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Medication knowledge and Beliefs in Patients with Major Depressive Disorder at a Tertiary Health Facility in North East Nigeria

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article.

Abstract

Background: Achieving positive clinical outcomes with antidepressant drug therapy depends on patients having adequate knowledge and positive beliefs about their prescribed medication.

Objectives: To assess medication related knowledge and beliefs about medicines in patients with major depressive disorder.

Materials and Methods: A cross sectional study was carried out from December 2018 to March 2019 at Federal Neuro-Psychiatric Hospital, Maiduguri, Nigeria. Patients who agreed to participate in the study (n=151) were interviewed with patient knowledge about medication and belief about medicine questionnaires.

Results: About 82.8 % of the patients had suboptimal knowledge of their medications. Over half (60.3%) of them had strong beliefs regarding the necessity of their prescribed medications. Almost half (47.7%) of them also had strong concerns about the potential harm and adverse effects of their medications. The odds for strong beliefs regarding the necessity of their prescribed medication were about 8 times greater in patients with primary level of education than those with no formal education (p=0.026, OR=8.00) and 4 times in married people (p=0.024, OR=4.77).

Conclusion: Patients with major depressive disorder in this study had suboptimal knowledge of their medication and an appreciable number of them had strong beliefs regarding the need for their medications. However, about half of the patients also had strong beliefs about the potentials of their medications to cause harm. The odds to have strong beliefs on the need for medication were positively associated with disease severity, being married and increasing level of education. Interventions aimed at improving medication knowledge and addressing negative beliefs about medications are therefore recommended.

Keywords: *Medication knowledge, Medication beliefs, Major depressive disorder, Nigeria*

INTRODUCTION

Major depressive disorder is one of the most prevalent mental disorders, with an estimate of over 300 million people from all ages affected globally (WHO, 2017). Its occurrence is associated with functional impairment, decreased quality of life and increased mortality. Ranked as the single largest cause of global disability and suicide deaths (WHO, 2017), it is therefore regarded as a major public health concern.

Medication knowledge can be defined as the range of information a patient has regarding his/her prescribed medication (Mahendra *et al*., 2008). Such information may include: the name of drug, indication, dose, dosage regimen, side effects, precautions to be taken during treatment, contraindications and storage conditions (Mahendra *et al*., 2008). Sub-optimal patient knowledge with respect to their medication may lead to incorrect use, which could cause a reduction in efficacy and/ development of other health related problems (Rubio *et al*., 2015). Therefore, achieving positive treatment outcomes with pharmacotherapy depends on patients having adequate knowledge about their prescribed medication (Rubio *et al*., 2015).

Negative beliefs about medication are an important contributory factor to non-adherence in patients with chronic diseases (Jamous *et al*., 2014). In patients with depression, beliefs such as ‘‘my health depends on antidepressants’’, and concerns about being dependent on these medication have been strongly associated with poor adherence (Liekens *et al*., 2012; Acosta *et al*., 2013; Stein-Shvachman *et al*., 2013). Other misconceptions that these medications are harmful, addicting, or have no role to play in depression are also associated with poor adherence (Acosta *et al*., 2013; Ridge *et al*., 2015). Therefore, in order to bridge the gap between the availability of effective treatments for depression and the low number of depressed patients actually receiving and continuing treatment, the World Health Organisation (WHO) and the United Kingdom National Institute for Clinical Excellence (NICE) recommend that health care professionals assess patient's beliefs toward medication as this is considered as one of the most important drivers of non-adherence among patients with chronic diseases (Alsous *et al*., 2013).

Estimates of depression/depressive symptom prevalence within Nigeria range from 4-22% (WHO, 2017; World Bank, 2018), and it has also been estimated that over 7 million people currently living in the country are depressed (WHO, 2017). Furthermore, while some studies conducted within the country have evaluated medication knowledge and/ beliefs in patients with different chronic diseases (Adeniran *et al*., 2015; Ojieabu *et al*., 2015; Labaran, 2018; Ademola *et al*., 2019), very little is known about medication knowledge and/ beliefs in patients with major depressive disorder. Since assessing (and addressing) factors that influence adherence such as patient medication knowledge and beliefs, can improve clinical outcomes in the management of chronic diseases like depression (Alsous *et al*., 2017), this study aimed at assessing medication knowledge and beliefs as well as influencing factors in patients with major depressive disorder at the Federal Neuro-Psychiatric Hospital (FNPH) Maiduguri, Borno State, Nigeria.

