

Major Depressive Disorder, Correlates and Quality of life amidst COVID-19 Pandemic in patients attending General Out Patients of a Tertiary Hospital, North Central Nigeria

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ABSTRACT

Studies have shown high rate of symptoms of depression during COVID-19 pandemic. However, few studies have examined the prevalence of Major Depressive Disorder and Quality of Life with in clinical setting. This study therefore looked at the prevalence of Major Depressive Disorder, Sociodemographic factors and its association with Quality of Life. The cross-sectional descriptive study was carried out among patients attending General Out Patients Department of the Jos University Teaching Hospital (JUTH) from June to August, 2020. The study consisted of 361 participants among which 93(25.8%) had depression and 268(74.2%) were without depression. The age range was 18 to 76 years with the mean (SD) being 31±10 years. There were 181(50.1%) males and 180(49.9%) females with mean (SD) of 32±10 and 31±10 respectively with no significant statistical difference ($p = 0.238$). The characteristics of the participants were similar between those with depression and those without depression except for monthly income ($p = 0.01$), Perceived impact of COVID-19 related stress ($p = 0.001$) and change in alcohol consumption ($p = 0.01$). Binary logistic regression revealed that the significant predictor variables were: gender with females slightly more than the males to have depression ($p = 0.05$), those with perceived high impact of COVID-19 related stress were 7.6 times more likely to develop depression than those with perceived low impact ($p = 0.001$) and those who reported increased consumption of alcohol amidst COVID-19 were 3.6 times more likely to have depression than those who did not drink alcohol ($p = 0.001$). This high prevalence of depression calls for urgent need to develop programmes and tools targeting this vulnerable group of general out patients' attendees. Furthermore, educational sensitization and awareness, and up to date information on COVID-19 which is still eminent should be provided to reduce the impact of perceived stress related to the pandemic. .

Keywords: Major Depressive Disorder, COVID-19, Sociodemographic factors, Quality of Life

INTRODUCTION

The first report of the coronavirus disease COVID-19 outbreak was on December 31, 2019, in the city of Wuhan in Hubei Province of China and was declared a pandemic on March 11 2021.¹ It was initially understood to be a respiratory disease however, studies show that the COVID-19 is a multisystemic disease which affects the brain and has mental health implications.² The first case of COVID-19 was confirmed in Nigeria on February 27, 2020.³ The rapid spread of transmission, steady rise in the number of confirmed and suspected COVID-19 cases, inadequate resources such as personal protective equipment (PPE), face masks and human personnel worsened the impact of virus which proved elusive in the early stage of the pandemic. Consequently, the uncertainty of the pandemic, the lack of, or developing data around the virus led to bombardment of misinformation by traditional and social media which heightened the fear and increased the likelihood of mental health problems among people.⁴ In order to curb the spread and mitigate the impact of the pandemic several containment measures were instituted globally. Similar actions imposed in Nigeria to control the spread of the disease include precautionary measures such as handwashing, use of face masks and hand sanitizers, social and physical distancing, quarantine, curfews, and a nationwide lockdown. The imposition of the lockdown resulted in job losses, and other socioeconomic consequences. Previous studies show that excessive information, social distancing policies, containment measures such as quarantine, and lockdowns can increase depression, self-harm, substance abuse, and result in a range of psychological problems.^{4,5,6,7} People were deprived of their safety net and social support systems, those infected with COVID-19 were quarantined, isolated and in some cases treated in designated isolation facilities. Isolation and subsequent loneliness during periods of disaster can predispose to depression.^{8,9} Studies have found depression to be one of the direct and indirect mental health conditions found among individuals as a result of the COVID-19

