

RESEARCH ARTICLE

Perceived stigma and compassion fatigue among caregivers of individuals with severe mental illness: The mediating role of social isolation

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Abstract

Background: The chronic nature of mental illness, attitude, and high level of dependence on carers pose significant challenges, such as perceived stigma, social isolation, and compassion fatigue to their caregivers.

Objective: This study examines the impact of perceived stigma and social isolation on compassion fatigue and the mediating role of social isolation among primary caregivers of individuals with mental illness.

Methods: This cross-sectional study used convenience sampling to recruit primary caregivers from two teaching hospitals and two psychiatric hospitals in southeast Nigeria. The Professional Quality of Life Survey (ProQol-5) for compassion fatigue, the Friendship Scale for assessing social isolation in adults, and the Perceived Devaluation and Discrimination Scale for perceived stigma were administered to participants.

Results: The participants were 300 adults (men = 141, women = 159) aged 18 to 70 years. Mean scores indicated elevated levels of perceived stigma (41.58), social isolation (15.20), and compassion fatigue (27.46). No significant correlations were observed between perceived stigma, social isolation, and compassion fatigue ($p > 0.05$). The proposed mediation model could therefore not be tested.

Conclusion: In this sample, perceived stigma, social isolation, and compassion fatigue were not significantly intercorrelated, despite elevated mean levels across all constructs. This raises important questions about the cultural applicability of Western-derived measures. Future research should prioritize the development and validation of culturally sensitive instruments and employ longitudinal designs to capture the dynamic nature of caregiving experiences in the African context.

Keywords: Perceived stigma; Caregivers; Mental illness; Compassion fatigue; Social isolation

1. Introduction

Millions of individuals around the globe are affected by a mental illness, which poses a great challenge to their caregivers.^{1,2} In 2019, 1 in every 8 persons was living with a mental disorder, with anxiety and depression topping the charts.¹ The increased number of patients with these disorders also increases the number of people providing care for them.³ Given the increasing number of individuals with mental illness, the high level of dependence on carers, and the increasing demand and responsibilities due to the chronic nature of mental illnesses, the impact of mental illness is tremendous on the family members who provide care for them.⁴⁻⁷ In developing countries like Nigeria, the psychological/social challenges for people with mental illness may be more significant than in developed countries,⁸ as a result of Nigeria's perception of mental illness and its causes. A lot of superstitious beliefs are attached to mental illness, which, in one way or another, affect family members of individuals with these illnesses. Mental disorders are mostly believed to be caused by divine punishments from the gods, witchcraft, and sorcery.⁹ These beliefs may promote perceived prejudices and stigma by the caregivers of mentally ill patients.

Stigma refers to the negative perceptions and attitudes that cause individuals to avoid or fear those they consider different.¹⁰ Perceived stigma is the fear of being judged or discriminated against due to societal beliefs.¹⁰ Stigma occurs within affected individuals, families, social environments, workplaces, schools, and the health care industry.^{11,12} Individuals with mental illness frequently experience social distance from others.⁹ In mental health stigma research, social distance can be defined as the degree of desired proximity or intimacy a person is willing to have with someone with a mental illness across various social situations.^{13,14} When caregivers perceive strong public stigma, they may distance themselves from social relationships to hide their caregiver status. This may lead to social isolation, which is the absence of social relationships.¹⁵ Studies have shown that stigmatization leads to social isolation.¹⁵ Caregivers usually rely on social support from other family members and relevant organizations, such as religious organizations and community-based organizations. These social networks are pertinent for improved health.¹⁶ However, the social support that would have been available to caregivers through these organizations is most likely to be inhibited by the stigmatization of the caregivers of the mentally ill.^{17,18} Caregivers' experience of stigma^{19,20} and social isolation²¹⁻²³ undermines their coping capacity and negatively impacts their mental health, thereby increasing the risk of compassion fatigue.

Caring for a person with severe mental illness also puts caregivers at risk for compassion fatigue, a form of caregiver burnout.²⁴ When primary caregivers are unable to meet the demanding nature of their role, feelings of anger, inefficacy, apathy, and depression may set in. This results in compassion fatigue, characterized by a progressive decline in compassion.²⁵ Figley²⁶ described compassion fatigue as a state of decreased motivation and a growing sense of hopelessness about helping others due to emotional and physical exhaustion. The cumulative effect of extended and intensive patient interaction and multidimensional stress can overwhelm a caregiver's emotional and physical resources, eventually surpassing their capacity to cope and leading to compassion fatigue.^{12,27} In such circumstances, carers may experience a decline in their motivation to provide care, which in turn diminishes their ability to empathize with the client's suffering.²⁵ Thus, when caregivers experience ongoing stress without support (e.g., due to stigma and isolation), their ability to continue providing compassionate care can be affected.²⁸ Prior studies suggest that caregivers who feel stigmatized report poorer mental health and increased caregiving burden, which could contribute to fatigue.^{29,30}

However, compassion fatigue has not been assessed among primary caregivers of people with severe mental illness in Nigeria. There is a need to examine the psychological well-being, specifically compassion fatigue, of the caregivers of individuals with severe mental illness, who play a significant role in the provision of health care for them,³¹ especially in developing countries, where there are limited resources and generally poor health facilities.³² Based on the literature, we hypothesized that (i) greater perceived stigma would be associated with higher compassion fatigue, (ii) higher social isolation would be associated with higher compassion fatigue, and (iii) social isolation would mediate the relationship between perceived stigma and compassion fatigue. Thus, this study examines the relationship between perceived stigma and compassion fatigue among primary caregivers of individuals with severe mental illness in Southeast Nigeria and determines the mediating role of social isolation.

