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Screening and Intervention Outcomes for Depression at Primary Health Care Settings in Ogun State, Nigeria

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ABSTRACT

Depression is one of the most common conditions treated in primary health care (PHC), and nearly 10% of all primary care visits are depression related. Detection of cases of depression by PHC workers in developing countries is extremely low. Screening for depression at PHC level can improve the detection rate and may be useful in providing interventions for identified cases of depression. This study was undertaken to improve detection of depression through screening and providing interventions for patients presenting for health services at the PHC settings in Ogun state, Nigeria.

Methodology

The study was conducted at 20 PHC centres in two randomly selected senatorial districts (Ogun West and Ogun Central) in Ogun State, Nigeria. Patient Health Questionnaire-2 (PHQ-2) and module on depression of mental health Gap Action Programme-IG (mhGAP-IG) guidelines were used in screening for depression among consenting patients who met inclusion criteria in the 20 designated PHC centres. For making diagnosis of depression, PHQ-9 scores of ≥ 10 confirmed the diagnosis. Interventions as specified in the depression module of mhGAP-IG were administered and patients were followed up for 6months. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 21.0. Frequency, mean, standard deviation and percentages were used to summarize descriptive statistics while the means of quantitative variables was compared with Independent T Test at level of statistical significance set at $P<0.05$

Results

Among the 493 patients screened for depression, 26.8% were confirmed for depression. Mean score (19.8) for depression at Ogun West where screening was done with PHQ-2 and mhGAP-IG was significantly higher than Ogun Central (14.5) at P=0.001. Majority of the cases of depression were mild cases (50.8%). Majority (62.3%) of the patients were females. All the patients received psychological treatment while 55.3% were placed on amitriptyline with mean (SD) dose of 43.2(3.4) mg. At the end of 6 months follow up, about 75.8% of the patients recovered from depression with PHQ-9 score <5.

Conclusion

This study has demonstrated the possibility of training non-physician primary health care workers to improve detection and intervention for depression at the primary health care settings in Ogun state, Nigeria. Strategies that will improve recognition and treatment of cases of depression like mental health training on depression and routine screening of patients for depression using the PHQ-2 , PHQ-9 tools and the mhGAP-IG should form part of routine service package at the primary health care settings as these will improve detection and intervention for depression.

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Introduction

Depression is a leading cause of disability worldwide as well as being an important public health problem in which General Practitioners (GPs) play a significant role[1]. Among patients attending general medical out-patient, rate of depression between 11.4% and 59.6% have been reported, with most presenting in the mild form [2,3]. Although depression is mild in most cases, the proportion of depressed patients with significant disability was 3-fold higher compared to patients without depression [4]. Studies have consistently reported the association of depression with sociodemographic variables [2,5,6].

In primary care settings, depression is the second most common chronic disorder seen; however, most patients with depression go unrecognized [7]. Recognizing depression in general medical out-patients' settings may be particularly challenging because patients with depression who present to general duty physician often described somatic symptoms [8]. Somatic manifestations of depression however occur across all cultures, and contribute significantly to the under-recognition of depression in primary care practice [9].

The prevalence of depression is particularly high in the primary healthcare setting [10, 11]. In a large international study of participants from 14 countries, 24% of attendees of primary care were found to have depression [12]. Studies from Africa also reported almost similar figures [13]. Depression is one of the most common conditions treated in primary care, and nearly 10% of all primary care visits are depression related [14]. Most patients suffering from depression are treated by their primary care physician [15]. Nevertheless, several studies both from high-income and low- and middle-income countries (LMICs) showed recognition of depression in primary care to be suboptimal [16, 17]. In high-income countries, more than 50% of cases with depression may be unrecognized [18]. The detection rate of depression in LMICs by primary care clinicians is extremely low [13]. A study in rural Ethiopia found that over 95% of patients presenting to primary care with potential depression do not receive a clinical diagnosis of depression and appropriate interventions were not given to these patients [19].

