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Original Article

Assessment of Depressive Symptoms and Sociodemographic Correlates of Adult Patients Attending a National Health Insurance Clinic at a Tertiary Hospital, Southwest Nigeria.

***Ayodeji Oluwaseun Ogungbemi[1], Babatunde Adeola Afolabi[2], Joshua Falade[3], Akindele Amos Ajayi[1], Adeola Olajumoke Ajayi[4], Adejare Adedire[5], Ibukunoluwa Victoria Falope[2], Olanrewaju Olayemi[6], Adebimpe Ajibola Afolabi[7], Oyinkansola Arin Ogungbemi[8], Seun Stephen Anjorin[9]**

[1]Department of Family Medicine, Osun State University, Osogbo, Osun State. [2]Department of Family Medicine, Osun State University Teaching Hospital, Osogbo, Osun State. [3]Mental Health Unit, Dept of Internal Medicine, University of Medical Sciences, Ondo State. [4]Department of Psychiatry, Osun State University, Osogbo, Osun State. [5]Department of Surgery, Osun State University, Osogbo, Osun State. [6]Department of Internal Medicine, Osun State University, Osogbo, Osun State. [7]Department of Peadiatrics, Osun State University, Osogbo, Osun State. [8]Department of Educational Management, Obafemi Awolowo University, Ile Ife, Osun State. [9]Big Data Institute, Nuffield Department of Population Health, University of Oxford, Oxford, UK

Abstract

Background: Depression affects individuals across all age groups, genders, and socio-economic backgrounds. Socio-demographic correlates of depression may include factors such as age, gender, education level, income, and marital status. These factors, including the presence of chronic diseases, have been shown to impact the prevalence and severity of depression.
This study assessed the prevalence of depressive symptoms and its association with socio-demographic correlates and co-morbid chronic medical conditions among adult patients attending a National Health Insurance Clinic of a tertiary health facility in Southwest Nigeria.
Methodology: A hospital-based descriptive cross-sectional study was conducted between April – May 2023 in which 250 consenting adult patients were recruited using a systematic random sampling technique. Respondents' information on socio-demographic profiles and awareness of co-morbid medical conditions were assessed using semi-structured interviewer-administered questionnaires. Depressive symptoms were determined using the Patient Health Questionnaire. Data were analyzed using SPSS version 20. The strength of the association between independent and dependent variables was measured using chi-square and the p-value was set as <0.05.
Results: The mean age of respondents was 38.96±13.096 years (range: 18-80 years). There were 159 (63.6%) females. The prevalence of depressive symptoms was 44.8%. There was a statistically significant association between age, gender, marital status, monthly income, presence of chronic diseases, and depressive symptoms.
Conclusion: The prevalence of depressive symptoms among adult patients attending the National health insurance clinic was 44.8%. These findings call for health policies to integrate and strengthen mental health in NHIA primary care.
Keywords: Depressive Symptoms, Socio-Demographic Correlates, Co-Morbid Medical Conditions, National Health Insurance.

***Correspondence:** *Ayodeji O. Ogungbemi, Department of Family Medicine, Faculty of Clinical Sciences, College of Health Sciences, Osun State University, Osogbo, Nigeria.
E-mail : ayodeji.ogungbemi@uniosun.edu.ng

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Introduction

Depressive disorder (also known as depression) is a common mental disorder. It involves a depressed mood or loss of pleasure or interest in once-enjoyed activities for long periods of time.[1] All depressive disorders, characterized by pervasive feelings of sadness, emptiness, or irritability, entail notable somatic and cognitive changes that drastically impair an individual's ability to function optimally in daily life. These alterations encompass mood disturbances and substantially hamper the person's overall functioning and capacity to navigate everyday tasks.[2]

Depression frequently occurs alongside additional medical conditions, contributing to a complex interplay within an individual's health profile.[3] Numerous multifaceted factors intricately contribute to co-morbid depression. These encompass genetic predispositions, complex biological pathways, health-related behaviors, and diverse psychological elements, including socio-demographic factors, converging, and intertwining to influence their occurrence within an individual's comprehensive health framework and profile.[3]