2. Materials and methods

2.1. Ethical considerations

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. The research and ethics committee of the hospitals (University of Nigeria Teaching Hospital Health Research Ethics Committee, State Hospitals Management Board Neuropsychiatric Hospital Nawfia, Ethical Committee of Federal Neuropsychiatric Hospital Enugu, and the Research and

Ethics Committee Federal Teaching Hospital Abakaliki), where the data were collected, provided ethical approval for the research proposal. Ethical approval certificates were obtained from the four hospitals (ethical approval number/reference- NHREC/05/01/2008B-FWA00002458-1RB00002323, NPHN/Research/19002, FNHE/HTR/REA/VOL.11/394, and 21/05/2019-23/05/2019, respectively). To confirm patient diagnoses, patients' files were reviewed. The approved study protocol explicitly permitted this review under strict conditions to protect patient confidentiality. Access to patient files was limited to on-site file retrieval and eligibility screening to locate the correct patient records. No personal identifiers such as names, record numbers, or addresses were extracted or entered into the study dataset. Each patient file was assigned a unique study code by the research team, and all extracted data were fully anonymized before analysis. The study purpose was explained to the primary caregivers, and written informed consent was obtained from all participants prior to data collection. Participants were explicitly informed that their involvement was entirely voluntary and that they could withdraw from the study at any time without penalty or negative consequences. Strict measures were taken to ensure confidentiality throughout the research process and after data collection. To maintain anonymity, no personal identifiers, such as participants' names or phone numbers, were collected. Each questionnaire was assigned a unique identification to facilitate data entry and analysis. No participant suffered any harm as a result of the study.

2.2. Study design

The study used a cross-sectional design to examine the mediating role of social isolation on perceived stigma and compassion fatigue among primary caregivers of people with severe mental illness in Southeast Nigeria. Participants were recruited through convenience sampling. The Strengthening the Reporting of Observational studies in Epidemiology reporting guideline was followed for the presentation of this study.

2.3. Study setting

The study was carried out in four hospitals: two psychiatric hospitals and two teaching hospitals. They included the (i) Federal Neuropsychiatric Hospital, Enugu, in Enugu State; (ii) Anambra State Psychiatric Hospital, Nafua, in Anambra State; (iii) Alex Ekwueme Federal Teaching Hospital, Abakaliki, in Ebonyi State; and (iv) University of Nigeria Teaching Hospital, Ituku-Ozalla, in Enugu State, in Southeast Nigeria. One of the hospitals, the Federal Neuropsychiatric Hospital, Enugu, is one of the eight specialist psychiatric hospitals established by the Federal Government of Nigeria to provide mental health care

for the south-eastern part of Nigeria and neighboring geopolitical zones.

2.4. Study participants

Participants in this study comprised 300 (men = 141, women = 159) primary caregivers aged 18 years or older who are family members of the patients. Participants must be family members providing daily care, including parents, spouses, siblings, adult children, or other relatives who are not paid caregivers, to capture the unique dynamics of family caregiving without compensation. The patients being cared for must have experienced more than a single episode of the mental illness (schizophrenia, bipolar disorder, and severe depression). Primary caregivers were self-identified as the person most responsible for day-to-day care. Paid caregivers and family members of patients with only one episode of mental illness were excluded since they may lack sustained caregiving experience.

2.5. Sample size

The sample size was calculated using **Equation 1**:

$$n = Z^2pq/d^2 \quad (1)$$

where n is the desired sample size, Z is the standard normal deviate set at 1.96 corresponding to 95% confidence level, p is the proportion in the target population with a particular characteristic (a prevalence rate of 48.4% of people with mental illness from a survey carried out in Imo, Southeast Nigeria³³), q is $1-p$, and d is the degree of accuracy, which is usually 0.05.

Using **Equation 1**, the minimum sample size was calculated as follows;

$$n = ([1.96]^2 \times 0.484 \times 0.516)/(0.05)^2 \approx 384$$

However, only 300 eligible caregivers were eventually recruited due to clinic attendance patterns during the study period.

2.6. Variables

The primary outcomes were perceived stigma, social isolation, and compassion fatigue, which were assessed using established tools. Secondary variables were age, gender, religion, educational level, marital status, occupation, type of illness, relationship with patient, and number of children.

2.7. Instruments and procedures for data collection

Pre-informed psychiatric nurses working in the units identified and recruited relatives of patients with severe

mental illness who met the inclusion criteria. The patient's files were reviewed by the researchers to confirm the diagnosis. The researchers explained the purpose of the study to the relatives, and the questionnaires were administered in hospital wards and at the hospital waiting area. Eight research assistants, who were postgraduate students in clinical psychology and psychiatric nurses at the hospital, were trained to assist with distributing and administering the questionnaires.

Participants completed the compassion fatigue domain of the Professional Quality of Life Scale (ProQoL-5), the Perceived Devaluation and Discrimination Scale (PDD), and the Five-Item Friendship Scale (HFS). All instruments were translated into Igbo, the language spoken predominantly by participants in the study area. The instruments were translated by three lecturers who were specialists in Igbo in the Faculty of Linguistics at the University of Nigeria, Nsukka, using the forward and backwards translation methods to ensure they accurately reflected the original ideas in the scale. Caregiver participants could respond in either language. The finalized questionnaires (English/Igbo versions) are included in the [Appendix](#).

