International Journal of Life Science Research Archive

ISSN: 0799-6640 (Online)

Journal homepage: https://sciresjournals.com/ijlsra/

(RESEARCH ARTICLE)

Check for updates

Social demographic predictors of depression among elderly patients in a community in south-south Nigeria

Etaoghene HI [1], Orhe OG [2,*], Oshobugie BN [3] and Aghorighor SD [4]

[1] *Department of Family Medicine. Eku Baptist Government Hospital. Eku Delta State.*
[2] *Department of Family Medicine. Delta State University Teaching Hospital, Oghara Delta State.*
[3] *Department of Laboratory Science, Afe Babalola University. Ado-Ekiti. Ekiti State.*
[4] *Department of Ear Nose and Throat. Delta State University. Oghara, Delta State.*

International Journal of Life Science Research Archive, 2026, 10(02), 061-072

Publication history: Received on 18 February 2026; revised on 26 April 2026; accepted on 29 April 2026

Article DOI: https://doi.org/10.53771/ijlsra.2026.10.2.0027

Abstract

The prevalence of depression among the elderly is high. It is often under-diagnosed and under treated in primary care because it co-exists with co-morbidity and psycho social problems. Education and employment are protective against depression and mental disorders in general while the risk of common mental disorder is higher for the poor, the unemployed, individuals with low education, and the physically ill, however, this finding has not always been consistent.

The aim of this study is to determine the prevalence of depression and its relationship with the social demographic characteristics of the target population.

The study was a hospital based descriptive cross-sectional study that was done in Eku (Delta State, Nigeria). The study instruments were Questionnaires which included a validated tool (Geriatric Depression Scale SF-15), social demographic variables, medical history and physical examination findings.

Data were collated and analyzed using the Statistical Package for Social Sciences (SPSS-21). Test of association was done using Pearson's chi square (or Fisher's exact test). The level of significance was set at 5% ($p<0.05$).

About half of the subjects, one hundred and two (49.5%) had depressive symptoms while one hundred and four (50.5%) had no depressive symptoms. A higher proportion respondent who never got married(75.0%) had depression compared to (34.9%) of the currently married respondents. The relationship between marital status, income earned, respondents living alone, respondents with no child and depression were statistically significant.

Conclusion: Social demographic characteristic like marital status, level of education, living situation, number of children and average monthly income were found to be statistical significant on a bivariate analysis while the other variables were not statistically significant.

Keywords: Depression; Elderly; Patients; Social demographic variable

1 Introduction

Depression is the leading cause of disability and is a major contributor to the disease burden worldwide.[1]It is the most common mental health problem in the elderly and exerts a profoundly deleterious effect on patients, their families, and their communities.[2] Different studies have reported an association between various social-demographic factors and

* Corresponding author: Orhe OG

depression across the world. Social demographic characteristics, such as age, gender, marital status, education level, and income have been associated with depressive symptoms, although the evidence is not entirely consistent.[3-4]

Age is associated with depressive symptoms in many studies and interestingly, this association is inverse or U-shaped in several studies.[3-5] In Mexico, Bautista et al. noted that female gender, lower level of education, lower income, and being separated or widowed were positively associated with depressive symptoms.[6] These findings were like those recorded by Afolabi and colleagues in Ilesa, South Western Nigeria.[7] Milanović *et al.* in Croatia found no association between depression and gender.[8] They however, found an association between depression and age, level of education, employment status and marital status. In Kano, North West Nigeria, depression was found to be more likely to occur in outpatients who were females, married respondents and those who had low level of education.[5] Conversely, Ogunsemi et al. observed that gender and marital status were not associated with depression in their study in Sagamu, South West Nigeria.[9] Another study in Lagos, South West Nigeria, by Coker et al. reported that only lack of formal education was predictive of depression among the social-demographic factors studied.[10]The finding is almost similar to the observation by Aillon and colleagues in Kenya where no association between social demographic factors and depression was reported.[11] The above highlighted disparities could be attributed to the differences in the study population, research methodology, time and duration of the different studies. Disparities in social economic factors as well as social cultural dynamism could have also contributed.

Education and employment are protective against depression and mental disorders in general. The risk of a common mental disorder is higher for the poor, the unemployed, individuals with low education, and the physically ill, although this finding has not always been consistent.[12,13] The diversities could be attributed to the peculiarities of the various study populations and the differences in the methodologies and study settings. It could also be reflective of the local predisposing factors found in the different study populations. This, in part, has accounted for our limited knowledge about the extent of the association between mental health and social demographic characteristics.

Further studies in this regard will provide more information on the relationship between social demographic factors and depression especially in this part of the country.