Depression, a pervasive mental health condition, transcends age, gender, ethnicity, and socio-economic status, impacting individuals universally across diverse age groups, genders, ethnicities, and socio-economic strata, underscoring its indiscriminate nature and widespread influence within various societal and demographic spectra.[4] According to WHO, depression is common, with about 3.8% of the world population being affected (5.0% among adults and 5.7% among those older than 60 years.[5]About 280 million people in the world have depression.[5]A regional large-scale urban cross-sectional study revealed a prevalence of 15.1% in the adult population in Chennai, South India.[6]

The Nigerian survey of mental health reported the lifetime incidence of major depression in adults aged 18 years and above as 3.1% with a 1-year estimate of 1.1%.[7] In Nigeria, hospital-based studies have revealed high prevalence rates of depression. Specifically, the studies reported rates of 59.6% in Ilesa, Western Nigeria,[8] 44.5% in Ilorin Northcentral Nigeria,[9] 47.8% in Ado Ekiti,[10] and 45.7% in Port Harcourt, South-South Nigeria.[11]

Even with its widespread occurrence, depression often goes unrecognized and inadequately addressed within primary healthcare settings, especially in low- and middle-income nations where access to mental health services is constrained, resulting in under-diagnosis and under-treatment, highlighting systemic challenges in addressing mental health needs.[12]This has the consequential effect of prolonging the patient's agony and necessitating recurrent utilization of healthcare services.[10]

Research findings consistently establish the correlation between depression and diverse socio-demographic factors across various comprehensive studies and analyses.[9, 13] Depression's socio-demographic associations encompass age, gender, education, income, and marital status, pivotal factors frequently linked to its prevalence and incidence.[14] These factors play a crucial role in determining both the prevalence and severity of depression, along with influencing treatment outcomes significantly.[14]

This study is aimed at assessing depressive symptoms and socio-demographic correlates among adult - patients attending an NHI clinic of a tertiary health facility. The study's outcomes are of paramount importance for healthcare professionals, providing crucial insights into factors exacerbating depressive symptoms. This information is instrumental in guiding treatment decisions, pinpointing obstacles impeding access to mental health services, and devising effective strategies to address these challenges within healthcare systems, specifically among NHIA patients. Overall, it would have significant implications for patient care, outcomes improve treatment outcomes, and enhance the overall health and well-being of patients.

Methodology:

Study Area

The study was conducted from April – May 2023 at the National Health Insurance Clinic under the Department of Family Medicine of UNIOSUN Teaching Hospital, Osogbo, Nigeria. The hospital is a tertiary healthcare delivery center, which also serves as the referral center for the primary and secondary healthcare centers within the state. The National Health Insurance Clinic of the hospital has 13,247 registered enrollees. The clinic serves as a primary care clinic within the setting of the tertiary hospital where patients of all ages, gender irrespective of disease condition who need primary care are attended to and followed up. Those who need other specialist care are referred to the respective core specialist clinics for further management. Ethical approval was obtained from the Health Research and Ethics Committee of UTH Osogbo with ref no: UTH/EC/2023/04/752.

Study Design

A hospital-based cross-sectional descriptive study design was used.

Sample Size determination.

According to hospital records, in the last year, the National Health Insurance Clinic attended to 22,320 adult patients. With an average of 1860 patients monthly. Sample size estimation was determined using the formula for estimating minimum sample size for descriptive studies $n=Z^2$ pq/d^2 [15] where n=Desired sample size when population is more than 10,000[15]; Z=Standard normal deviate set at 1.96 which corresponds to 95% confidence limit; p=prevalence of depression in a Nigerian family practice population in Ado-Ekiti Nigeria[11] (*P*=47.8%); *q*=1.0 – *p* (*q*=0.52), d=Desired level of precision was set at 0.05.

This gave a minimum sample estimate of 196 patients. The minimum sample size was increased to 250 to allow for completeness and to accommodate the 10% non-response rate.

