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Psychometric Properties of the 3-Item Oslo Social Support Scale among Clinical Students of Bayero University Kano, Nigeria

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Abstract

Background: Several researchers have shown that the type of social support available to individuals can predict their mental wellbeing. Many standard measures of social support abound in Euro-American societies but none has been validated for use in Nigeria. The aim of this study is to demonstrate the internal consistency and concurrent validity of Oslo 3-item Social Support (OSS-3) scale in a Nigerian population. Methods: The study was conducted among Clinical students of Bayero University Medical School (N=70). The Oslo 3-item Social Support (OSS-3) scale and the depression sub-scale of the Hospital Anxiety Depression Scale (HADS) were administered to each of the participants. The HADS scores were compared across different subgroups of OSS-3 and psychometric properties of internal reliability, and concurrent and discriminate validities were assessed using SPSS version 16. Results: The participants were between 18 and 34 years of age with mean OSS score of 11.70. Females had (11.95) higher mean scores than males (11.58). The internal consistency of OSS-3 was low with a Cronbach’s alpha coefficient of 0.50. The concurrent validity of OSS-3 with the depression sub-scale of Hospital Anxiety Depression Scale (HADS) was low but significant and inversely related (r = -0.3; p = 0.011). The discriminate validity was good and was shown by the significant difference between mean OSS-3 of HADS-depression sub-scale cases compared to non-cases (t-test = 6.710; p = <0.0001). Conclusion: We concluded that the OSS-3 is a potential measuring scale useful in determining range of social support available in these Nigerians.

Keywords: Psychometric Properties, Oslo Social Support, Clinical Students, Kano, Nigeria
Introduction

Social support is defined as the physical and psychological comfort provided by other people\(^1\), and understood to be an integral part of our psychological make-up of always wanting to affiliate with others\(^2\). It is further recognized as the implicit aspect of affiliation\(^3\) and conceptualized into friendliness, socialization, close interaction, cooperativeness, positive communication and lovingness. Thus, social support serves to nourish our social hunger on to health or illness as several researches had shown\(^4\)-\(^9\). These obviously supports the identification of social support as one of the two pillars of social capital with the other being social leverage\(^10\)-\(^12\).

The impacts of social support is health-wise operationalized into structural\(^13\) and functional\(^14\),\(^15\) domains. The structural dimension of social support is the quantity of the support in terms of network size and frequency of social interactions. The functional dimension is the quality of social support that is further divided into two parts of emotional (as in receiving love and empathy) and instrumental/practical help (like the gifts of money, assistance with child care or with house choirs). Hence, social support can come in many forms as emotional support, social connectedness, feeling needed, reassurance of self-worth, reliable support, advice and information, and physical and material assistance\(^16\).

The two major pathways through which social support influence health and illness are the biologic and behavioural mechanisms\(^17\). The biological mechanism is studied through its effects on pro-inflammatory biomarkers like IL-6\(^18\), and the mapping of brain areas that may orchestrate this by the use of functional MRI\(^19\). The behavioural pathway motivates towards positive health behavior utilization and adherence\(^20\),\(^21\).

The positive effect of social support is attainable through its direct effect as being health promotive irrespective of life situation and secondly, the buffering effects that are registered in the presence of stressors\(^22\). This has lead to targeted modification of poor social support as co-central to the attainment of biopsychosocial management of mental disorders in its aetiologic, curative, preventive and promotive domains\(^4\)-\(^6\),\(^9\)-\(^23\)-\(^25\). The objective attainment of the interventional approaches has been part achieved through development of social support measuring scales. These scales in a review by Health Scotland\(^26\) were grouped into four approaches of providing social functioning. The first sets of scales were categorized as interpersonal trust which is an individual’s ability to engage in social interaction (e.g. Interpersonal Trust Questionnaire by Forbes and Roger\(^27\)). The second and third groups of scales respectively focused on how individual perceived the presence or absence of social support (e.g. Perceived Social Support from Friends and Family by Procidano and Heller\(^28\)) and the particular functions they served (e.g. Oslo 3-item Social Support [OSS-3] by Dalgard\(^29\)). The last sets of scales measures the quantity and satisfaction individuals can benefit from social networks (e.g. O3SS by Dalgard\(^29\); and Social Support Questionnaire by Sarason et al\(^30\)). The Health Scotland do however reported the quantity of social support as poor predictor of mental health compared to other forms of social functioning. The O3SS is not only a less than a minute 3-item measuring scale to fill, but also provides overall assessment of social support as it seems to share all the characteristics of these four approaches to categorizing social functioning.
Many of these standard scales abound in Euro-American societies but none has been validated for use in the Nigerian society according to information available to the authors. It is with this realization that we proposed to validate the 3-item Oslo Social Support Scale (OSS-3) as a tool to assess the availability and range of social support in clinical students of Bayero University Kano, Nigeria.

