Depression amongst healthcare workers in Maiduguri, north-eastern Nigeria

Pindar S K[1], *Wakil M A[1], Coker A O[2], and Abdul I. W[1]

Original Article

ABSTRACT

Objective: Very few studies reported the high prevalence of emotional reactions amongst healthcare workers, in sub-Saharan Africa. This study aimed to assess the prevalence of depression among health care workers in two tertiary health institutions in Maiduguri, north-Eastern Nigeria.

Methods: In this comparative, cross-sectional study, we used a stratified sampling technique to recruit 370 healthcare workers (clinical and non-clinical staff) from university teaching hospital, and Federal Neuro-psychiatric Hospital, Maiduguri, Borno State, north-east Nigeria. The participants completed a semi-structured socio-demographic questionnaire and Beck Depression Inventory (BDI-II).

Results: Twenty (10.7%) and 14 (7.6%) clinical and non-clinical health care workers, respectively had depression ($\chi^2 = 1.096$, $df = 1$, $\rho = 0.295$). The prevalence of depression in males and females were 7.8% and 26.9%, respectively. Gender had a significant association with depression ($\chi^2 = 3.427$, $df = 1$, $\rho = 0.043$).

Conclusion: For an effective healthcare delivery service, the psychological well-being of hospital workers must be improved. Hospital workers require skills on stress management techniques.

Key words: Depression, healthcare workers, Maiduguri, Nigeria

*Corresponding author: Dr. Musa Abba E-mail: , Tel. +234 8109319220

[1] Department of Mental Health, College of Medical Sciences, University of Maiduguri, Borno State, Nigeria.
[2] Department of Behavioural Medicine, Lagos State University College of Medicine, Ikeja, Lagos, Nigeria.

La dépression chez les travailleurs de santé à Maiduguri nord-est du Nigeria

Pindar S K[1], *Wakil M A[1], Coker A O[2], and Abdul I. W[1]

Article Original

RÉSUMÉ

Objectif: Très peu d'études ont rapporté la prévalence générale élevée de reaction sémotionnelles parmi les travailleurs de la santé en Afrique sub-saharienne. Cette étude visait à évaluer la prévalence de la dépression chez les travailleurs de la santé dans deux établissements de santé tertiaires à Maiduguri, nord-est du Nigeria.

Matériels et Méthode del'Étude: Dans cette étude comparative, traversable, nous avons employé une technique d'échantillonnage stratifié à recruter 370 travailleurs de la santé (personnel clinique et non-clinique) d'hôpital d'enseignement de l'université et Neuropsychiatrique, Maiduguri, L'état de Borno, au nord-est du Nigeria. Les Participants ont rempli un questionnaire socio-démographique semi-structuré et-Beck Dépression Inventorie (BDI-II).

Résultats: 20 (10.7%) et 14 (7.6%) travailleurs de la santé clinique et non-clinique avalent la depression X2 = (1.096, df = 1, P = 0.295). La prévalence de la dépression chez les hommes et les femmes était 7.8% et 26.9%, respectivement. Sexe avait une association signifiante avec dépression.(X2 = 3.427, df = 1, P = 0.043).

Conclusion: Pour un service efficace de préstation de soins de santé, le bien – être psychologique des travailleurs hospitaliers doit être améliorer. Les personnels hospitaliers exigent des compétences sur les techniques de gestion du stress.

Mots Cles: Dépression, travailleurs de santé, Maiduguri, Nigeria.

*Auteur correspondant: Dr. Musa Abba E-mail: bawakil@yahoo.com

[1] Department of Mental Health, College of Medical Sciences, University of Maiduguri, Borno State, Nigeria.
[2] Department of Behavioural Medicine, Lagos State University College of Medicine, Ikeja, Lagos, Nigeria.

INTRODUCTION

The prevalence of depression in the general population at any given time is between 20% and 40% (1). Health workers frequently encounter occupational distress, job dissatisfaction, and various types of psychological disorders (especially anxiety, and depression) (2-3). In addition, they use or abuse psychoactive substances especially alcohol, frequently absent from work, and cynical to their patients (3-5).

Since, most of the clinical staff are nurses and medical doctors, most studies on psychiatric morbidity among hospital workers are on doctors and nurses (4). Studies on the prevalence of psychological morbidity amongst medical doctors showed that they often experience stress, psychological distress and depression at work (5). Those severely depressed also experienced suicidal thoughts, ideas or even attempted suicide (4-5). Similarly, the prevalence of psychological morbidity among nurses is higher than that of the general population (3,6). In addition, clinical staff interact poorly with patients and other professional colleagues, they have reduced quality of life, poor quality service delivery and also use or abuse psychoactive substances (2-7). Despite the global knowledge about psychological distress of healthcare workers, many studies found that hospital workers may not be aware of factors that affect their efficiency and productivity (7).

