



# Spirituality and Suicidality Among Patients with Schizophrenia: A Cross-sectional Study from Nigeria

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Accepted: 20 March 2021

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## Abstract

Studies which have explored the effect of spirituality on suicidality among patients with schizophrenia have been characterized by inconsistent results. The aim of this study was to examine the relationship between spirituality and suicidality among stable patients with schizophrenia in Nigeria. The Daily Spiritual Experience Scale was applied to measure spirituality. There was found a significant relationship between spirituality and having had suicidal thoughts in a lifetime. Spirituality was negatively correlated with the severity of negative symptoms, total positive and negative syndrome scale score (PANSS), the severity of depression, and positively correlated with functioning.

**Keywords** Spirituality · Schizophrenia · Suicidality · Nigeria

## Introduction

Patients commonly use spirituality and religion to cope with illnesses and other stressful life changes (Koenig, 2012). For many patients with psychiatric disorders, spirituality and religion are resources used to cope with the stressors of life (Verghese, 2008).

Despite the key roles, spirituality and religion play in the lives of many patients, this model of treatment is yet to be integrated into routine clinical care (Singh & Ajinkya, 2012). Spirituality has been shown to have positive effects on health in several diseases and psychiatric conditions. Over 60% of patients with psychiatric

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conditions indicate that they want spirituality to play a part in their treatment (Miles, 2002).

In patients with schizophrenia, there is evidence for the role of spirituality and religion on psychopathology, treatment adherence, religious coping, help-seeking, quality of life, treatment adherence and help-seeking behavior (Triveni et al., 2017).

Schizophrenia is characterized by excess premature mortality (Saha et al., 2007). Up to 40% of this excess mortality is attributed to suicide and unnatural deaths (Bushe et al., 2010). A systematic review put the lifetime risk of suicide among patients with schizophrenia at 4.9% (Palmer et al., 2005).

While many studies show that religious commitment is inversely related to suicide, other studies have shown varied results (Larson & Wilson, 1980). For example, while some studies indicated that religion/spirituality is protective against suicide (Koenig, 2009; Perlman et al., 2011), a systematic review by Lawrence et al. (2016) showed that religious affiliation does not necessarily protect against suicidal ideation but does protect against suicide attempts (Lawrence et al., 2016). The inconsistencies are complicated by the fact that there are many dimensions to religion (ritual, ethical, experiential, doctrinal, etc.) and many dimensions to suicidality (ideation, plan, attempt, etc.) (Lawrence et al., 2016).

The contribution of spirituality to reducing suicidality has not been adequately explored in Nigeria. The aim of this study was to investigate the relationship between spirituality and suicidality among stable patients with schizophrenia in Nigeria.

## Methods

### Study Design and Setting

The study was cross-sectional in design. It is part of a larger study, titled “the Multifaceted Dimensions of the Burden of Bipolar Disorders in Ibadan, South-West Nigeria (The Mulberry Study)” (Esan et al., 2020). Here, we provide a brief account of the Mulberry Study, as well as the methodology of the current study.

Patients were recruited from two clinics. The clinics were the outpatient clinic of the Department of Psychiatry, University College Hospital, Ibadan Nigeria, and the outpatient clinic of the State Hospital, Adeoyo, Ibadan, Nigeria. Recruitment was carried out between 23 February and 10 October 2018. The University College Hospital (UCH) is a teaching Hospital located in Ibadan, Nigeria. It houses the World Health Organization Collaborating Centre for Research and Training in Mental Health. The State Hospital, Adeoyo, Ibadan is a 300-bedded, secondary care center with a department of psychiatry. A consultant psychiatrist mans it. These two hospitals were the only government hospitals with dedicated psychiatric services within Ibadan city. Apart from serving Ibadan, the two hospitals also receive referrals from the other parts of Southwest Nigeria.

## Sample/Eligibility Criteria

Stable patients with schizophrenia attending the follow-up outpatient clinic who met the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) diagnostic criteria for schizophrenia were invited for possible recruitment into the study. The diagnosis was validated with the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I). For recruitment, participants were required to be between the ages of 18 and 60 years, to be able to read and write and must have had at least 6 years of formal education, i.e., Primary school education in Nigeria.

Five trained research assistants, all of whom had at least a university education, conducted the assessments. Research assistants received a 4-week training including inter-rater testing at the end of the training. The principal investigator O.E. conducted the training.

One supervisor, who also underwent the same 4-week training but had participated in similar studies in the past, monitored the data collection and checked for completeness, dating, missing values and accuracy of the data collected.

