

## Prevalence and Correlates of Depression among Bugando Medical Centre and Catholic University of Health and Allied Sciences staff – Mwanza Tanzania, A Cross Sectional Study

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### ABSTRACT

**Background:** Depression in the work place is a significant concern with a large effect on productivity and relationships in the work place. People who experience an emotional disorders may withdraw from others, become irritable and/or aggressive towards coworkers, take a lot of time off, or appears less productive than usual.

**Aim:** This study aims to determine the prevalence and correlates of depression among Bugando Medical Centre and Catholic University of Health and Allied Science staffs.

**Method:** This was a cross sectional study, where a total of 301 staff were recruited and interviewed by using Becks Depression Inventory (BDI). The sample size was randomly selected from each institution.

**Results:** Survey participants were 53.16% female with 72.08% of the participants being married. Of the participants, 86.38% were Bugando Medical Centre employees while 13.62% were employed by Catholic University of Health and Allied Sciences. The overall prevalence of depression was 32.89% with 18.94%, 10.96% and 2.99% having mild, moderate and severe depression respectively. Gender, age, marital status, number of children, type of housing/residency, level of education and primary employer showed statistically significant correlation with depression.

**Conclusion:** The results showed high prevalence of depression in the work place. Earlier screening, detection and intervention would increase the productivity and reduce the burden of morbidity and disability.

### Keywords

Depression, Mental health, Mwanza, Tanzania, CUHAS, Correlates of depression.

### Introduction and Background

Depression is a significant contributor to the global burden of disease and affects people in all communities across the world [1], affecting an estimate of 350 million people [2]. Depression in the work place has been an alarming concern which have a significant effect on the productivity and relationship at work place [3].

Work and employment play an important role in relation to mental health [4]. Studies show about 18.2% of employed people have evidence of mental disorders, which impaired their work performance leading to inability to perform at work, and accounting for about 5.9% of lost workdays [5].

People who experience depression doubt their abilities or appear less confident, may have a hard time concentrating, learning and making decisions [6], may withdraw from others, become irritable and/or aggressive towards other coworkers and/or clients, take

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a lot of time off, or appears less productive than usual [7]. The workplace can contribute positively to a person's mental health, may exacerbate an existing problem, or may contribute to the development of a mental health problem [8].

The failure to prevent, recognize and treat mental health problems in the workplace has an impact on employers, employees, their families, and the community generally, and is associated with increased absenteeism, reduced production, increased costs, reduced profits and reduced morale of staff [9]. The objective of this study was to determine the prevalence and correlates of depression among Bugando Medical Centre and Catholic University of Health and Allied Science staffs.

### Study design and settings

The study was conducted at Bugando Medical Centre and Catholic University of Health and Allied Sciences, the two institutions work in partnership and are located in the same compound in Mwanza, north-western Tanzania. The hospital has more than 1000 clinical and non-clinical staff, while the university has more than 300 academic and non-academic staff. The two institutions serve as the tertiary referral, teaching and research centre for the Lake and Western zones of the United Republic of Tanzania.

### Sample size, participants' enrolment and data collection

The study population involved all clinical and non-clinical staff from Bugando Medical Centre (BMC) and academic and non-academic staff from Catholic University of Health and Allied Sciences (CUHAS). A sample size of 301 was estimated using Cochrane's formula.

### Inclusion criteria

BMC/CUHAS employee willing to participate in the study and sign a written informed consent.

### Exclusion criteria

Volunteers, those doing field work or unable to give a written informed consent.

Participants were approached at their work stations and invited to participate in the study where a briefing of the nature and aim of the study was reviewed and then inclusion and exclusion criteria were applied. Participants who met the inclusion criteria and sign the informed consent were asked to complete self-administered research questionnaires starting with the socio demographic followed by Becks Depression Inventory. There were no drop outs.