METHODOLOGY

Study Site and design

FNPH Maiduguri is a regional Psychiatric Hospital serving the North-east region of Nigeria. Patients from the neighbouring countries of Chad, Cameroon, and Niger Republic are also often encountered at the hospital.

The study was a cross sectional study carried out from December 2018 to March 2019 at FNPH Maiduguri. Data was collected by interviewing respondents with a data collection form and translated versions of patient knowledge about medication and belief about medicine questionnaires.

Inclusion and Exclusion Criteria

Included in the study were patients aged 18 years or older, who had been diagnosed with major depressive disorder using ICD-10 criteria, and had been receiving pharmacological treatment for at least six weeks. Patients with cognitive impairments or conditions (e.g. bipolar disorder or a history of drug abuse or dependency) that could make it difficult to collect data from them were excluded.

Sample Size Estimation and Sampling Technique

Sample size of 151 was determined using single proportion method reported in a previous study (Yusuf *et al*., 2017) with the following assumptions: d= absolute precision of 5% at 95% confidence interval, p = anticipated expected proportion of patients with major depressive disorder being 9.86%. Convenience sampling was used to collect data.

Data Collection Instruments

Socio-demographic characteristics and information about current medication: A form was designed for the collection of data on patient gender, age and marital status, highest level of education completed, employment status, monthly income and current prescribed medications

Assessment of patient medication knowledge**:** Patients’ knowledge about their medications was measured using a translated, validated instrument called the Patients’ knowledge about medications questionnaire (PKM Questionnaire). This instrument

was developed from an earlier study (Rubio- Valera *et al*., 2009). The questionnaire consisted of ten items that assessed patients knowledge about the name of their medication, indication, dosage, duration of treatment, benefits of treatment, behaviour related to medication consumption, what to do in case of side effects etc.

Assessment of patients' beliefs about medicine: Patients' medication-related beliefs were assessed using a translated version of the Patients' Beliefs about Medicine Questionnaire (BMQ Specific). This self-report measure has proven validity, reliability, and psychometric capability for both general medical patients and depressed patients (Hunot *et al*., 2007). The BMQ-Specific contains two subscales: 'Specific Necessity', which evaluates patients' views about the necessity and importance of their medication; and 'Specific Concerns', which questions patients' beliefs about the potential harms and adverse effects of their medications (Horne *et al*., 1999). There are 11 statements in the questionnaire (five statements about 'necessity' and six about 'concerns') that respondents must answer using a five-point likert scale.

Data Collection

Convenience sampling was used to collect data. Patients attending FNPH Maiduguri's depression clinic on clinic days (Mondays, Tuesdays, Thursdays and Fridays) were approached by the principal investigator and asked some questions to ascertain their eligibility to participate in the study. Patients who met the inclusion criteria were then informed about the study objectives, and asked whether they would be willing to be interviewed. Those who agreed to participate were interviewed with the three data collection instruments at the waiting area of the out-patient clinic of the hospital. The interviews lasted around 15 minutes on the average.

Data Analysis

Statistical Package for Social Science (SPSS) version 20 (SPSS Inc, Chicago, Illinois, USA) was used for statistical analysis and data presented as percentages using frequency distribution tables. Chi-square test was used to determine association between study participants' beliefs about medicine and disease severity while logistic regression was used to test for and quantify association between socio-demographic characteristics and strong necessity beliefs about medicines. P – values of < 0.05 were considered to be statistically significant.

To assess patients' medication related knowledge using the PKM questionnaire, correct responses were scored 1 while incorrect/I don't know responses were scored 0. Since the questionnaire contained ten items, total scores ranged from 0-10. Patients who scored less than seven points out of ten were considered to have sub-optimal knowledge of their medication.

Patients' answers to each of the 11 statements in the BMQ specific were scored between 1 (strongly disagree) and 5 (strongly agree).