We analyzed inter-rater reliability. Only raters reaching optimal correlation coefficient were allowed to rate the study participants.

## Assessment

The following instruments were administered to the participants:

1. Sociodemographic questionnaire.
2. The Daily Spiritual Experiences Scale (DSES).
3. The World Health Organization (WHO) Composite International Diagnostic Interview (CIDI) Version 3.0.
4. The 17-item Hamilton Depression Rating Scale (HDRS).
5. The Positive and Negative Syndrome Scale (PANSS).
6. Social and Occupational Functioning Assessment Scale (SOFAS-DSM-IV).

## Sociodemographic and Clinical Assessments

Important clinical and sociodemographic information was obtained from the patients, their relatives, and from patients' case notes. Sociodemographic and clinical information obtained included the age, the age at onset of the first episode, the date of last hospitalization, the gender, the average length of each episode, the occupational status, the marital status, the religion, the numbers of years of education, family history of mental illness and the medical comorbidities.

## Spirituality

Spirituality was assessed with an adapted version of the Daily Spiritual Experiences Scale (DSES) (Underwood, 2011). The DSES is a 16-item self-report measure of

spiritual experience. It consists of items that measure the daily experiences of a person's connection with the divine. The DSES is intended to measure a person's perception of God and the influence of the divine in daily living. Precisely, it measures normal or everyday spiritual experiences. It does not measure mystical or magical experiences such as hearing voices.

The first 15 items of the DSES are measured on a 6-point Likert-type scale from 1 to 6 (Underwood & Teresi, 2002). Item 16 is measured on a 4-point scale from 1 to 4. The DSES does not ask questions about religious affiliation so as not to exclude participants who may be spiritual but have no religious affiliation. Examples of items scored on the scale include "I feel God's presence," "I find comfort in my religion or spirituality," "I desire to be closer to God or be in union with Him." Higher total scores indicated higher spirituality.

Healthy controls recruited in the Mulberry study served as the control for the DSES. Participants were grouped into two (high spirituality and low spirituality) based on a cutoff score of 72 derived from the 100 healthy controls recruited as part of the Mulberry study. The mean DSES score among the controls was 72. Consequently, scores above 72 were classified as high spirituality and participants who scored below 72 were classified as low spirituality.

### **Suicidality**

The assessment of suicidality was conducted with the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI) Version 3.0 (Kessler & Ustun, 2004). The participants were asked questions about lifetime history of suicide ideation ('Have you ever seriously thought about committing suicide?'), suicide plans ('Have you ever made a plan for committing suicide?') and suicide attempts ('Have you ever attempted suicide?')(Gureje et al., 2007). In assessing suicidality, based on the findings by Giddens and Sheehan (2014) that thoughts of being better off dead were a common antecedent to impulsive suicidality we asked the participants the single question "Do you think you would be better off dead?" (Giddens & Sheehan, 2014).

### **Depression**

We assessed depression with the 17-item Hamilton Depression Rating Scale (HDRS) (Hamilton, 1960). This is a clinician-administered depression assessment scale. The HDRS has 21 items. The scoring is based on the first 17. Eight items are scored on a 5-point Likert scale, ranging from 0="not present" to 4="severe." Nine are scored from 0–2. A total score of 0–7 is generally accepted to be within the normal limits. The sensitivity is 92.2% and the specificity 86.4% (Strik et al., 2001).

### **Psychopathology**

Psychopathology in schizophrenia was assessed with the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987). The Positive and Negative Syndrome Scale (PANSS) is a 30-item instrument used to measure the type and severity of

psychopathology in schizophrenia. Each item is scored on a scale of 1 (least severe) to 7 (most severe). Total scores range from 30 to 210. It has three subscales, the positive, negative and general subscales.

## Functioning

We assessed social and occupational functioning with the Social and Occupational Functioning Assessment Scale (SOFAS-DSM-IV) (APA, 1994). The SOFAS is a global rating of current functioning with scores ranging from 0 to 100. Lower scores represent lower functioning. It measures an individual's level of social and occupational functioning independent of the overall severity of the individual's psychological symptoms. Any impairment in social and occupational functioning that is due to general medical conditions is taken into consideration in measuring SOFAS.

## Remission in Schizophrenia

We evaluated clinical remission according to the Remission in Schizophrenia Working Group (RSWG) criterion (Andreasen et al., 2005). The criteria specifies that eight items in the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987), i.e., P1, P2, P3, N1, N4, N6, G5, G9; must have a score of  $\leq 3$  points (indicating mild severity of symptoms). Due to the cross-sectional nature of our study, clinical remission was assessed taking into account only the severity criterion. (The 6-month duration criterion was not taken into consideration).