1.1 Research Aim and Objectives

Aim:

To determine the social demographic predictors of depression in the elderly.

Specific Objectives:

- To determine the proportion of the elderly attending GOPC of EBH with depression and
- To determine the social demographics and clinical conditions associated with depression in the respondents.

2 Materials and methods

This was a hospital based descriptive cross-sectional study. The study was conducted at Eku Baptist Hospital (EBH), Eku, Delta state. EBH is a secondary health facility that is strategically located in Ethiope East Local Government Area (LGA) of Delta state. Delta state is located in the Niger Delta region, the South-South geopolitical zone of Nigeria. It shares common boundaries with Edo state on the North and West, Anambra state on the East and Bayelsa state on the south.

The hospital is a widely acclaimed centre for family medicine training and practice: The elderly patients aged 60 years and above attending the General Out-patient Clinic (GOPC) of EBH, who met the inclusion criteria (all consenting elderly patients (60 years and above) attending the GOPC of EBH) were recruited into the study.

The study was conducted for a period of three months (August, 2019 to October 2019). The Leslie Kish's formula was used to determine the sample size:

- The local prevalence of elderly with depression in Nigeria was 28%[14-15]
- The Leslie Kish's formula was used to determine the sample size:

$$n=Z2pq/d2$$

Where

n=minimum sample size
z=standard deviation of 1.96 corresponding to 95% confidence interval (CI).201
P= local prevalence of elderly with depression in Nigeria was 28%104-105
q=1.0 – p i.e1.0 – 0.28 = 0.72
d = significance level, 0.05 (since the degree of accuracy was set at 95%)

Therefore

n = 1.962 x 0.28 x 0.72/0.052

309.786624 =310

The desired sample size when population is less than 10,000 was given as

nf=n/ {1 + (n-1/N) }202-203

Where N is = the number of elderly patient that attended the GOPC in 3month in 2017 which was 609

nf= 310/ {1 + (310-1/609)}

=205.6535948479

Calculated sample size was therefore=206 with a sampling interval of 3.

Interviewer administered questionnaire was used. It comprised of five sections which included social demographic variables, validated tools (Geriatric Depression Scale SF-15(GDS-15)).

The Geriatric Depression Scale (GDS-15)-item was used in this study to screen for depression and respondents answered each question in a yes and no format, one point for each of "yes" answers and zero for " no". It was scored from 0 to 15.[16] The severity was divided into the following categories: 0-5 no depression (normal), 6-10 (moderate depression) and 11-15 (severe depression). The GDS-15 was developed by Yesavage et al is a fifteen-item validated screening instrument for depression in the elderly.[17] The GDS-15 yields a sensitivity of 92% and a specificity of 81% using a cut off of 5. Medical history was obtained from self-reported health related problems of the respondents.

The variables selected were age, sex, marital status, family type, living situation, level of education, monthly income, income source and number of children.

The collected data was analysed using the Version 21 software packages of the Statistical Package for Social Sciences (SPSS-21). Data were calculated in percentages and means, chi square for categorical variables. Bivariate analysis was performed to determine associations, while multivariate logistic regression was used to identify factors that significantly predict depression in the subjects at 5% level of significance (P≤0.05). Descriptive data was presented using frequency tables.

2.1 Ethical Considerations

The approval to undertake the study was obtained from Ethical Review Committee of Eku Baptist Hospital, Eku and Faculty of Family Medicine, West African College of Physicians.

Informed consent was obtained from eligible subjects before administration of questionnaire and examination.

3 Results

A total of 206 participants were analyzed, the patients were 60 years and above. Thirteen (13) subjects were interviewed in English language, one hundred and eighty six (186) in Pidgin English and seven (7) were interviewed in Urhobo language.

3.1 Social Demographic Characteristic of the Subjects

Table 1. showed the social demographic characteristics of the study subjects. The majority were in the age range 60 to 69 years. About three-fifth, one hundred and nineteen (57.8%) respondents were between the ages 60-69 years while nine (4.4%) respondents were 90 years and above. The mean (SD) age of respondents was 69.7 ± 6.7 years. The male to female ratio of the study subjects was 1 [74]:1.8[132]. One hundred and six (51.5%) respondents were currently married while eight (3.9%) respondents were never married. A total of one hundred and ninety eight were married and of these one hundred and fourteen (57.6%) respondents were polygamous while eighty four (42.4%) respondents were monogamous. One hundred and fifty nine (77.2%) respondents were Urhobo while forty seven (22.8%) respondents were other ethnic groups. One hundred and sixty-five (80.1%) respondent were living with someone while forty-one (19.9%) were living alone. Eighteen (8.7%) respondents had no children while one hundred and forty two (68.9%) respondents had above four children.

