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Caregiver characteristics, social support and psychological distress among informal caregivers

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ABSTRACT

Informal caregivers of patients undergoing treatment play a crucial role in patients' recovery, and so are important to the healthcare system. However, little attention is given to the concerns of this important group by researchers and health policy makers, especially in low- and middle-income countries. This study examined the associations of caregiver characteristics, social support and psychological distress among informal caregivers in two Nigerian healthcare settings. Participants consisted of 315 caregivers (65.4% female; mean age = 31.13 years, SD = 10.70) who provided relevant demographic information and completed the Oslo Social Support Scale and the General Health Questionnaire (GHQ-12). Results showed that psychiatric inpatients' caregivers (PICs) reported greater social support than orthopaedic inpatients' caregivers (OICs). Consanguinity with patient had a significant effect on both social support and psychological distress in both groups. Differences in both social support and psychological distress were not found with respect to the caregivers' gender, locality (urban vs. rural), and patients' gender. We found that OICs reported greater psychological distress than PICs; however, a moderation result showed that being an orthopaedic caregiver predicted increased psychological distress for those with low and moderate levels of social support but at high social support, psychological distress levels did not vary as a function of hospital setting. Hence, the need for a long-term support for the informal caregivers of hospitalized patients where this is a practice.

Introduction

Being ill places a lot of burden on the informal caregivers and their resources. Many a time, the ill patients would require hospital admission and at such instances, their relatives typically extend their roles during the inpatient care to augment the gaps in the formal caregiving by health workers. A family member or friend who helps in the daily cares of a patient disable person is described as informal caregiver. This is a common practice in most countries of sub-Sharan Africa where shortage of health care workers creates a huge gap in caretaking responsibilities for patients especially when hospital admission becomes necessary (Akosile et al., 2018; Ifeagwazi et al., 2012; Yakubu & Schutte, 2018). Hospitals in Nigeria are often short-staffed; with an average ratio of one doctor to 1: 3000, while nurse per head is 1:2000 (Ubochi et al., 2019). This is below World Health Organisation (WHO) recommended ratio of 1 doctor per 1,000 population (WHO, 2018a) and 40 nurses per 10,000 population (WHO, 2018b). Considering the inadequate/low health provider-patient ratio and deficit of other health care workers in Nigeria hospital settings particularly during hospital admission, the gaps in care are usually filled by relatives or hired informal caregivers who may from time to time go to the hospital pharmacy to procure prescribed medications, buy needed items for the patient, hand-wash clothes, assist in bathing and in feeding, contacting other family members for any emergency and often render help to healthcare workers who are usually inadequate in number. Because they are mostly family members who can be parents, spouses, or other relations, informal caregivers are also referred to as family caregivers (see Patel, 2019).

While bridging the gap in healthcare services, informal caregivers of inpatients may be exposed to conditions which may be traumatic like sleeping in an environment that is not conducive, witnessing traumatic injury or severe problematic behaviours. Hence, they are often exposed to stressful and unpleasant situations in which they have limited options. For example, most hospitals in Nigeria make provision exclusively for their admitted patients, in terms of sleeping space, feeding and other conveniences. The caregivers sometimes assume the responsibility of care with inadequate

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knowledge of the care recipient's diagnosis and insufficient skill to provide the care (El-Tantawy et al., 2010, Sullivan & Miller, 2015). Some of them often take up the caring role under sudden and extreme conditions with minimal preparation, little guidance and limited support from other relations, less contact with colleagues and friends, even healthcare system (Chukwuorji et al., 2017; Mezinew et al., 2015, Rokach et al., 2018; Sullivan & Miller, 2015).