Although detection is not a guarantee for treatment, it is a pre-condition for a patient with depression to be in the path towards appropriate care [20]. Lower level of detection has also a serious impact on the recent efforts to scale up the integration of mental healthcare in the primary care setting [19]. Hence, understanding the factors that impede detection of depression by primary care staff and addressing these factors are of crucial importance. Despite the challenges with recognition of depression in primary care, there is strong evidence that treating depression improves outcomes and is cost-effective [21]. Thus, there is a need to focus more effort and resources on coordinated, multilevel interventions that would improve the recognition of depression in primary care [22].

Several interventions that address the system level needs and the needs of the clinician as well as addressing patient and family/ community level barriers to improving the detection of depression in primary care have been evaluated [18, 21, 23, 24]. These include screening, clinician education (educational interventions directed at primary care physicians), guidelines, case management, collaborative care, and stepped care [25-28]. Previous individual original studies, mostly conducted in high-income countries, found that coordinated interventions, such as screening and the chronic care model, are likely to be most effective to detect depression at the PHC setting [29]. Systematic reviews of effectiveness of different interventions to improve the detection of depression in primary care found that the best strategies are those with complex interventions that incorporated clinician education, case management by nurses, and greater collaboration between primary care providers and mental health specialists [27].

Considerable research has focused on the effect of these methods to improve the detection of depression in primary care [29]. Systematic reviews and meta-analysis have also been done to synthesize the evidence on the effectiveness of separate interventions (e.g., screening) to improve the detection of depression [21,23].

While studies on depression in primary care settings in western world showed that the prevalence ranged from 15.3% - 22%, the studies on depression in primary care setting in Nigeria have also established that depression is a common problem, occurring in up to 10-20% of clinic attendees [30-32].

In spite of the fairly high prevalence of depression, diagnosis by non-specialist practitioners has remained a problem in Nigeria. Studies have shown that primary care physicians who provide usual care fail to recognize depressive symptoms in 30% to 50% of patients with depression [33]. Studies have shown that non-physician primary health care workers such as nurses and community health officers could be trained on task sharing and task shifting model to provide interventions such psychosocial interventions and medication administration to patients with depression at the primary care settings with support from specialist mental health professionals [31,32,34].

In Ogun state of Nigeria, the Neuropsychiatric Hospital Aro embarked on primary care mental health service in some selected primary health care facilities in the past fourteen years. The training which was typical of mental health training for Primary Health Care Workers was in line with recommendation by mental health Gap Action Programme-Intervention Guide (mhGAP-IG). However, in the Aro study, the trained health workers on five priority mental disorders reported difficulties in the recognition and treatment of depression as only a few cases of patients with depression were identified by the trained health workers [34].

Screening for depression at the primary care level can improve the detection rate and may be useful in preventing consequences of unrecognized and untreated depression. Routine screening for depression in primary care setting can improve the detection rate and may be helpful in administering the appropriate interventions for patients with depression. Screening for depression at the primary care setting is made easier with two relatively new screening tools, the Patient Health Questionnaire-2 (PHQ-2) and Patient Health Questionnaire- 9 (PHQ-9). These two tools have high sensitivity and specificity in primary care setting and they are easy to use and take a short time to complete [35]. Thus, lack of time and discomfort with emotional issues are no longer reasonable excuses for failure of practitioners to look for and treat depressive symptoms in their patients.

In Ogun State, there is paucity of studies on the screening, detection and appropriate intervention for depression at the primary health care settings. This study was undertaken to improve detection and intervention for depression through screening with appropriate interventions as specified in the module of depression of mhGAP-IG for patients presenting for health services at the primary health care settings in Ogun state, Nigeria.

Methods

This study was carried out at Primary Health Care (PHC) centres across Ogun State, Nigeria. Ogun state is one of 36 states in Nigeria. Ogun state has three senatorial districts: Ogun Central, Ogun East and Ogun West. Ogun Central consists majorly of the Egbas that occupy six Local Government Areas (LGAs): Abeokuta North, Abeokuta South, Ewekoro, Ifo, Obafemi Owode, and Odeda. Ogun West consists majorly of the Yewas that occupied five Local Governments: Ado odo-Otta, Imeko-Afon, Ipokia, Yewa North and Yewa South. Ogun East senatorial district consists majorly of the Ijebus and the Remos that occupy nine Local Governments which are: Ijebu East, Ijebu North, Ijebu North East, Ijebu Ode, Ikenne, Odogbolu, Ogun waterside, Remo North and Sagamu.

