

## Validation of the Social Phobia Inventory (SPIN) in Nigeria

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### Abstract

**Objective:** To verify the psychometric properties of the social phobia inventory (SPIN) and hence its suitability for studying Social Anxiety Disorder in Nigeria.

**Methods:** Two hundred and eighty (280) subjects out of 305 initially enlisted into the study via random sampling, completed the study. The SPIN was administered to each participant. One hundred and fifty (150) subjects scored more than 19, i.e. scored positive for social phobia. Diagnosis of social phobia was made using the Schedule for Clinical Assessment in Neuropsychiatry (SCAN). The data was analyzed using the Statistical Package for Social Sciences (SPSS) version 16.0.

**Results:** The sensitivity and specificity of the SPIN were 82.2% and 77.6% respectively. The positive and negative predictive values were 80% each.

**Conclusion:** The SPIN has excellent psychometric properties and is therefore valid for carrying out studies on social phobia in Nigeria.

**Keywords:** Social phobia; Validation; Inventory; Psychiatry; Nigeria

## 1. Introduction

Social phobia is an anxiety disorder which is chronic and distressing and is characterized by intermittent fear arising in particular circumstances of being embarrassed, criticized or humiliated which leads the patient to avoid the feared stimulus [1]. Prevalence estimates ranging from 10-56% have been reported, and clearly underlies the huge disease burden credited to this psychological disorder [2-4]. In spite of the enormity of this challenge, not much has been done in Nigeria to study this disorder or address the challenge. Therefore, instruments for objectively assessing social anxiety disorder in this population are essential for efficient clinical practice and research purposes.

The social phobia inventory (SPIN) developed by Davidson et al is a 17 item self-rating scale for assessing the social Anxiety disorder (social phobia). It consists of three domains (fear, avoidance and physiological arousal) and contains questions aimed at assessing each of these domains. Each item is rated from 0-4 with a total probable score of 0-68) over a one-week period. A SPIN score of 21-30 indicates mild social phobia, 31-40 (moderate), 41-50 (severe) and above 50 (very severe) [5]. The instrument predicts social phobia with 78% accuracy based on a cut-off score of 19. Excellent test-retest reliability ( $\delta = 0.78-0.89$ ) and high internal consistency ( $\delta = 0.87-0.94$ ) have also been reported [5, 6]. Furthermore, good convergent and divergent validities with SPIN have been documented [5, 6].

Nevertheless, the social phobia inventory (SPIN) has not been validated in Nigeria. The purpose of this study therefore is to evaluate the sensitivity and specificity of the social phobia inventory among undergraduate students in a tertiary Hospital in Nigeria.

## 2. Subject and Method

This validity study was conducted at the Madonna University Elele, Rivers State of Nigeria over a three month period from August- October 2016.

### 2.1 Sample size calculation

Using the formula for comparison of proportions, the sample size was calculated.

$$N = 2 \times Z^2 Pq / d^2$$

Where

N = Minimum sample size

Z = Normal standard deviation (this corresponds to the desired confidence level of the study for 95% confidence interval which equals 1.96 [7])

P = proportion or prevalence of 10% (0.10) for social phobia [2-4].

q = 1-prevalence

d = precision = 0.05

$$N = 2 \times (1.96)^2 (0.1) (1-0.1) / (0.05)^2$$

$$N = 276.6$$

Attrition = 10% (28)

$$\text{Final sample size} = 277 + 28 = 305$$

To make up for those who would drop out of the study, the sample size was upgraded to 305. However only 280 subjects completed this study and were hence analyzed. The subjects were randomly selected from the student population. SPIN was administered to each participant. Those that had a score of 20 and above were considered to be suffering from social phobia.

Diagnosis of social phobia was made according to the ICD -10 diagnostic criteria using the Schedule for Clinical Assessment in Neuropsychiatry (SCAN).

## 2.2 Research instruments

- (a) The SPIN is a self rated 17 item questionnaire with each item scored 0-4, giving a probable total of 68 [5].
- (b) The SCAN system (Schedules for Clinical Assignment in Neuropsychiatry) version 2.1 was used to make diagnosis of social phobia. The interviewer administered the instrument himself.

The procedures followed in this research were in accordance with the WMA declaration of Helsinki. Prior to the commencement of data collection, informed consent was obtained from each subject who participated in the study. Data analysis was done using the Statistical Package for Social Sciences, version 16.0 (233 South Wacker Drive, 11<sup>th</sup> floor Chicago, Illinois 60606-6412), at 5% level of significance and 95% confidence interval. The SPIN scores were compared with the student's T-test, the reference test employed for the validity study.