Sampling method

A systematic random sampling technique was used to recruit respondents for this study. In calculating the sample interval (k) when the sample population over 4 weeks is 1860. Sampling interval (k) = 1860/250. k = 7

Inclusion Criteria

The inclusion criteria are adult patients aged ≥18 years, those who have been attending the clinic for at least 6 months, and those who consented to participate in the study.

Exclusion criteria

Those who attended for the first time, those with debilitating physical illness, bereavement (loss of a close relative within six months to the time of the study), known patients on treatment for depression, and those who refused to give consent will be excluded from the study.

Instrument of Data collection

Data was collected using a semi-structured questionnaire incorporating socio-demographic variables such as age, gender, religion, marital status, educational level, and employment Status, with the presence or absence of common chronic illnesses such as Diabetes, Hypertension, Osteoarthritis, Sickle cell disease, Chronic Obstructive Pulmonary Disease, and Asthma.

The Patient Health Questionnaire (PHQ-9) is a widely used self-report questionnaire that assesses the severity of depressive symptoms. It consists of nine items that measure symptoms such as feelings of sadness, hopelessness, and worthlessness, as well as changes in sleep, appetite, and energy levels.[16,17] The PHQ-9 has been validated in various populations, including primary care patients and individuals with

chronic medical conditions. The PHQ-9 is a 27-point score, self or interviewer-administered questionnaire based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) criteria. It consists of the nine DSM-IV criteria for depression and assessed symptoms of depression over the past 2 weeks among the respondents. Each of the nine items will be scored: not at all = 0, several days = 1, more than half the days = 2, and nearly every day = 3. The total score will be graded: 0 = no depression, 1-4 = minimal depression, 5–9 = mild depression, 10–14 = moderate depression, 15–19 = moderately severe and 20-27 = severe depression.[9] The PHQ-9 is standardized and has comparable sensitivity and specificity with other depression scales[16,17]and has also been used in the Nigerian primary care practice population.[10]

The PHQ-9 has been validated in Nigeria with good psychometric properties. The internal consistency of questions within the PHQ-9 was 0.85. The PHQ-9 had good concurrent validity with the Beck Depression Inventory (BDI) ($r=0.67$, $P<0.001$). It also had a good ($r=0.894$, $P<0.001$) one-month test-retest reliability. Using the Receiver Operating Characteristic (ROC) curve, the optimal cut-off score for minor depressive disorder is 5 (sensitivity 0.897, specificity 0.989, Positive Predictive Value - PPV 0.875, Negative Predictive Value - NPV 0.981 and Overall Correct Classification - OCC rate 0.973) while for major depressive disorder only is 10 (sensitivity 0.846, specificity 0.994, PPV 0.750, NPV 0.996 and OCC rate 0.992.[18] The PHQ-9 questionnaire was both self-administered for those that could read and write and it was interviewer-administered for the unlearned ones.

Data collection and data collection procedure

Two members of the research team who were proficient in the Yoruba language were trained by the lead researcher and the consultant psychiatrist in the research team on the use of both the English and Yoruba versions of the questionnaire. In this study, every seventh patient was recruited after applying the inclusion and exclusion criteria. The first participant during each clinic day was selected randomly by a ballot method for the first seven patients at the start of each clinic for this study. Until the sample size reached 250, every seventh patient was selected using the systematic random sampling technique. Selected respondents were taken to a designated consulting room to allow for privacy. Informed written consent was obtained from the respondents after the merits and demerits of the study information were communicated to the respondents. Their primary complaints about accessing the healthcare facility were first addressed. The data from each participant were collected from the hospital folder including the presence of common chronic illnesses such as Diabetes, Hypertension, Osteoarthritis, Sickle cell disease, COPD, and Asthma.

To prevent multiple entries, each respondent's card/folder was marked with designated codes to signify that they have participated in this study. Respondents who scored one or more were assessed clinically for depression. An appropriate care plan such as care support and case management with the psychiatrist was embarked on.