Ogun state with a population of over 5million has twenty (20) LGAs which are also grouped into four (4) socio-political zones: Egba, Yewa, Remo and Ijebu with five (5) LGAs in each zone. There were 477 PHC Centres and each LGA had PHC director who is a medical doctor and an apex nurse.

In Ogun state, there were 1225 non-physician PHC workers who are nurses (60%), and the others (40%) are Community Health Officers (CHO) and Community Health Extension Workers (CHEW). All the categories of health workers had at least two (2) years post-secondary school education.

The Neuropsychiatric Hospital Aro, Abeokuta with specialist multidisciplinary mental health professionals is the main mental health institution in Ogun state and provides mental health services to the citizens of Ogun state and other states in Nigeria including neighbouring countries. At the primary health care level, there are no specialist mental health professionals.

However, in 2011, the Neuropsychiatric hospital Aro went into collaboration and agreement with the Ogun State Local Government Service Commission to provide mental health services and research at the primary care level [34].

As part of the collaboration, forty (40) PHC centres were chosen and designated for provision of mental health services and research in mental health across the four socio-political zones in Ogun state.

In total, there are ten (10) PHC centres (5 urban & 5 rural) in each of the four (4) Socio-political zones (Egba, Remo, Yewa & Ijebu)

Aro community mental health faculty members comprise project coordinator, consultant psychiatrists, senior registrar in psychiatry, field psychiatric nurses, social workers, pharmacist, psychologist, occupational therapist, administration officer (Secretary), drivers and other support staff members.

The study sites for this study are the 20 PHC centres in Ogun central(Egba zone) and Ogun West (Yewa zone). 124 PHC Workers who are Nurses and CHEW were trained on five (5) priority conditions which are: 1. Psychosis, 2. Depression, 3. Epilepsy, 4. Alcohol & Substance Use Disorder and 5. Anxiety disorders and Other Significant Emotional Complaints using the adapted mhGAP-IG document by the Lead Community Consultant Psychiatrist and other Mental Health Professionals. The training had been evaluated and found to be effective [34]. The 124 PHC Workers had 72 from Ogun Central and 52 from Ogun West senatorial district respectively.

As part of the training on the module for Depression, the PHC Workers were also trained on screening for Depression using the PHQ-2 and PHQ-9. They were also trained on how to use the guidelines on Depression module of the mhGAP-IG for screening for Depression. Also, Using the task shifting and task sharing model of care, the training covered interventions such as psychosocial interventions and antidepressants administration to patients with Depression with on-going support and supervision from field psychiatric nurse supervisors and the consultant psychiatrists [34].

The study design was a multicentre, descriptive, follow up study carried out in 20 PHC centres within Ogun Central and Ogun West senatorial districts.

The study population were patients who presented to the PHC centres for health care services, met inclusion criteria and provided informed consent to participate in the study.

Sample size was estimatedusing Leslie-Kish formula for single Proportion

$$\text{Sample size } n = \frac{Z\alpha^2 pq}{d^2}$$

P is the prevalence of depression at the primary care setting
q = 1- P
d = the precision for this study: a high precision of 3.5% was chosen.
Zα = 1.96 (for 5% level of significance) is standard normal deviate

Using the prevalence rate of depression ranging from 10-20% among primary care clinic attendees in Nigeria (Guruje[36]; Ndukuba,[32]), then P= 0.2

$$\text{Sample size } n = \frac{(1.96)^2 \times 0.2 \times 0.8}{(0.035)^2}$$

n = 502 Patients.

To account for non-response; a study on screening for mental disorder at the primary care setting in Lagos found the Response Rate to be 85.1%(Lasebikan38,). Hence Response Rate R = 85.1%; Non-Response Rate NR = 14.9%

Hence minimum sample size

$$n = n \times \frac{100}{100\text{-}NR}$$

$$n = 502 \times \frac{100}{85}$$ yielding n=590 patients

Consequently, a sample size of 590 patients was used

Study Instruments

Patient Health Questionnaire-2 (PHQ-2) (by self- administration) The PHQ-2 is used to screen for depression in a first step approach. It has Questionnaire which scores from 0 to 3 for each of the 2 questions with total score ranging from 0 – 6. Scores of 3 and above are considered positive screen for depression.

