

Prevalence, Risk Factors and Prevention of Depression in the Adult Population in Mbarara District, Uganda

Kiconco Allen✉ ([✉ allenkiconco@gmail.com](mailto:allenkiconco@gmail.com))

Bishop Stuart University

Waswa Bright Laban

Bishop Stuart University

Ssemakula Edward

Bishop Stuart University

Baikirize Moses

Bishop Stuart University

Talbert Muhwezi

Bishop Stuart University

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Abstract

Background. This study concerns the prevalence, risk factors and prevention of depression in the adult population in three sub-counties in Mbarara district. Depression is a common mental disorder which presents with a wide array of symptoms including loss of energy, poor sleep, poor eating habits, fatigue, irritability and social withdrawal. The main objective of the present study was to determine the prevalence and factors associated with depression and to identify measures that can be implemented to reduce risk factors of the disease among adults in Nyamitanga, Rugando and Rwanyamahembe sub-counties in Mbarara district.

Methods. A cross-sectional design was used to capture data from a study sample size of 383 participants who were involved in completion of screening tests for depression. Scores from a 7-item version of Hopkins Symptom Checklist for Depression were averaged and the probable depression determined for each participant using a cut-off of 1.75. Logistic regression analyses were used to examine associations between depression outcomes and socio-demographic, behavioural and medical history variables.

Results. The analyses revealed that the prevalence of depression among adults in the area stands at 27.7%. Depression was significantly associated with discrimination (AOR = 2.33, 95% CI = 1.22–4.45, P = 0.010), household size (AOR = 0.54, 95% CI = 0.32–0.93, P = 0.026), level of education (primary education: AOR = 0.36, 95% CI = 0.15–0.88, P = 0.024; secondary education: AOR = 0.30, 95% CI = 0.12–0.76, P = 0.011; tertiary education: AOR = 0.37, 95% CI = 0.15–0.92, P = 0.032) and drug-abuse related problems (AOR = 4.44, 95% CI = 1.34–14.74, P = 0.015). Measures for reducing the development of depression (which were identified by study participants) include guidance and counselling, awareness campaigns and self-help projects, improved access to quality medical services as well as stress management and spiritual care services.

Conclusions. These findings show that depression prevalence in the study area, estimated at 27.7%, is high and worrying. Previous studies carried out in Mbarara district and other parts of Uganda have also reported similarly high estimates. They also show that discrimination, household size, level of education and drug-abuse are important risk factors associated with the prevalence of depressive disorders. Strategies targeted at early interventions and ultimately depression prevention need urgent attention in order to reduce risk factors of the disease.

Background

Depression is a common mental disorder that is characterised by a persistent low mood or loss of interest in pleasurable activities (American Psychiatric Association, 2013; Ministry of Health, 2017). Persons suffering from this disorder report a wide array of symptoms including feelings of anxiety (such as internal anxiety, panic attacks) and decreased emotional involvement (such as inability to feel positive feelings, worthlessness, relationship instability) (American Psychiatric Association, 2013; WHO,

2017; Whitton & Whisman, 2010). Suicidal thoughts and attempts are also symptoms of depression (Jeon, 2011). Domestic murders have also been associated with depression (MoH, 2017). Depression can lead to disturbed sleep or appetite, and poor concentration (WHO, 2017).

Globally, depression is a major cause of morbidity and disability. Its burden of disease ranks high in many countries and by the year 2030 it is expected to be the largest contributor to the disease burden in both developed and developing countries (WHO, 2017). Quantitatively, depression led to a global total of over 50 million Years Lived with Disability (YLD) in 2015 and is expected to be the second leading cause of world disability by 2030 (Vos et al., 2015; WHO, 2017).

Depression should not be overlooked given the increasing morbidity and disease burden. The mental disorder causes impairment in functional well-being, physical distress, reduction in quality of life and other health problems (American Psychiatric Association, 2013; Fiske et al., 2009; Clarke & Currie, 2009). It can also cause impairment in a person's role at home, work relationships and social network (Lynch, 2008). As such, a better understanding of depression and its associated factors is needed to help people know more about this disease especially how it can be prevented and treated (MoH, 2017).