The caring role sometimes may be for a long period and providing such care could be a persistent stressor (Aadil et al., 2010; Greene et al., 2017; Stein et al., 2016; Seifert & Seifert, 2019; Yoo et al., 2018) which is made worse by financial constraint (Diameta et al., 2018) that sometimes could bring to a halt the patient's medical investigations and treatment. Furthermore, the severity of symptoms, especially problematic behaviours and disabilities (Aadil et al., 2010, Bassi et al., 2016; Maddux et al., 2019; Mezinew et al., 2015; Ohaeri, 2003) could worsen the stress of care giving. The burden of care could be so overwhelming that it often challenges caregivers' mental and physical well-being, strains their relationship with the care-recipients, undermines their usefulness as caregivers and weakens care recipients' mental health and recovery (Aadil et al., 2010; Cameron et al., 2006; Ivery & Muniz, 2017). However, good evidence showed that care-giving could also be a pleasant or satisfactory experience: like, pride in fulfilling spousal responsibilities, enhanced closeness with a care receiver, or satisfaction with one's competence (Kramer, 1997, Vasoontara et al., 2012, Sullivan & Miller, 2015, Van de Ree et al., 2018). Additionally, it could engender anticipatory grief in event of eventual death of the loved one and thus reduce the intensity of associated grief reaction.

The caregiving role could be physically and emotionally exhausting and at times may require critical adjustments in the daily routines of the informal caregivers. It has been shown to precipitate psychological distress (Oshodi et al., 2012; Mezinew et al., 2015; Borsje et al., 2016; Chukwuorji et al., 2017., Van de Ree et al., 2018, Diameta et al., 2018) which is found to be two times compared to general population (Mezinew et al., 2015). Psychological distress is defined as “a unique discomforting, emotional state experienced by an individual in response to a specific stressor or demand that results in harm, either temporary or permanent to the person.” (Ridner, 2004). Despite the obvious experience of psychological distress among this population, they are often neglected during both in-patients' and out- patients' evaluation and management. Studies have shown that some factors influence caregivers' psychological distress among psychiatric and orthopaedic patients and these include: being female caregiver, caring for psychotic patients, being female patient, frequent hospitalization, older age, being unemployed, low income, missed social support, duration of illness, loss of job to caring role or combining work with the care giving, being a spouse and assistance of a secondary caregivers (Ziran et al., 2009, Mitsonis et al., 2012, Mezinew et al., 2015, Vijayalakshmi, 2016; Borsje et al., 2016, Chukwuorji et al., 2017; Newcomb et al., 2018).

A variable of interest in this study is social support, which refers to the various assistance people receive from others in times of need, often classified into emotional, instrumental, and informational support (Cohen, 2004). This could come from family members, friends and significant others which has beneficial effect on wellbeing (Zimet et al., 1988). Studies indicate that social support is linked to psychological health (Aliche et al., 2018; Berglund et al., 2015; Brailovskaia et al., 2019; Chang et al., 2016; Chukwuorji et al., 2019, Lerner, Chang, Rogers et al., 2017), and support networks including participation in social activities can alleviate caregivers' burden of care and psychological distress (Ifeagwazi et al., 2012; Oshio & Kan, 2016; Pailler et al., 2016). The main-effect model of social support proposed that there is a relationship between social support and caregiver distress regardless of the stressor condition, indicating that support has beneficial effect irrespective of whether persons are under stress (Cohen & Wills, 1985). Consequently, when informal caregivers lack social support while caring for their hospitalized sick relatives, the experience of psychological distress is to be anticipated.

Despite reported psychological distress in some studies among this population, (Lerner et al., 2017, Chukwuorji et al., 2017, Lacey et al., 2019, Esezobor et al., 2020) their assistance especially in a hospital setting may have to persist in many developing countries such as Nigeria. Therefore, this study aimed to determine the experience of psychological distress among the informal caregivers of inpatients in two hospital settings: one, a standalone mental health facility (psychiatric hospital) and the other a standalone facility for physical illness (orthopeadic hospital). The two settings often require long stay, but they could be perceived differently. Orthopaedic patients suffer from physical conditions which are usually appreciated by relations and those around; whereas psychiatric illnesses are poorly conceptualized, understood and stigmatized in the Nigerian culture such that even the caregiver can face the stigma. As a result, the level of social support and psychological distress in these two patient populations may be influenced by the differences in experiences of living with the illnesses. This study also seeks to determine the association of various sociodemographic variables including social support with psychological distress.