Data Analysis

The data generated was analyzed using the Statistical Package for the Social Sciences software version 20 (IBM SPSS, New York, USA).

A descriptive analysis of respondents with depressive symptoms and their severity was done using frequencies and percentages. A test for association was done between the dependent variable (depressive symptoms) and the independent/ explanatory variable (socio-demographics) using chi-square. Cross-tabulation between depressive symptoms severity groups and subgroups of each demographic variable was done. The co-interactions between sociodemographic variables and depressive symptoms were determined using correlation and regression analysis.

Results

Out of the 250 respondents in this study, 117 (46.8%) were registered as principal enrollees at the National health insurance clinic, while 133 (53.2%) were registered as dependant enrollees.

Table 1 shows the socio-demographic characteristics of the respondents. The mean age of respondents was 38.96±13.096 years (range: 18-80 years). Respondents <40 years were 129 (51.6%). There were 159 (63.6%) females and 91 (36.4%) males. Married respondents were 159 (63.6%) and those with tertiary level education were 204 (81.6%). Those who earned above the Nigerian minimum wage were 164 (65.6%).

Table 1: Socio-demographic Characteristics of Respondents

Sociodemographic variables	Categorization of variables	Frequency (N=250)	Percentage (%)
Age (years)	18-39	129	51.6
	40-64	113	45.2
	65 and above	8	3.2
		250	100.0
Gender	Male	91	36.4
	Female	159	63.6
		250	100
Marital Status	Single	75	30
	Married	159	63.6
	Separated/divorced/widowed	16	6.4
		250	100
Highest Educational Level	No formal education	7	2.8
	Primary level	6	2.4
	Secondary level	33	13.2
	Tertiary level	204	81.6
		250	100
Religion	Islam	100	40.0
	Christianity	148	59.2
	Traditional	2	0.8
		250	100
Monthly Income	< N30,000	86	34.4
	>N30,000	164	65.6
		250	100
Presence of Chronic Diseases	No	161	64.4
	Yes	89	35.6
		250	100
Hypertension	Yes	65	26
	No	185	74
		250	100
Diabetes Mellitus	Yes	27	10.8
	No	223	89.2
		250	100
Sickle cell disease	Yes	8	3.2
	No	242	96.8
		250	100

Figures 1 and 2, showed that 112 respondents had depressive symptoms giving a prevalence of 44.8%. A total of 21 (8.8%) respondents had moderate to severe depression which is considered major depression while 90 (36%) had minimal to mild depressive symptoms which are considered minor depression in this study.

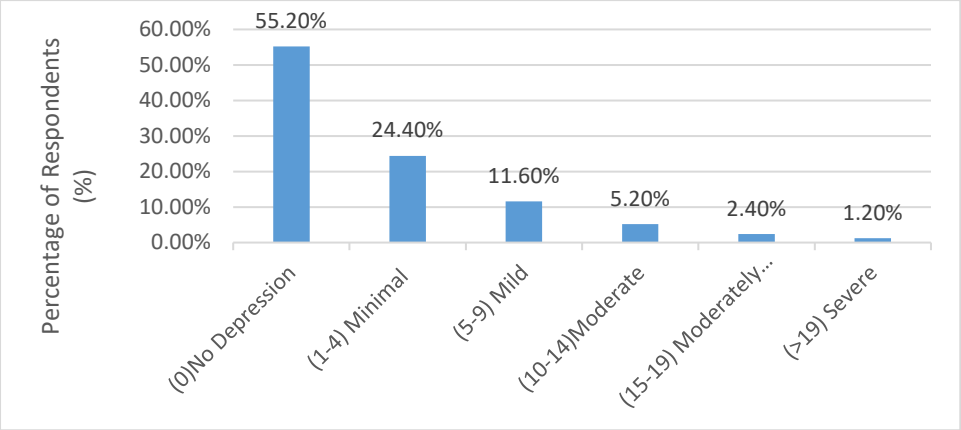

Figure 1: Severity of depression symptoms according to PHQ-9 in respondents

Table 2 showed that there was a statistically significant association between age, gender, marital status, monthly income, and presence of chronic diseases (p-values 0.000, 0.016, 0.003, 0.001, and 0.002 respectively) while educational level and religion were not statistically significant (p-value 0.406 and 0.449) respectively.