2.7.1. Professional quality of life scale

Primary carer compassion fatigue was assessed using the ProQoL-5 compassion fatigue domain.³⁴ The 30-question ProQoL-5 measures compassion satisfaction, burnout, and compassion fatigue.³⁴ Ten items from each subscale are assessed based on how often they experienced them in the past 30 days. A "0" score means the item was "never" experienced, while a "5" indicates that the item was experienced "very often." Scores were analyzed as sum scores, with cut-offs as follows: a score above 17 on compassion fatigue and above 27 on burnout should raise concern for the participant. Finally, a score below 22 on compassion satisfaction indicates dissatisfaction with one's work.³⁵

A pilot study was conducted by the researchers and included 106 adult family caregivers drawn from Nnamdi Azikiwe University Teaching Hospital, Nnewi, Enugu State University of Science and Technology Teaching Hospital, Enugu, and Abia State University Teaching Hospital, Aba, Abia State. Data collection was performed in June 2019, prior to the main data collection and within the same cultural context as the main study. Reliability tests yielded Cronbach's alpha scores of 0.81, 0.72, and 0.78 for compassion satisfaction, burnout, and compassion fatigue, respectively. We conducted a confirmatory factor analysis (CFA) using structural equation modeling (to test the hypothesized factor structure of the scale. The model

yielded excellent fit indices (goodness-of-fit [GFI] = 0.970, normed fit index [NFI] = 0.998, Tucker–Lewis index [TLI] = 1.054, comparative fit index [CFI] = 1.00, and root mean square error of approximation [RMSEA] = 0.001).

2.7.2. The perceived devaluation and discrimination scale

The PDD was used to assess perceived stigma. It is a 12-item unidimensional scale that measures the extent to which an individual believes that most people will devalue or discriminate against someone with a mental illness.^{36,37} Items 1, 3, 4, 7, 8, and 11 are reverse-scored, and scores for all the items are added to obtain a sum score ranging from 12 to 72. A higher score indicates more devaluation of discrimination towards the mentally ill. This scale has been widely used across different settings.^{38,39} The PDD was also pilot-tested among 106 adult family caregivers from Nnamdi Azikiwe University Teaching Hospital, Nnewi, Enugu State University of Science and Technology Teaching Hospital, Enugu, and Abia State University Teaching Hospital, Aba, Abia State. Data collection was conducted in June 2019, prior to the main data collection and within the same cultural context as the main study. A Cronbach's alpha of 0.71 was observed. We also conducted a CFA on this scale, yielding acceptable fit (GFI = 0.934, NFI = 0.937, TLI = 0.995, CFI = 0.997, and RMSEA = 0.021).

2.7.3. The five-item friendship scale

The HFS was used to assess the degree of a person's perceived isolation. The HFS was developed by Hawthorne⁴⁰ to measure social isolation. It is a five-point Guttman-type response. The responses to Q2 and Q5 were reversed to align with the other items.⁴⁰ The range of the summed score is 0–20; thus, the higher the score, the greater the extent of social isolation.⁴⁰ Internal reliability test yielded a Cronbach's alpha value of 0.76.⁴⁰ The HFS was pilot-tested among 106 adult family caregivers from the same four hospitals as the study setting. Data collection was conducted in June 2019, prior to the main data collection and within the same cultural context as the main study. The reliability test yielded a Cronbach's alpha of 0.72. CFA indicated an acceptable model fit (GFI = 0.996, NFI = 0.997, TLI = 1.022, CFI = 1.00, and RMSEA=0.001).

2.8. Data analysis

Descriptive statistics, including mean, standard deviation, frequency, and percentage, are used to present socio-demographic variables and participant characteristics. Skewness and kurtosis of the continuous variables are also presented. Point biserial correlation analysis was used to assess the relationship between the demographic variables

and the primary variables. Categorical variables were coded as: gender (1 = Male, 2 = Female); level of education (1 = ≤ primary, 2 = ≥ secondary); marital status (1 = has support, 2 = no support); occupation (1 = unemployed, 2 = employed/self-employed); religion (1 = Christianity, 2 = Others: Islam, traditional). Analysis was carried out using Statistical Package for Social Sciences version 25, and significance was set at $p < 0.05$.

3. Results

A total of 300 primary caregivers aged between 18 and 70 years, with a mean age of 35.38 years, participated in this study. Most participants were female (53%), married (61.3%), employed/self-employed (94%), and had attained higher education (65.3%). Sibling (34.3%) was the highest caregiver's relationship with the patients, followed by mother (20%), father (11%), and child (10.3%) (Table 1). The mean and standard deviation of the sum scores of CF, PDD, and HFS were 27.46 ± 6.29 , 41.58 ± 6.94 , and 15.20 ± 3.11 , indicating increased levels of compassion fatigue, perceived stigma, and social isolation.

The correlations in Table 2 indicated that the number of children was weakly associated with compassion fatigue ($r = 0.13$, $p = 0.03$) and PDD ($r = 0.13$, $p = .XX$). All other associations among CF, PDD, and HFS were non-significant. Thus, regression and mediation analyses were not performed.

Table 1. Descriptive statistics of participants' general characteristics

Variables	Frequency	Percentage
Gender		
Male	141	47.0
Female	159	53.0
Religion		
Christianity	286	95.3
Islam	3	1.0
Traditional	11	3.7
Marital status		
Single	105	35.0
Married	184	61.3
Divorced	1	0.3
Widowed	8	2.7
Single parents	2	0.7

(cont'd...)