### Data analysis

Data was analyzed using Stata version 13 software for Windows where categorical variables were summarized using frequencies and percentages and continuous variables were summarized using medians with IQR. Descriptive analysis was conducted to describe the socio-demographic characteristics, the prevalence and severity of depression which was primary outcome in this study and participants were regarded to have depression if scored above 13 on the Beck Depression Inventory [10].

Logistic regression was conducted to assess the association between socio-demographic characteristics, and depression, controlling for possible confounders. Variables in the univariate analysis that showed a significant effect on the dependent variable were included in the multivariable analysis. Unadjusted and Adjusted Odds ratio (AOR) with 95% confidence interval (95% CI) were computed and reported where appropriate.

### Ethics

Ethics approval to conduct and publish the findings from this study was thought from Catholic University of health and Allied Sciences/Bugando Medical Centre joint ethical committee. Permission to conduct the study was granted by BMC/CUHAS administrations. No names were used.

### Results

#### Socio demographic characteristics

A total of 301 staff were recruited in this study. The mean age was 35.75 years, with minimum and maximum age of 22 years and 68 years respectively. Of the participants, 53.16% (n=160) were females and 86.38% (n=260) of the participants were BMC employees. More than half of the participants, 58.47% (n=176) were in the age group of 30-40 years and almost two quarter of the participants, 72.09% (n=217) were married. Almost a half of the participants, 48.84% (n=147) were staying in rented houses representing the most common type of residential house among the participants. Table 1 summarizes the socio-demographic characteristics of the participants.

#### Prevalence of depression among BMC/CUHAS staffs

Prevalence and severity of depression were classified using scores derived from the Beck Depression Inventory (BDI). Out of the possible maximum score of 63, the 301 study participants had an average score of 10.53. The lowest score recorded in the sample was 0 and the highest score was 38. Table 2 summarizes the prevalence and severity of depression among the participants.

The overall prevalence of depression was found to be 32.89%. Prevalence of the different levels of depression was as follows: 18.94% had mild depression, 10.96% had moderate depression and 2.99% had severe depression. The remaining 67.11% of participants did not have depression (BDI score from 0-12).

#### Correlates of depression

In an unadjusted model, gender, age, marital status, number of children, type of housing/residency, level of education and primary employer were significantly associated with depression. After adjusting for other covariates male gender was significantly protective for depression (AOR 0.1, 95% CI: 0.6, 0.9) compared to female gender. The age group of 41-50 years was protective for depression (AOR 0.4, 95% CI: 0.1, 0.9) compared to young age. Those who have never been married, separated or divorced were at significantly higher risk of having depression (AOR 1.9, 95% CI: 1.5, 2.1) compared to those who were married. The first degree level of education showed statistically been in the protective side of having depression (AOR 0.4, 95% CI: 0.2, 0.9) compared to

those with certificate level of education. Having more than four children was a risk factor for developing depression (AOR 3.0, 95% CI: 1.1, 9.4) compared to those with no children. Owning a house was found to be associated with developing depressive symptoms (AOR 1.9, 95% CI: 1.1, 3.4) compared to those staying at their family house or with parents. The primary employer was statistically significant with a higher risk of depression in those employed by Bugando Medical Centre which is a public hospital compared to those employed by CUHAS-Bugando, which is a private institution (AOR 1.1, 95% CI: 1.4, 3.2). When comparing the occupational department of participants, those in the allied health sciences were at higher risk of getting depression (AOR 2.0, 95% CI: 1.8, 2.7) compared to administrators and sub-ordinate groups.

Variable	Frequency(n)	Percentage (%)
<b>Gender</b>		
Male	141	46.84
Female	160	53.16
<b>Age (years)</b>		
18-29	67	22.26
30-40	176	58.47
41-50	34	11.30
>50	24	7.97
<b>Religion</b>		
None	2	0.66
Christian	276	91.69
Muslim	23	7.64
<b>Marital status</b>		
Married	217	72.09
Not Married	84	27.91
<b>Children</b>		
No child	56	18.60
1-4	228	75.75
More than 4	17	5.65
<b>House/Residency</b>		
Family/home house	4	1.33
Staff house	28	9.30
Own a house	122	40.53
Rented house	147	48.84
<b>Education</b>		
Certificate	63	20.93
Diploma	99	32.89
Degree	108	35.88
Masters/PhD	31	10.30
<b>Employer</b>		
BMC	260	86.38
CUHAS	41	13.62
<b>Department</b>		
Administration	125	41.53
Academician	12	3.99
Allied sciences	40	13.29
Clinicians	124	41.20
<b>Night shift</b>		
Yes	164	54.49
No	137	45.51