The PHQ-2 have good psychometric properties of ssensitivity of 83%; specificity of 92% and positive predictive value of 80% for the diagnosis of major depression [35]. It has been used extensively in Nigeria and the Yoruba translated version37 is available and was used in this study for some patients that were not literate.

Stage 2 (Making Diagnosis of Depression)
Patient Health Questionnaire -9 (PHQ-9) was used for making diagnosis of depression. For all the cases that have been assessed by the trained PHC workers in stage 1 and screened positive to depression, the field psychiatric nurses applied the PHQ-9 on them.

The PHQ-9 is brief and useful tool in clinical practice. The PHQ-9 is completed by the patient in about 10 minutes and is rapidly scored by the researcher.

It is a multipurpose instrument for screening, diagnosing, monitoring and measuring severity of depression. There are 9 items scored similarly to PHQ-2 (0 to 3 for each item). The score ranges from 0 to 27

For interpretation of scores:
5 – 9 minimal symptoms
10 – 14 minor depression
15 – 19 moderate depression
>20 severe depression
For making diagnosis of depression; PHQ-9 scores of 10 and above confirms the diagnosis. PHQ-9 scores ›10 had a sensitivity of 88% and specificity of 88% for major depression [35].

It has been used extensively in Nigeria with Yoruba translated version37 is available and this was used for the patients that were not literate.

mhGAP-IG Document
The Menatl Health Gap Action Programme -Intervention Guide is a tool developed the World Health Organization (WHO) to help non-specialist health care providers like general doctors, nurses and community health workers assess and manage mental, neurological and subatance use (MNS) disorders especially in low- and middle-income countries (LMICs). The document was adapted to suite local circumstances in Ogun state, Nigeria [34]. The health workers were trained on 5 priority conditions including Depression. The training covered screening using the guidelines on the Depression module of the mhGAP-IG as well as PHQ-2 and PHQ-9.

Sociodemographic Questionnaire
This was designed to obtain information on the Socio-demographic characteristics of the patients. This section obtains information on the patients' sex, age, marital status, occupation, educational status, medical co-morbidity, duration of untreated mental illness and types of medical conditions.

Sampling Procedure
The trained PHC workers and field psychiatric nurses were involved in the screening of patients at the 20 PHC centres for the study. At the waiting room/ space within the clinic, the study was explained to the clinic attendees both in English and Yoruba language. A consecutive consenting attendee who met inclusion criteria participated in the study.

Treatment Intervention
The patients diagnosed with Depression received treatment interventions as contained in the depression module of the mhGAP-IG document which were provided by the trained PHC Workers with the support of the field psychiatric nurses at their respective PHC centres. These treatments are:

- Psychoeducation for the person and his or her family as appropriate
- 2 Addressing current psychosocial stressors
- 3 Reactivating social networks
- 4 Providing explanation when depression occurs in the postnatal period
- 5 Antidepressant medication: Amitriptyline is a tricyclic antidepressant that health workers can prescribe at the primary care level with the support of psychiatrist.
- Dose range recommended on the mhGAP-IG: 25mg – 100mg daily (single dose at night)
- 6. Follow-up care for the patients- Patients were followed up by the trained PHC workers forthrightly for 6months at the PHC closest to the patients.
- 7. Referral to specialist psychiatrist when the criteria are met

Ethical Approval
was obtained from Ethical Committee of Federal Neuropsychiatric Hospital Aro, Abeokuta, Ogun State (HREC PR004/19) for the main study. Permission for the study was obtained from Ogun State Local Government Service Commission (LGC.844/44). Informed consent of eligible patient was obtained. The participants were free to enter and leave the study at any point in time. There was no penalty whatever attached to not participating or withdrawing from the study.

Data Analysis
The proforma was checked for correctness and re-coded serially. The information was entered, cleaning and analysis were done using the Statistical Package for Social Sciences (SPSS version21.0) Descriptive Statistics- mainly frequency, mean, standard deviations and percentages were used. Chi-Square was used as test of significance for qualitative variables while the independent student-T-test was used to compare the means of quantitative variables. A p-value less than 0.05 was accepted as significant for each statistical test.