This study therefore hypothesized that (1) orthopaedic impatient caregivers (OICs) will report greater psychological distress compared to psychiatric inpatient caregivers (PICs) (2) Social support will be significantly associated with psychological distress such that caregivers with low social support will report greater psychological distress (3) Social support will moderate the relationship between hospital setting and psychological distress. This study to the best of our knowledge is the first to study this population in two specialist training health facilities in the sub-Saharan African setting. It is hoped that the findings of this study could direct policy on the use of informal caregivers in the management of patients especially where this is practice.

Method

Participants and procedure

The study sample comprised 315 informal caregivers of patients admitted in the two specialist hospitals in South-east Nigeria: National Orthopaedic Hospital, Enugu (NOHE) (n = 173) and Federal Neuropsychiatric Hospital, Enugu (FNPE) (n = 142). Exclusion criteria from the study was being a professional or paid caregiver (e.g., a nurse, health attendant) or have a history of psychiatric disorder or have any chronic medical illness. The informal caregivers stay with admitted patients in the two hospital wards. Four psychology graduates were recruited and trained as research assistants to help in data collection. Eligibility criteria for participation in the study included being an adult informal caregiver (≥18 years of age), and English language literacy. Out of the 348 informal caregivers who were approached and requested to participate in the study, 315 accepted to participate representing 90.52% response rate. Due to the lack of accommodation in the hospital for caregivers, presence of caregivers is controlled in such a way that there was a 1 to 1 ratio of patients to caregivers at any point in time. Following a complete description of the study to the volunteers by the research assistants, a written informed consent was obtained from those who were willing to complete the questionnaires. All the participants were assured of anonymity and confidentiality. The study questionnaires were administered in English language, since English language is Nigeria's official language. It is widely used in formal communication (Dada, Owoeye, & Ojo 2015) that even uneducated Nigerians make effort to learn and use the language (Taiwo, 2009). National adult English language literacy in Nigeria was 57.9%, but the South-east region of Nigeria where the study was conducted had the highest level of English language literacy out of the six-geopolitical zones in Nigeria (73.8%) (National Bureau of Statistics, 2010). The questionnaires were administered to the participants individually and collected on completion. The research protocol and procedure were approved by the Health Research Ethics Committee of the University of Nigeria Teaching Hospital Ituku-Ozalla Enugu.

Instruments

Socio-demographic features: A pro forma was developed by the researchers to collect relevant information from the participants. Information collected included the age, gender, marital status, occupation, place of residence (urban or rural), and religion. Other information collected include relationship with patient (immediate family member: father, mother, son, daughter, brother, sister, spouse; not immediate family member: other relative or non-relative like a neighbor) and duration of current hospital admission.

Oslo Social Support Scale: The 3- item Oslo Social Support Scale (3-OSS) was used to assess participants' social support during the period. The Oslo 3-item provides a brief measure of social functioning and covers different aspects of social support by measuring the number of people the respondent reports being close to; the interest and concern shown by others and the ease of getting practical help from neighbours. A sum index is obtained by adding the raw scores of the three items. The scores range from 3-14, with higher scores indicating stronger support. The Oslo-3 was validated in Nigeria and it was found to discriminate well against psychological distress, with negative association with depression (r = .30, p= .011) (Abiola, Udofia, & Zakiri, 2013). Cronbach's α in the present study was .71.

General Health Questionnaire: The 12-items version of Goldberg's (1972) General Health Questionnaire (GHQ-12) was used to assess psychological distress. This is a screening instrument designed for screening individuals with a diagnosable psychiatric disorder (Goldberg & Hillier, 1979). The GHQ-12 is popular screening tool for common mental disorders as well as a general measure of psychological wellbeing (see Ifeagwazi et al., 2015). It has been found to have adequate psychometric properties in Nigeria (Ohaeri, 2001; Njoku, 2010). A recent study of Nigerian orthopaedic caregivers reported a Cronbach's α of .71 (Chukwuorji et al., 2017). For the present study, we obtained a Cronbach's α of .76.