**Table 1:** The sociodemographic characteristics of the participants

Participants working at night were significant more likely to have depression with 42.07% of those working at night were depressed compared with 21.90% of those not working at night and having depression (AOR 2.0, 95% CI: 1.4, 1.7).

Variable	Frequency(n)	Percentage (%)
No depression	202	67.11
Mild depression	57	18.94
Moderate depression	33	10.96
Severe depression	9	2.99

**Table 2:** Prevalence of depression among BMC/CUHAS staff.

## Discussion

In this study, health care workers were predominantly female, probably due to the fact that majority of health care providers are nurses and most nurses are females. This observation was also found in other studies in Istanbul [11] and Cyprus [12]. The majority of the participants in this study, 35.38% (n=108), had a post-secondary degree which is in contrast to the same study setting done in Nairobi among civil servants where majority of the participants (44%) had attained diploma certificates and only 18.7% had a post-secondary degree [13]. BMC/CUHAS is a consultant and teaching institution where post-secondary degrees are the minimum requirement for employment in majority of academic and clinical posts within the two institutions and explains the higher level of education among study participants.

Prevalence of depression in the workplace continues to be high in sub-Saharan Africa. In this study the prevalence of depression was found to be 32.89%, almost the same findings observed from the same study settings in Tanzania in 2014 [14] and Nairobi in 2012 [13]. These findings were higher compared to the prevalence of 28.4% and 27% found in the same study settings in higher income countries [11,15].

Females are more susceptible to developing depression when compared to males as demonstrated in other studies globally [16,17] and in previous studies in Sub-Saharan Africa [18,19]. This also supports the WHO finding that the global burden of depression is 50% higher for females [20]. Different contributing factors have been suggested explain female vulnerability to depression including female sex hormones, as well as social and cultural factors which reduce sense of self control and self-esteem [10]. In this study, the private sector setting is associated with a lower burden of depression compared to a public institution and similar findings were reported in Nairobi where civil servants suffered from burnout, with 9.5% having higher level of emotional exhaustion [13]. Similarly, in Australia it was observed that employees in a civil institutions have high level of stress and emotional exhaustion than those in private institutions [21]. Factors contributing to the higher prevalence of depression in the workplace in public institutions in Sub-Saharan Africa include poor working environment in government institutions, low salaries, high workload and lack of complements about the quality of work [22].

The study demonstrated a statistically significant correlation between education level and depression in the workplace where those with first degree (bachelor) level of education were on the protective side for having depression. This observation is different from what was observed by Darlan Silva which showed that those