Since the instrument contains five necessity questions and six concern questions in two subscales, a total necessity score (Sum of all necessity responses, divided by 5) and concern score (Sum of all concern responses, divided by 6) were calculated separately to give two mean scale scores ranging from 1 to 5 for each patient. These mean scores were then totalled and average mean scores for the study also calculated. Individuals scoring below the study mean values for each subscale were considered to have weak beliefs while the rest were considered to have strong beliefs. For the purposes of discussion, patients' responses were also classified as patients endorsing (agreed/strongly agreed) or expressing doubts (strongly disagreed/disagreed/undecided) for each of the BMQ items.

Ethical Considerations

Ethical approval was obtained from the Ethical Review Committee of the hospital and informed written consent obtained from each participant. Issues around the confidentiality of information provided were also explained to each participant.

RESULTS

Socio-Demographic Characteristics of Study Participants

A total of 151 patients were interviewed giving a response rate of 100%. Majority of the patients were females (82.7%) and most of them had either moderate (46.4%) or severe depression (41.6%). More than half (59.6%) fell within the 30-50 age group, and had no formal education (65.5%). Most of the patients were also married (60.3%), unemployed (85.4%) and received no monthly income (86.8%). These results are shown in table 1.

Table 1: Socio-Demographic Characteristics of Study Participants (n=151)

Variable	Mild Depression n (%)	Moderate Depression n (%)	Severe Depression n (%)	Total Distribution n (%)
Gender				
Male	2 (7.7)	6 (23.1)	18 (69.2)	26 (17.3)
Female	15 (12.0)	58 (46.4)	52 (41.6)	125 (82.7)
Age				
<30	7 (17.9)	12 (30.8)	20 (51.3)	39 (25.8)
30-50	8 (8.9)	46 (51.1)	36 (40.0)	90 (59.6)
>50	2 (9.1)	6 (27.3)	14 (63.6)	22 (14.6)
Level of education				
Primary	0 (0.0)	8 (51.7)	6 (42.9)	14 (9.3)
Secondary	0 (0.0)	12 (50.0)	12 (50.0)	24 (15.9
Tertiary	0 (0.0)	8 (57.1)	6 (42.9)	14 (9.3)
No formal education	12 (17.2)	36 (36.4	46 (46.5)	99 (65.5)
Marital status				
Single	2 (11.1)	8 (44.4)	8 (44.4)	18 (11.9)
Married	9 (9.9)	38 (41.8)	44 (48.4)	91 (60.3)
Divorced	0 (0.0)	10 (62.5)	6 (37.5)	16 (10.6)
Widowed	6 (23.1)	8 (30.8)	12 (46.2)	26 (17.2)
Working status				
Paid employment	6 (30.0)	6 (30.0)	8 (40.0)	20 (13.3)
Unemployed	11 (8.5)	58 (45.0)	60 (46.5)	129 (85.4)
Retired	0 (0.0)	0 (0.0)	2 (100)	2 (1.3)
Monthly income (Naira)				
No income	11 (8.4)	58 (44.3)	62 (47.3)	131 (86.8)
<20,000	6 (33.3)	6 (33.3)	6 (33.3)	18 (11.9)
20,000-50,000	0 (0.0)	0 (0.0)	2 (100)	2 (1.3)

Current Medication

A little over half of the patients (51.7%) were prescribed one drug (monotherapy) to manage their depression, while the remaining (48.3 %) were receiving combination therapy as shown in figures 1 and 2 respectively. Most of the patients receiving monotherapy were prescribed tricyclic antidepressants especially Amitriptyline (74.4%) as shown in figure 1. Most of the patients on combination therapy were prescribed tricyclics and phenothiazines especially Amitriptyline and Trifluoperazine (35.4%).

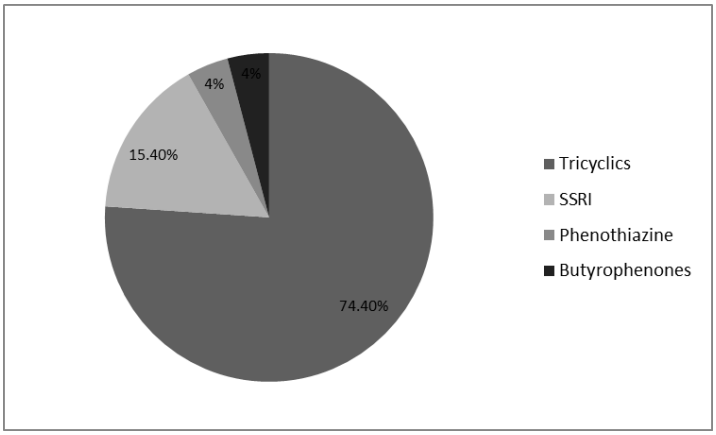

Figure 1: Drugs used as monotherapy in study participants

Table 2: Medication Related knowledge of Study Participants (n=151)