Data Analysis

Multivariate Analysis of Variance (MANOVA) was employed to test for significant differences in social support and psychological distress on account of categorical demographic characteristics. Pearson's correlation was employed to examine relationships between the demographic factors that had continuous scores, social support and psychological distress. Hayes PROCESS macro was used to determine whether some of the demographic factors are moderators in the association between social support and psychological distress. All analyses were done using SPSS® version 22.

Results

The demographic characteristics of the caregivers in the two healthcare settings are shown in Table 1. The caregivers in both settings were mostly female, Catholics, resident in urban areas and young adults. Unlike the orthopaedic inpatients, most of the caregivers of psychiatric inpatients were family members.

Socio-demographic factors in relation to psychological distress and social support

Findings from the MANCOVA showed that there was a significant difference in psychological distress between the orthopaedic inpatients' caregivers (OICs) and the psychiatric inpatients' caregivers (PICs), F(1, 314) = 25.28, p<.001. Psychological distress was higher among OICs (M = 16.81, SD = 5.05) than PICs (M = 13.80, SD = 5.55), with an effect size (eta2) of .08. Caregivers of psychiatric inpatients reported higher social support (M = 9.65, SD = .20) than OICs (M = 8.78, SD = .18), F(1, 314) = 10.28, p = .001, eta2 = .03.

For the orthopaedic caregivers, there were no gender differences in psychological distress and social support, F(1, 171) = .91, p = .341, and F(1, 171) = .61, p = .437, respectively.

Table 1: Demographic characteristics of study participants (*N* = 315)

Variable	Group	Orthopaedic Caregivers (n =173)	Psychiatric Caregivers (n=142)	Total
Gender of Caregiver, *n*(%)	Male	55(31.8)	54(38.0)	109(34.6)
	Female	118(68.2	88(62.0)	206(65.4)
Gender of Patient, *n*(%)	Male	79(45.7)	55(38.7)	134(42.5)
	Female	94(54.3)	87(61.3)	181(57.5)
Caregiver-patient relationship, *n*(%)	Family member	79(45.7)	103(72.5)	182(57.8)
	Non-family member	94(54.3)	87(61.3)	181(57.5)
Religion, *n*(%)	Catholic	91(52.6)	71(50.0)	162(51.4)
	Protestant	7(4.0)	22(15.5)	29(9.2)
	Pentecostal	60(34.7)	44(31.0)	104(33.0)
	Others	15(8.5)	5(3.5)	20(6.30)
Marital status, *n*(%)	Never married	15(8.7)	6(4.2)	21(6.7)
	Married	12(6.9)	26(18.3)	38(12.1)
	Divorced	62(35.8)	46(32.4)	108(34.3)
	Separated	40(23.1)	45(31.7)	85(27.0)
	Widow	44(25.4)	19(13.4)	63(20.0)
Locality of residence, *n*(%)	Urban	119(68.8)	93(65.5)	212(67.3)
	Rural	54(31.2)	49(34.5)	103(32.7)
Age (Years), *M*(*SD*)		30.81(10.89)	31.51(10.61)	31.13(10.70)
Duration of care (Weeks), *M*(*SD*)		34.35(46.14)	18.84(18.70)	27.36(3.21)
Social support, *M*(*SD*)		8.77(2.42)	9.65(2.37)	9.17(2.42)
Psychological distress, *M*(*SD*)		16.81(5.04)	13.80(5.52)	15.45(5.40)