The prevalence of emotional reactions amongst healthcare workers is generally high and few studies have reported it in sub-Saharan Africa (8-10). This study aimed to assess depression among healthcare workers in two tertiary hospitals in Maiduguri, north-eastern Nigeria.

MATERIALS AND METHODS

Study location and study design

In this comparative, cross sectional study, we used stratified sampling technique to recruit 432 healthcare workers (clinical and non-clinical staff) from University Teaching Hospital, and Federal Neuro-psychiatric Hospital, Maiduguri, Borno State, north-east Nigeria. The two hospitals serve a population of about 18 million (11), in north-eastern Nigerian and neighbouring countries of Cameroun, Niger and Chad.

The University of Maiduguri Teaching Hospital has a bed space capacity of 450 beds. It provides specialist and general curative services to patients and training facilities for post-graduate residency training programme in medicine and surgery, nursing, physiotherapy, medical records and biomedical engineering. It has many clinical departments (Internal Medicine, Community Medicine, Paediatrics, Surgery, Obstetrics and Gynaecology, Radiology, ENT, Dental Surgery, Ophthalmology and Anaesthesia). The hospital has no department of psychiatry.

The Federal Neuro-psychiatric Hospital, Maiduguri on the other hand has a bed space capacity of 120. It provides specialist services to mentally ill patients and training facilities for post-graduate training programme in psychiatry, and psychiatric nursing.

Participants: We conducted the study on 500 clinical and 450 non-clinical staff and classified the clinical staff according to job description into doctors, nurses, pharmacists, occupational therapist/ physiotherapists and social workers. Similarly, non-clinical staffs were grouped into senior staff of central administration, finance/hospital records, engineering/works & maintenance, hospital library, hospital security. There were (417 & 83) clinical, and (361 & 79) non-clinical staff from the university teaching and psychiatric hospitals, respectively.

Inclusion criteria: For a subject to be included in the study, he/she met the following criteria:

1. Must be a clinical or non-clinical staff of University Maiduguri Teaching Hospital and Federal Neuro-psychiatric Hospital Maiduguri.
2. Must be literate in English language sufficient enough to understand the items/questions in the instruments used for the study.
3. Gave his/or her informed consent.

Exclusion criteria:
The exclusion criteria for the study included:

1. Staff whose English language literacy was considered insufficient for he/or she to understand the items of the instruments.
2. Non-consenting participants.

Study Design

In this comparative study of clinical and non-clinical staff, non-clinical staff constituted the comparison group. The two groups were matched for age and sex; an age range of ± 5 years was arbitrarily adopted for the age.

Sample size determination

The minimum sample size for the study was calculated using the following statistical formula by Araoye (12):

$$n = \frac{z^2 pq}{d^2}$$

Where,
n^o = the desired sample size when the population <10,000
n = the sample size when the population > 10,000
N = estimate for the target population.
Z = a constant set at 95% confidence level, from the Z-table for two-tailed study , the value is 1.96
p = the prevalence of Burnout Syndrome among health workers. For this study a value of 50% by Olley (2003).
d = degree of accuracy desired, set at 0.05
q = 1-p

Substituting in the above formula:

$$n = \frac{(1.96)^2 x\ 0.5\ x\ 0.5}{0.05^2}$$
$$= 384$$

Therefore, a sample size of 384 was required for each group. A minimum sample size (n_f) for the study was computed using the statistical formula for studying proportions of populations < 10,000 by Araoye (12):

$$nf = \frac{n}{1 + n/N}$$

Where,
n_f = the desired sample size when the population <10,000
n = the desired sample when the population >10,000
N = the estimate of the target population (from the administrative departments of the two hospitals) = 500
Substituting in the above formula:

$$nf = \frac{384}{1 + 384/500}$$
$$= 216$$

Sampling procedure

We used proportional random sampling technique (n^{th} sampling) to recruit 186 clinical and 184 non-clinical staff into the study. The sampling ratios for the clinical staff (grouped according to job description, into doctors, nurses, pharmacists, occupational therapist/ physiotherapists and social worker) were: 142/500, 260/500, 35/500, 23/500, 30/500, respectively and that of non-clinical staff (grouped according to job description senior staff of central administration, finance/hospital records, engineering/works & maintenance, hospital library, hospital security): 180/450, 101/450, 50/450, 21/450 65/450, respectively. The lists of clinical and non-clinical staff in the two hospitals constituted the sampling frame; the starting points on the lists were chosen at random using the random number table. The study lasted for two weeks (June 1-15, 2014) for both the clinical and non-clinical staff, for every respondent selected from the psychiatric hospital 5 were selected from the teaching hospital. A male to female ratio of 2:1 was reflected in the random selection of the participants, to ensure adequate representation of the female subjects.