Table 1 Socio-demographic characteristics of study subject

Variable	Frequency (n =206)	Percentage (%)
Age group (years)		
60 – 69	119	57.8
70 – 79	59	28.6
80 – 89	19	9.2
>90	9	4.4
Mean ± sd age (years)	69.7 ± 6.7	
Sex		
Female	132	64.1
Male	74	35.9
Marital status		
Currently married	106	51.5
Widowed	52	25.2
Separated/divorced	40	19.4
Never married	8	3.9
Marriage type *(n=198)		
Polygamous	114	57.6
Monogamous	84	42.4
Ethnicity		
Urhobo Ukwani/Ika Ijaw/Itsekiri/Isoko Benin	159 18 11 8	77.2 8.7 5.3 3.9
Others	10	4.9
Living situation		
Living with someone	165	80.1
Living Alone	41	19.9
Number of children		
None	18	8.7

1-4	46	22.3
>4	142	69.0

*only married respondents (n=198)

The results as depicted in table 2 showed that Twenty-six (12.6%) respondents had no formal level education while eighty-one (39.3%) attained secondary level of education. Sixty five (31.6%) of the subjects had an income of less than 18,000 Naira and one hundred and forty one (68.4%) had an income of 18,000 Naira and above. Ninety one (44.1%) had income from present occupation, 76 (36.9%) from families while only 2 (1.0%) had income from social/religious groups.

Table 2 Socio-demographic characteristic of study subject 2

Variables	**Frequency (n=206)**	**Percentage (%)**
Level of education		
No formal Primary Secondary Tertiary	26 63 81 36	12.6 30.6 39.3 17.5
Income of respondents		
<18,000	65	31.6
≥18,000	141	68.4
Sources of income		
Present occupation	91	44.2
Families	76	36.9
Pension	26	12.6
Properties/house rent	11	5.3
Social/religious groups	2	1.0

Table 3 showed that approximately half of the subjects, one hundred and two (49.5%) had depressive symptoms while one hundred and four (50.5%) had no depressive symptoms.

Table 3 Proportion of study subjects with depression

Variables	**Frequency (n=206)**	**Percentage (%)**
Presence of depression		
Depression	102	49.5
No depression	104	50.5

3.2 Severity of Depression in the Study Subjects

Figure 1 showed the severity of depression among the subjects with depressive symptoms. Mild depression was experienced by sixty-two (60.8%), thirty-one (30.4%) had moderate depressive symptoms while nine (8.8%) had severe depressive symptoms.

Depressive symptoms while nine (8.8%) had severe depressive symptoms.

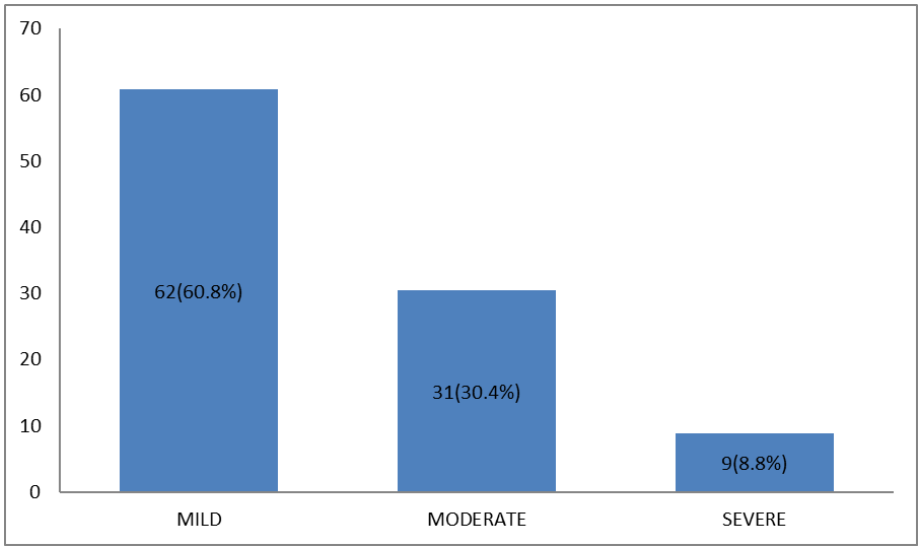

Figure 1 Severity of depressive symptoms in study subjects with depression

Fig 1 Severity of depressive symptoms in study subjects with depression

Table 4 is a contingency table that showed the possible relationship between social demographic characteristics of respondents and presence of depressive symptoms. The data showed that thirty seven (62.7%) who were 70-79 years were depressed compared to respondents aged 60-69 years fifty (42.0%) who had depression. The relationship between age and depression status of respondents was however not statistically significant (p=0.055).