Results
Out of a total of 590 patients that gave consent to participate in the study, 493 had copies of the instruments completely filled and were suitable for analysis. This accounted for 83.6% of the total screened patients. Also, among the 493: 132 patients were diagnosed with depression accounting for 26.8%. It is worthy of note that Ogun West district (Yewa zone) screened 229 patients out of which 79 had depression accounting for 34.5%, while for Ogun Central senatorial district (Egba zone), 264 patients were screened out of which 53 patients had depression accounting for 20.1%.

The demographic information of all the patients who participated in the study was presented in table 1. Among the 493 patients, 284(57.6%) were between the ages of 20-40years, while 169 (34.3%) were within the ages of 41-60 years of age. The mean age of the patients was 38.6 (2.0) years. This showed that majority of the patients who participated in the study were still in their agile age. Also, 62.3% were females meaning that more female patients participated in the study. Furthermore, on level of education, 33.7% had primary education, 28.4% had secondary education, 18.5% had post-secondary education and 9.1% had university education while 9.9% had no formal education. Also, on marital status of the patients, result revealed that 60.8% were married while 54.5% were unemployed. Finally on the occupational status of the patients, results revealed that 50.9% were unskilled.

Table 1: Socio-Demographic Variables of Patients Screened for Depression

Variable	Frequency (N=493)	Percentages (%)
Age Mean (SD)	38.6(2.0)	
Age groups		
<20 Years	5	1.0
20 -40years	284	57.6
41-60 Years	169	34.3
>60years	35	7.1
Sex		
Male	186	37.7
Female	307	62.3
Tribe		
Yoruba	418	86.7
Ibo	31	6.3
Hausa	4	0.8
Others	40	8.1
Religion		
Christian	298	60.4
Islam	193	39.2
Others	2	0.4
Education		
No Formal Education	49	9.9
Primary	166	33.7
Secondary	140	28.4
Post-Secondary	91	18.5
University	45	9.1
Marital Status		
Single(Never Married)	99	20.1
Married	300	60.8
Separated /Divorced/Widowed	94	19.1
Employment Status		
Employed	214	43.4
Retired	10	2.0
Unemployed	269	54.5
Occupation Status		
Highly Skilled Professional I	34	6.9
Highly Skilled Professional Ii	52	10.5
Semi-Skilled	128	26.0
Unskilled	251	50.9
Others	28	5.7

Table 2 reports on screening of patients within the 2 zones with PHQ-2 screening for depression. The total score of PHQ-2 ranges from 0-6; however, score of 3 and above are positive to depression. Out of the total 229 patients screened at Yewa Zone, 88 (38.4%) were positive. PHQ-9 was applied on the 88 patients and 79 had scores of 10 and above. The initial screening at Yewa zone was with the PHQ-2 and with the guidelines on the Depression module of mhGAP-IG. Consequently, 79 (34.5%) out of the 229 patients were confirmed with the diagnosis of depression.

At Egba zone, among the 264 patients screened using only the mhGAP-IG document, 60 (22.7%) screened positive for depression. The field psychiatric nurses applied PHQ-9 on the 60 patients and 53 had scores of 10 and above. Consequently, 53(20.1%) out of the 264 patients were confirmed with the diagnosis of depression.

A total of 132 (26.8%) patients from both zones were confirmed for the diagnosis of depression among the 493 patients that participated in the study.

Table 2: Screening of patientsand confirmation of Depression with PHQ-9

YEWA ZONE (n=229)	EGBA ZONE (n=264)
PHQ-2 + mhGAP = 88 Number positive = 88(38.4%) PHQ-9 ≥ 10 = 79 (34.5%) (Confirmed Cases)	mhGAP = 60 Number positive =60(22.7%) PHQ-9 ≥10 =53(20.1%) (Confirmed Cases)
Total For Both Zones= 132(26.8%)	

Table 3 shows that there was a significant difference in the detection rate of depression among trained PHC workers who routinely applied PHQ-2 (Yewa zone) for screening compared to Egba zone that did not apply PHQ-2 on the patients. There was higher detection of depression at Yewa zone (34.5%) compared to Egba zone (20.1%). There was a significant difference in the mean score of depression for Yewa zone (19.8) (4.9) that used PHQ-2 + mhGAP-IG compared with Egba zone (14.5) (3.8) that used only mhGAP documents (p=0.001).