Table 2: Relationship Between Sociodemographic Variables and Depressive Symptoms

		Depressive Symptoms		df	P value
Sociodemographic Factors	Categories	No Dep Symptoms (n=137)	Dep Symptoms (n=113)		
Age (years)	18-39	85 (62.0)	44 (38.9)	2	0.000*
	40-64	52 (38.0)	61 (54.0)		
	=/>65	0 (0.0)	8 (7.1)		
Gender	Male	59 (43.1)	32 (28.3)	1	0.016*
	Female	78 (56.9)	81 (71.7)		
Marital Status	Married	85 (62.0)	74 (65.5)	2	0.003*
	Single	49 (35.8)	26 (23.0)		
	Separated/Divorce	3 (2.2)	13 (11.5)		

	d/widowed				
Highest level of Education	No formal education	3 (2.2)	6 (5.3)	3	0.406
	Primary	4 (2.9)	6 (5.3)		
	Secondary	19 (13.9)	13 (11.5)		
	Tertiary	111 (81.0)	88 (77.9)		
Monthly Income	</=N30,000	36 (26.3)	54 (47.8)	1	0.001*
	>N30,000	101 (73.7)	59 (52.2)		
Presence of chronic diseases	Yes	37 (27.0)	52 (46.0)	1	0.002*
	No	100 (73.0)	61 (54.0)		
Hypertension	Yes	15 (10.9)	50 (44.2)	1	0.000*
	No	122 (89.1)	63 (55.8)		
Diabetes Mellitus	Yes	3 (2.2)	24 (21.2)	1	0.000*
	No	134 (97.8)	89 (78.8)		
Sickle cell disease	Yes	0 (0.0)	8 (7.1)	1	0.002*
	No	137 (100.0)	105 (92.9)		
Religion	Islam	50 (36.5)	50 (44.2)	2	0.449
	Christianity	86 (62.8)	62 (54.9)		
	Traditional	1 (0.7)	1 (0.9)		

*Statistical significance p<0.05

Table 3 suggests that respondents with diabetes, hypertension, and Sickle cell disease: individuals with sickle cell disease have, on average, higher levels of depressive symptoms compared to those without holding other variables constant and a relatively moderate positive impact on depressive symptoms. It also suggests that the more the income the less the depressive symptoms.

Table 3: Regression Analysis (Dependent Variable: Depressive Symptoms)

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Variables	(Constant)	-.048	.285		-.169	.866
	Age	.202	.061	.227	3.297	.001
	Gender	.130	.056	.125	2.298	.022
	Marital Status	.034	.035	.062	.973	.331
	Income	-.192	.060	-.185	-3.217	.001
	Presence of Chronic diseases	-.142	.074	-.137	-1.931	.055
	Diabetes	.297	.093	.185	3.200	.002
	Hypertension	.386	.078	.340	4.927	.000
	Sickle cell disease	.600	.158	.212	3.791	.000

Discussion

In this study, the prevalence of depressive symptoms was 44.8%. The prevalence rate of 44.8% reported in this study is similar to other studies with reported prevalence rates of 44.5% by Shittu et al in Ilorin Northcentral Nigeria,[9,] and 45.7% in Port Harcourt, South-South Nigeria.[11]The prevalence of depressive symptoms is slightly lower when compared to the prevalence rate of48.5% reported by Iloh et al. in Southeastern Nigeria,[19] 47.8% by Obadeji et al. in Ado Ekiti,[10] and much lower than the prevalence rate of 59.6% in Ilesa Western Nigeria reported by Afolabi et al.[8] The prevalence is also slightly lower than that of 46.23% reported in Pretoria, South Africa.[20]The prevalence from this study is higher than that reported by Sanni et al as 24.9% in Ilorin Northcentral Nigeria.[21]

The variations in reported depression prevalence might stem from disparities in study timeframes, study methodologies, and discrepancies in assessment tools employed such as the use of Zung's Self-Rating Depression Scale by Afolabi et al[8] and the use of Hospital Anxiety and Depression Scale (HADS) by Sanni et al,[21] while PHQ-9 was used in this study for assessment of depressive symptoms.