In Sub-Saharan Africa, depression is reportedly one of the most prevalent psychiatric disorders observed in the adult population (Ayano et al., 2018; Bernard et al., 2017). Prevalence refers to the number of people who, at a given time, are depressed. According to published records, the prevalence of depression can be as high as 61% as found for female caregivers in Uganda (Familiar et al., 2016). But Ovuga et al. (2005) found the prevalence of depression in two rural districts in parts of West Nile and Eastern Uganda to be 17.4%. In rural South Africa, Peltzer et al. (2016) found that 48.7% of HIV patients receiving primary care suffered from a depressive disorder. Furthermore, considerable literature points to depression being associated with female gender, marital status, employment status, alcohol use, large family size, drug use and HIV status (Ashaba et al., 2017; Familiar et al., 2016; Kasoro et al., 2002). As noted by Greenberg et al. (2015) the large number of adults suffering from depression is a major public health concern.

In Mbarara district and other parts of Uganda, depression is a common disorder affecting a large number of adults (Atuhaire et al., 2021; Byaruhanga et al., 2008; Hatcher et al., 2012; Rukundo et al., 2013). Depression among adults is known to decrease quality of life and increase medical problems and mortality. Although this may be the case, detection of depression in the adult population has largely remained unrecognized, and even when recognized it is undertreated or treated inappropriately. One of the reasons for this state of affairs is the tendency to focus on physiological factors in the diagnosis of depression. In addition, many patients in rural areas are not aware of the early signs of depression and other psychiatric and medical disorders and diseases associated with this mental disorder.

Screening and early interventions in rural areas are thus urgently needed in order to reduce the consequences and sufferings associated with this disease. As such, this study aimed to determine the prevalence of depression and its associated factors among adults in rural south western Uganda in the sub-counties of Nyamitanga, Rugando and Rwanyamahembe. By identifying the predictors, targeted and focused interventions could be undertaken to support high risk groups (such as people with lower levels

of education, those living in large households and those affected by discrimination) in future community mental health programs.

Depression affects more than 350 million people worldwide, with the majority being those residing in households afflicted by high levels of poverty (WHO, 2017). According to studies conducted in different parts of Uganda, depression contributes to mortality and negatively affects the overall well-being of many people (Kaida et al., 2014; Kinyanda et al., 2011; Ovuga et al., 2005). Depression has over the years become a common case among adults, and this trend may be attributed to difficult life events including bereavement, loss of job, loss of social support, cognitive impairment, and physical disabilities (MoH, 2017).

The prevalence of depression in urban areas has received considerable attention (e.g. Kamau et al., 2012; Mutumba et al., 2015), but few researchers have focused on risk factors for depression among adults living in rural households. The vast majority of people with depression in rural settings do not receive mental health care (WHO, 2018). Thus, attaining a better understanding of the risk factors associated with depression can enhance efforts for early detection and treatment, and further reduce symptoms and increase quality of life (Heppner & Fischer, 2014). With this background there was need to investigate the relationship between risk factors and depression in a rural agrarian setting. Three sub-counties, with a combined population of 76,472 inhabitants many of whom are socially and economically disadvantaged (UBOS, 2014) and had not screened for symptoms of depression, were chosen for the study. The present study was thus designed to provide information on the prevalence and associated factors of depression and to identify measures that can be implemented to reduce risk factors of the disease among adults living in rural households.

Methods

The study was a cross-sectional survey that employed exploratory and analytical data analysis. This design was deemed appropriate because it is flexible and can systematically capture the information necessary for determining the prevalence of depression and associated factors among adults in the study area.

The study was conducted in three sub-counties in Mbarara district, namely, Nyamitanga, Rugando and Rwanyamahembe. A large fraction of the population in these three sub-counties is socially and economically disadvantaged and lives in the less urbanised part of Mbarara district. The district is bordered by Ibanda district in the north, Ntungamo district in the west, Isingiro district in the south and Kiruhura district in the east. The district headquarters formerly at the newly created Mbarara City, the largest urban center in the sub-region, are located approximately 290 kilometres (180 miles) southwest of Kampala, Uganda's capital city and largest metropolitan area. Study participants were deemed eligible if they were 18 years and older, resided in the study area and wilfully accepted to give written consent. Those below 18 years and those who appeared too weak to participate in the study were excluded.

The researchers used multi-stage sampling technique to select sub-counties. This technique was applied because the study involved different stages of sampling before selecting the actual study participants. In the first stage, cluster sampling was used to select parishes. In the second stage, simple random sampling, particularly lottery system, was used to select villages from each parish mainly because village leaders did not have comprehensive lists of people living in their communities. Villages in each parish were used as a sampling frame and households were randomly selected from each village. Participants were randomly selected and only eligible ones who provided consent were interviewed and the number of participants determined based on the size of a village.