## Data Analysis

Data analysis was carried out with the Statistical Package for the Social Science (SPSS), version 22.0 for Windows. Data analysis was conducted in three phases. Categorical variables were summarized using frequencies and proportions. Continuous variables were described using means and standard deviation if they were normal in type or using medians if normality was not achieved. The chi-square test was used to assess the associations of spirituality and categorical variables. Pearson's correlation analysis was used to assess relationships between the number of episodes before the study, age of the patient, age at onset of the first episode, the numbers of years of education, the HDRS total score, the PANSS subscale scores, the SOFAS score and spirituality scores. In Pearson's correlation analysis, to account for multiple comparisons (Bonferroni correction was done), significance was set at  $p$  value  $< 0.005$ .

Having had suicidal thoughts at least once in a lifetime was the only variable that was significantly associated with spirituality. We subsequently explored the independent predictors of lifetime suicidal thoughts. To identify these predictive variables, binary logistic regression models were created using the enter method.

All significant variables ( $p < 0.001$ ) in Pearson's correlation analysis (Table 3), as well as categorical variables that were significantly associated ( $p < 0.05$ ) with suicidality, were included in the binary logistic regression analysis. These included the

severity of depression, the severity of psychotic symptoms (PANSS) negative subscale and general subscale) and the remission status. (Details of the included variables are presented in Tables 2 and 3).

### **Ethical Considerations**

All participants provided written informed consent. The protocol and procedures were reviewed and approved by the Oyo State Research Ethical Review Committee (AD13/479/746).

### **Results**

#### **Sociodemographic and Clinical Variables**

There were 215 participants in this study. The ages ranged from 20 to 60 years (Mean=38.8, SD=9.4). A total of 109 (50.7%) were males. There was no significant difference in age between male and female participants: male 38.1(S.D=9.2) vs. female 39.6 (S.D.=9.5). The majority of the participants were Christians, employed and had at least a secondary school education (Table 1). A third of the participants had experienced suicidal thoughts, while 5.6% had made at least one suicidal attempt in their lifetime.

#### **Correlates of Spirituality**

There was a significant relationship between spirituality and lifetime suicidal thoughts ( $\chi^2(1)=4.7, p=0.03$ ). Participants who had low spirituality (33.3%) were more likely to have had suicidal thoughts in their lifetime than those with high spirituality (16.3%). The relationship between spirituality and remission was significant. Participants with high spirituality (85.7%) were more likely to be in remission than those with low spirituality (53.3%) (Table 2). Pearson correlation analysis indicated that spirituality was negatively correlated with the severity of negative symptoms; PANSS general symptoms score, total PANSS score, the severity of depression (HDRS total score) and positively correlated with functioning (SOFAS score) (Table 3).

#### **Predictors of Suicidal Thoughts**

Logistic regression analysis identified the severity of depression as an independent predictor of lifetime suicidal thoughts (Table 4).

**Table 1** Sociodemographic and clinical variables

Characteristics	
Age of patient	Mean (S.D.) = 38.8 (9.4)
	N (%)
<i>Gender</i>	
Male	109 (50.7)
Female	106 (49.3)
<i>Marital status</i>	
Single/Never married	102 (47.4)
Married/Cohabiting	72 (33.5)
Divorced/Widowed/Separated	41 (19.1)
<i>Religion</i>	
Christianity	145 (67.4)
Islam	68 (31.6)
Others	2 (0.9)
<i>Highest level of education</i>	
Primary school education	20 (9.3)
Secondary school education	86 (40)
Post secondary/ University education	109 (50.7)
Numbers of years of education	Mean (S.D.) = 13.03 (3.3)
<i>Employment status</i>	
Employed	134 (62.3)
Unemployed	81 (37.7)
<i>Medical comorbidity</i>	
Absent	203 (94.4)
Present	12 (5.6)
<i>Spirituality category</i>	
Low spirituality	165 (79.3)
High spirituality	43 (20.7)
<i>Suicidality</i>	
Lifetime suicide thoughts	
Absent	150 (69.8)
Present	65 (30.2)
Lifetime suicide plan	
Absent	191 (88.8)
Present	24 (11.2)
Lifetime suicide attempt	
Absent	203 (94.4)
Present	12 (5.6)
Are you better off dead?	
No	204 (94.9)
Yes	11 (5.1)
Remission status	
Remission (Absent)	84 (39.3)
Remission (Present)	130 (60.7)