Depression was noted to be more prevalent in females compared to the male. Sixty-nine (52.3%) female respondents had depression compared to thirty-three (44.6%) male respondents. However the relationship between gender and depression status of respondents was not statistically significant (p value=0.132).

A higher proportion of unmarried respondents (75.0%) had depression compared to (34.9%) of the currently married respondents. This means the unmarried respondents were more likely to be depressed compared to the currently married respondent. The relationship between marital status and depression was statistically significant (p<0.0001).

A lower proportion (41.7%) of monogamous respondents had depression compared to polygamous (53.5%) respondents. The relationship between marriage type and depression status of respondents was not statistically significant (p=0114).

A higher (65.4%) proportion of respondents with no formal education had depression compared to respondents (38.9%) with tertiary level of education. There was an inverse relationship between those that attained higher levels of education and depression in the study subjects. The proportion of those who had depression decreased steadily with increasing levels of education. The relationship between education and depression status of respondents was statistically significant (p=0.021).

A higher proportion (63.0%) of respondents who earned less than ₦ 18,000 had depression compared with respondents who earned ₦ 18,000 and above (43.3%). The association between income earned and depression status was statistically significant (p=0.036).

A higher proportion (82.9%) of respondents living alone had depression compared to respondents who lived with someone (31.9%). The association between living situations and depression status was statistically significant (p<0.0001).

A higher proportion (88.2%) of respondents with no child had depression compared to respondents with >4 children (43.7%). The association between number of children and depression status was statistically significant (p=0.002).

Table 4 Relationship between social demographic characteristics and depression

Variables	Depression (n=102)	No depression (n=104)	Total (n=206)	Test Statistics	p-value
Age group (Years)					
60 – 69	50(42.0)	69(58.0)	119(100.0)	Fishers Exact	0.055
70 – 79	37(62.7)	22(37.3)	59(100.0)	=7.435	
80 – 89	11(57.9)	8(42.1)	19(100.0)		
90 and above	4(44.4)	5(55.6)	9(100.0)		
Sex					
Male	33(44.6)	41(55.4)	74(100.0)	$\chi 2$=1.118	0.290
Female	69(52.3)	63(47.7)	132(100.0)		
Marital status					
Never married	6(75.0)	2(25.0)	8(100.0)	Fishers Exact	<0.001†
Married	37(34.9)	69(65.1)	106(100.0)	=21.006	
Separated/divorced	29(72.5)	11(27.5)	40(100.0)		
Widowed	30(57.7)	22(42.3)	52(100.0)		
Family type					
Monogamous	35(41.7)	49(58.3)	84(100.0)	$\chi 2$=2.715	0.099
Polygamous	61(53.5)	53(46.5)	114(100.0)		
Living Situation					
Living Alone	34(82.9)	7(17.1)	41(100.0)	$\chi 2$=22.860	<0.001†
Living with Someone	68(41.2)	97(58.8)	165(100.0)		
Level of education					
No formal education	17(65.4)	9(34.6)	26(100.0)	$\chi 2$=9.681	0.021†
Primary education	38(60.3)	25(39.7)	63(100.0)		
Secondary education	33(40.7)	48(59.3)	81(100.0)		
Post-secondary education	14(38.9)	22(61.1)	36(100.0)		
Average monthly income level					
<₦18,000	41(63.1)	24(36.9)	65(100.0)	Fishers Exact	0.011†
>₦18,000	61(43.3)	80(56.7)	141(100.0)	=6.988	
Number of children					
None	15(88.2)	2(11.8)	17(100.0)	$\chi 2$=12.396	0.002†
1-4	25(53.2)	22(46.8)	47(100.0)		
above 4	62(43.7)	80(56.3)	142(100.0)		

†Statistically Significant

4 Discussion

The study subjects had a predominance of female respondents one hundred and thirty two (64.1%) that out-numbered the male counterparts seventy-seven (35.9%) in a ratio of 1.8:1. This finding was comparable to some Nigerian studies,

Morgan *et al* and Okonkon et al had a female predominance of 1.3:1[18-19] This female predominance in hospital attendance has also been described in studies in other countries.[20,21] Contrary to the finding of current study, Akhtar et al. in a study among elderly attending out-patient department in Northern part of India, found a male predominance (75.4%) in the study subjects.[22] The female preponderance in the current studies can be explained by the fact that most studies health have women in larger numbers, possibly because women have better health seeking behaviour and as such seek medical help at the slightest sign of ill health. It could also be as a result of social cultural and occupational factors which influence men's health seeking behaviour. Furthermore, it could also be attributed to life expectancy, which is higher for women than men.