pandemic.¹⁰ The prevalence of depressive symptoms is significantly influenced by sociocultural and economic contexts,¹¹ especially in our setting. A study conducted in Nigeria reported a six to ten times increase in the rate of depression in the early phase of COVID-19.^{12,13} A similar study conducted during the pandemic in some LMIC (Rwanda, Haiti, DRC, and Togo) also showed increased depression.¹⁴ Cénat and colleagues reported that one in five participants had significant symptoms of depression during the COVID-19 pandemic with variations seen across age and gender.¹⁴ Several studies support strong associations between increased prevalence of depression and gender, age, marital status, those living alone, educational attainment and financial stability.^{15,16} Consistently, studies have shown higher levels of depression among females compare to males during the COVID-19 lockdown.^{17,18,19} There is consensus in literature which supports the protective role of higher socioeconomic status against depression.²⁰ Consistently, the absence of social connectedness, less regular contact and communication with friends and family during the pandemic, resulting in perceived loneliness and isolation increased the likelihood of developing depression.^{20,21,22} Also, depression has been established to be negatively associated with quality of life (QOL). QOL is a widely used comprehensive health outcome measure involving many aspects such as physical and mental health, family relationship, education, employment, sense of security.²³ It has been consistently demonstrated that individuals with depression report lower health-related quality of life compared to those without depression.²⁴ Gender disparities are also seen in the QOL of participants with depression. A report by Jordanian authors showed that female participants had significantly higher levels of depression and lower levels of QOL than male participants.²⁵ Explanations suggested by the authors are that during the lockdown, women were forced to stay at home, spend more time caring for children and family members and similar experiences have been reported in our setting. The deprivation of social support systems,

financial insecurity experienced during the pandemic can adversely impact individuals' QOL.²⁵

Very few studies have examined the prevalence of depression and its association with QOL in the context of COVID-19 in hospital settings among service users in Nigeria. It therefore becomes necessary to assess the prevalence of depression, its sociodemographic factors and association with QOL during the pandemic.

MATERIALS AND METHODS

The cross-sectional descriptive study was carried out among patients attending the General Out Patients Department (GOPD) of the Jos University Teaching Hospital (JUTH) from June to August, 2020. JUTH is located at the centre of north central region of Nigeria. It offers both specialist and primary care services to in and out patients. Ethical approval was obtained from JUTH Institutional Health Research Ethical Committee (IHREC) as well as from the Department of Family Medicine before the commencement of the study.

The minimum sample size was calculated by the Kish formula for cross sectional studies. Formula, $n = Z^2pq/d^2$ Where Z = standard score variance 1.96, this corresponds to 95% confidence level; P = prevalence rate of 28.6%¹¹, q = proportion of failure 1- p, d = degree of accuracy desired, estimated at 0.05 (5%)

$$n = \frac{1.96 \times 1.96 \times 0.286 \times 0.714}{0.05 \times 0.05} = 313$$

However, the study was conducted among 361 consecutive patients who satisfied the inclusion criteria;

18 years who consented. Excluded were patients with previous history of past depression, severely ill and those who failed to give consent.

All participants were assessed with depression module of the Mini-International Neuropsychiatric Interview (MINI Plus). Its validation and reliability studies compared to the Structured Clinical Interview (SCID) for the DSM-IV and the Composite International Diagnostic Interview (CIDI) showed that it has high validity and reliability scores (Kappa scores for all diagnoses were

above 0.70 with about 70% above 0.90) indicating excellent inter-rater reliability. When compared with SCID for DSM-IV, it has sensitivity of greater than 0.70 and specificity of above 0.85 for most diagnoses¹². It has also been validated in Nigeria with an inter-reliability of 0.86¹³. Current Major Depressive Disorder was considered if participants met DSM-IV criteria in the past two weeks. In addition, participants were asked: "How much had COVID-19 impacted your day-to-day life?" with the five answer choices collapsed into two groups "0" ("Not at all"; "A little"; or "Much") and "1" ("Very much"; "Extremely") as well as "Compared to life prior to the coronavirus outbreak, how has your consumption of alcohol changed?" Response items included: (1) drinking the same amount or less; (2) drinking more alcohol; and (3) I don't drink alcohol.

Socio-demographic data was collected, including age, sex, marital status, employment and educational status, monthly income, religion, place of residence (urban or rural).

Data Analysis

All information obtained in this study were processed and analyzed using Statistical Package for Social Sciences Version 25 software. Data were presented using simple frequency distribution tables and Pearson Chi-square test for qualitative variables with fisher's exact where applicable. Independent student t-test was used to determine the difference in means of domains of QOL between presence and absence of major depressive disorder. Multiple logistic regressions using a stepwise selection process was employed to analyze those factors associated with depression. Probability value of 0.05 was considered statistically significant.

RESULTS

The study consisted of 361 participants among which 93(25.8%) had depression and 268(74.2%) were without depression. The age range was 18 to 76 years with the mean (SD) being 31±10 years.