**Table 1** (continued)

Characteristics	
Age of patient	Mean (S.D.) = 38.8 (9.4) N (%)
<i>Clinical variables (others)</i>	
Number of episodes before study	Mean (S.D.) 2.6 (2.0)
Age at onset of first episode	29.1 (8.2)
PANSS* (Positive subscale)	10.28 (4.3)
PANSS (Negative subscale)	12.61 (5.0)
PANSS (General subscale)	22.53 (5.4)
PANSS (Total score)	45.43 (11.7)
HDRS@	5.9 (2.0)
DSES** total	60.56 (12.4)
SOFAS***	51.2 (13.5)
N.B. Some of the figures do not add up to 215 because of missing variables	
SOFAS*** Social and Occupational Functioning Assessment Scale	
HDRS@ Hamilton Rating Scale for Depression	
PANSS* Positive and Negative Syndrome Scale	
DSES** The Daily Spiritual Experiences Scale	

## Discussion

Participants with a high level of spirituality were less likely to have had suicidal thoughts, had less severe psychopathology, were more likely to be in remission and had better functioning than participants with a lower level of spirituality.

The positive and beneficial association of spirituality with lifetime suicide thoughts suggests that higher levels of spirituality may protect against the risk of suicide (Grover et al., 2014). Spirituality is said to be associated with positive emotions, better satisfaction with life, happiness, and prosperity and optimism. These attributes counteract the harmful emotions that trigger sadness and suicide (Koenig et al., 2012). Furthermore, spirituality may influence the course of suicidality in patients with schizophrenia by providing support, addressing their spiritual concerns, and increasing their ability to connect with others (Koenig, 2007). Additionally, spirituality protects individuals against suicidality by increasing the ability to handle or cope with inevitable life events, strengthening one's sense of purpose or meaning in life (Florenzano et al., 2014; Koenig et al., 2004).

We found no association between spirituality and suicidal attempts even though religious affiliation has been reported to protect against suicide attempts but does not protect against suicidal ideation (Lawrence et al., 2016). From Andrew Simons' (2007) and Rao's (2005) depiction of spirituality as being emotionally orientated, individualized and personalized, such attributes could counter suicidal thoughts. Thoughts are by nature invisible, personalized and subjective. This is contrary to suicidal attempts, which by nature are visible or may become visible to all depending

**Table 2** Correlates of spirituality

	Low spirituality	High spirituality	Chi	dF	P value
<i>Gender</i>					
Male N(%)	86(52.1)	18(41.9)	1.43	1	0.23
Female (N)%	79(47.9)	25(58.1)			
<i>Work status</i>					
Employed N(%)	97(58.8)	30(69.8)	1.73	1	0.19
Unemployed N(%)	68 (41.2)	13(30.2)			
<i>Marital status N(%)</i>					
Single/Never married N(%)	81(49.1)	20(46.5)	.13	2	0.94
Married/Cohabiting N(%)	53(32.1)	15(34.9)			
Divorced/Widowed/Separated N(%)	31(18.8)	8(18.6)			
<i>Suicidal thoughts</i>					
Absent N(%)	110 (66.7)	36(83.7)	4.74	1	0.03*
Present N(%)	55(33.3)	7(16.3)			
<i>Suicidal plan</i>					
Absent N (%)	144(87.3)	21(12.7)	2.26	1	0.13
Present N(%)	41(95.3)	2(4.7)			
<i>Suicidal attempt</i>					
Absent N (%)	153(92.7)	43(100)		1	0.13(Fishers test)
Present N(%)	12(7.3)	0(0)			
<i>Do you think you are better of dead?</i>					
No N(%)	155(93.9)	42(97.7)			
Yes N(%)	10(6.1)	1(2.3)	0.95	1	0.33
<i>Medical comorbidity</i>					
Absent N(%)	156(94.5)	41(95.3)	0.44	1	0.83
Present N(%)	9(5.5)	2(4.7)			
Remission (Absent) N(%)	77 (46.7)	6(14.3)	14.61	1	<0.001*
Remission (Present) N(%)	88(53.3)	36(85.7)			

on the success or failure of the attempt. Suicide is usually at variance with many religious organizations/communities and hence attracts substantial stigma (Alem et al., 1999). An individual who attempts suicide could be perceived by the other members of the religious institution/community as having broken the systems (creeds/doctrines/laws) and practices of the religious community concerning God or a divine being. Consequently, membership of such a religious group, keep suicidal attempt in check.