Just a little above half of the respondents 106 (51.6%) were currently married; the others were widowed, separated/divorced or never married. This finding is not surprising as widowhood is a common finding in the elderly. Comparable to this finding, previous studies done by Morgan *et al* showed that 51.9% of the study subjects were married[18] and Okonkon *et al* showed 54.6% of the elderly were married.[19]

Majority of the study participants 159 (77.2%) were Urhobo; this is not surprising as the indigenous people of Eku are the Urhobo and majority of the inhabitants of Eku town are Urhobo.

Majority of the participants eighty-one (39.3%) in current study had secondary education this is comparable to the finding of Okonkon and colleagues with majority of the subjects (31.6%) with secondary education.[19] However this was in contrast with the finding of Morgan and colleagues in their study in Uyo, majority of the participants had primary level of education only 7.1% had secondary level of education.[18] Further study can be done to find out the reason in disparity in educational attainment in the elderly in the different regions in Nigeria.

It was worthy of note that a significant proportion of the study subjects twenty-six (12.6%) had no formal education this may be because the elderly people in the study environment did not have the privilege of going to school in their early life, as schools were not readily available at that time as compared to present times. This report is comparable to study done by Okonkon and colleagues where 19.1% of the study subjects had no formal education.[19] Some other studies in Nigeria have even reported higher proportion of the elderly not having any formal education. Morgan and colleagues reported 25.2% while Awunor et al.reported 30% of study subjects with no formal education.[18,23]

Majority of the participants of this current study were living with somebody. This was comparable to the findings of Okonkon and colleagues in their study majority of the participant lived with a family member.[19] This is as a result of extended family system widely practice in Africa including Nigeria. This implies that despite the increasing westernization, Nigerians still have strong family system and values.[24] Urhobo ethnic group, like other ethnic groups in Nigeria have strong regard for the aged, with traditional structure of care of the elderly to be assumed by the family and extended kin. This ethno-cultural perception however is being eroded due to various social economic changes and modernization.[24]

Almost one-third of the participants earned an average of less than 18,000 Naira monthly. The elderly participants who had their present job earnings as their main source of income accounted for ninety-one (44.2%) and this was the predominant source of monthly income among the elderly respondents. This was followed by money given by children that accounted for seventy-six (36.9%). Only 15.2% had their pension benefit as their main source of income, this is not surprising as the study was in a rural setting and most people in the rural setting in Nigeria do not have any formal job that they can get pension benefit from when they retired. Again Apere found irregular pension payments, even among those with expected pension.[25] The financial security of the elderly is under threat due to the economic downturn. Among the most urgent concerns of older persons worldwide is income security as found by Apere et al in the study on ageing.[25]

The findings of this study showed that depression is common in the elderly presenting at the Eku Baptist Hospital using the geriatric depression scale. This is not surprising as it has been shown that depression is common in primary care settings. Their aetiology and predisposing factors also cut across all races and ages as well as social economic classes.

In this study the prevalence of depression was found to be 49.5% which implies that almost half of the respondents had depressive symptoms. The outcome of this study is not surprising as the very challenging social economic climate of recent years in Nigeria, may have played a part in the high prevalence rate found in the current study. The findings in this study was comparable with that recorded in a community base study in selected rural communities in Delta state. A different scale for assessing depression in the elderly was used by Awunor et al and the report showed a prevalence of 44.7%.[23] This finding is also not surprising as the study area was in the same locality as the study area of this current study. In Nigeria primary care settings, using the geriatric depression scale for assessing depression in the elderly, a

prevalence of between 44.7-50.1% was reported.[26-27] A cross sectional study conducted at three large primary care centers in Riyadh, Saudi Arabia showed a prevalence of 49.9%,[28] The finding of high prevalence of depression in this report may be predicated on the report being the product of a clinic-based data analysis as opposed to the estimated global prevalence of depression, put at 10-20% by the World Health Organization and also with what has been reported in studies in Europe (11.9% - 18.3%), Asia (12% - 34%) and other parts of Africa such as Ethiopia and South Africa (4% - 28.5%).[19,21,29,30]

Furthermore, the finding of this study was lower than that of a cross-sectional studies done in India and Portugal which was 53.75%, and 61.40% respectively.[34,35] This variation may be due to the differences in the study settings, the elderly people living in old peoples' institutions could have more depressive symptoms due to changes in the environment after living in private dwelling for a long time

Family physicians as primary care providers must be aware of the high prevalence of depression in the elderly and be ready to screen all elderly patients so as to provide holistic care, thereby improving the overall health of the patients and by extension, the entire nation.