Differences in categorization or interpretation of scores, especially when utilizing similar assessment instruments across various studies may have contributed to the observed differences in reported prevalence rates for depression. As was used in this study, PHQ-9 was also used for other studies as reported by Iloh et al. from Southeastern Nigeria,[19]Obadeji et al from Ado Ekiti[10]and Mashaba et al[20] from Pretoria South Africa. The differences in prevalence rates reported by these studies could be due to differences in categorization/interpretation of the total score of 0-4 in the PHQ-9 to mean "no depression" by Iloh et al[19] and "no significant depressive symptoms" by Obadeji et al.[10] While the score of "0" was used for "no depression" while the score of "1-4 was used for minimal depression" in this study which is similar with the categorization/interpretation used in the study done by Shittu et al[9]

The observed discrepancy could also mirror the diversity in local rates of predisposing factors linked to depression within distinct communities, implying that varying prevalence rates might align with the differing prevalence of factors contributing to depression within these specific community settings.

Similarly, previous studies predominantly focused on general outpatient clinics, whereas this study sourced data from a National Health Insurance clinic, catering primarily to enrollees from the Nigerian Federal government workforce. The NHI clinic's demographic makeup largely comprises individuals employed by the Federal government, distinguishing it from general outpatient clinic settings in prior research. Enrollees within the NHIA notably lack representation from private sector employees, the self-employed, and those in the informal sector.[22, 23]

The recorded high prevalence of depressive symptoms highlighted in this study might be indicative of the specific sociodemographic compositions within the studied population. Despite subsidized healthcare aims and enhanced healthcare access goals by the NHIA, the substantial prevalence of depressive symptoms among NHI patients, as indicated in this study, aligns with the under-identification and detection of depression within primary care settings, highlighting persistent challenges in recognizing mental health concerns among these patients demographic.[15] Reasons behind the under-recognition of depression might encompass inadequate prioritization of mental health, patient reluctance to report symptoms, pervasive stigma, and the level of training among primary care personnel, collectively contributing to the challenge of detecting depressive disorders. Additional contributors involve obstacles to reaching mental health services, encompassing a scarcity of mental health practitioners, prolonged wait times due to healthcare workforce shortages, and restricted access to healthcare and social services, collectively impeding adequate mental health support and services.[24]

The high prevalence of depression or depressive symptoms is widely acknowledged to stem from various factors, encompassing not only individual stressors but also societal influences such as poverty, inadequate healthcare infrastructure, and insufficient awareness and education concerning mental health, collectively contributing to its pervasive occurrence within communities.[19,24]

While the National Health Insurance (NHI) in Nigeria aims to ameliorate healthcare access, its implementation doesn't absolve patients from prevalent stressors in their daily lives. Despite healthcare coverage, individuals continue facing significant challenges such as financial constraints, relationship complexities, unemployment, and various insecurities, highlighting that broader life stressors persist beyond healthcare coverage provisions. These stressors can contribute to the development of depressive symptoms, which is a common mental health problem.[19]

In recent years, Nigeria grappled with pronounced economic hardships, marked by soaring unemployment rates, escalating inflation, and widespread poverty. These economic adversities significantly foster stress, anxiety, and depression among young adults, emanating from the multifaceted challenges prevalent within the economic landscape.[25]

The enduring impediments to accessing healthcare have far-reaching repercussions; untreated depression amplifies susceptibility to suicidal ideation and acts of suicide. Furthermore, the association between depression and increased morbidity, adverse health consequences, and mortality underscores the critical importance of addressing unmet mental health needs.[26]

