Prevalence and Factors Associated with Depression among Primary Caregivers of Patients with Schizophrenia Attending Nigerian Tertiary Hospital

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Abstract

Aims: To determine the prevalence and factors associated with depression among primary caregivers of individuals with schizophrenia attending the outpatient clinic Neuropsychiatric Hospital Aro, Abeokuta in Nigeria.

Study design: Cross-sectional descriptive study

Methods: One hundred and thirty-eight caregivers were recruited. Socio-demographic questionnaire, MINI-PLUS depressive module were administered on the caregivers. MINI-PLUS Psychotic module was used to confirm diagnosis in patients while BPRS was used to measure symptoms severity in the patients. The associations between caregivers' socio-demographic variables, symptoms severity in patients and depression among caregivers were tested using Chi-square; Multivariable regression analyses done to identify independent predictors of depression.

Results: The mean (SD) age of respondents was 48.3 (±14.7), 53.6% were females, 33.3% were without partners and 20.3% were unemployed. The prevalence of depression among the caregivers was 13.8%. Independent predictors of depression were female gender (p = 0.03), minority tribe (p <0.001), and previous mental illness (p =0.01).

Conclusion: Prevalence of depression is high among caregivers, there is need to pay attention to the psychological wellbeing caregivers who come in contact with psychiatric services, and not just the patients they accompany.

Keywords: Schizophrenia; Depression; Caregivers

Introduction

Schizophrenia is a chronic psychiatric disorder, characterized by fundamental disturbances in thinking, perception and emotions [1]. Its effects can be classified at three levels; first, the patient who undergoes personal suffering, secondly, the caregiver and families for the burden of care, along with the added responsibility of transitioning the relative from inpatient to the outpatient treatment, and thirdly the society as a whole for suffering from frequent hospitalizations and long-term financial and psychosocial support [1]. Care giving role is stressful and constantly ongoing for long period with associated devastating physical, mental and emotional toll which may lead to injury or illness of the caregiver [2]. The role of Care giving for patients with schizophrenia is an enormous task and most caregivers seem

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to be unprepared for the longitudinal course and duration of an illness like schizophrenia [3].

Care giving in schizophrenia involves assuming unpaid and unanticipated responsibility for the patient who, in turn, is unable to reciprocate the same and may have difficulties in the maintenance of most adult relationships [4]. This makes care giving burdensome and it may not be a satisfying experience for many caregivers.

The shift towards community care for patients with mental illness (i.e. schizophrenia) has resulted in transferring responsibilities of day to day care of patients to their family members and has been reported to contribute to the risk factors of developing severe mental illness like depression besides leading to profound psychosocial, physical and financial burdens on patients' families which may also manifest as depression [5]. The World Health Organization (WHO) ranked depression as the 4th leading cause of disability worldwide and projected that by 2020, it will be the second leading cause of disability [6]. Depression is a major mental disorder that negatively affects how individuals view themselves, their environment and others. The resultant negative cognition, affective response and behavioral attitude can be seen to affect their quality of life as described in the WHO definition of Quality of Life [7].

From the above, it is pertinent that mental health services should aim to assist key caregivers of people with schizophrenia to manage their stress and related mental disorders. In addition, early interventions by conducting routine assessments of the depression status of caregivers and prompt provision of available social support may prevent or minimize depression in these caregivers and ultimately improve their Quality of life.

Researches in developing countries on mental health problems among caregivers of patients with severe mental illness have been minimal and have primarily focused on burden of care. Thus, little is known about mental health problems of primary caregivers of patients with severe mental illness related to their care giving role in developing countries like Nigeria [8].

Although there is ample research evidence supporting the view that caring for the mentally ill can compromise the psychological health of family caregivers in Nigeria [9-11], few attempts have been made to find and elucidate the prevalence, severity and factors contributing to depression among the caregivers of patients with severe mental disorders in Nigeria. This study is a step towards addressing the vacuum in the information available, thus bridging the gaps in literature of depression in primary caregivers of patients with schizophrenia.

Methods

Study Setting

The study was carried out at the outpatient clinic of the Neuropsychiatric Hospital, Aro, located in Abeokuta, Ogun State. This is a Federal Government owned psychiatric hospital established in 1954. It is a specialist hospital that renders services to patients from all over Nigeria and from the neighboring West African countries. The hospital has a total capacity of 546 beds for inpatient care. All new patients are seen at the Assessment/Emergency unit of the hospital from where they are transferred to either the out-patient clinic or the wards. Those discharged from the wards are also subsequently followed-up at the out-patient clinic.