Urban and rural residents did not differ in psychological distress and social support, F(1, 171), .87, p = .352, and F(1, 171), .01, p = .937. Family caregivers reported higher social support (M = 9.22, SD = .27) than non-family caregivers (M = 8.40, SD = .25), F(1, 171) = 4.90, p = .028, eta2 = .03. Conversely, non-family caregivers reported more adverse mental health status (M = 18.03, SD = .50) than family caregivers (M = 15.35, SD = .55), F(1, 171) = 12.91, p<.001,eta2 = .07. Caregivers of male inpatients did not differ from caregivers of female inpatients in social support, F(1, 171), = .13, p = .716, and F(1, 171) = .44, p = .510. Caregivers who were unemployed reported lower support (M = 8.22, SD = .29), than those who were employed (M = 9.50, SD = .45), F(2, 170) = 3.48, p = .048, eta2 = .04. Unemployed caregivers reported higher psychological distress (M = 18.43, SD = .59), than the self-employed caregivers (M = 15.56, SD = .57), F(2, 170) = 6.57, p = .002, eta2 = .07.

Gender differences were not found in social support {F(1, 140) = .26, p = .612} and psychological distress {F(1, 140) = .09, p = .765} among the PICs. Marital status did not make any difference in psychological distress, F(4, 142) = .37, p = .831, but in social support, married caregivers had higher scores than those who were separated, F(4.137) = 2.39, p = .048. Locality differences were not found for both social support and psychological distress, F(1, 140) = .06, p = .810, and F(1, 140) = .19, p = .831, respectively. Family caregivers and non-family caregivers did not differ in social support, F(1, 140) = .79, p = .930. However, family caregivers reported higher psychological distress (M = 15.06, SD = .51) than non-family caregivers (M = 10.44, SD = .83), F(1, 140) = 22.05, p<.001. There were no differences in social support and psychological distress on account of inpatients' gender, F(1, 140) = .07, p = .793, and F(1, 140) = .06, p = .801, respectively. Scores of employed, self-employed and unemployed psychiatric inpatients' caregivers were not different in social support and mental health, F(2, 139) = 1.98, p = .140, and F(2, 139) = .18, p = .838, respectively.

Pearson's correlations showed that there is a positive correlation between age and social support among OICs (r = .15, p = .049), but a negative correlation between age and social support among PICs (r = -.21, p = .01). Longer duration of care was associated with lower social support among OICs (r = -.17, p = .02) only. Social support was negatively associated with psychological distress for OICs (r = -.33, p<.001), but not for PICs (r = -.09, p = .277).

In Table 2, social support was the independent variable, employment status was the moderator, while duration of care was included in the model as a covariate due to its significant association with social support among the OICs.

Table 2: Hayes PROCESS macro results predicting psychological distress by social support with employment status as moderator (covariate = duration of care) among orthopaedic patients' caregivers

Variable	*B*	*SE*	*t*	*p*	*95% CI*
Duration of care	-.02	.01	-1.28	.204	[-.05, .01]
Employment status (ES)	-1.12	.49	-2.29	.023	[-2.09, -.15]
Social support (SS)	-.67	.19	-3.45	.001	[-1.05, -.29]
ES X SS	-.23	.28	-.81	.417	[-.79, .33]

Employment status was considered as a possible moderator variable because of the earlier finding indicating its effect on both social support and psychological distress among the caregivers. It was found that for each one unit rise in social support, psychological distress gets lower by -.67. The interaction effect of social support and employment status was not significant. All the variables explained 17% of the variance in psychological distress, R2 = .17, F(4, 168) = 5.36, p = .001.

Table 3: Hayes PROCESS macro results predicting psychological distress by social support with patient-caregiver relationship as moderator (covariate = duration of care) among orthopaedic patients' caregivers

Variable	*B*	*SE*	*t*	*p*	*95% CI*
Duration of care	-.01	.02	-.89	.377	[-.05, .02]
Caregiver-patient relationship (CPR)	1.94	.74	2.61	.010	[.47, 3.40]
Social support (SS)	-.67	.19	-3.55	.000	[-1.04, -.30]
CPR X SS	.09	.36	.25	.801	[-.63, .81]

In Table 3, the independent variable and the covariate were the same as in Table 1, but caregiver-patient relationship was a possible moderator variable because of its significant effect of both social support and mental health among the orthopaedic inpatients' caregivers in this study. The interaction effect of social support and care-giver patient relationship was not significant. All the variables explained 17% of the variance in psychological distress, R2 = .17, F(4, 168) = 5.86, p< .001.

