: Recommendations of CDC, the Health Resources and Services Administration, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. *MMWR Morb Mortal Wkly Rep* 2003; 52: 1-24.
- [2] Song JY, Lee JS, Seo YB, *et al.* Depression among HIV-infected patients in Korea: assessment of clinical significance and risk factors. *Infect Chemother* 2013; 45: 211-6. <http://dx.doi.org/10.3947/ic.2013.45.2.211>
- [3] Su X, Lau JT, Mak WW, *et al.* Prevalence and associated factors of depression among people living with HIV in two cities in China. *J Affect Disord* 2013; 149: 108-15. <http://dx.doi.org/10.1016/j.jad.2013.01.011>
- [4] Elliot A. Depression and HIV in the Era of HAART. *STEP Perspective* 2003; 2: 4-10.
- [5] Springer SA, Dushaj A, Azar MM. The impact of DSM-IV mental disorders on adherence to combination antiretroviral therapy among adult persons living with HIV/AIDS: a systematic review. *AIDS Behav* 2012; 16: 2119-43. <http://dx.doi.org/10.1007/s10461-012-0212-3>
- [6] Hahn D, Reuter K, Härter M. Screening for affective and anxiety disorders in medical patients: comparison of HADS, GHQ-12 and Brief-PHQ. *GMS Psychosoc Med* 2006; 3: Doc09.
- [7] Oche M, Adamu H. Determinants of patient waiting time in the general outpatient department of a tertiary health institution in North Western Nigeria. *Ann Med Health Sci Res* 2013; 3: 588-92. <http://dx.doi.org/10.4103/2141-9248.122123>
- [8] Pence BW, Gaynes BN, Atashili J, *et al.* Validity of an interviewer-administered patient health questionnaire-9 to screen for depression in HIV-infected patients in Cameroon. *J Affect Disord* 2012; 143: 208-13. <http://dx.doi.org/10.1016/j.jad.2012.05.056>
- [9] Herrmann C. International experiences with the Hospital Anxiety and Depression Scale—a review of validation data and clinical results. *J Psychosom Res* 1997; 42: 17-41. [http://dx.doi.org/10.1016/S0022-3999\(96\)00216-4](http://dx.doi.org/10.1016/S0022-3999(96)00216-4)
- [10] Pallant JF, Bailey CM. Assessment of the structure of the Hospital Anxiety and Depression Scale in musculoskeletal patients. *Health Qual Life Out* 2005; 3: 82. <http://dx.doi.org/10.1186/1477-7525-3-82>
- [11] Abiodun OA. A validity study of the Hospital Anxiety and Depression Scale in general hospital units and a community sample in Nigeria. *Br J Psychiatry* 1994 165: 669-72. <http://dx.doi.org/10.1192/bjp.165.5.669>
- [12] Zigmond AS, Snaith RP. Hospital anxiety and depression scale. *Acta Psychiatr Scand* 1983; 68: 361-70. <http://dx.doi.org/10.1111/j.1600-0447.1983.tb09716.x>
- [13] Wittchen HU, Robins LN, Cottler LB, Sartorius N, Burke JD, Regier D. Cross-cultural feasibility, reliability and sources of variance of the Composite International Diagnostic Interview (CIDI). The Multicentre WHO/ADAMHA Field Trials. *Br J Psychiatry* 1991; 159: 645-53, 658. <http://dx.doi.org/10.1192/bjp.159.5.645>
- [14] Gureje O, Lasebikan VO, Kola L, Makanjuola V. Lifetime and 12-month prevalence of mental disorders in the Nigerian Survey of Mental Health and Well-Being. *Br J Psychiatry* 2006; 188: 467-71. <http://dx.doi.org/10.1192/bjp.188.5.465>
- [15] Gureje O, Lasebikan VO, Ephraim-Oluwanuga O, Olley BO, Kola L. Community study of knowledge of and attitude to mental illness in Nigeria. *Br J Psychiatry* 2005; 186: 436-41. <http://dx.doi.org/10.1192/bjp.186.5.436>
- [16] Hall JN. Inter-rater reliability of ward rating scale. *Br J Psychiatry* 1974; 125: 248-55. <http://dx.doi.org/10.1192/bjp.125.3.248>
- [17] Reda AA. Reliability and Validity of the Ethiopian Version of the Hospital Anxiety and Depression Scale (HADS) in HIV Infected Patients. *PLoS ONE* 2011; 6: e16049. <http://dx.doi.org/10.1371/journal.pone.0016049>
- [18] Rabkin JG. HIV and Depression: 2008 review and update. *Curr HIV/AIDS Rep* 2008; 5: 163-71. <http://dx.doi.org/10.1007/s11904-008-0025-1>
- [19] Elkin E. Mental Health Online 2000. Retrieved 22nd August, 2010, 1710hrs, from <http://www.thebody.com/content/art40482.html>
- [20] Abiodun OA. Neuro-psychiatric Manifestations of Acquired Immune Deficiency Syndrome (AIDS). *Cent Afr J Med* 1990; 36: 224-30.
- [21] Rodkjaer L, Lauren T, Balle N, Sodemann M. Depression in patients with HIV is underdiagnosed: a cross sectional study in Denmark. *HIV Med* 2010; 11: 46-53. <http://dx.doi.org/10.1111/j.1468-1293.2009.00741.x>
- [22] Chizie UE, Otakpor AN, Kuteyi OB, James BO. Depression among people living with human immunodeficiency syndrome in Benin City, Nigeria: a comparative study. *Niger J Clin Pract* 2013; 16: 238-42. <http://dx.doi.org/10.4103/1119-3077.110148>
- [23] Lyketsos CG, Hutton H, Fishman M, Schwartz J, Treisman GJ. Psychiatric morbidity on entry to an HIV – primary care clinic. *AIDS* 1996; 10: 1033-9. <http://dx.doi.org/10.1097/00002030-199610090-00015>

Received on 03-04-2014

Accepted on 09-05-2014

Published on 11-07-2014

DOI: <http://dx.doi.org/10.12970/2309-0529.2014.02.02.2>© 2014 Sale *et al.*; Licensee Synergy Publishers.

This is an open access article licensed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted, non-commercial use, distribution and reproduction in any medium, provided the work is properly cited.