Methods

Place of Study
The Bayero University Kano (BUK) is a second generation Federal University in Nigeria with two campuses. The old campus offer predominantly core science-based courses of study while the permanent site offers predominantly arts and social science-based courses. The new campus also serves as the seat of administrative activities of the university.

The Instruments
The Oslo 3-items Social Support Scale (OSS-3)
The OSS-3 provides a brief measure of social functioning and it is considered to be one of the best predictors of mental health\(^{31}\). It covers different fields of social support by measuring the number of people the respondent feels close to, the interest and concern shown by others, and the ease of obtaining practical help from others \(^{32}\). Its structure and reliability (Cronbach’s alpha of 0.60\(^{33}\)) have not been well-documented despite widespread use in several European countries. Nonetheless, its brevity and the availability of normative data are strong considerations \(^{26}\). The OSS-3 scores ranged from 3-14 with a score of 3-8 = poor support; 9-11 = moderate support; and 12-14 = strong support.

Hospital Anxiety and Depression Scale (HADS)
The Hospital anxiety and depression scale (HADS) is a portable easy to administer measure that screens for the presence of anxiety or depressive state of both clinical and non-clinical population. It consists of seven depression items and seven anxiety items and has been validated for use in Nigeria\(^{34}\). A score of 8\(^{34}\) and above on either of the two components is regarded as case and is applicable in the current study population. For the purpose of this study, the depression subscale was used.

Study Participants and Procedure
The participants were 91 fourth year clinical students of Faculty of Medicine, Bayero University Kano. The minimum sample size was 69 as determined by Raosoft Inc online sample size calculator\(^{35}\), at 50% response distribution and 90% confidence interval\(^{35}\). All the students were invited to participate after obtaining informed consent from them. All the measuring scales were administered to them after a major professional examination.

Statistical Analyses
The results were coded and analysed using SPSS version 16 statistical package. The psychometric properties of OSS-3 was determined as follows: Cronbach’s alpha was used to determine the internal validity of OSS-3, the Pearson’s correlation coefficient for concurrent validity of OSS-3 and the HADS depression subscale and t-test for the discriminate validity of the mean OSS-3 scores of HADS cases compared to non-cases. All statistical evaluations was determined at 2-tailed, with p value <0.05 considered as significant.
Results

Seventy of the 90 clinical students had completed questionnaire. Of these 70 clinical students, 47 (67.1%) of them were males and majority (64/91.4%) were single. As shown in Table 1, the participants mean age was 22.5 years (SD = 0.6) with age range between 18-34 years.

Table 1. Socio-demographic variables of respondents

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>FREQUENCY (n = 70)</th>
<th>PERCENTAGE (n = 100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group in years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>20-24</td>
<td>79</td>
<td>64.8</td>
</tr>
<tr>
<td>25-29</td>
<td>35</td>
<td>28.7</td>
</tr>
<tr>
<td>30-34</td>
<td>5</td>
<td>4.1</td>
</tr>
<tr>
<td>Age range is from 18 to 34 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>47</td>
<td>67.1</td>
</tr>
<tr>
<td>Female</td>
<td>23</td>
<td>32.9</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>64</td>
<td>91.4</td>
</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>8.6</td>
</tr>
</tbody>
</table>

The mean OSS-3 score was 11.70 and that by gender was 11.58 and 11.95 for males and females respectively. The Cronbach’s alpha coefficient for the OSS-3 was 0.5. The depression subscale of Hospital Anxiety Depression Scale (HADS) screened 22 (31.4%) of the participants as cases and the rest as non-cases (48/68.6%).

The correlation of OSS-3 with HADS depression subscale according to their Oslo Social Support Scale (OSS-3) grouping is shown in Table 2. Table 2 also shows the mean depression score of cases to non-cases as 10.6 to 3.0 respectively. The difference in mean was statistically significant (t-test = 6.710; p = <0.0001). The mean depression score among cases decreases progressively with increasing social support score and is depicted in figure 1.