Table 3: Influence of combined PHQ-2 and mhGAP-IG on Depression Screening

Zones	Depression Instrument	Positive n (%)	PHQ- Scores > 10 (n) (%)	Mean (SD)	Independent T Test	P-value
Yewa (n=229)	(PHQ-2 + mhGAP)	88 (34.8)	79 (34.5)	19.8 (4.9)	24.71	0.001
Egba (n=264)	(mhGAP)	60 (22.7)	53(20.1)	14.5 (3.8)		

Level of depression among patient diagnosed with depression is depicted below:
Majority of the sample (50.8%) had mild depression while those with moderate depression were 42.4% and those with severe depression were 6.8%.
The PHQ-9 score for the 132 patients with depression showed the following distribution:
10-14 (mild depression): 67 cases representing 50.8%
15-19 (moderate depression): 56 cases representing 42.4%
>20 (severe depression): 9 cases representing 6.8%

The results in table 4 presents the demographic information of the patients that were diagnosed with depression. The results showed that 34.8% were males while 65.2% were females. Also, 29.0% had only primary education, 26.7% had secondary education, and 13.0% had university education while 13.0% had no formal education. Furthermore, 46.2% of the patients were married while 34.6% were single. Finally, 54.3% were employed while 44.1% were unemployed and 43.2% belonged to unskilled labour. A little above 10% reported having physical conditions like hypertension, diabetes and peptic ulcer diseases.

Table 4: Demographic Characteristics of Patients Diagnosed with Depression

Variables	Frequency (n=132)	Percentages (%)
Age Mean(SD)	41.3(13.70)	
Age Groups		
18-30	35	26.5
31-45	52	39.4
46-60	29	22.0
61+	16	12.1
Sex		
Male	50	37.9
Female	82	62.1
Tribe		
Yoruba	101	76.5
Ibo	13	9.9
Hausa	5	3.8
Others	13	9.9
Religion		
Christian	78	59.1
Islam	53	40.1
Others	1	0.8
Education		
No Formal Education	17	12.9
Primary	38	28.8
Secondary	35	26.5
Post-Secondary	24	18.2

University	17	12.9
Marital Status		
Single(Never Married)	45	34.6
Married	60	46.2
Separated/Divorced/Widowed	25	19.2
Employment Status		
Employed	69	52.3
Retired	2	.1.5
Unemployed	56	42.4
Occupation Status		
Highly Skilled Professional I	4	3.0
Highly Skilled Professional II	13	9.8
Semi-Skilled	31	23.5
Unskilled	57	43.2
Others	27	20.5
Physical comorbid conditions	16	12.1

Antidepressant Medications were Prescribed (Amitriptyline) for the cases shown below:
Mild Depression - 8 patients
Moderate Depression- 56 patients
Severe Depression- 9 patients
Total = 73 patients.
Consequently, 55.3% of the patients were placed on amitriptyline antidepressant medications.
The mean (SD) dose was 43.2(3.4) mg of amitriptyline.

PHQ-9 scores of the patients after 6 months of follow up care was presented in table 5. About 75.8% of the patients recovered from depression with PHQ-9 score <5 while 15.2% did not recover (>5). Another 9.0% did not complete the study

Table 5: PHQ-9 Scores After 6 Months for Patients with Depression

PHQ-9 scores	Frequency (n=132)	Percentage (%)
<5	100	75.8
>5	20	15.2
Not applicable	12	9.0

Discussion
Yewa zone (Ogun West Senatorial district) that applied PHQ-2 and mhGAP-IG for screening for depression had a higher detection rate (34.5%) compared to 20.1% detection rate obtained by Egba zone (Ogun Central Senatorial district) that used only the mhGAP-IG guidelines at significant level. Screening of patients using the PHQ-2 has been recommended for use at PHC level in view of its impact to increase detection rate of depression [35]. However, our study has shown a synergistic effect of using the PHQ-2 and mhGAP-IG in achieving high detection rate for Depression at the PHC settings.