Table 1. (Continued)

Variables	Frequency	Percentage
Level of education		
No formal education	2	0.7
Primary	10	3.3
Secondary	92	30.7
Tertiary	196	65.3
Occupation		
Trader	68	22.7
Civil servant	88	29.3
Public servant	33	11.0
Farmer	4	1.3
Artisan	89	29.7
Unemployed	18	6.0
Type of illness		
Schizophrenia	142	47.3
Bipolar	74	24.7
Depression	84	28.0
Father	33	11.0
Mother	60	20.0
Husband	18	6.0
Wife	26	8.7
Child	31	10.3
Siblings	103	34.3
Cousin	14	4.7
Uncle/aunt	9	3.0
Others	6	2.0
	Mean ± standard deviation	Skewness (Kurtosis)
Age	35.38 ± 11.44	1.06 (0.99)
No. of children	2.23 ± 2.19	0.66 (−0.29)
Compassion fatigue	27.46 ± 6.29	−0.17 (−0.06)
Perceived stigma	41.58 ± 6.94	0.13 (0.27)
Social isolation	15.20 ± 3.11	0.16 (−0.16)

Table 2. Correlations of demographic and study variables (N = 300)

Variable	Age	Number of children	Gender	Marital status	Level of education	Occupation	Religion	Perceived stigma	Social isolation	Compassion fatigue
Age	1	-	-	-	-	-	-	-	-	-
Number of children	0.69**	1	-	-	-	-	-	-	-	-
Gender	-0.16**	-0.05	1	-	-	-	-	-	-	-
Marital status	-0.46**	-0.63**	0.08	1	-	-	-	-	-	-
Level of education	0.00	-0.07	0.05	0.09	1	-	-	-	-	-
Occupation	0.31**	0.24**	-0.01	-0.20**	0.02	1	-	-	-	-
Religion	-0.03	0.04	-0.08	-0.05	-0.28**	0.06	1	-	-	-
Perceived stigma	0.10	0.13*	0.02	-0.11	0.09	0.03	-0.09	1	-	-
Social isolation	0.08	-0.03	0.04	0.02	-0.01	0.02	-0.01	-0.01	1	-
Compassion fatigue	0.01	0.13*	0.08	0.01	0.00	-0.01	0.06	0.08	-0.08	1

Note. Statistical significance determined at * $p < 0.05$ and ** $p < 0.01$.

4. Discussion

This study examined the relationship between perceived stigma, social isolation, and compassion fatigue among primary caregivers of people with severe mental illness in Southeast Nigeria, with a specific focus on the potential mediating role of social isolation. Overall, the findings did not support the expected relationships. Contrary to the hypotheses, no significant associations were observed between perceived stigma, social isolation, and compassion fatigue. Consequently, the proposed mediation model could not be tested. These non-significant findings warrant careful consideration and may arise from methodological, statistical, or measurement limitations rather than the true absence of relationships. A weak correlation was observed between the number of children and compassion fatigue, with caregivers of more children reporting significantly higher levels of compassion fatigue. This indicates that practical caregiving burden (managing multiple dependents) may be more directly linked to compassion fatigue than perceived stigma in this context.

The finding that the number of children correlated with compassion fatigue is theoretically plausible within the role strain framework. Role strain theory posits that individuals occupying multiple caregiving roles may experience cumulative emotional and physical demands that exceed coping resources.⁴¹ Greater numbers of dependent children may therefore reduce recovery time, increase financial pressure, and heighten emotional exhaustion, all of which are conceptually linked to compassion fatigue. Empirical literature examining family size specifically is limited; however, adjacent evidence supports the broader mechanism. Parental caregiving demands have been shown to predict higher stress and reduced psychological recovery.⁴² Within this context, the number of children may function as a proxy indicator of cumulative caregiving burden rather than an isolated demographic effect. Nevertheless, the cross-sectional design precludes causal inference. Replication across larger, more diverse samples is required before firm conclusions can be drawn.

The absence of significant correlations between perceived stigma, social isolation, and compassion fatigue was unexpected, given the literature. Prior studies have indeed linked stigma and social isolation with negative outcomes in caregivers. Notably, the findings of Omoaregba and Utteh²⁸ indicate that mental health service providers experience high stigma, which is associated with high compassion fatigue. Furthermore, studies have also shown that missed social support, which is social isolation, predicted mental distress like compassion fatigue.²³ Non-significance in the present study may reflect several methodological factors, such as limited statistical power

and measurement insensitivity. The HFS is a brief measure of perceived social isolation. While the scale's brevity reduces respondents' burden, it may fail to capture the multidimensional nature of social isolation in collectivist cultures. The HFS items primarily focus on perceived adequacy of social contact and feelings of loneliness. However, they do not assess functional social support. More importantly, the HFS has not been extensively validated in African populations. Researchers should consider employing more comprehensive measures of social support and isolation that distinguish between structural and functional dimensions. Measures of disclosure/concealment that assess how individuals reveal or conceal stigmatised identities due to anticipated stigma, which can lead to social isolation, may provide greater specificity. Furthermore, future studies of compassion fatigue in family caregivers should consider measures specifically developed and validated for informal caregiving contexts rather than for professional caregivers. The Zarit Burden Interview is a reliable tool for assessing subjective caregiving burden and includes items that tap emotional exhaustion and reduced capacity for care.⁴³ If the ProQol is to be used with family caregivers, researchers should consider assessing item comprehension and relevance before formal psychometric evaluations. Additionally, the TLI values from the pilot analyses of the HFS and the ProQoL-5 exceeded 1.0, typically indicating that the baseline model fits extremely poorly or that the sample is too small relative to the model's complexity. Associations were not observed, possibly due to attenuation. If future adequately powered studies continue to observe no effects, this may suggest contextual or population-specific dynamics; however, such interpretations remain premature.

These findings have practical implications for interventions and future research. Caregivers in this study may have found ways to cope with or counteract stigma, but stigma remains a serious issue that can diminish quality of life. Reducing public stigma and educating communities could still yield benefits by encouraging caregivers and families to seek support more openly without fear of judgment. Furthermore, in Nigeria's resource-limited contexts, caregivers likely face multiple, overlapping stressors. The prominent role of the number of children in compassion fatigue suggests that services should also consider the holistic burden on caregivers. Interventions like respite care, childcare support for caregivers' families, or support groups specifically for those with multiple caregiving responsibilities could be beneficial. Additionally, increasing access to formal mental health care can ease the pressure on families. Professionals can share some caregiving tasks through outpatient programs and day clinics, allowing family members to take a break

and feel less lonely in their caregiving duties.