Table 4: Hayes PROCESS macro results predicting psychological distress by social support with patient-caregiver relationship as moderator (covariate = age of caregiver) among psychiatric patients' caregivers

Variable	*B*	*SE*	*T*	*p*	*95% CI*
Age	-.00	.05	.04	.965	[-.09, .09]
Caregiver-patient relationship (CPR)	-4.70	.94	-5.03	.000	[-6.55, -2.85]
Social support (SS)	-.29	.18	-1.60	.112	[-.64, .07]
CPR X SS	-.06	.42	-.15	.881	[-.90, .77]

In Table 4, the independent variable was social support, with caregiver-patient relationship as moderator, and age as covariate among the psychiatric inpatients' caregivers. Earlier result had shown a negative correlation between age and social support, and there were significant differences between family caregivers and non-family caregivers in psychological distress. The interaction effect of social support and care-giver patient relationship was not significant. All the variables explained 15% of the variance in psychological distress, R2 = .15, F(4, 137) = 7.48, p<.001.

Table 5: Hayes PROCESS macro results predicting psychological distress by hospital setting with social support as moderator

Variable	*B*	*SE*	*t*	*P*	*95% CI*
Social support	-.48	.13	-3.77	.000	[-.73, -.23]
Hospital setting	-2.63	.60	-4.42	.000	[-3.80, -1.46]
SS X Hospital setting	.48	.25	1.91	.048	[-.02, .98]

Table 5 showed the results of the moderation analysis for the combined sample. We found that social support moderated the association between hospital settings (orthopaedic vs psychiatric) and psychological distress. The model was significant, F(3, 311) = 13.21, R2 = .13, p<.001. The graph for probing the significant interaction (see Figure 1), showed that being an orthopaedic caregiver predicted increased psychological distress for those with low and moderate levels of social support (B = -3.81, p<.001 and B = -2.63, p<.001, respectively), but at high social support, psychological distress levels did not vary as a function of being an orthopaedic caregiver versus psychiatric patient caregivers (B = -1.45, p = .090).

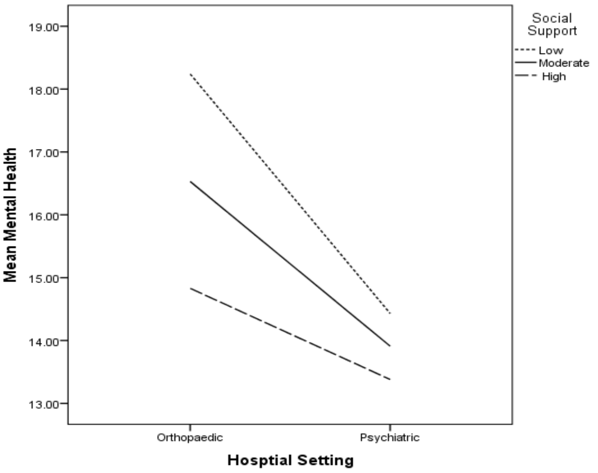

Figure 1: Slope of the moderating role of social support on association between hospital setting and mental health status.

Discussion

The major aim of the present study was to examine possible differences in psychological distress among OICs and PICs and determine whether social support would be associated with psychological distress among the caregivers. We further investigated whether the association of hospital setting with social support would be moderated by social support. As hypothesised, result of the analyses showed that OICs reported higher psychological distress than PICs. This is not surprising because patients in orthopaedic hospitals consist of those with burns, fractures or various traumatic injuries, management of which may involve the use of visible appliances like traction, plaster of Paris, pins or even outright amputation. The caregivers can easily relate with these as measure of the suffering of their loved ones unlike the psychiatric patients whose management is less externalized. In addition, orthopaedic patients are more likely to be immobilized hence, more likely to be dependent on their informal caregivers for their daily activities. This could make it more exhausting for the caregivers. For psychiatric inpatients, stress of care giving reduces soon after they settled in. In fact, patients are usually free as they move around and do certain things themselves like, bathing or eating especially once disturbing behaviours have been controlled with medication. Additionally, unlike psychiatric inpatient treatment, duration of in-patient treatment in orthopaedic hospitals often takes a longer time and providing such long-term care with associated financial constraint and poor physical environment where activity requirements are done could dispose them to psychological distress.