Items	**Correct answer n (%)**
1- What is the name of your antidepressant medication?	8 (5.2)
2- Do you know why you are supposed to take this medication?	105 (69.5)
3- Do you know how much of your medication to take and how often?	103 (68.2)
4- Do you know for how long you should be taking your medication?	50(33.1)
5- What benefit do you and your doctor expect to get from this treatment?	86 (56.9)
6- Do you know what to do in case you forget to take your medication?	71 (47.0)
7- Do you know how to store your medication?	104 (68.8)
8- Will you stop taking your medication once you start to feel better?	34 (22.5)
9- Do you think that antidepressants are addictive?	42 (27.8)
10- Do you know what to do in case you experience any side effect?	61 (40.4)
Pooled	**Sub-optimal knowledge [a]** n (%) 125 (82.8)

[a]Patients that scored less than 7 correct answers out of ten were considered to have suboptimal knowledge

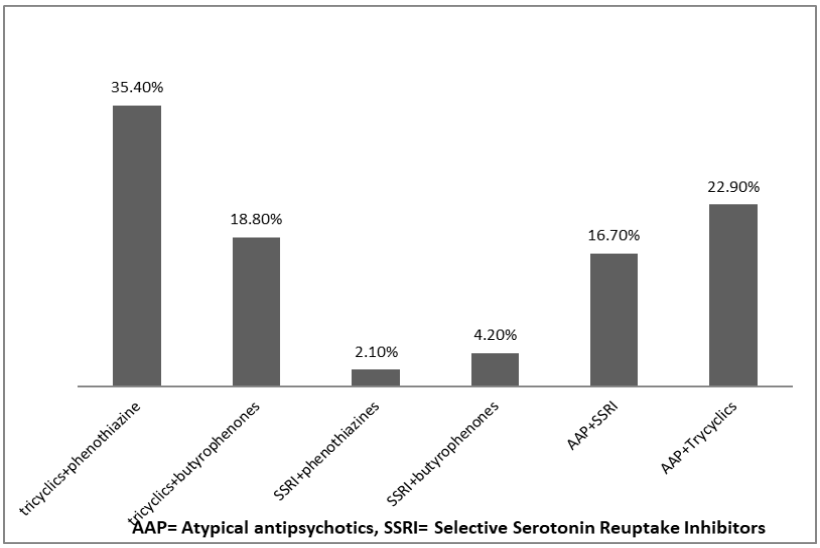

Figure 2: Drugs used as combination therapy in study participants

Medication Knowledge of Study Participants

Only 5.2% of the patients knew the name of their antidepressant medication. Few (33.1%) of them had knowledge about the duration of their treatment. Less than half (47.0%) of the patients knew what to do if they missed a dose of their antidepressant and only 22.5% knew that they were not supposed to stop taking their medication once they started to feel better. These results are shown in table 2. In general, 82.8 % of patients had suboptimal knowledge of their medications. No statistically significant associations were seen between patients' socio-demographic characteristics and their knowledge of their medication.

Study Participants' Beliefs about their Medicines

Figure 3 shows patients' responses to the individual BMQ items. The percentage of patients that either agreed/strongly agreed to the statements about the necessity of their medication ranged from 54.3% (my health in the future will depend on my medicine) to 66.2% (my health at present depends on my medicine and without my medicine I will become ill). On concerns about the adverse effects of their medications, the percentage of patients that either agreed/strongly agreed to the statements in this subscale ranged from 32.5% (my medicines are a mystery to me) to 47.7% (having to take medicines worry me).

After totalling patient scores and taking the average on both the necessity and concern subscales, patients scoring at, or above the mid-point of 3 on both subscales were found to be 73% and 49% respectively.

Percentages are of patients endorsing (agreed/strongly agreed) or expressing doubts (stronglydisagreed/disagreed/undecided).