On average, about 130 patients are seen daily at the outpatient clinic out of which about 40% are receiving treatment for schizophrenia [12].

Study Design

This study was a cross-sectional descriptive study of caregivers of patients diagnosed with schizophrenia attending outpatient clinic at the Neuropsychiatric Hospital, Aro, Abeokuta from May to September 2018.

Inclusion Criteria

Caregivers aged 18 years old and above who are taking care of patient who is 18 years old or above with the diagnosis of Schizophrenia with no co morbid diagnosis. Caregivers who are immediate family relative (Parent, spouse, sibling), non-immediate family relative (Other relative) or non-relative living with a patient, in the same environment, for at least 12 months and is involved directly in giving care to the patient.

Study Instruments

Socio-Demographic Questionnaire: This was designed by the researcher to obtain information on socio-demographic variables of the caregivers which include gender, age, religion, marital status, educational qualifications, occupation, relationship to patient, average hours spent with patient etc. **Mini International Neuropsychiatric Interview (M.I.N.I PLUS):** In this study, the psychosis module of M.I.N.I PLUS was used to revalidate the diagnosis of schizophrenia in patients which included patients that are in remission or currently symptomatic, while depression module of the M.I.N.I PLUS was used to make a diagnosis of major depressive disorder among the caregivers. It has been used in previous study in Nigeria [13].
Brief Psychiatric Rating Scale (BPRS): This instrument

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was used to assess symptom severity in the patients and the correlation between patients' symptom severity and Depression in their caregivers.

Procedure: On each out-patient clinic day, the researcher perused the case notes for cases of those who have been diagnosed with schizophrenia, accompanied by their primary caregivers and meets the inclusion criteria. These give the sampling frame for that day and the researcher recruit the participants using simple random sampling. The purpose of the study was explained to them in details and with express information that no disadvantage will accrue to them from not participating. Afterwards, a signed consent was obtained.

The patients who gave consent were assessed with the psychosis module of M.I.N.I PLUS to confirm the diagnosis of schizophrenia and BPRS administered to assess symptom severity.

Next, the socio-demographic questionnaire and MINI PLUS depression module were administered to them. To maintain confidentiality, serial numbers were assigned to the questionnaires and no name was written on the questionnaires. To avoid sampling a patient and caregiver twice, the case notes were marked with pencil. This process was repeated on each clinic day till the estimated sample size was reached.

Data Analysis

Data was analyzed using the Statistical Package for Social Science (SPSS) version 21. The questionnaires were serially numbered and subsequently entered into the statistical software package. The socio-demographic characteristics were regrouped so as to make them categorical variables and to eliminate empty cells during analysis. Caregiver's age was regrouped into young adults (age less than 40 years), middle adulthood (40-65 years) and late adulthood (above 65 years) based on age classification by Erik Erickson [14].

Yoruba tribes being the major tribe in this region of the country were grouped separately while other tribes i.e. Hausa, Fulani, Ibo, Ishan, Urhobo etc. were grouped together as minor tribe. Income was grouped according to the current minimum wage in Nigeria (i.e. below 18000 Naira per month

and above 18000 naira monthly).

A BPRS cut-off score of >10 was used in line with previous findings in this environment [15,16] where the modified 18-item standard version of the Brief Psychiatric Rating Scale (BPRS) was used with each of the items rated 0-6, validating this cut-off score for the presence of prominent psychotic symptoms. This cut-off was used to group symptom severity into non prominent symptoms (≤10) and prominent symptoms (>10).

Data was presented using frequency distribution tables to display the variables with appropriate descriptive statistics. The associations between caregivers' socio-demographic variables, symptoms severity in patients and depression among caregivers were tested using Chi-square. Significant variables in the univariate analysis were entered into a multiple regression analysis model to identify independent predictors of depression. The level of significance was set at $P<.05$ and all tests were done at a confidence interval of 95%.

Ethical Approval

Ethical approval was obtained from the Research and Ethical Committee of the Neuropsychiatric Hospital, Aro, Abeokuta, Ogun State, Nigeria where the study was carried out.