Certain limitations have been identified in this study. The generalizability of this study's findings may be limited to south-eastern Nigeria, as participants were selected solely from the eastern region. The experience of caregivers in other parts of Nigeria may differ. It is therefore crucial that more studies examine these variables among primary caregivers on a larger scale in Nigeria. In addition, only the primary caregivers found in the hospitals were involved in the research. No comparison was made between primary caregivers who could not bring their relatives to the hospitals. Furthermore, several potential confounders were not included in this study. Financial strain, illness duration, immediate caregiving burden,⁴⁴ and social support may intersect with compassion fatigue. Failure to adjust for these factors may have attenuated relationships between psychosocial predictors and compassion fatigue. Future studies should incorporate other variables that may interact with compassion fatigue.

All constructs were assessed via self-report, introducing the possibility of social desirability bias. Caregivers may underreport stigma experiences. Additionally, the measure of perceived stigma (PDD) used in this study assessed general societal devaluation of the mentally ill. It may be that caregivers in our sample acknowledge public stigma but do not internalize it to the extent that it impairs their empathy or caregiving capacity. Future research could benefit from multidimensional assessments and mixed-methods designs to further contextualize quantitative findings and capture experiential nuances. Finally, the study's cross-sectional design limits causal inferences.

5. Conclusion

This study showed that neither perceived stigma nor social isolation significantly predicted compassion fatigue, and social isolation did not mediate the relationship between stigma and fatigue. Instead, practical caregiving burden, particularly the number of children, was the strongest and most consistent predictor of compassion fatigue. These results suggest that, in this context, daily caregiving demands may play a more central role in caregiver exhaustion than societal attitudes. Future studies should also prioritize measurement development and validation, employ longitudinal and mixed-methods designs, and investigate culturally specific protective factors that may buffer caregivers against the adverse effects of stigma. Despite the null findings, the elevated scores on all measures of caregiver distress indicate a pressing need for enhanced support services for this vulnerable population. Interventions should focus on reducing caregiver burden, strengthening family and community support systems, and

improving access to mental health resources to promote caregivers' well-being.

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Conflict of interest

The authors have no conflict of interest.

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Writing-original draft: All authors

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Ethics approval and consent to participate

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. The research and ethics committee of the hospitals (University of Nigeria Teaching Hospital Health Research Ethics Committee, State Hospitals Management Board Neuropsychiatric Hospital Nafwa, Ethical Committee of Federal Neuropsychiatric Hospital Enugu, and the Research and Ethics Committee Federal Teaching Hospital Abakaliki) provided ethical approval for the research proposal. Ethical approval certificates were obtained from the four hospitals (ethical approval number/reference-NHREC/05/01/2008B-FWA00002458-1RB00002323, NPHN/Research/19002, FNHE/HTR/REA/VOL.11/394, and 21/05/2019-23/05/2019, respectively). The study purpose was explained to the primary caregivers, and written informed consent was obtained from all participants prior to data collection.

Consent for publication

Participants provided consent for their data to be published.

Availability of data

Data will be made available by the corresponding author upon request.

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APPENDIX

A. QUESTIONNAIRES IN ENGLISH

A1. RESEARCH QUESTION

I am a postgraduate student in the Department of Psychology at the University of Nigeria, Nsukka. This questionnaire is for research on the well-being of the caregivers of people with severe mental illness. The research will help understand the mental states of caregivers in South-Eastern Nigeria. Your kind cooperation in completing and returning the attached questionnaire will be highly appreciated. Your responses will be treated as confidential. Thank you.

Ebulum Genevieve C. (Rev. Sr.)

Please provide the following information as it applies to you.

Gender: Male () Female () **Age:**years

Religion: Christianity () Islam ()

Traditional () Others (specify).....

Level of Education: None () Primary ()

Secondary () Tertiary ().

Occupation:

Marital status: Married () Single ()

Widow or widower () Divorced or separated () Single Parent ().

If married, indicate number of children:

Relationship with the patient: Mother () Father () Husband () wife () offspring () Brother/Sister () Others (specify).....

Duration of the illness

Type of illness

A2. THE PROFESSIONAL QUALITY OF LIFE SURVEY (ProQoL-V)

When you help people you have direct contact with their lives. As you may have found, your compassion for those you (help) can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a helper. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the last 30 days.

1=Never 2=Rarely 3=Sometimes 4=Often 5=Very often

Items	Never	Rarely	Sometimes	Often	Very often
I am happy	1	2	3	4	5
I am preoccupied with the person I take care of	1	2	3	4	5
I get satisfaction from being able to help	1	2	3	4	5
I feel connected to others	1	2	3	4	5
I jump or am startled by unexpected sounds.	1	2	3	4	5
I feel invigorated after helping	1	2	3	4	5
I find it difficult to separate my personal life from providing help	1	2	3	4	5
I am not as productive at work because I am losing sleep over traumatic experiences of the person I am taking care of	1	2	3	4	5