The reported significant statistical relationship of age group with depressive symptoms in this study is in tandem with the finding by other authors.[10,21]Regression analysis indicates that depressive symptoms increase with increasing age. This concurs with findings indicating that while depressive symptoms can manifest at any life stage, its prevalence disproportionately rises with advancing age, suggesting an escalated likelihood of occurrence as individuals progress through different life phases, aligning with

reports highlighting an increased incidence of depressive symptoms among older age groups.[21] The higher prevalence of depressive symptoms among older adults can be attributed to multifaceted reasons. Elderly individuals encounter impactful life events like the loss of a spouse or family members, retirement, loneliness, reduced abilities in activities, and the burden of chronic illnesses such as cancer, diabetes, heart disease, osteoarthritis, hypertension, and age-related degenerative changes. These challenges significantly contribute to the elevated incidence of depressive symptoms within this age group.[19,27] Additionally, certain older adults might contend with sentiments of regret stemming from unfulfilled lifelong aspirations. Simultaneously, others might grapple with discontent regarding the economic hardships encountered by their children or grandchildren. These emotional complexities add further layers to the multifaceted challenges experienced by older adults, contributing to their mental and emotional well-being as they navigate various aspects of aging and family dynamics.

In addition to age, gender also had a significant statistical relationship with depressive symptoms in this study. In this study, among those who had depressive symptoms, 71.7% (81) were females while 28.3% (32) were males. Other studies have reported a preponderance of females having depression[9,10,19,] and this is in tandem with global epidemiological gender trends for depression.[28]A complex interaction of biological, psychological, and social variables can be attributed to the increased occurrence of depression in females. Consequently, females have a greater tendency to depression because they go through hormonal changes throughout puberty, menstruation, pregnancy, and menopause that can impact mood and raise the risk of depression.[19,29] Females are more likely to face social and cultural issues, such as gender discrimination, gender-based violence, poverty, and caregiving duties, and particularly in Nigeria females carry the burden of domestic and household chores in addition to the other work/social engagements while the married ones still have the double burden of raising and caring for the children which increase the risk of depression.[9,19] Females exhibit more proactive health-seeking behaviors compared to males, potentially contributing to a higher prevalence of diagnosed cases. Recognizing this gender-based difference is crucial for physicians, highlighting the necessity to give considerable attention to gender as a determinant of depressive symptoms during clinical assessments and treatment planning.
This study provides insights into the distribution of depressive symptoms within different marital status groups, emphasizing the importance of considering marital status when examining mental health. Findings in this study show that those who are divorced, separated, or widowed were more likely to have more depressive symptoms compared with those who were either single or married. This is similar to the findings by Obadeji A et al.[10]

Afolabi MO et al observed that marriage was protective from depression.[30]This may however be difficult to corroborate by this study because the observed association might be correlated, but it doesn't confirm a causal relationship. Other confounding factors were not accounted for in this study and could influence both marital status and depression. People's experiences within marriages are highly diverse. Some individuals may find emotional support and protection within their marriages,[31] while others may experience challenges that contribute to mental health issues.[32] The relationship between marital status and mental health can be bidirectional.[33]Mental health issues may impact marital status, and conversely, marital dynamics may influence mental health. Depression is a complex condition influenced by genetic, environmental, and individual factors.[34]While social support, including that within marriage, can be protective, it cannot be the sole determinant of mental health.

Findings from this study are contrary to findings by Shittu et al who observed that marital status had a negative significant association with depression[9] and Brown et al who established that marital status had no implication on the experience of depression.[35]

This study showed that singles had fewer depressive symptoms than married. A plausible reason for this could be due to the absence of issues within the marriage, such as conflicts, lack of communication, or other stressors, which could contribute to higher levels of reported depression among married individuals or the absence of unrealistic expectations about marriage or unmet expectations within the marital relationship which might lead to dissatisfaction and, consequently, higher levels of depressive symptoms.