Results

Socio-demographic Characteristics of the Caregivers

Table 1 shows the socio-demographic characteristics of the caregivers. The age of the caregivers ranged from 20 to 86 years with a mean (±SD) age 48.3 (±14.7) years, 74 (53.6%) were females, 92 (66.7%) had partners, 54 (39.1%) had tertiary or post graduate education, 110 (79.7%) were employed, 109 (79.0%) earned 18000 or more and, 121 (87.7%) were of Yoruba tribe, 134 (97.1%) caregivers had never received treatment for a mental illness, and 79 (57.3%) were either parents or siblings of the patients. The mean duration of relationship with patients was 29.9 (±10.9) years and the mean duration of care for the patients was 77.3 (±74.5) months.

Variable	n (%)
Age group	
Young Adulthood (< 40 years)	40 (29.0)
Middle Adulthood (40-65 years)	82 (59.4)
Late Adulthood (>65 years)	16 (11.6)
Gender	
Male	64 (46.4)

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Female	74 (53.6)
Marital Status	
With partner	92 (66.7)
Without Partner	46 (33.3)
Education	
No formal/primary education	34 (24.7)
Partial/completed secondary education	50 (36.2)
Tertiary/post graduate education	54 (39.1)
Tribe	
Yoruba	121 (87.7)
Others	17 (12.3)
Religion	
Christianity	91 (65.9)
Islam/traditional	47 (34.1)
Employment	
Full/Part time employment	110 (79.7)
Unemployed/Apprentice/Retired/Student	28 (20.3)
Income	
<18000	29(21.0)
≥18000	109(79.0)
Previous treatment for mental illness	
No	134 (97.1)
Yes	4 (2.9)
Relationship to patient	
Father/Mother/Sibling	79 (57.3)
Spouse/Child	38 (27.5)
Others i.e. Friends, neighbors	21 (15.2)
Source of income	
Self-support	99 (71.7)
Support from others	39 (28.3)
Perceived adequacy of income	
Yes	39 (28.3)
No	99 (71.7)
Source of support for patient's care	
No support	21 (15.2)
Siblings/Parent/Children	83 (60.2)
Friends/Religious organizations/NGO/Others	34 (24.6)
Duration of Relationship	
≤30 years >30years	69(50.0) 69(50.0)
Duration of care	
≤77 months	92 (66.7)
>77 months	45 (33.3)
Hours of care per week	
< 35 hours	37 (26.8)
≥ 35 hours	101 (73.2)

Table 1: Socio-demographic characteristics of the caregivers.

Clinical Characteristics of Patients

Table 2 shows the symptoms severity in patients. 101 (73.2%) of patients had no prominent psychotic symptoms at the time of this study.

BPRS	n (%)
Non prominent psychotic symptoms	101(73.2)
Prominent psychotic symptoms	37 (26.8)

Table 2: Symptoms severity in patients.

Prevalence of Depression in Caregivers

Table 3 shows the prevalence of depression.
Out of the 138 caregivers interviewed with MINI Plus depression module, 119 (86.2%) had no depression, while 19 (13.8%) had depression.

Caregiver's Depression	n (%)
No	119 (86.2)
Yes	19 (13.8)

Table 3: Prevalence of depression in caregivers.

Relationship between Depression and Socio-demographic Characteristics of the Caregivers

Table 4 demonstrates the relationship between depression and the socio-demographic characteristics of the caregivers.
Female gender (χ^2= 5.68, p =0.02), Caregivers previous treatment for mental illness (=8.24, p <0.01) and minority ethnic group (=9.78, p < 0.01) were associated with depression in the caregivers.

Variables	Caregiver's Depression	
	No n (%)	Yes n (%)
Age group		
Young Adulthood	37 (92.5)	3 (7.5)
Middle Adulthood	67 (81.7)	15 (18.3)
Late Adulthood	15 (93.8)	1 (6.3)
Statistics	= 3.49 df = 2 p = 0.17	
Gender		
Male	60 (93.8)	4 (6.3)
Female	59(79.7)	15(20.3)
Statistics	= 5.68 df = 1 p = 0.02	
Marital Status		
With partner	77 (83.7)	15(16.3)
Without Partner	42(91.3)	4(8.7)
Statistics	= 1.50 df = 1 p = 0.22	
Educational Level		
No formal/primary education	30 (88.2)	4(11.8)
partial/completed secondary education	42(84.0)	8(16.0)
Tertiary/post graduate education	47(87.0)	7(13.0)
Statistics	= 3.54 df = 2 p = 0.84	
Tribe		
Yoruba	109(90.1)	12(9.9)
Others	10(58.8)	7(41.2)
Statistics	=9.78 df = 1 p < 0.01*	
Religion		
Christianity	75(82.4)	16(17.6)
Islam/Traditional	44(93.6)	3(6.4)
Statistics	= 3.27 df = 1 p = 0.07	
Employment		
Full/Part time employment	94(85.5)	16(14.5)