I think that I might have been affected by the traumatic stress of the person I take care of	1	2	3	4	5
I feel trapped by my role in providing help	1	2	3	4	5
Because of my helping, I have felt "on edge" about various things	1	2	3	4	5
I like to be of help	1	2	3	4	5
I feel depressed because of the traumatic experiences of the person I am taking care of	1	2	3	4	5
I feel as though I am experiencing the trauma of the person I am taking care of	1	2	3	4	5
I have beliefs that sustain me	1	2	3	4	5
I am pleased with how I am able to be of help	1	2	3	4	5
I am the person I always wanted to be	1	2	3	4	5
My helping makes me feel satisfied	1	2	3	4	5
I feel worn out as a result of taking care of my relative	1	2	3	4	5
I have happy thoughts and feelings about my helping	1	2	3	4	5
I feel overwhelmed because of the helping demands	1	2	3	4	5
I believe I can make a difference through my helping	1	2	3	4	5
I avoid certain activities or situations because they remind me of frightening experiences of the person I am taking care of	1	2	3	4	5
I am proud of what I can do to help	1	2	3	4	5
As a result of my helping, I have intrusive, frightening thoughts	1	2	3	4	5
I feel my helping is so difficult I cannot do any other thing else	1	2	3	4	5
I have thoughts that I am a "success" in helping	1	2	3	4	5
I can't recall important instances of my helping	1	2	3	4	5
I am a very caring person	1	2	3	4	5
I am happy to be of help	1	2	3	4	5

A3. PERCEIVED DISCRIMINATION AND DEVALUATION SCALE (PDD)

Please indicate your degree of agreement or disagreement with these items as they apply to you. At the right-hand side of the questionnaire are possible options for you to use in making your responses by any one of the following: 1 (Strongly Agree), 2 (Agree), 3 (Slightly Agree), 4 (Slightly Disagree), 5 (Disagree), 6 (Strongly Disagree). Circle the answer that shows how much you agree or disagree with each of the following statements.

Item	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
Most people would willingly accept a person who has been in a mental hospital as a close friend	1	2	3	4	5	6
Most people believe that someone who has been hospitalized for mental illness is dangerous	1	2	3	4	5	6
Most people believe that a person who has been hospitalized for mental illness is just as trustworthy as the average person	1	2	3	4	5	6
Most people would accept a person who has fully recovered from mental illness as a teacher of young children in a public school	1	2	3	4	5	6

Most employers will not hire a person who has been hospitalized for a mental illness	1	2	3	4	5	6
Most people think less of a person after he/she has been hospitalized for a mental illness	1	2	3	4	5	6
Most people will be willing to marry someone who has been a patient in a mental hospital	1	2	3	4	5	6
Most employers will hire a person who has been hospitalized for mental illness if he or she is qualified for the job	1	2	3	4	5	6
Most people believe that entering a psychiatric hospital is a sign of personal failure	1	2	3	4	5	6
Most people will not hire a person who has been hospitalized for serious mental illness to take care of children, even if he or she had been well for sometime	1	2	3	4	5	6
Most people in my community would treat a person who has been hospitalized for mental illness just as they would treat anyone	1	2	3	4	5	6
Most young people would be reluctant to date someone who has been hospitalized for a serious mental illness.	1	2	3	4	5	6

A4. THE HAWTHORNE FRIENDSHIP SCALE

Please indicate your degree of agreement or disagreement with these items as they apply to you. At the right-hand side of the questionnaire are possible options for you to use in making your responses by any one of the following: 1 (almost always), 2 (most of the time), 3 (about half of the time), 4 (occasionally), 5 (not at all). Select the number that honestly reflects how frequently you experienced these things in the last four weeks.

Items	Almost always	Most of the time	About half of the time	Occasionally	Not at all
I found it easy to get on with other people.	1	2	3	4	5
I felt lonely	1	2	3	4	5
I had someone to share my feeling with	1	2	3	4	5
I found it easy to make contact with people	1	2	3	4	5
I felt I was a burden to people	1	2	3	4	5

A5. THE ZARIT BURDEN INVENTORY (ZBI-12)

Please indicate your degree of agreement or disagreement with these items as they apply to you. At the right-hand side of the questionnaire are possible options for you to use in making your responses by any one of the following: 0 (Never), 1 (Rarely), 2 (Sometimes), 3 (Quite frequently), 4 (Nearly Always). Circle the answer that shows how much the statements appeal to you.

Do you feel ...?

Items	Never	Rarely	Sometimes	Quite frequently	Nearly always
That because of the time you spend with your relative that you don't have enough time for yourself.	0	1	2	3	4
Stressed between caring for your relative and trying to meet other responsibilities (work/family)?	0	1	2	3	4
Angry when you are around your relative	0	1	2	3	4
That your relative currently affects your friendship with family members or friends in a negative way?	0	1	2	3	4
Strained when you are around your relative?	0	1	2	3	4
That your health has suffered because of your involvement with your relative?	0	1	2	3	4
That you don't have as much privacy as you would like because of your relatives?	0	1	2	3	4
That your social life has suffered because you are caring for your relative.	0	1	2	3	4
That you have lost control of your life since your relative illness?	0	1	2	3	4
Uncertain about what to do about your relative	0	1	2	3	4
You should be doing more for your relative.	0	1	2	3	4
You could do a better job in caring for your relative.					

B. QUESTIONNAIRES IN IGBO

B1. AJUJU NCHOPUTA

Abụ m nwa akwụkwọ n'ògò di elu nke ngalaba Saikoloji, na Mahadum Najirja. Nsuka. Ajuju nchoputa a bụ maka nchọcha m na-eme gbasara ọdịmma nke ndị nlekota ndị nwere orịa ụbụrụ (ndị uche na-ezughi oke). Nchọcha a ga-enye aka ighota ọnọdụ ahụ ike nke ụbụrụ nke ndị na-elekota ndị nwere orịa ụbụrụ n' Ọwụwa-Anyanwụ, Najirja. Ezi nghota ị nwere n'ịza ma zighachite ajuju nchoputa a ga-amasi m. Azịza obula ị nyere ga-abụ nke onye ọzọ agaghị enwe ike ịma. Ndeewo.

Ebulum Genevieve Chimaoge (Rev. Sr.)

Biko, gbalịa nye ọsịsa n'ajuju ndị a dika o siri metuta gi.