A semi-structured questionnaire with both closed and open-ended questions in English and Runyankore was employed to obtain data on factors associated with depression and measures for reducing depression risks. Trained interviewers who spoke the same language as respondents were deployed to help with translating and administering the questionnaire. Section A consisted of participants' demographic information including their gender, age, marital status and level of education. Sections B, C and D comprised various questions regarding medical history and behaviour of each participant and possible measures for reducing depression risks in the study area. A 7-item version of Hopkins Symptom Checklist for Depression (HSCL-D) was used to assess depression (adapted from Ashaba et al., 2018; Derogatis et al., 1974). The checklist enabled participants, a representative sample from the general population, to rate how often they have experienced different symptoms associated with depression in the last 7 days. Scores ranged from 1 "not at all" through 4 "very much" and were based on a Likert-type scale. Level of depressive symptoms was then calculated as the mean score for each participant, with mean scores exceeding 1.75 indicating probable depression.

Data screening and statistical analyses

The data collected was entered in Microsoft Excel and exported to Minitab (version 14) for analysis. Scores from a 7-item version of Hopkins Symptom Checklist for Depression (HSCL-D) were averaged and the probable depression determined for each participant using a cut-off of 1.75 (see also Ashaba et al., 2018; Derogatis et al., 1974). Caseness is dichotomous. It takes only two values, 1 if the score exceeds the cut-off and 0 otherwise. For objective 1, the prevalence of depression was determined by calculating the percentage of participants who met caseness for depression. For objective 2, bivariate and multiple logistic regressions were used to investigate associations between depression outcomes and socio-demographic, behavioural and medical history variables. Variables with a p-value less than 0.05 in the bivariate analysis were included in the multivariate model to identify factors associated with depression after adjusting for potential confounders. Results from statistical tests were considered statistically significant if the p-value was less than 0.05. Finally, for objective 3, we analysed the measures for reducing depression risks by calculating the frequency and percentage of each measure mentioned by the participants.

Data presentation, analysis and interpretation

Descriptive statistics

A total of 383 adults aged 18 and above from the sub-counties of Nyamitanga, Rugando and Rwanyamahembe participated in the study. Out of 383 participants, 212 (55.4%) were female and 171 (44.6%) were male. The majority 229 (60.4%) had attained secondary education and above while 24 (6.2%) had never had formal education. Their mean age was 35.9 years, with the youngest aged 18 and the oldest 85 years. Households consisted of 5.5 members on average (range: 1–20). More details of the socio-demographic characteristics and behavioural and medical history of the participants are shown in Table 1.

Prevalence of depression

The frequencies of each symptom endorsed are listed in Table 2, with the most common being sadness and tension. Feeling hopeless about the future and feeling of worthlessness were the least experienced symptoms of depression (Table 2). These scores were obtained using a 7-item version of Hopkins Symptom Checklist for Depression. They were averaged for each participant and the probable depression determined using a cut-off of 1.75. From this analysis, it was revealed that the prevalence of depression in the study sample stands at 27.7% (Figure 2).

Factors associated with depression

Bivariate analyses

At a bivariate level, logistic regression was used to determine the single factors associated with depression. The analysis revealed that problem alcohol use (OR = 1.9, 95% CI = 1.16–3.13, $P = 0.011$), drug use (OR = 4.92, 95% CI = 1.88–12.88, $P = 0.001$), discrimination (OR = 3.34, 95% CI = 1.93–5.79, $P = 0.001$), being HIV positive (OR = 2.01, 95% CI = 1.13–3.6, $P = 0.018$) and taking medications routinely (OR = 2.14, 95% CI = 1.31–3.48, $P = 0.002$) are associated with a higher likelihood of getting depression. On the other hand, the analysis showed that having fewer members in a household (OR = 0.56, 95% CI = 0.35–0.9, $P = 0.017$), being educated (primary education: OR = 0.44, 95% CI = 0.21–0.95, $P = 0.036$; secondary education: OR = 0.35, 95% CI = 0.16–0.75, $P = 0.007$; tertiary education: OR = 0.34, 95% CI = 0.16–0.73, $P = 0.006$) and having family support (OR = 0.47, 95% CI = 0.28–0.78, $P = 0.004$) are associated with a lower risk of depression (Table 3).