TABLE 1: Overall Sample Characteristics with and Without Major Depressive Disorder

Characteristics	Overall Sample N(%)	Depression n (%)	No Depression n (%)	Chi Square	DF	P - value
Gender						
Male	181(50.1)	42 (23.2)	139(76.8)	1.241	1	0.265
Female	180(49.9)	51 (28.3)	129 (71.7)			
Age group						
18-39	284(78.7)	68 (23.9)	216 (76.1)	2.642	2	0.267
40-59	67 (18.6)	21 (31.3)	46 (68.7)			
≥	10 (2.8)	4 (40.0)	6 (60.0)			
Marital status						
Single	174(48.2)	44 (25.3)	130 (74.7)	1.643	2	0.440
Married	175(48.5)	44 (25.1)	131 (74.1)			
Others	12 (3.3)	5 (41.7)	7 (58.3)			
Religion						
Protestant	188(52.1)	54 (28.7)	134 (71.3)	3.293	3	0.349
Catholic	83 (23.0)	22 (26.5)	61 (73.5)			
Islam	76 (21.1)	15 (19.7)	61 (80.3)			
African Tradition	14 (3.9)	2 (14.3)	12 (85.7)			
Education Level						
No formal edu.	25 (6.9)	10 (40.1)	15 (60.0)	3.347	3	0.341
Primary	91 (25.2)	24 (26.4)	67 (73.6)			
Secondary	96 (26.6)	25 (26.0)	71 (74.0)			
Undergraduate	149(41.3)	34 (22.8)	115 (77.2)			
Employment Status						
Civil Servant	134(37.1)	37 (27.6)	97 (74.4)	0.543	2	0.762
Self-Employed	88 (24.4)	23 (26.1)	65 (73.9)			
Unemployed	139(38.5)	33 (23.7)	106 (76.3)			
Monthly Income						
30,000	220(60.9)	67 (30.5)	153 (69.5)	6.486	1	0.01
31,000	145(39.1)	26 (18.4)	115 (81.6)			
Residence						
Urban	273(75.6)	66 (24.2)	207 (75.8)	1.473	1	0.225
Rural	88 (24.6)	27 (30.7)	61 (69.3)			
Impact of COVID-19						
High Impact	108(29.9)	87 (80.6)	21 (19.4)	241.919	1	0.001
Low Impact	253(70.1)	6 (2.4)	247 (97.6)			
Alcohol consumption						
No Alcohol	194(53.7)	38 (19.6)	156 (80.4)	8.852	2	0.01
Use alcohol	106(29.3)	33 (31.1)	73 (68.9)			
Increased Consumption						
Increased Consumption	61 (13.0)	22 (36.1)	39 (63.9)			

Table 2: The association between Major Depressive Disorder and Domains of Quality of Life

Domains QOL	Overall Sample N (%)	Mean	P - value	t- value	DF	95% CI	
						Upper	lower
Physical Health							
Depression	93 (25.8)	22.16±4.36	0.01	1.288	359	-5.760	-4.084
No depression	265(74.2)	27.18±3.81					
Psychological							
Depression	93(35.8)	17.61 ±3.70	0.349	-10.528	359	-6.592	-4.576
No Depression	26 (74.2)	23.35 ± 3.40					
Social							
Depression	93(25.8)	9.68 ±2.32	0.119	-5.711	359	-2.024	-0.987
No Depression	268(74.2)	11.18 ±2.14					
Environmental							
Depression	93(25.8)	24.98 ± 4.82	0.776	-3.182	359	-3.162	-0.746
No Depression	268(74.2)	26.93 ±5.20					

Table 3: Binary logistic regression between Major Depressive Disorder and the Independent variables.

Variables	B	DF	P - value	95% Confidence-Interval	
				Lower	Upper
Sex	1.239	1	0.05	0.966	12.330
Use alcohol	1.829	1	0.03	1.186	32.692
Increased alcohol consumption	3.470	1	0.001	5.106	202.299
Impact of COVID-19 stress	7.275	1	0.001	272.963	7640.593

There were 181(50.1%) males and 180(49.9%) females with mean (SD) of 32 ± 10 and 31 ± 10 respectively with no significant statistical difference ($p = 0.238$). The characteristics of the participants were similar between those with depression and those without depression except for monthly income ($p = 0.01$), Perceived impact of COVID-19 related stress ($p = 0.001$) and change in alcohol consumption ($p = 0.01$) Table: 1.