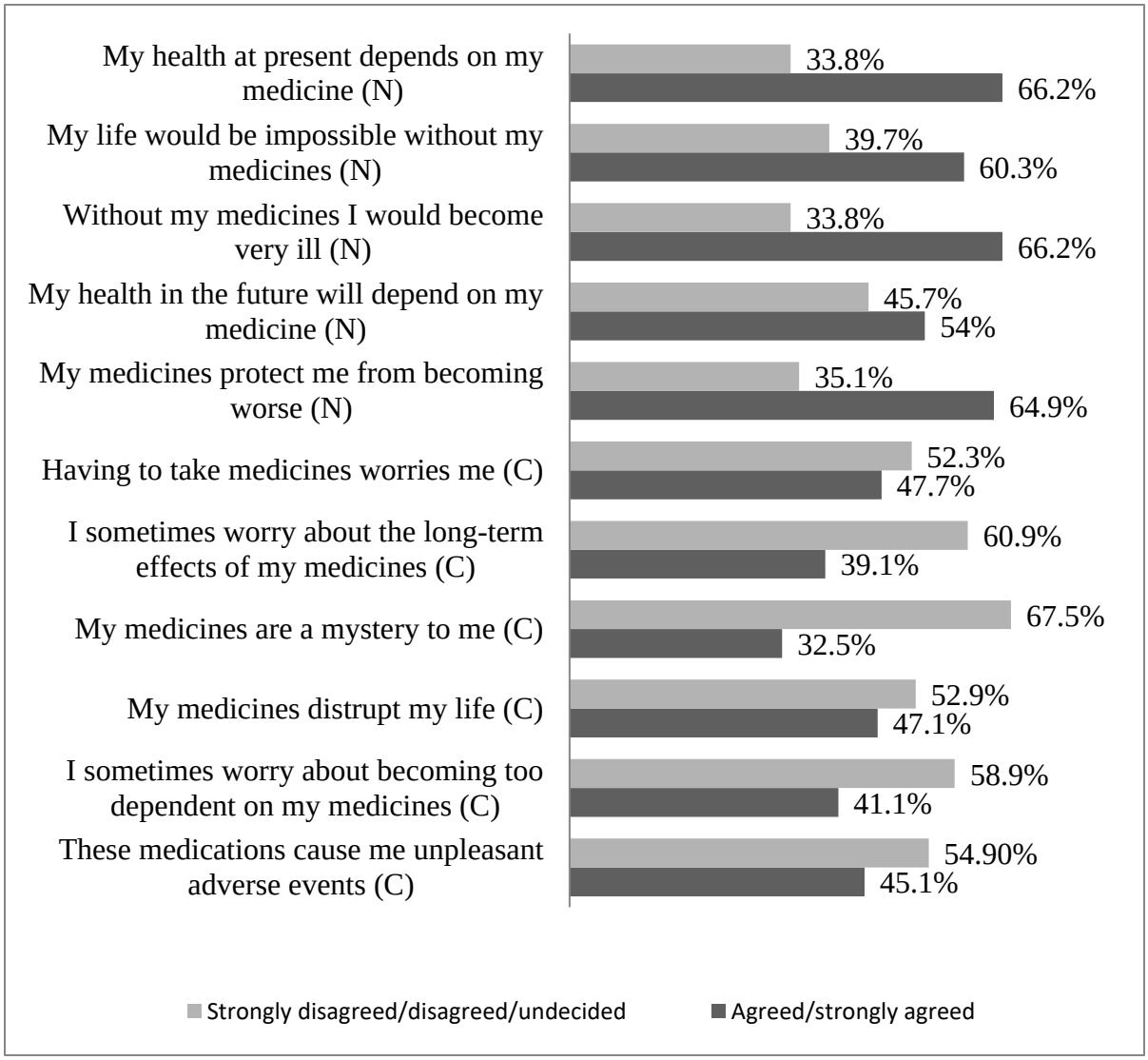

Figure 3: Patient Responses to Individual BMQ items

BMQ, Beliefs about medicines Questionnaire; (N) Medication necessity; (C) medication concerns.
Percentages are of patients endorsing (agreed/strongly agreed) or expressing doubts (stronglydisagreed/disagreed/undecided)

The mean total scores on a scale of 1-5 for this study participants were 3.3 (SD = 0.92) for necessity beliefs and 2.9 (SD = 0.81) for concern beliefs. Respondents whose total mean scores were higher than the mean scores for each subscale were classified as having strong beliefs. Over half (60.3%) of patients had strong beliefs regarding the necessity of their prescribed medicines however, almost half (47.7%) of patients also had strong concerns about potential adverse effects of their prescribed medication. Beliefs about necessity of medication were also found to be associated with disease severity ($p<0.05$). These results are presented in Table 3

.