Ethical Consideration: The Research and Ethical Committees of the two hospitals approved the research protocol, and the participants gave their written and informed consents.

Measures: The respondents completed a pre-designed Socio-demographic Questionnaire (that recorded relevant information on age, sex, marital status, education). We used Beck Depression Inventory (BDI-II) (11) to measure the rate of depression amongst participants. BDI-II items assess depressive symptoms (hopelessness and irritability, feelings of guilt and physical symptoms (fatigue, weight loss and lack of interest in sex)). Each BDI-II item has 4 or 5 different anchor points, the respondent ticks the one that best describes his/her feelings. The items are arranged in alternative statement and numbered 0, 1, 2c, 2b, 3, to express severity of symptoms. The items are scored according to the number in front of the statement ticked by the respondent; each item carries one mark. Ratings are summed up to obtain total score. The BDI-II was scored by summing the ratings for the 21 items. Each item was rated on a 4-point scale ranging from 0 to 3. The maximum total score was 63. Special attention was paid to the correct scoring of the Changes in Sleeping Pattern (Item 16) and Changes in Appetite (Item 18) items. Each of these items contains seven options rated, in order, 0, 1a, 1b, 2a, 2b, 3a, 3b, to differentiate between increases and decreases in behaviour or motivation. If a higher rated option was chosen by the respondent, the presence of an increase or decrease in either symptom was clinically noted for diagnostic purposes. The scores are interpreted as follows: 0-9 normal range, 10-15 mild depression, 16-19 moderate depression, 20-29 moderate severe depression and 30-63 severe depression. The BDI-II has been used extensively in hospital and community studies in Nigeria (12-13).

Statistical Analysis: The data was analysed using Statistical Package for Social Science (SPSS-17), version 17. Continuous variables were expressed as means, standard deviations and range and categorical variables as proportions. We used Chi-square to compare categorical variables (ρ-value = < 0.05, at 95% confidence level).

RESULTS

The study population consisted of 432 participants (216 clinical staff and 216 non-clinical staff). However, 19 clinical staff failed to return their questionnaires, 11 returned questionnaires with missing data. Similarly, 20 non-clinical staff failed to return their questionnaires, 12 returned questionnaires with missing data. We therefore, analyzed the questionnaires of 370 participants (186 clinical and 184 non-clinical staff).

Socio-demographic characteristics of the respondents (Table 1)

About two-thirds each of the clinical & non-clinical staff (68.3% vs. 63.5%), respectively were males. The ages of the clinical staff ranged from 24 and 64 years, with a mean age of 36.84 years (SD ±7.412) and that of the non-clinical staff ranged between 21 and 60 years, with a mean age of 36.76 years (SD±7.492). About half each of the clinical and non-clinical staff (54.3% vs. (51.0%), respectively were in the age group 35-49 years. The number of years in service for the clinical respondents ranged from 1 to 37 years, with a mean duration of 10.21 years (SD±7.360). About three-quarters each of the (71.5% vs. 76.1%) clinical and non-clinical respondents were married. In addition, 52.6% and 38.2% of the clinical and non-clinical respondents, respectively belong to the Nursing and Administration categories. Furthermore, 26.3% and 29.8% of the clinical and non-clinical staff had supervisory roles.

Clinical characteristics of the respondents

About one-tenth (10.8%) and 7.5% of the clinical and non-clinical, respectively, had depression (χ^2=1.096, *df* = 1, ρ-value 0.295). Prevalence of depression among the participants is as shown in Table 2.

Socio-demographic correlates of depression in clinical staff is shown in Table 3. The rates of

depression in both gender was 50.0%; gender had a significant association with depression in the respondents (χ^2=5.427, *df* = 1 ρ = 0.043).

DISCUSSION

About one-tenths (10.8%) and 7.5% of the clinical and non-clinical participants, respectively had symptoms of depression.

The prevalence of depression in our study compared with that of previous studies is low (14,15). A study by Li et al., in China reported a prevalence of 48% for depression among healthcare workers; nurses and doctors experienced 52.40% and 44.70% of depression, respectively (16). Another study by Wall et al., in England reported a rate of 26.8% for depression amongst health service workers; psychiatric morbidity was lower among support occupations, such as administrative and ancillary staff (17). Some studies showed that among hospital staff, nurses in particular experience psychiatric morbidity (16, 17). A study on burnout, stress and styles of coping among hospital nurses by Jaracz, Gorna & Koneczna showed that the prevalence of psychological distress among nurses ranged between 3% and 71% (18). A similar study by De Vargas D, Vieira Dias AP, in Brazilian showed that 28% of the nurses they surveyed had depression (19). Other studies showed that nurses compared with other healthcare professionals were less satisfied with their job (20-22).