The influence of some social demographic variables on depression was also considered. When depression was analysed with the social demographic variables, the findings were not different from finding from some studies done in Nigeria and other countries that showed some social demographic characteristics were significantly associated with depression on covariate analysis.[25,32,36]

The prevalence of depression was slightly higher in this study among females however, this finding is consistent with reports from previous studies, both in Nigeria and other parts of the world that reported female sex as a risk factor for depression.[17,18,23,24,25] This could be explained by the fact that most females are more vulnerable due to biological differences, coping styles and role overload which is peculiar in our society.[23,37] Furthermore in developing countries like Nigeria the situation is even worse as some may have lost their spouses and were widowed, most elderly women are financially dependent on their spouses and are from the lower social economic group.[24] Furthermore even if spouse were alive, the spouse would equally be elderly like them and may be debilitated by some chronic medical condition where the women are now caregivers to their husband and this stress may tilt them into depression. However, in contrast to the finding in this current study, the study done by Awunor et al revealed that there was a slight preponderance of the males with depression.[28] This was attributed to inability of males to adapt well to ageing, higher work-related stress experienced by males and lot of jobs undertaken by men are relatively high risk jobs.[28]

From the current study, the likelihood of depression was lower in respondents who were married than those that were without a spouse (including the single, widowed and divorced/separated). There was a significant association between their marital status and depression on a covariate analysis. This is consistent with studies which stated that elderly who were not married are more liable to develop depression.[22,25,36] Orhe et al.in a study conducted at Oghara (Delta State) found that the majority (82.6%) of those that had marital satisfaction were psychologically stable, while less than one-fifth (17.4%) were unstable and that the relationship between psychological health and marital satisfaction was highly significant ($p<0.001$) thereby supporting the fact that healthy marriage are important at any age.

The finding in this current study could be as a result of social isolation which leads to the development of depression among the elderly. The loss of a partner is a stressful life event usually associated with psychological and emotional trauma, loneliness as well as lack of support in terms of income these may ultimately lead to depression.[23,25] This portrayed the protective effect of marriage in depression, the study subjects that were never married may also have unfulfilled inner needs. However on a logistic regression it was noted that marital status was not significantly associated with depression. This further explains that marriage in itself is not what matters rather the quality of emotional and social support that married partners get from each other could be the key factor in terms of protection against depression. A contrary finding was noted in a study in Abraka, Nigeria where the elderly married subjects showed a higher tendency to develop depression.[28] A possible reason for this finding was as a result of commitment and family responsibility on the part of the married especially those who were caregivers to spouses with impairment.

The findings in the current study highlighted that respondents who had no formal and primary school education had the highest prevalence of depression and the prevalence of depression decreased with improvement in educational status. Educational status was found to be statistically significant on bivariate analysis however on logistic regression education status was found not to be statistically significant after controlling other confounding variables. This finding was comparable to the Port-Harcourt study where respondents with lower educational status had the highest prevalence of depression.[18] A possible explanation for this is that education affords people the opportunity to understand their situation in the right perspective against their social cultural and economic environment. Education

also improves one's likelihood of being employed which in turn could lead to improvement in income, socioeconomic status and thus reduction of depressive illnesses.[38] In contrast to the finding of this current study, a study in India, literacy was found not to have any relationship with the occurrence of depressive symptoms. The underlying reason for this discrepancy is not clearly understood.[39]

Of note is that nearly half of the subjects were still doing some forms of jobs as a means of livelihood; this was similar to the finding by Awunor et al. that reported two-third of the elderly where still working.[28] In another study done in Kerala, the reverse was the case as 83.6% were not working.[39] The seemingly high proportion of subjects that are still working in this study could be as a result of their involvement in farming activity. In the rural setting in Nigeria, many people retire from the urban setting and move to the rural areas where they remain actively involved in agricultural activities.

A higher proportion sixty-two (88.2%) of study subjects who had no children were depressed as compared to respondents with >4 children that fifteen (43.7%) who had depression. Traditionally, large number of children is expected to translate to increased care and support. This was seen in this study with decrease depressive symptom in participant with greater than four children and on a covariate analysis number of children was found to have a significant association with depression. However on logistic regression number of children was found not statistically significant with depression.

5 Conclusion

Some social demographic characteristic like marital status, level of education, living situation, number of children and average monthly income were found to be statistical significant on a bivariate analysis while the other variables were not statistically significant.