This study found that caregivers of psychiatric inpatients reported higher social support than orthopaedic inpatients' caregivers. This could be as a result of the stigma associated with mental illness in this part of the world which affects both patients and their family members. Consequently, as part of treatment in the study setting, these caregivers, especially family members in this study setting are often involved in the psychoeducation and psychosocial intervention to enhance better understanding of psychiatric illness thereby reducing the stigma while increasing support from the family. Again, while family caregivers of OICs reported higher social support than non-family caregivers, non-family caregivers reported more adverse mental health status than family caregivers. This is not unconnected to the fact that other family members, relatives and their friends often empathize through various forms of social support however, with non-family members, social support may not readily be available since their care giving is seemingly an adjunct. Consequently, the nature of the activity requirements for orthopaedic inpatients as well as less social support could account for the adverse psychological distress among them.

As hypothesised, findings also revealed that social support was negatively associated with psychological distress for orthopaedic patients' caregivers but not psychiatric inpatients' caregivers. The finding supports that social support is effective mainly under conditions of high levels of stressor. Earlier finding showed higher psychological distress among OICs which has been attributed to the nature and duration of their activity requirements therefore, less social support under such challenging situation could contribute to distress, hence the less the social support the higher the psychological distress. This finding agrees with some studies which showed that satisfaction with social support was associated with less emotional distress (Sander et al., 1997) and strong predictor of adjustment (Pakenham et al., 2007) conversely, burden of care is due to insufficient social support, severely dependent patient and providing care for a long time (Rosell-Murphy et al., 2014).

We also hypothesised that social support would moderate the association between hospital setting (orthopaedics vs psychiatric) and psychological distress. The study revealed that social support moderated the association between hospital settings and psychological distress. In other words, low and moderate social support was associated with greater psychological distress as an OIC but at high social support, the association was not significant. This is not surprising given the fact that the activity requirements in both settings are quite dissimilar. In orthopaedic hospital setting, majority of the inpatients are completely dependent on caregivers for their basic and functional needs of daily living which often lasts for a longer period unlike PICs. A study identified the range of stressors and burdens experienced by orthopaedic trauma family caregivers as: confusion and turmoil of life in the hospital, exposure to tragedy, difficulty obtaining and understanding information and a sense that the family was not considered an integral part of the care plan (Newcomb & Hymes, 2017). Given these identified burdens, which point towards poor informational support and emotional support, the experience of psychological distress will be obvious among OICs but if social support is enhanced, it will likely alleviate the experience of distress. More so, the financial involvement in treating patients in both settings is incomparable as it seems to cost more in orthopaedic hospitals given the nature of injury and period of treatment. The financial expenses for orthopaedic patients especially when the caregiver or care recipient is the primary wage earner could precipitate emotional distress especially in this culture where health insurance is either not in place or not functioning and family bears the financial burden.

The result also revealed that OICs who were unemployed reported lower social support than those who were employed while unemployed reported higher psychological distress than the self-employed. It is obvious that employment has a way of increasing one's social network of supportive friends and colleagues which could be called upon in a challenging moment. Being unemployed apparently would not provide such social relationships and support system from the world of work. Further, the result that unemployed caregivers reported more adverse mental health supports similar findings (Greenberg et al., 1997; Roopchand-Martin & Creary-Yan, 2014, Mezinew et al., 2015) though among caregivers of diverse patients' populations. It could be said that having an employment and working one's own business will likely provide resources especially finance without which treatment and other financial obligations may be hindered. Additionally, orthopaedic procedures often take longer time and usually expensive hence being unemployed as a caregiver of such patients could exacerbate mental distress.