Jenda: Nwoke () Nwaanyi () **Afọ:**

Okpukpere chi: Otu ụka () Islam () Onye Ọdinaala () Ndị ọzọ (kọwaputa).....

Ogo Agụmakwụkwọ: Agughị chaa () Praịmarị () Sekondirị () Mahadum ()

Orụ aka gi:

Okwa Alụmdi: Ị lụrụ di/nwunye () Ị lụbeghi () Ajadu (Nwoke/Nwaanyi) () Alụkwaghị ()

Ọ bụrụ na ị lụrụ di/nwunye, depụta ụmụ ole ị mụrụ:.....

Mmekọrịta di n'etiti gị na onye ọjia: Nne () Nna () Di () Nwunye () Nwa () Nwanne nwoke/nwaanyị () Ndịozo (gospitara nke ọ bụ) _____

Mgbe ọ rịawara ọjia ahụ:.....

Ụdi ọjia ọ na arịa

B2. AGBA NKE MBỤ:

SQVEE MAKA NTOZUOKE NLEKỌTA AHỤIKE

Mgbe I na-enyere ndị ọjia aka, gị na ha na-enwe mmekọrịta. Dịka I chọputara na obi ebere I nwere maka onọdụ ahụike ha na-emetuta gị n'uzo di mma maobu na-adighi mma. Ndi a bugasi ufodu ajuju gbasara ahumihe, ma nke oma ma nke ozo, i nwegasiri dika onye nlekota. Lebaara ajuju nke obula dika o si metuta gi nakwa oru I na-arụ ugbo a. Horo nomba nke gosiputara ahumihe i nwere n'iri ubochi ato gara aga.

1 = chaa 2 = odikata 3 = mgbe ufodu 4 = otutu mgbe 5 = mgbe niile

Ihe nleba anya	Chaa	Odikata	Mgbe ufodu	Otutu mgbe	Mgbe niile
Obi di m anuri.	1	2	3	4	5
Mmụọ m di na mmadu ole m na-elekota	1	2	3	4	5
Ana m enwe afọ ojuju n'iso lekota ndi ọjia	1	2	3	4	5
Mu na ndi mmadu na-enwe mmekorita	1	2	3	4	5
Ana m akujia ma m nu mkpotu m amaghi ebe o si	1	2	3	4	5
Ana m enwe agbamume ma m nyere ndi ọjia aka.	1	2	3	4	5
Ọ na-ahia m ahụ iwezuga obibi ndu m na obibi ndu dika onye nlekota	1	2	3	4	5
Anaghị m aruputa oru etu o kwesiri n'ulo oru n'ihi enweghi ezumike site n'oke ahụ mgbu dakwasiri onye m na-elekota.	1	2	3	4	5
Ọ di m ka oke ahụ mgbu ndi m na-eleta emekpaala m ahụ	1	2	3	4	5
Oru m dika onye nlekota emeela ka m ghara itinye uche n'ihe ozo	1	2	3	4	5
Ana m eke nkwicha n' ihe obula n'ihi enyemaka m na-enye onye ọjia	1	2	3	4	5
Ọ na-amasi m inyere ndi mmadu aka	1	2	3	4	5
Obi anaghị adi m mma n'ihi oke ahụ mgbu ndi m na-elekota na-enwe	1	2	3	4	5
Ọ di ka oke ahụ mgbu ndi na-elekota na-emetuta m	1	2	3	4	5
E nwere m nkwenye na edu m	1	2	3	4	5
Ọ na-enye obi anuri ka m si nwee ike inye aka	1	2	3	4	5
Obi siri m ike oge obula	1	2	3	4	5
Oru m na-enye m afọ ojuju	1	2	3	4	5
Obi na-ada m mba n'ihi oru m dika onye nlekota	1	2	3	4	5
Ana m echere ndi m na-elekota echiche oma ma na-achokwa uzọ m ga-esi agba ha ume	1	2	3	4	5
Oru m na-arụ na-agbagide m	1	2	3	4	5
Ekwenyere m na m ga-esite n'inyere ndi ozo aka gbanye ezi mgborogwu na ndu ha	1	2	3	4	5
Ana m akpachara anya wezuga otutu onodu di iche iche na ndu m maka na ha na-echetere m oke ahụ mgbu ndi m na elekota nwere	1	2	3	4	5
Ọ na-enye m oke onu n'ihe m nwere ike imenwu	1	2	3	4	5

Ana m enwe echiche na-eyi egwu n'ime onwe m, n'ih nlekota m na-elekota onye orja	1	2	3	4	5
Echere m na oru a na-enye m oke nsogbu nke na o naghị ekwe m eme ihe ozo	1	2	3	4	5
Enwere m nkwenye na abu m onye mmeri n'oru a	1	2	3	4	5
Agaghị echetanwu n'oru a mgbe onye m letara nwere ahụ mgbu	1	2	3	4	5
Enwere m obi ebere nede ndi ozo no	1	2	3	4	5
O na-enye m anuri n'udi oru m na-arụ	1	2	3	4	5

B3. AGBA NKE ABUO

AJUJU NCHOPUTA MAK IHERE DIIRI ONYE ORJA UBURU

Biko gosiputa ogo nkwenye/ekwenyeghi inwere banyere ihe ndia dika o si metuta gi. N'akanri ajuju nchoputa a, e nwere ogbara I ga-esi na ha horo nke ga-abu osisa gi dika o si metuta gi.

1 (Ekwesiri m ike), 2 (Ekwere m), 3(Ekwechaghị m), 4(Ajuchaghị m), 5(Ajuru m), 6(Ajusiri m ike). Gosiputa nkwenye/ekwenyeghi gi site n'ika ihe na gburugburu osisa nke I horo.