Table 3: Study Participants' Beliefs about Medicine and Association with Disease Severity (n =151)

Beliefs about medicine	Mild n (%)	Moderate n (%)	Severe n (%)	Total n (%)	χ^2	P value
[a] **Necessity beliefs**						
Weak beliefs	13(21.7)	16 (26.7)	31 (51.7)	60 (39.7)	15.98	*0.00
Strong beliefs	4 (4.4)	48 (52.7)	39 (91)	91 (60.3)		
[a] **Concern beliefs**						
Weak beliefs	7 (8.9)	30 (38.0)	42 (53.2)	79 (52.3)	3.26	0.196
Strong beliefs	10 (13.9)	34 (47.2)	28 (38.9)	72 (47.7)		

*[a]Individuals scoring below the mean score of 3.3 (0.92) for specific necessity and 2.9 (0.81) for specific concern were considered to have weak beliefs while the rest were considered to have strong beliefs, *= significant at P < 0.05.*

Socio-demographic factors such as age, level of education and marital status showed statistically significant associations with strong necessity beliefs towards prescribed medication in these study participants. The odds to have strong beliefs regarding the necessity of prescribed medicines in patients with primary level of education was about 8 times greater than those with no formal education (p=0.026, OR=8.00). Married people were more likely to have strong beliefs regarding the necessity of their prescribed medicines (p=0.024, OR=4.77) when compared to those who were single, divorced or widowed (Table 4). There were no significant associations between patient socio-demographic characteristics and having strong concerns about potential adverse effects of their prescribed medication.

Table 4: Associations between Socio-Demographic Characteristics and Strong Necessity Beliefs about Medicines in Study Participants

Variable	N	SB (%)	p-value	OR	95% CI
Gender					
Male	26	42.3	Ref		
Female	125	62.4	0.110	0.499	0.213-1.171
Age					
<30	39	46.2	0.003	0.041	0.005-0.334
30-50	90	56.7	0.009	0.065	0.008-0.506
>50	22	90.9	Ref		
Level of education					
No formal education	99	54.5	0.376	1.667	0.538-5.161
Primary	14	85.7	0.026	8.000	1.279-50.0
Secondary	24	75.0	0.053	4.000	0.981-16.302
Tertiary	14	35.7	Ref		
Marital status					
Single	18	77.8	Ref		
Married	91	59.3	0.024	4.773	1.229- 18.530
Divorced	16	62.5	0.084	2.182	0.900-5.288
Widowed	26	42.3	0.208	2.273	0.634- 8.146
Working status					
Unemployed	129	62.8	0.714	1.687	0.103-27.604
Paid employment	20	35.0	0.785	0.667	0.036-12.270
Retired	2	50.0	Ref		
Monthly income (Naira)					
No income	131	62.6	0.714	1.687	0.103-27.604
<20,000	18	33.3	0.678	0.538	0.029-9.985
20,000-50,000	2	50.0	Ref		

Univariate logistic regression: n=frequency, SB=Strong beliefs, OR=Odds ratio, Ref= Reference

DISCUSSION

Findings from this study reflect medication knowledge and beliefs in patients with major depressive disorder in the health care facility studied and to the best of our knowledge; this is the first study that has evaluated medication knowledge and beliefs in patients with major depressive disorder in Nigeria. Most of the patients in this study were female, fell within the age group of 30-50, were married and had either moderate or severe depression based on ICD-10 criteria. This pattern is consistent with findings from a study on the utilization patterns of antidepressants at the Federal Neuro-Psychiatric Hospital Lagos, Nigeria (Kehinde *et al*., 2017) and another study on the relationship between depression literacy and medication adherence in patients with depression conducted in India (Ram *et al*., 2016). In all of these studies, most of the patients also had no formal education, were unemployed and received no monthly income.