The participants with major depressive disorder had lower mean scores across all four domains compared with those without depression. However, significant statistical difference was seen only in the physical health domain ($p = 0.008$) Table: 2.

Binary logistic regression was run with depression as the dependent variable coded as no depression "0", depression "1" and predictor variables were; gender, age group, marital status, educational level, religion, residential area, employment status, monthly income, perceived impact of COVID-19 and change in alcohol consumption. The significant predictor variables were gender with females slightly more than the males to have depression ($p = 0.04$), those with perceived high impact of COVID-19 related stress were 7.6 times more likely to develop depression than those with perceived low impact ($p = 0.001$) and those who reported increased consumption of alcohol amidst COVID-19 were 3.6 times more likely to have depression than those who did not drink alcohol ($p = 0.001$) Table: 3.

DISCUSSION

The study showed that one in every five of participants met criteria for DSM-IV Major Depressive Disorder. Compared to the pre-pandemic prevalence estimates of 16.5% and 15.0% for current major depression using PH-Q9 in primary care and general out patients' attendees^{26,27} It shows an increase of 10.0-to-9.8%-point prevalence in depression which could be a proxy measure suggesting the toll of the pandemic on this segment of the population. The high level of perceived COVID-19 related stress was significantly associated with depression and were 7.6 times more likely to have depression that those with

perceived low impact of COVID-19 related stress. It has been widely documented that pandemic containment efforts also introduced a multitude of additional stressors beyond bereavement and fear of infection which pose profound threat on mental health and psychological well being.

Researchers have showed that an increase in alcohol consumption is often used as coping strategy for both chronic and specific life events in both non-alcohol use disorder and alcohol use disorder drinkers. This increased in drinking particularly among people with depression is consistent with concerns that the pandemic may be triggering an epidemic of problematic alcohol use²⁸.

Several studies support strong association between increased prevalence of depression and gender, marital status, educational attainment and financial stability^{15,16}. It has been shown that individuals with higher educational attainment are less likely to develop depression compared to those with lower educational achievement because socioeconomic status is predicated on educational achievement which supports the protective role of higher socioeconomic status against depression.²⁰ However, this study only found significant relationship between depression and gender and monthly income but not educational status. It has been suggested that during the lockdown women were forced to stay at home, saddled with responsibility of caring for children and other family members which might have further compounded their stress. Some studies have reported significant variations across age and depression.^{14, 15,16} There is no significant relationship between age and depression in this study. Probably, the impact of COVID-19 related stress was equally felt across all age groups.

It has been consistently demonstrated that individuals with depression report lower health related quality of life compared to those without depression²⁴. Although the study showed that individuals with major depressive disorder had lower mean scores across all four domains compared with those without depression, these values indicate an overall dissatisfaction of individuals with major depressive disorder. However, only physical health domain was statistically significant in keeping with

previous study.²⁴ This finding may be due to symptoms of depression such as: reduced energy, poor sleep, increasing pain and discomfort, anhedonia coupled with uncertainty of the pandemic leading to dissatisfaction with physical health related quality of life.

CONCLUSION

The study revealed a high prevalence of major depressive disorder as a result of the COVID-19 outbreaks. The increased prevalence of major depressive disorder is associated with monthly income, female gender, alcohol consumption, physical health related quality of life and high impact of COVID-19 related stress. This high prevalence of depression calls for urgent need to develop treatment programme and tools for assessment targeting this vulnerable group of general out patients' attendees. Furthermore, educational sensitization and awareness, and up to date information on COVID-19 which is still eminent should be provided to reduce the impact of perceived stress related to the pandemic.

Limitations

Although the strength of this study is the use of diagnostic instrument for assessment of major depressive disorder, it has limitations and is subject to different types of bias. The cross-sectional nature of the study is potentially limited by recall. The sensitive nature of mental illness increases the risk that respondents were less likely to reveal their symptoms as there was no corroboration to confirm. This study was done in a clinical setting; hence current findings may be generalized to the wider population with caution. Further study should be carried out at both the clinical and community levels to assess for specific psychosocial stressors amidst COVID-19 pandemic which appeared to play more significant roles than socio-demographics^{20,21,22}.

Declaration

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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