Unemployed/Apprentice/Retired/Student	25(89.3)	3(10.7)
Statisticss	=0.05 df = 1 p = 0.83*	
Income		
<18000	24(82.8)	5(17.2)
=/>18000	95(87.2)	14(12.8)
Statistics	=0.10 df = 1 p = 0.76*	
Previous treatment for mental illness		
No	118(88.1)	16(11.9)
Yes	1(25.0)	3(75.0)
Statistics	=8.24 df = 1 p < 0.01*	
Relationship to patient		
Father/Mother/Sibling	67(84.8)	12(15.2)
Spouse/Child	31(81.6)	7(18.4)
Others i.e. friends, neighbors	21(100.0)	0(0.0)
Statistics	= 4.18 df = 2 p = 0.12	
Source of income		
Self-support	88(88.9)	11(11.1)
Support from others	31(79.5)	8(20.5)
Statistics	= 2.08 df = 1 p = 0.15	
Perceived adequacy of income		
Yes	35(89.7)	4(10.3)
No	84(84.8)	15(15.2)
Statistics	= 0.57 df = 1 p = 0.45	
Source of support for patients care		
No support	18(85.7)	3(14.3)
Siblings/Parent/Children	73(88.0)	10(12.0)
Friends/Religious Organizations/NGO/Others	28(82.4)	6(17.6)
Statistics	= 0.64 df = 2 p = 0.75	
Hours of care per week		
Less than 35	34 (91.9)	3(8.1)
35 or more	85(84.2)	16(15.8)
Statistics	= 1.36 df = 1 p = 0.24	
Duration of Relationship		
≤ 30 years	60(87.0)	9(13.0)
>30 years	59(85.5)	10(14.5)
Statistics	= 0.06, df = 1, p = 0.81	
Duration of care		
≤77 months	80(87.0)	12(13.0)
>77 months	39(84.8)	7(15.2)
Statistics	= 0.12, df = 1, p = 0.73	

*Yates correction used when expected count was more than 20%

Table 4: Relationship between depression and the socio-demographic characteristics of the caregivers.

Relationship between Caregiver's Depression and Symptoms Severity in Patients

Table 5 shows relationship between depression and symptoms severity in patients.

There was no significant difference between depression in caregivers of patients with prominent psychotic symptoms and patients with non-prominent psychotic symptoms (= 1.13, p =0.29).

Variables	Caregiver's Depression	
BPRS	No n (%)	Yes n (%)
Non prominent psychotic symptoms.	89 (88.1)	12 (11.9)
Prominent psychotic symptoms	30 (81.1)	7 (18.9)
Statistics	=1.13, df= 1, p= 0.29	

Table 5: Relationship between depression and symptoms severity in patients.

Independent Predictors of Depression in Caregivers

Table 6 shows logistic regression relating depression to predictor variables.

The univariate analysis (table 4), showed that gender, tribe and previous treatment for a mental illness were significantly associated with depression in caregivers.

To determine the extent of the relationship between depression, gender, tribe and previous treatment for mental illness, a logistic regression analysis was carried out. This was done to identify the subset of the independent variables that were most useful in predicting the dependent variable which is the depression in caregivers.

The gender (ß = 1.35, OR = 3.86, p =0.03), tribe (ß = 1.95, OR = 7.03, p < 0.001), and previous treatment for mental illness (ß = 3.19, OR = 24.21, p =0.01) retained their significance in predicting depression in the caregivers.

Variables		ß	S.E.	Wald	df	p-value	OR	95% C.I.for OR	
								Lower	Upper
	Gender	1.350	0.638	4.474	1	0.034	3.857	1.104	13.473
	Tribe	1.950	0.636	9.393	1	0.002	7.032	2.020	24.479
	Previous Mental illness	3.187	1.303	5.978	1	0.014	24.214	1.882	311.584
*p is significant when <0.05 ß = Regression Coefficient CI = Confidence Interval OR=Odd Ratio									

Table 6: Logistic regression relating depression to predictor variables.