Variable	Depression		Unadjusted OR (95% CI)		Adjusted OR (95% CI)	
	Yes (N %)	No (N %)	OR (95CI)	P VALUE	OR(95%CI)	P VALUE
<b>Gender</b>						
Female	53 (33.12)	107 (66.88)	1.0			
Male	46 (32.62)	95 (67.38)	0.2 (0.4-0.9)	0.026	0.1 (0.6-0.9)	0.017
<b>Age (years)</b>						
18-29	26 (38.81)	41 (61.19)	1.0			
30-40	59 (33.52)	117 (66.48)	0.7 (0.4-1.4)	0.441	0.7 (0.3-1.3)	0.346
41-50	8 (23.53)	26 (76.47)	0.4 (0.1-0.8)	0.028	0.4 (0.1-0.9)	0.041
>50	6 (25.00)	18 (75.00)	0.5 (0.1-1.4)	0.228	0.5 (1.1-1.6)	0.305
<b>Religion</b>						
None	1 (50.00)	1 (50.00)	1.0			
Christian	91 (32.97)	185 (67.03)	0.4 (0.03-7.9)	0.617	1.3 (0.0-6.9)	0.521
Muslim	7 (30.43)	16 (69.57)	0.4 (0.02-8.0)	0.578	0.3 (0.0-7.7)	0.540
<b>Marital status</b>						
Married	69 (31.80)	148 (68.20)	1.0			
Not Married	30 (35.71)	54 (64.29)	1.8 (1.4-1.9)	0.017	1.9 (1.5-2.1)	0.023
<b>Number of Children</b>						
No child	15 (26.79)	41 (73.21)	1.0			
1-4	75 (32.89)	153 (67.11)	1.3 (0.6-2.5)	0.380	1.3 (0.6-2.5)	0.377
More than 4	9 (52.94)	8 (47.06)	3.0 (1.2-9.4)	0.050	3.0 (1.1-9.4)	0.049
<b>House/Residency</b>						
Family/home house	0 (0.00)	4 (100.00)	1.0			
Staff house	10 (35.71)	18 (64.29)	1.4 (0.6-3.4)	0.363	1.8 (0.7-4.6)	0.220
Own a house	49 (40.16)	73 (59.84)	1.7 (1.2-2.9)	0.025	1.9 (1.1-3.4)	0.022
Rented house	40 (27.21)	107 (72.79)	1		1	
<b>Education</b>						
Certificate	27 (42.86)	36 (57.14)	1.0			
Diploma	32 (32.32)	67 (67.68)	0.6 (0.3-1.2)	0.176	0.6 (0.3-1.2)	0.207
Degree (bachelor)	30 (27.78)	78 (72.22)	0.5 (0.2-0.9)	0.045	0.4 (0.2-0.9)	0.032
Masters/PhD	10 (32.26)	21 (67.74)	0.6 (0.2-1.5)	0.324	0.4 (0.1-1.2)	0.134
<b>Employer</b>						
CUHAS	14 (34.15)	27 (65.85)	1.0			
BMC	85 (32.69)	175 (67.31)	1.4 (1.5-3.1)	0.014	1.1 (1.4-3.2)	0.016
<b>Occupation</b>						
Administration	47 (37.60)	78 (62.40)	1.0			
Academicians	4 (33.33)	8 (66.67)	0.8 (0.2-2.9)	0.771	1.0 (0.2-5.2)	0.969
Allied sciences	5 (12.50)	35 (87.50)	1.2 (1.6-2.2)	0.005	2.0 (1.8-2.7)	0.024
Clinicians	43 (34.68)	81 (65.32)	0.8 (0.5-1.4)	0.631	0.9 (0.5-1.7)	0.915
<b>Night shift</b>						
No	30 (21.90)	107 (78.10)	1.0			
Yes	69 (42.07)	95 (57.93)	3.0 (2.0-2.8)	0.024	2.0 (1.4-1.7)	0.048

**Table 3:** Association between social demographic data and depression

with higher education where more likely to have depression due to the acquisition of new responsibilities generating overload and more chance of mental illness [23]. The high risk of depression among employees with low education level can probably be explained by the fact that despite of having much works they have less motivation and fewer promotions, lower salary and most of them works under supervision of their seniors. While marital status plays a significant role in the causative factors for depression [24], it has been demonstrated in this study and other regional studies that being single, widowed or separated has higher risk of developing depression [16], in contrary to findings from outside Sub-Saharan Africa where the married groups are more susceptible to depression [23].

Working the night shift was found to be a risk factor for developing depression, likely due to exhaustion [11] and shown in a study done by Silva D [25] and a study done by Rios K and Barbosa D [26]. The more the number of nights the higher the chance of developing depression [27].

### Conclusion

The study has shown high prevalence of depression at work place with the most common risk factors. It emphasizes the importance of earlier screening, detection and intervention which would increase the productivity and reduce the burden of morbidity and disability.

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