The Nigerian national standard treatment guidelines recommend that either tricyclic antidepressants or Selective Serotonin Reuptake Inhibitors (SSRI's) be used in the management of depression (FMOH, 2016). However, the most commonly prescribed antidepressants for patients in this study were the tricyclic antidepressants. This is consistent with findings from several other studies conducted in Nigeria (Arute *et al*., 2015; Kehinde *et al*., 2017; Yakubu *et al*., 2019), as it has already been established that treatment regimens containing tricyclic antidepressants are much cheaper than other treatment options for depression within the country (Yakubu *et al*., 2019). Futhermore, almost half of the patients in this study were on combination therapy (antidepressant plus anti-psychotic) for the management of their depression. This high rate might have been due to the fact that most study participants had moderate to severe depression, which can present with psychotic features. It should also be noted that antipsychotics have for long been used as augmentation therapy in patients with depression (Wang and Si, 2019), even though the relatively newer atypical antipsychotics are preferred for this indication.

Obtaining excellent results with pharmacotherapy is dependent on patients having adequate knowledge about their own drug treatment (Rubio *et al*., 2015). However, majority of the patients in this study had suboptimal knowledge about their medication. Most of them did not know the name of the medication they were taking. This is similar to findings reported from other studies on medication knowledge in general and depression in particular (Mahendra *et al*., 2008; Rubio *et al*., 2015). Many of them also had poor knowledge about the duration of their treatment and the fact that they were not expected to stop using their medication once they started to feel better. This is similar to the findings of several other authors that studied medication knowledge of patients suffering from different chronic diseases (Kapawa-Mwale, 2014; Shamkuwar *et al*., 2015; Jankowska-Polańska *et al*., 2016; Labaran, 2018). Several of these patients also believed that antidepressants are addictive. This is a fairly common misconception held by many patients taking antidepressants (Cartwright *et al*., 2016; Green *et al*., 2017). An appreciable number of them also had no knowledge of precautions to be taken with regards to a missed dose or the side effects of their medication, which supports earlier findings by Rubio *et al*. (2015).

In this study, most patients had strong beliefs about the necessity of their medication and agreed that their medication was necessary for the remission of their depressive symptoms and maintaining their health. However, some of the patients also had strong concerns about their medications. Appreciable numbers of them were concerned about having to take medication in the first place, the long-term and adverse effects of their medications and becoming too dependent on their medication. It has been reported that concerns about medication use tend to be related to non-adherence, and negative medication beliefs can affect adherence to long term medication (Acosta *et al*., 2013; Adeniran *et al*., 2015). In patients with depression, specific beliefs such as ''my health depends on antidepressants'' and lower concerns about being dependent on medication have been found to be strongly associated with adherence (Liekens, 2012; Acosta *et al*., 2013). Addressing these beliefs in negotiated approaches to treatment (where the patient is involved in making treatment decisions) can therefore support informed treatment choices and help ensure that nonadherence does not result from misplaced beliefs.

More than half of patients in this study rated their need to take their medications higher than their concerns about potential disadvantages. High Necessity scores and low concern scores have been correlated with high levels of adherence in patients with chronic diseases (Alsous *et al*., 2017).

Disease severity was found to be associated with medication necessity beliefs in this study. There is evidence showing that the greater the severity of depression/depressive symptoms in patients, the stronger their beliefs regarding the necessity of their medications (Stein-Shvachman *et al*., 2013). On the other hand, concerns about adverse events of their medications, were not found to be associated with disease severity. Factors such as marital status and

level of education were also found to be associated with stronger patient beliefs regarding necessity of medications in this study. It has been reported that the need for antidepressant treatment is associated with older age and greater severity of depressive symptoms (Stein-Shvachman *et al*., 2013).

Limitations of this study include the fact that the study was conducted in only one centre, which may limit the generalizability of the results. Social desirability bias can also not be totally excluded.

CONCLUSION

Majority of patients with major depressive disorder at the study site had suboptimal knowledge of their medication and strong beliefs regarding the need for their medications. However, almost half of them also had strong beliefs about the potentials of their medications to cause harm. The odds to have strong beliefs on the need for medication was positively associated with being married and increased level of education. If physicians and other health care givers take cognisance of the poor medication knowledge and strong beliefs regarding the potentials of the medications to cause harm, depressed patients within Nigeria and other countries will receive qualitative care that will lead to positive treatment outcomes. Interventions (delivered by pharmacists or other healthcare practitioners) aimed at improving medication knowledge and addressing negative beliefs about medications are therefore recommended.

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