Discussion

The lifetime prevalence of depression among the caregivers who participated in the study was 13.8%, higher than 6% reported by Osman et al. [17] in their study using the same diagnostic instrument. Similarly, previous studies [18,19] have shown higher prevalence of depression in caregivers of patients with schizophrenia 18.3% and 19% respectively. In another study [20] done in Nigeria, a much higher prevalence of 46.8% was found in contrast to a lower prevalence of 8.5% reported by Yusuf et al. [11]. Both studies used different screening tools which might not depict the true picture of prevalence of depression when compared to this study that employed a diagnostic instrument. Screening instruments which was used in the previous studies are more likely to detect potential disease indicators and suspicion of disease while the diagnostic instruments establish the presence or absence of disease [21], thus gives a more accurate prevalence of disease.

The use of different research instruments with diverse psychometric properties is a posited reason for the variance in the figures of prevalence of depression. However, it is obvious that the prevalence of depression among caregivers of patients with schizophrenia is higher than the general population. This buttressed the research findings that depression is twice common among caregivers than non-caregivers [22,23]. This study found that being female, other tribes aside Yoruba and having a previous treatment for mental illness were the only socio-demographic characteristics associated with depression among the respondents and were the independent predictors of depression.

The association between female gender and caregiver depression has been noted in previous studies. Derajew et al. [19] found that the prevalence of depression among female primary caregivers was higher than that of male primary caregivers and the association was significant. Similarly, Provencher et al. [24] and Schulz et al. [25] in their studies

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also concluded that women have higher rate of depression than men in care giving role for persons with psychiatric disabilities.

Aside the care giving role contributing to higher prevalence of depression among female caregivers, depression in general population has been found to be twice common in female than male [14,26]. This may explain the finding observed in this study.

However, contrary to the finding in this study, El-Tantawy et al. [18] reported no association between gender and depression among their respondents. This can be attributed to male gender preponderance in their sample population of caregivers. This study also found higher prevalence of depression among the minority ethnic groups which is in keeping with evidence from research findings that major depression and factors associated with depression were more frequent among members of minority groups [27,28]. Ethnicity has been found to impact substantially on care giving experience and literatures have identified differences in the stress process, psychological outcomes, and service utilization among caregivers of different racial and ethnic background [28,29].

Caregivers who had received treatment for mental illness in the course of caring for patients were also found to have higher prevalence of depression. This finding corroborated the previous research evidences that the health of caregivers is a significant predictor of depression, as poor psychological and physical health of caregivers have been linked to increased risk of depression [23,29]. Studies have elucidated that care giving role is stressful, and the caregivers often experience negative psychological, behavioral, and physiological effects on their daily lives and health [30,31], thus predisposing them to depression.

In considering the findings reported in this study, some limitations are worth mentioning. Firstly, given the cross-sectional design of the study, causal inference cannot be attributed for variables identified to be significantly associated with depression among the primary caregivers. In addition, because this study was limited to caregivers of patients with schizophrenia attending outpatient clinic in one psychiatric hospital in Nigeria, extrapolating the findings over all primary caregivers of patients with schizophrenia has to be with caution.

Despite the limitations of the study, to the author's best knowledge this study is one of the first attempts to explore significant correlates of among primary caregivers of schizophrenia in our environment and the use of structured diagnostic instrument on all the respondents allowed the diagnosis of clinical depression and not just mere symptom load.

Conclusion

This study aimed to determine the prevalence and factors associated with depression among primary caregivers of patients with schizophrenia, and the results show that primary caregivers have high prevalence of depression. Gender, tribe and previous treatment for a mental illness were found to be independent predictors of depression among the caregivers. Thus, there is need to pay attention to the psychological wellbeing of caregivers of patients with schizophrenia by routinely screening for depression among them and those identified should be referred to receive appropriate intervention.

Using the background knowledge of possible predictors of depression such as those highlighted in this study, clinicians should ensure routine screening of the caregivers for depression and institute appropriate intervention. This will help alleviate level of depression and improve their quality of life of the caregivers. This study emphasizes the need for guidelines that will enhance this.

Mental health awareness and education is also recommended for the public, this will facilitate a strong social support system for people with mental illness and their family members.

Declaration of Interest

Akinloye Akinfala, Oladipo Sowunmi, Imam Sakeeb declare no conflict of interest.

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