Monthly income was statistically significant to depressive symptoms in this study. This is contrary to findings by Obadeji et al,[10]Afolabi et al,[30]and Sanni et al.[21]where there was no statistical significance between income and depression. However, the findings in this study are like that of Shittu et al[9] in Ilorin Nigeria, and Akhtar-Danesh et al[36]in Ontario, Canada where depressive symptoms are associated with low-income in study participants. Income plays a pivotal role in shaping the onset and severity of depression.[37] It directly affects an individual's social status, and self-perception, and individuals with lower income levels often encounter social stigma and discrimination, exacerbating feelings of isolation and contributing to the onset of depression.[37] Low-income individuals may have limited access to resources for healthy behaviors, such as exercise and healthy food options, which can have a protective effect against depression.[37] Income stands as the foremost social determinant impacting health, dictating living conditions, psychological well-being, and lifestyle choices. Its influence significantly molds an individual's overall health status, wellness, and quality of life across various societal strata and environments.[9] Regression analysis of this study suggests a negative effect of increasing income on depressive symptoms.

In this study, the findings of the statistical significant relationship between depressive symptoms and the presence of chronic diseases, hypertension, and diabetes mellitus are similar to that found by Adewuya et al in Lagos, Nigeria[38] and Asmare, Addis Ababa, Ethiopia.[39]According to regression analysis in this study, individuals with diabetes mellitus, hypertension, and sickle cell disease exhibit a higher propensity to encounter depressive symptoms compared to those lacking these co-morbidities, highlighting a notable association between these health conditions and an increased likelihood of experiencing depression symptoms.

Depression and the presence of chronic diseases appear to mutually influence one another.[40] This bidirectional relationship signifies that an individual's physical well-being can significantly impact their mental health, and conversely, their mental state can substantially affect their physical health, indicating the intricate interplay between mental and physical well-being.[40]

The presence of chronic disease can increase the risk of depression in several ways. Chronic illnesses often entail physical discomfort, pain, and limitations, which can profoundly contribute to the onset or exacerbation of depressive symptoms.[41]Chronic pain is often accompanied by a reduced quality of life, heightened social isolation, and a decrease in physical activity, all of which can substantially contribute to the onset or worsening of depressive symptoms.[41,42] Enduring a chronic illness often elicits emotional distress, like anxiety and stress, escalating the likelihood of developing depression as a result of these cumulative factors.[43] Chronic diseases can cause social isolation, as individuals may have difficulty participating in social activities or maybe stigmatized due to their condition. Social isolation is a known risk factor for depression.[44] Chronic diseases can cause social isolation, as individuals may have difficulty participating in social activities or maybe stigmatized due to their condition. Social isolation is a known risk factor for depression. Finally, the cost of treating chronic diseases can also cause financial stress, which can increase the risk of depression.[45] Overall, the presence of chronic disease can contribute to the development and severity of depression. It is important for healthcare providers to address the emotional

and psychological needs of individuals with chronic diseases and to provide appropriate resources and support to help manage depression and other mental health concerns.

Study Limitations

The limitations of this study are recognized by the researchers. First, the study was hospital-based. Hence, the results of this study may not be general conclusions regarding respondents in the community. Secondly, the sampled population was drawn from the hospital attendees in the National health insurance clinic of the hospital. Thus, extrapolations of the results of this study to the entire patients in the hospital should be done with caution because the findings may not be a true representation of what may be obtained in the other clinics of the hospital. Finally, this study was not an all-inclusive study on epidemiological variables.

Conclusion

This study showed that the prevalence of depressive symptoms among adult patients attending the National health insurance clinic was 44.8%. This study further noted a statistically significant relationship between age, gender, marital status, monthly income, presence of chronic diseases, and depressive symptoms. These findings call for health policies to integrate mental health into National Health Insurance Act (NHIA) primary care.

Declaration:

Availability of data and materials: The datasets for this study would be made available from the corresponding author on a reasonable request.

Declaration of conflicts of interest: The authors declare that they have no conflicts of interest.

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