Participants with a high level of spirituality had a lower level of psychopathology and were more likely to be in remission than those with a low level of spirituality. This is in agreement with existing studies indicating that a higher level of spirituality is associated with lower psychopathology, better remission and recovery (Grover et al., 2014; Mohr et al., 2011; Triveni et al., 2017; Webb et al., 2011). Spirituality

**Table 3** Correlation between spirituality (DSES as a continuous score) and clinical and demographic variables

Number of episodes before study	<i>r</i>	0.01
	<i>P</i> value	0.93
Age of patient	<i>r</i>	0.08
	<i>P</i> value	0.28
Age at onset of first episode	<i>r</i>	0.07
	<i>P</i> value	0.30
Numbers of years of education	<i>r</i>	0.10
	<i>P</i> value	0.16
HDRS <sup>®</sup> Total Score	<i>r</i>	-0.33**
	<i>P</i> value	<0.001
PANSS* positive subscale	<i>r</i>	-0.13
	<i>P</i> value	0.07
PANSS negative subscale	<i>r</i>	-0.24**
	<i>P</i> value	<0.001
PANSS general subscale	<i>r</i>	-0.25**
	<i>P</i> value	<0.001
PANSS total score	<i>r</i>	-0.26**
	<i>P</i> value	<0.001
SOFAS score	<i>r</i>	0.28**
	<i>P</i> value	<0.001

\*\*Significant after Bonferroni correction for multiple comparison (*p* value < 0.005)

SOFAS\*\*\* Social and occupational functioning assessment scale

HDRS<sup>®</sup> Hamilton rating scale for depression

PANSS\* Positive and negative syndrome scale

*r* = correlation coefficient

**Table 4** Independent predictors of lifetime suicidal thoughts

Characteristics	Odds ratio	95% C.I. for Odds ratio)		<i>P</i> value
Severity of depression (HDRS total score)	1.13	1.03	1.23	0.007*
PANSS (Negative subscale)	1.03	0.95	1.11	0.53
PANSS (General Subscale)	0.94	0.86	1.02	0.14
<i>Remission status</i>				
Remission (Present)	0.91	0.42	1.97	0.81
Remission (Absent)	1.00			
<i>Level of spirituality</i>				
Low spirituality	1.00	0.88	5.42	0.09
High spirituality	0.46			

has been suggested as an effective way of coping with schizophrenia (Grover et al., 2014). It has been suggested that spirituality affects the way people understand health (Chirico, 2016). By easing stressful feelings and promoting healthy ones, spirituality has been said to positively impact the immune, cardiovascular, endocrine and nervous systems. These attributes are probably responsible for the multisystemic beneficial effects of spirituality on health, remission and recovery (Chirico, 2016; Hill & Pargament, 2003).

We found that higher levels of spirituality were associated with better functioning. This is in keeping with existing studies (Huguelet et al., 1997; Wink & Dillon, 2003). Wink and Dillon (2003) demonstrated an association between spirituality and wisdom, they also found that highly spiritual individuals display a complex way of thinking, have an interest in personal growth and knowledge-building activities (Wink, 1991; Wink & Dillon, 2003). These attributes are required for good psychosocial functioning and may explain the association between spirituality and functioning. It has also been posited that spirituality plays an important role in psychological recovery from severe mental disorders such as schizophrenia (Fallot, 2007).

## Limitations

In interpreting the results of this study, it is important to consider several limitations of the study. First, the study was conducted with stable patients who on average had psychopathology scores and suicidality within the normal range. Consequently, the results may not be generalizable to patients in the acute phase of schizophrenia. Second, the same research assistants rated spirituality, psychopathology scores and suicidality, so were not blind in their variable ratings. Third, in Nigeria, issues relating to suicidality are associated with substantial stigma, consequently, there might have been under-reporting of the suicidal thoughts, plans and attempts. Despite these limitations, our study provides the first exploration of the effects of spirituality on suicidality in Nigeria.

## Conclusion

In conclusion, the findings of this study suggest that higher levels of spirituality are associated with lower severity of psychopathology, increased likelihood of being in remission and better functioning. Spirituality may thus be an inexpensive and effective adjunct to biomedical intervention in the management of patients with schizophrenia and should therefore be better explored in the treatment of schizophrenia.

In future studies, it would be necessary to identify the direction of the association between spirituality and functioning. We should also be able to conduct studies that can separate the effects of religion from those of spirituality.

**Funding** This work was supported by a grant from the Tertiary Education Trust Fund (TETFUND). The funder did not play any role in the design, collection, screening, interpretation, writing and submission for publication of this study. The funder holds no responsibility for the contents of this study.

#### Declaration

**Conflicts of Interest** The Tertiary Education Trust Fund (TETFUND) funded the MULBERRY Study.

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