A study by Anders on stress at work found that hospital workers compared with general population get admitted more for obesity, depression and asthma (23). Previous studies also showed that the costs of medical care and prescription drugs were 9% higher among hospital employees compared with other workers in other occupational industries (24-25), and suicide rate was higher in hospital workers than the general population (24-26). Depressed healthcare workers make medical errors, have frequent conflicts with colleagues and other hospital professionals, provide reduced quality of patient care, and frequently use or abuse drugs and alcohol (24-26).

The mean age of the participants was 36.8±7.4; about 50% of them within the age range of 35 - 49 years, with a male preponderance of 68.3%. Cultural factor such as emphasis placed on male child education explains the gender inequality in the training (i.e., tasking and competitive for females) of healthcare professionals (9, 24). About three-quarters of the respondents in this study were married, 2.7% separated/divorced and 22.0% single. Polygamy is prevalent in north-eastern Nigeria, widows and divorcees commonly remarry, there by diluting the effect of marital status on depression.

Gender had a significant association with depression; females were more prone to depression than men. Amoran et al. also reported similar gender difference on depression in south-western part of Nigeria (27). Kaplan and Coker suggested that the hospital setting was stressful; to keep health workers healthy, hospital management and policy makers must design programmes on work-life balance (28-29).

The findings of this cross-sectional study cannot be generalized because it is difficult to establish causal relationship between risk factors and depression. However, the findings of the present study provide data on depression amongst healthcare workers in north-eastern Nigeria. We suggest future studies on the national prevalence of depression among hospital workers.

CONCLUSION

` Depression amongst healthcare workers is as prevalent as in the general population. The high efforts and low rewards of hospital workers may have negative impact on their physical and mental health. Hospital management and policy makers should design programmes (that include stress, change and time management coping skills etc.) for early detection and prevention of depression among healthcare workers to protect their wellbeing and that of the healthcare industry. .

Conflict of interest: There is no conflict of interest to be declared.

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Table 1: Socio - demographic profile of the participants

	Socio -demographic Variable	Non-clinical group Frequency (%)	Clinical group Frequency (%)
		N = 184	**N=186**
Gender	Male	117 (63.5)	127 (68.3)
	Female	67 (36.5)	59 (31.7)
Age groups (years)	<35	76 (41.3)	76 (40.9)
	35-49	94 (51.0)	101(54.3)
	50-65	13 (7.0)	8 (4.3)
	>65	1 (0.7)	1 (0.5)
Marital Status	Married	140 (76.1)	133 (71.5)
	Single	38 (20.7)	41 (22.5)
	Widowed	3 (1.6)	7 (3.3)
	Separated/Divorced	3 (1.6)	5 (2.7)
Profession	Doctors		55 (29.6)
	Nurses		98 (52.6)
	Pharmacists		13 (7.0)
	Social workers		10 (5.4)
	Occupational/Physiotherapists		10 (5.4)
	Administrators	70 (38.2)	
	Finance/Hospital records	42 (22.8)	
	Works &Engineering	29 (15.7)	
	Security	35 (18.8)	
	Library	8 (4.5)	
No of years in service	≤10	118 (64.1)	111 (59.6)
	11-20	46 (25.2)	54 (29.0)
	21-30	16 (8.6)	18 (9.6)
	≥31	4 (2.1)	3 (1.8)
Supervisory role			
	Yes	55 (29.8)	47 (26.3)
	No	129 (70.2)	139 (73.7)

Table 2: Prevalence of depression among the participants

Category	Depression (positive)		Depression (negative)		Total			
	Freq.	(%)	Freq.	(%)	Freq.	(%)	χ^2	ρ-value
Clinical staff	20	(10.8)	166	(99.2)	186	(100)	1.096	0.295
Non-clinical staff	14	(7.5)	170	(92.4)	184	(100)		

Table 3: Socio - demographic correlates of depression in clinical staff

Variables	**Depression**		**Not depression**				
	Frequency	**(%)**	**Frequency**	**(%)**	χ^2	***df***	**ρ –value**
Gender							
Male	10	(50.0)	117	(70.4)	5.427	1	0.043*
Female	10	(50.0)	49	(29.6)			
Marital Status							
Married	11	(55.0)	122	(73.4)	2.996	1	0.083
Not Married	9	(45.0)	44	(26.6)			
Age groups							
<35	8	(40.0)	62	(37.3)	3.456	3	0.485
35-49	11	(55.0)	96	(57.8)			
50-65	1	(5.0)	7	(4.2)			
>65	0	(0.0)	1	(0.7)			
Years in Service							
≤10	9	(45.0)	102	(61.4)	4.284	3	0.747
11-20	9	(45.0)	35	(28.0)			
21-30	2	(10.0)	16	(9.6)			
≥31	0	(0.0)	3	(1.0)			
Supervisory role							
Yes	4	(20.0)	46	(27.7)	0.485	1	0.486
No	16	(80.0)	120	(72.3)			