Ihe nleba anya	Ajusiri m ike	Ajuru m	Ajuchaghị m	Ekwechaghị m	Ekwere m	Ekwesiri m ike
Qtutu ndi mmadu were ike inabata na-eleghi anya nazu, onye noburu n'ulo ogwu ebe a na-eleta ndi nwere orja uburu dika ezigbo enyi	1	2	3	4	5	6
Qtutu ndi mmadu kwenyere na onye norola nakwa orja n'ulo ogwu ebe a na-edosa ndi nwere orja uburu nwere ike imeru onye ozo ahụ	1	2	3	4	5	6
Ndi mmadu kwenyere na onye noburu n'ulo ahuike maka orja uburu bu onye a ga-atukwasinwu obi dika onye ahụ zuru oke	1	2	3	4	5	6
Qtutu ndi mmadu ga-anabatanwu onye a gworo orja uburu dika onyenkuzi ga-akuziri umuaka n'ulo akwukwo goomentị nwe	1	2	3	4	5	6
Qtutu ndi isi uloro agaghị ewe onye noburu n'ulo ahuike na-ahụ maka ndi orja uburu noru	1	2	3	4	5	6
Ndi mmadu na-enefere ihe onye nweburu orja uburu mere, anya. (n'udi na ha amaghị ihe ha na-eme)	1	2	3	4	5	6
Qtutu ndi mmadu na-enwe mmaji ilu onye noburu n'ulo ahuike na-ahụ maka orja uburu	1	2	3	4	5	6
Qtutu ndi isi uloro ga-ewe onye nweburu orja uburu, noru, ma o buru na o tozuru	1	2	3	4	5	6
Ufodu ndi mmadu kwenyere na ino n'ulo ahuike orja uburu na-egosi na uwa onye ahụ agaala	1	2	3	4	5	6
Qtutu ndi mmadu agaghị ewe onye nweburu orja uburu, noru ka o lekotawa umuaka nagbanyeghi na o dichaala ya mma otutu oge gara aga	1	2	3	4	5	6
Ndi mmadu no nobodo m ga-emeso onye noburu n'ulo ahuike orja uburu, omume ka ha ka-esi emeso onye ahụ zuru oke	1	2	3	4	5	6
Qtutu ndi ntobia agaghị enwecha mmaji n'inwe mmekorita netiti ha na onye nweburu oke orja uburu	1	2	3	4	5	6

B4. AGBA NKE ATQ**HAWTHRONE FRIENDSHIP SCALE**

Biko gosiputa ogo nkwenye/ekwenyeghi n'ihe nleba anya ndi dika ha si metuta gi. N'aka nri ajuju nchoputa a, enwere ogbara ndi I ga-esi na ha wee nye osisa gi, dika o si di n'ihe ndi a:

1 (mgbe niile), 2 (mgbe ufodu), 3 (obuchaghi mgbe niile), 4 (odikata), 5 (chaa).

Horo nomba nke kwaputara etu I si nwee ahumihe n'ihe nleba anya ndi a.

Ihe nleba anya	Mgbe niile	Mgbe ufodu	Obuchaghi mgbe niile	Odikata	Chaa
Q na-adiri m mfe m na ndi ozo inwe mmeko	1	2	3	4	5
Q di m ka uwa agbahapuru m	1	2	3	4	5
Enwere m onye m na-akosara uwa m	1	2	3	4	5
Q na-adiri m mfe m na ndi ozo inwe mmeko	1	2	3	4	5
Q di m ka m n-enye ozo nsogbu	1	2	3	4	5

B5. AGBA NKE ANQ**ZARIT BURDEN INVENTORY**

Biko, gosiputa ogo nkwenye/ekwenyeghi n'ihe nleba anya ndi a dika ha si metuta gi. N'aka nri ajuju nchoputa a, enwere ogbara ndi I ga-esi na ha wee nye osisa gi dika o si di n'ihe ndi a:

O (chaa), 1 (odikata), 2 (Mgbe ufodu) 3 (otutu mgbe), 4 (Mgbe niile).

Iji gosi ka nke obula si metuta gi, kaa ihe na gburugburu osisa I horo.

I chere na?

Ihe nleba anya	Chaa	Odikata	Mgbe ufodu	Otutu mgbe	Mgbe niile
N'ih nnoko gi na umunne gi na-enwe na i nagh enwe oge nke aka gi	0	1	2	3	4
Q na-emetuta ikeoru gi n'inyer ndi nke gi aka nakwa iru oru ndi ozo diiri gi (n'ulooru/ezinaulo)	0	1	2	3	4
Iwe na-ewe gi mgbe obula I no netiti umunne gi?	0	1	2	3	4
Na umunne gi na-ebutere gi enweghi ezi mmekorita netiti ndi ezinaulo gi maobu ndi enyi gi?	0	1	2	3	4

I na-enwe mgbakasị ahụ mgbe ọbụla gi umunne gi nọ?	0	1	2	3	4
Na ahụike gi adịchaghizi etu okwesiri maka nnọkọ gi na umunne gi na-enwe?	0	1	2	3	4
I naghị enwezi oge nke aka gi dika i choro n'hi umunne gi?	0	1	2	3	4
Onodu gi n'oha adichighizi etu i choro n'hi anya i na-eledo nwanne gi?	0	1	2	3	4
I naghị elezi ndu anya etu o kwesiri n'hi nsogbu ahụike nwanne gi?	0	1	2	3	4
I maghizi ihe i ga-eme maka nsogbu ahụike nwanne gi?	0	1	2	3	4
I ga na-elekwasị nwanne gi anya karịa?	0	1	2	3	4
I ga-eledonwu nwanne gi anya karịa etu i si emebu na mbu	0	1	2	3	4