## 3. Results

A total of 280 subjects completed the study. Of this number, 150 subjects scored above 19 on the SPIN out of which 120 were diagnosed with social phobia according to the ICD 10 diagnostic criteria using SCAN. Thirty of them did not meet the diagnostic criteria for social phobia. The sensitivity, specificity, positive and negative predictive values for SPIN at cut off 19 was 82.2%, 77.6%, 80% and 80% respectively. These values were calculated as follows:

$$\text{Sensitivity} = \frac{120}{146} \times 100 = 82.2\%$$

$$\text{Sensitivity} = \frac{104}{134} \times 100 = 77.6\%$$

$$\text{Positive predictive value} = \frac{120}{150} \times 100 = 80\%$$

$$\text{Negative predictive value} = \frac{104}{130} \times 100 = 80\%$$

- Sensitivity: (true positives/total number diseased) x 100%.
- Specificity: (true negatives/total number not diseased) x 100%.
- Positive predictive value: (true positive/total number who tested positive) x 100%.

- Negative predictive value: (true negative/total number that tested negative) x 100%.

	<b>With social phobia</b>	<b>Without social phobia</b>	<b>Total</b>
<b>Spin score &gt;19</b>	120	30	150
<b>Spin score &lt;19</b>	26	104	130
<b>Total</b>	146	134	280

SPIN= Social Phobia Inventory. Cut off point is 19

**Table 1:** Distribution of cases of social phobia against SPIN scores.

#### 4. Discussion

Various researchers have reported similar sensitivity values between 80-88% and specificity values between 84-90% [5, 8-11]. In this study, the sensitivity value of 82.2% was got which is similar to the results got by other researchers. The specificity values got in this study is 77.6%; though not as high as the figures got by others, it is still high enough, underscoring the SPIN as an excellent instrument for excluding persons who don't have social anxiety disorder.

The high sensitivity values of SPIN indicates that the instrument is an efficient instrument for detecting social phobia in patients; while the high specificity value indicates that it is an excellent instrument for excluding individuals without the disorder. There have been varying reports on the positive predictive value of SPIN. Most researchers reported between 52.5% 79% [5, 8]. Ranta et al. [9] reported a much lower positive predictive value of 26%. In this study, the positive predictive value got was 80%. It is possible that methodological difference as well as difference in sample size may account for the varying results.

The positive predictive value of 80% derived in this study shows that if a patient is adjudged via SPIN screening to have social phobia, the probability that the patient is actually suffering from the disorder is quite high. Similarly the negative predictive value of SPIN in the study was 80% while previous studies have reported values in the range of 90-99%. This shows that if the SPIN test result is negative, the probability that the patient doesn't have the disorder is quite high. The specificity and sensitivity values as well as the excellent positive and negative predictive values of the SPIN reported in this study underline the excellent psychometric properties of this instrument. Therefore it is a valid instrument for studying social phobia in Nigeria.

Varying prevalence rates (9.4% - 35%) of social anxiety disorder have been reported by most researchers [2-4]. Al Nagar in his Malaysian study reported a prevalence rate of 55.85% [12]. Despite the prevalence of social anxiety disorder across culture some issues remain pertinent with respect to its identification in Nigeria. To a good extent, being shy is accepted as a virtue rather than disadvantage in terms of social competence and adjustment especially among the female folk. This is similar to the experience in Japan where Taijin-kyofusho, a cultural variant of SAD has been of clinical interest [10].

Hence SAD patients might not consider their symptoms as pathological, especially when the symptoms are not severe to significantly jeopardize their social and occupational functioning. Furthermore, when symptoms become severe, attribution of their symptoms to spiritual and malignant forces hinders many patients from seeking for medical solution to their social inadequacies and obvious psychological morbidity. The cross sectional nature of the study, limits the generalization of the results got to the entire population, more-so, the study was carried out among students only.

## 5. Conclusion

Although social phobia is a potentially treatable condition, its management has remained difficult because of the poor recognition of this illness and the application of inadequate therapeutic measures by health care providers. Early and correct diagnosis as well as the institution of appropriate treatment is imperative for better prognosis and reduction of morbidity. This will become possible where clinicians improve their skills in identifying cases and the public enlightened enough to seek medical help when symptoms of the disorder begin to show up.

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## 7. Authors Contributions

DC Chukwujekwu conceived the paper, oversaw data collection, conducted data analysis, wrote the manuscript and approved final version. OE Olose participated in the data collection and interpretation, critically revised manuscript and approved final version. The authors declare that they have no conflicts of interest.

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