Recommendations

Appropriate implementation of national program, screening and management at the primary level is needed for reducing the burden of depression among rural elderly. Further research is recommended to explore how best to address psychogeriatric problems with a view to designing prevention and intervention strategies. The government should provide funds to the various health institutions at every level for both research and management of mental health conditions

Limitation: Some information given by respondents was subjective, and could not be verified. Pre-test information and training of assistance on protocol was expected to reduce information bias.

Compliance with ethical standards

Acknowledgement

We would like to acknowledgment God almighty for his love and mercies. Etaoghene Kingsley, Fortune Orhe, Christian Ojetu and Joseph Ojetu for their moral support and love.

Disclosure of conflict of interest

In this study there is no conflict of interest between the authors or researchers or other related institutions.

Statement of ethical approval -Ethical approval for the study was obtained from the Eku Hospital Research andEhics committee on 27th of June 2018

Statement of Informed consent

Individual respondent was given an informed consent form before commencement of the questionnaire.

References

[1] Ferrari AJ, Charlson FJ, Norman RE, Patten SB, Freedman G. Burden of depressive disorders by country, sex, age, and year: findings from the global burden of disease study 2010. PLoS Med. 2013; 10(11): 1-12.

[2] Centers for Disease Control and Prevention. Depression is Not a Normal Part of Growing Older. 2017. Available at: https://www.cdc.gov/agingmentalhealth/depression.htm. Accessed 6/6/20 .

[3] Chukwujekwu CD, Olose EO, Dariah GO, Okeafor CU. Socio- demographic correlates of depressed Patients attending a tertiary hospital in Nigeria. J Addict Res Ther. 2017;8: 313

[4] Zhang L, Xu Y, Nie H, Zhang Y, Wu Y. The prevalence of depressive symptoms among the older in China: a meta-analysis. Int J Geriatr Psychiatry. 2012; 27(1):900-906.

[5] Kessler RC. The potential of predictive analytics to provide clinical decision support in depression treatment planning. Curr Opin Psychiatry. 2018; 31(1): 32–39.

[6] Bautista CF, Velázquez JV, Icaza MEMM, López MM, Gutiérrez LópezMde L et al. Socio-demographic and personal factors related to depressive symptomatology in the mexican population aged 12 to 65. Rev Bras Psiquiatr 2012; 34(4): 395-404.

[7] Afolabi MO, Abioye-Kuteyi EA, Fatoye F, Bello I, Adewuya AO. Pattern of depression and family support in a Nigerian family practice population. J FamPract. 2007; 6(1):2

[8] Milanović SM, Erjavec K, Poljičanin T, Vrabec B, Brečić P. Prevalence of depression symptoms and associated socio-demographic factors in primary health care patients. Psychiatr Danub 2015; 27(1): 31-37.

[9] Ogunsemi OO, Oluwole FA, Abasiubong F, Erinfolami AR, Amoran OE et al. Detection of mental disorders with the patient health questionnaire in primary care settings in Nigeria. Ment Illn. 2010; 2: 46-50.14.

[10] Coker AO, Okonkwo L, Kuyinu Y, Adedokun A, Muhammed AS. Screening for psychiatric morbidity in a general outpatient clinic in Lagos, Nigeria. J Behav Health 2014; 3(4):225-229

[11] Aillon JL, Ndetei DM, Khasakhala L, Ngari WN, Achola HO et al. Prevalence, types and comorbidity of mental disorders in a kenyan primary health centre. Soc Psychiatry Psychiatr Epidemiol. 2014; 49(8): 1257-1268

[12] De Menil V, Osei A, Douptcheva N, Hill AG, Yaro P. Symptoms of common mental disorders and their correlates among women in Accra. Ghana: A population- Based Survey; 2012;

[13] Turkson SN, Dua AN. A study of the social and clinical characteristics of depressive illness among Ghanaian women--(1988–1992). West Afr J Med. 1996;15(2):85–90.

[14] Sipsma H, Ofori-atta A, Canavan M, Osei-akoto I, Udry C, Bradley EH. Poor mental health in Ghana: who is at risk? BMC Public Health. 2013;13(1):1

[15] Dzator J. Hard times and common mental health disorders in developing countries: insights from urban Ghana. J Behav Health Serv Res. 2013;40(1):71–87.

[16] Canavan ME, Sipsma HL, Adhvaryu A, Ofori-Atta A, Jack H, Udry C et al. Psychological distress in Ghana: Associations with employment and lost productivity. Int J Ment Health Syst. 2013;7:9.

[17] Onya ON. Stanley PC. Prevalence, presentation and co-morbidity pattern associated with depression among geriatric patients attending the GOPD of UPTH. Int. Res. J. Medical Sci. 2013; 1(3):17-24.