The finding that family caregivers of psychiatric in-patients reported higher psychological distress than non-family caregivers is consistence with related studies (Provencher et al., 2003; Yusuf & Nuhu, 2011; Oshodi et al., 2012; Mitsonis et al., 2012; Mezinew et al, 2015). Family members are more emotionally related to the patient unlike the non-family caregivers and thus more likely to be affected. Mental illnesses are highly stigmatized in African setting and as such they are more likely to experience its negative impact than the non-family members; they may also appraise the associated behavioural disturbances especially positive symptoms, often with frequent relapses as stigmatizing than non-family members. This perceived stigma has been shown in similar studies to increase their level of psychological distress (Sandy & Magana, 2007, Yin et al., 2014, Ong, Ibrahim & Wahab 2016). Again, family caregivers unlike non-family caregivers may have had a longer exposure to the mentally ill as they do live with their psychiatric patients and this is a factor to having mental distress. This is in support of a study which found that caregivers living with their ill relatives were more likely to experience psychological distress than those living apart (Stengard & Salokangas, 1997).

The result from the Pearson's correlations revealed that being older in age was associated with having higher social support among OICs but not for PICs. This might be explained by the fact that the need for care in orthopaedic hospital settings may exceed the ability of an older caregiver, unlike psychiatric hospitals where activity requirements may unlikely be exhausting hence the support from relationships built over the years by older caregivers; more so, in this culture increase in age attracts more respect, empathy and support from family, friends and well-wishers in challenging situations. This also could account for the social support. The correlations also showed that longer duration of care was associated with lower social support among OICs only. It was apparent they received social support as indicated in the earlier result; perhaps such support came during the initial, severe stage and lessened with time. In line with this, Hill (2008) stated that informal sources of support could be available during acute stages of illness but wane when the illness continues over an extended period. In fact, Rosell-Murphy et al. (2014) asserts that family support decreases as years go by. This is also reinforced by the fact that orthopaedic inpatient treatment usually takes a longer time and as such social support earlier received may not be sustained over time.

Although this study makes some contributions to literature on caregiving particularly in sub-Saharan Africa, some weaknesses of the study should be recognized in generalizing the findings. The cross-sectional nature of the study precluded causal explanations. The study has limited number of participants even though it was conducted in two different specialist health care settings. More so, the study sample is rather selective rather than representative hence cannot be generalized to the entire population within the region. Our finding that orthopedic inpatients suffer more than psychiatric inpatients is surprising because psychiatric disorders are met with a strong stigma in Nigeria. If we had collected any information on the perceived severity of the inpatients' suffering, it is possible that such an index would constitute an interesting moderator in our analyses. These limitations need to be considered in future. Nonetheless, it is assumed that the study has succeeded in highlighting how experience of psychological distress and social support could vary across hospital settings and consanguinity.

Conclusion

The experience of psychological distress is apparent for the informal caregivers irrespective of the health care setting, with some variables contributing to the distress. However, social support showed a moderating effect on emotional distress though not in all situations. Hence the need to engage long term support for the informal caregivers of hospitalized patients in health care facilities where it is mostly needed so that their caring role not only remains beneficial for the care recipients but also for them to maintain optimal health. There is need also to observe and assess these caregivers during inpatient re-evaluation and to involve mental health professionals in a multidisciplinary team especially in cases of traumatic, chronic or acute conditions. Establishing support group and other social activities for informal caregivers in hospital settings could help to alleviate the stress of care giving.

Declarations

Funding: Funding was not received for this study by any of the authors

Conflicts of interest/competing interests: The authors declare that they have no competing interests.

Ethics approval: Approval was obtained from the Health Research Ethics Committee of the University of Nigeria Teaching Hospital Ituku-Ozalla Enugu. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

Consent: Informed consent was obtained from all the caregivers who took part in the study.

Competing Interests: The authors declare that they have no competing interest.

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