The rate of depression obtained in this study at the primary care settings in Ogun State is 26.8%. Psychiatric morbidity at the primary care level showed various prevalence ranging from 21.3% to 63.1% with depression being the commonest [32, 38].

While studies on depression in primary care settings in western world showed that the prevalence ranged from 15.3% -22% (30), in relative to depression studies in primary care setting in Nigeria, depression occurred in up to 10-20% of patients attending clinics [31, 32].

Among the 132 (26.8%) patients diagnosed with depression, majority of the cases were mild cases (50.8%) of depression. While the prevalence obtained is higher than the 20% obtained by Gureje, it is however lower than the 48.7% reported by Obadeji in their study at primary care facility in Ekiti State, Nigeria [31]. In the study of depression, different prevalence has been obtained [37]. This could be due to the method of case ascertainment, setting of the study, the specificity and sensitivity of instruments used in the study. In this study, majority were mild cases of depression which might not be picked up by the diagnostic instruments used in some other studies. The mhGAP-IG is designed for moderate-severe cases of depression and this could be a major limitation in detecting mild cases of depression.

Among the patients with depression, the prevalence is about twice commoner in females than in males. This finding is congruent with the epidemiology of depression [39].

Over half of them had secondary school education and below with 34.6% being single while close to half of them were unemployed. These profiles are similar to the profile reported in previous studies [31,34,36, 37].

These patients were treated and followed up by the trained PHC workers at the primary health care centres using the guidelines stated in the mhGAP-IG documents. A little above half of the patients were placed on amitriptyline antidepressant with mean (SD) dose of 43.2(3.4) mg. Low doses of amitriptyline such as is reported in this study is said to be effective in the treatment of depression when combined with other psychosocial interventions [34].

The patients were followed up for 6 months period. This study reports an attrition rate of 9.0% among the 132 patients diagnosed

with depression. The attrition is similar to the 9.1% reported by Dixon in the 6 months follow up study in their research on effect of a primary care based psychological interventions on common mental disorders in Zimbabwe [40]. A Nigeria study of psychiatric follow up defaults and medication compliance after discharge at a psychiatric hospital in Nigeria reported a high rate of drop out of 49.4% at 3 months follow up period. Although, attrition is unavoidable in follow up epidemiological studies, however psychiatric studies are especially sensitive to attrition [38].

The low attrition reported in this study could be due to the fact that most of the patients were living close to the health facilities and one of the criteria for participating in the study is remaining within the vicinity for the 6 months of the study. The trained PHC workers and field psychiatric nurses provided follow up at the health centres and also had access to the patients' relatives' phone number.

Among the patients treated, 75.6% recovered from depression with PHQ -9 score ≤ 5Similarly, Casarella 41 and Gureje reported similar recovery rate of 70% among patients with depression that were followed up for 6 months [36,41].

The factors influencing recovery include: young age, being married, high level of education, good social support, good follow up care and those with mild cases of depression.

Stotland, in his study on the factors associated with good outcome in major depression in a 6-month prospective study had reported similar social variables like employment, marital status, social support and good functioning to be predictive of good outcome [42].

The trained PHC workers received support and supervision from field psychiatric nurses on the program and this is one of the mechanisms to enhance performance of the trained PHC workers and for program sustenance.

As part of limitations to our study, we did not control for factors like physical co-morbidities that could influence the outcome of the interventions as well as certain confounders like cultural, social and economic factors that could affect the screening outcomes at the different senatorial zones. Future research should address these factors.

Conclusion

This study has demonstrated the possibility of non-physician primary health care workers to improve detection and interventions for depression by screening with easy to administer tools as well as providing appropriate interventions at primary health care settings in Ogun state, Nigeria. Strategies that will improve recognition and intervention for cases of depression like mental health training on depression and routine screening of patients for depression using the PHQ-2, PHQ-9 tools and the mhGAP-IG should form part of routine service package at the primary health care settings as these will improve services for depression.

Conflict of Interest: None

Appreciation

All members of Aro Community and Primary Care Mental Health Programme, Trained PHC Workers, all patients that participated in the study, Ogun state Local Government Service Commission and Management of Federal Neuropsychiatric Hospital Aro, Abeokuta, Nigeria.

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