[18] Onya ON. Stanley PC. The influence of the family on prevalence and morbidity of geriatric depression among elderly GOPD attendees at UPTH. Res. J. Med. Sci. 2013; 7(1):28-34

[19] Singh AS, Masuku MB. Sampling techniques and determination of sample size in applied statistics research. An overview. IJECM.UK. 2014; 11(11)

[20] Daniel WW. Biostatistics: a foundation for analysis in the health sciences 7th ed, New York, NY Wiley, 180-185, 268-270

[21] Yesavage A. Brink T.L. Rose T.L. Lum O. Huang V. Adey M., Leirer W.O. Development and validation of a geriatric depression screening scale: A preliminary report. Journal of Psychiatric Research. 1983;17:37–49.

[22] Olagunju AT, Olutoki MO, Ogunnubi OP, Adeyemi JD. Late-life depression: burden, severity and relationship with social support dimensions in a West African community. Arch Gerontol Geriatr. 2015;61(2):240-246.

[23] Morgan UM, Etukumana EA, Abasi-Ubong F. Screening for depression in the elderly: Outcome of a hospital based study in Uyo, Nigeria. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS). 2017; 16(8):20-24.

[24] Okonkon IB, Asibong UE, Ogbonna UK, John EE. Psychogeriatric problems seen in the primary care arm of a tertiary hospital in Calabar, South South Nigeria. Int J Geriatr Gerontolol. 2018; 107.

[25] Halemariam S, Tessema F, Asefa M, Tadesse H, Tenkola G. The prevalence of depression and associated factors in Ethiopia: Findings from the National Health Survey. International Journal of Mental Health Systems. 2012; 6(1):6-23.

[26] Peltzer K, Phaswana-Mafuya N. Depression and associated factors in older adults in South Africa. Global Health Action. 2013; 6(10):1-9.

[27] Huasain A, Khan AM, Vaidhyanathan KV, Chabra P, Kannah AT. Sociodemographic preditors of depression among the elderly patients attending outpatient department of a tertiary hospital in North India. International Journal of preventive medicine 2015;4(8): 971-975

[28] Awunor NS, Ntaji MI, Edafiadhe EW, Erhabor PO, Eferakorho AO, Ijirigho B, et al. Prevalence and Predictors of Depression among the Elderly in selected Rural Communities in Delta State, Nigeria. Journal of Community Medicine and Primary Health Care. 2018;30 (1) 122-130

[29] Okumagba, PO. Family support for the elderly in Delta State of Nigeria. Stud Home Comm Sci. 2011; 5(1):21-27

[30] Apere P. Key challenges of Nigerian Pension Industry and possible solutions (1). The Nation. 2015 Sept 3: 2015. Available at: http://thenationonlineng.net/key-challenges-of-nigerian-pension-industry-and-possible-solutions-1/ Accessed 13/1/20

[31] Waleed A, Saeed R, Mazen S, Imad AA. Adult depression screening in Saudi Primary Care: Prevalence, instrument and cost. BMC Psychiatry 2014;14: 190.

[32] Vanoh D, Shahar S, Yahya HM, Hamid TA. Prevalence and determinants of depressive disorders among community-dwelling older adults: Findings from the towards useful aging study. International Journal of Gerontology. 2016; 10(2):81-85

[33] Mirkena Y, Reta MM, Haile K, Nassir Z, Sisay MM. Prevalence of depression and associated factors among older adults at ambo town, Oromia region, Ethiopia. BMC Psychiatry. 2018;18(1):338.

[34] Leal MCC, Apóstolo JLA. Mendes AMdOC, marques APdO. Prevalence of depressive symptoms and associated factors among institutionalized elderly. ActaPaulista de Enfermagem. 2014;27(3):208–214.

[35] Goud AA, Nikhade NS. Prevalence of depression in older adults living in old age home. International Archives of Integrated Medicine. 2015;2(11):1–5

[36] Shittu RO, Odeigah LO, Issa BA, Olanrewaju GT. Association between depression and social demographic factors in a Nigerian family practice setting. Open Journal of depression. 2014; 3(1): 18-23.

[37] Ubhenin OS. An assessment of the effectiveness of the Nigerian 2004 pension reform policy. Pensions: An International Journal. 2012;17(4):289–304.

[38] Baiyewu O, Yusuf AJ, Ogundele A. Depression in elderly people living in rural Nigeria and its associated with perceived health, poverty, and social network. International Psychogeriatrics 2015; 27(12): 2009-2015.

[39] Yadav U, Thapa TB, Mistry SK, Pokhrel R, Harris MF. Socio-demographic characteristics, lifestyle factors, multi-morbid conditions and depressive symptoms among Nepalese older adults. BMC Psychiatry. 2020;20:261.