Table 2. Cross tabulation of OSS-3 grouping with HADS depression subscale

<table>
<thead>
<tr>
<th>OSS-3 GROUPING</th>
<th>CASES (n/%)</th>
<th>mean score</th>
<th>NON-CASES (n/%)</th>
<th>mean score</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td>2 (2.9)</td>
<td>15</td>
<td>1 (1.4)</td>
<td>3.0</td>
</tr>
<tr>
<td>MODERATE</td>
<td>5 (7.1)</td>
<td>11.6</td>
<td>7 (10.0)</td>
<td>3.2</td>
</tr>
<tr>
<td>HIGH</td>
<td>15 (21.4)</td>
<td>9.7</td>
<td>40 (57.1)</td>
<td>3.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>22 (31.4)</td>
<td>10.6*</td>
<td>48 (68.6)</td>
<td>3.1</td>
</tr>
</tbody>
</table>

*T=6.71, p<0.0001

The correlation of OSS-3 with HADS depression subscale was significant and of inverse relation (r = -0.3; p = 0.011). Figure 2 showed the gender distribution of social support and depression by their mean scores. This figure shows that females had higher social support as well as experience more depression than their male counterpart.
Discussion

The present study evaluates the validity of Oslo Social Support scale (OSS-3) as a good measure of the various range of social support available in this Nigerian sample. The reliability coefficient of OSS-3 in this study though falls into the relatively low range but it is acceptable according to George and Mallery36, and this low value is comparable to that found in Europe33. The low Cronbach’s alpha has been described by Dalgard33 as not reflecting necessarily a low reliability but a demonstration of OSS-3 multidimensionality.
Secondly, the concurrent validity of OSS-3 with HADS depression subscale showed a fair degree of inverse association. This may be because high social support has been demonstrated in a previous study to be promotive of positive mental health as they buffer against the harmful effects of negative life events. Thus, the negative and yet weak correlation from this study can be said to concur and be contributory to previous western studies that social support is inversely related to psychological distress, morbidity and mortality.

The present study also showed a higher OSS-3 mean score in women compared to the men’s scores and this is similar for four of the five European countries studied by Dalgard. However, this positive finding does not seem to be more protective for the female against depression as they recorded higher depression mean scores compared to their male counterpart. This suggests either that the social support of the females in this study might not be qualitative enough to buffer them off depressive symptoms considering the relatively weak correlation of OSS-3 with HADS-depression subscale. Or other factors rather than the social support may account for this gender-based disparity in the study when the significant discriminate validity showed that non-case participants to have higher OSS-3 mean scores when compared with cases having lower scores.

In addition, the mean OSS-3 scores of the study’s participants were higher than that of Spain participants who scored highest in the European study. The non individualistic nature of the Nigerian society may account for this, which Kasule identified as the protective value of the extended family that provides care for at least three generations. This perhaps may be reflecting why the Nigerian National Mental Health Survey reported a lower depression rate (3.2%) compared to the cross-national epidemiology of depression (excluding Nigeria) with ranges of 14.6% - 5.5% and 11.1% - 5.9% respectively for both the high-income and low to middle income countries.

This study however has some limitations despite its relative strengths shown above. The process of participants’ selection that were majorly unmarried, their relative small size and their high intelligence are some of the limitations of the study. Others were the identification of cases in this study through use of screening instrument rather than diagnostic measuring scales, the study design of cross-sectional analysis which eliminates causation in the correlation, and the non utilization of other known standardized social support scales in determining the concurrent validity of OSS-3 which from this study is in the moderately low range. Furthermore, the study participants cannot be truly representative of the multi-ethnic nature of Nigerians. Despite these limitations, this study demonstrates that the OSS-3 is a short and valid measuring scale to determine the level of social support of Nigerians. And being a short instrument, it will serve better for research purposes and in assessing practitioners’ impact on social interventions.

**Conclusion**

The results of this study clearly demonstrates that the Oslo Social Support scale (OSS-3) has an acceptable but low multi-diverse internal consistency, relatively low concurrent validity which correlates negatively with depressive symptoms, and discriminates well against psychological distress. All these validate the usefulness of the OSS-3 as a measuring scale to help in determining the range of social support present in these Nigerians.
References


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