Multivariate approach

At a multivariate level, all factors that had a p-value less than 0.05 in the bivariate analysis were included in the model. From this analysis, the results reveal that participants who had had drug-abuse related problems were 4.4 times more likely to be depressed than those who had not had such problems (Table 3;

AOR = 4.44, 95% CI = 1.34–14.74, P = 0.015). In addition, participants who had experienced discrimination on account of their health status were 2.3 times more likely to be depressed (AOR = 2.33, 95% CI = 1.22–4.45, P = 0.010), as compared to the participants who had not experienced discrimination. Participants who hailed from households with five or fewer members had 46% reduction in risk of being depressed (AOR = 0.54, 95% CI = 0.32–0.93, P = 0.026), those with primary education had 64% reduction in risk (AOR = 0.36, 95% CI = 0.15–0.88, P = 0.024), those with secondary education had 70% reduction in risk (AOR = 0.30, 95% CI = 0.12–0.76, P = 0.011) while those with tertiary education had 63% reduction in risk of suffering from depression (AOR = 0.37, 95% CI = 0.15–0.92, P = 0.032).

Measures for reducing depression risks

Using the questionnaire, I also sought views of study participants regarding measures that can be implemented to reduce depression risks among adults in the study area (Table 4).

Most of the participants (55.9%) called for more guidance and counselling services which can be achieved by establishing counselling centres and employing professional counsellors, 43.9% suggested the need for awareness campaigns and self-help projects while 29.2% pointed out the need to improve access and quality of medical services (Table 4). Other measures suggested include stress management and spiritual care services which may include prayers, retreats and fellowships, as reported by 11.0% of the participants, socialisation and problem sharing (11.0%), establishing specialised clinics and rehabilitation centres for people with depression (5.0%), timely screening and adherence to medication (4.2%), promoting nutritional management and physical exercise (3.7%), treatment of depression patients with respect (3.1%) and helping adults improve self-esteem and avoid negative influence through patient empowerment programs (2.9%).

Discussion

Prevalence of depression among adults

The study found that the prevalence of depression is high and worrying, estimated at 27.7% in the area. This finding is comparable to that of Ashaba et al., (2018) who found that approximately one quarter of the sample i.e. 27.3% met caseness for depression using a 7-item depression subscale even when the present study used a considerably larger sample size (i.e. 383 vs 154 participants). It is also similar to the nationwide overall prevalence of 29.3% reported for Uganda (Kinyanda et al., 2011). However, the estimated prevalence is higher than the estimate of 17.4% found in Bugiri and Adjumani (Ovuga et al., 2005) but lower than the 61% rate found for female caregivers in Uganda (Familiar et al., 2016) and the 48.7% estimate found for women during the prenatal period in rural South Africa (Peltzer et al., 2016).

Nonetheless, the prevalence estimate found in this study lies within the estimated range for sub-Saharan Africa which stands between 9% and 32% (Ayano et al., 2018; Bernard et al., 2017).

Factors associated with depression among adults

This study found that discrimination, household size, level of education and drug-abuse related problems are associated with depression.

The higher prevalence of depression among adults who had been affected by discrimination is consistent with previous studies in and outside Africa (Akena et al., 2010; Simbayi et al., 2007; Vrendenburg et al., 1986). This finding underscores the importance of socialisation in the economic and social stability of adults. This is because isolation and exclusion from social situations may affect one's desire for self-preservation and thus contribute to the tendency to neglect self-care needs (Tyer-Viola et al., 2014). Discrimination can also intensify the poverty, stress and insecurity of people in many resource-limited settings, resulting in worsened mental health (Tsai et al., 2011).

The higher prevalence of depression among those living in larger households might be an indicator of economic hardship which tends to lead to frustration, dysfunctional family life and feeling of worthlessness. This finding however contradicts studies in Brazil, Ghana and the US where the prevalence of depression was found to decrease as family size increased (dos Santos et al., 2012; Joy and Hudes, 2010; Kyerematen, 2012). In these non-Ugandan studies, many people were reportedly living alone implying that larger families can serve as social-support networks. As such, this unexpected finding is a cause for worry since social-support is increasingly becoming a scarce resource and the traditional extended family is diminishing throughout much of Africa (Afolabi et al., 2008).

The higher prevalence of depression among those who had no formal education indicates that educational attainment may have a protective effect against depression. As argued by Chevalier and Feinstein (2006), education can impact health by making individuals more able to process information and thereafter more health conscious. Several authors have also suggested that education provides a route to accumulated wealth which can buffer the onset of depression (Cassano and Fava, 2002; Kawachi, 2006). Other authors have suggested that the increased risk of significant depressive symptoms among people with lower levels of education is a reflection of the high burden of psychological distress linked to poverty (Kitshoff et al., 2012; Kyser et al., 2011).

The finding in the present study that drug-abuse related problems are associated with depression is a serious cause for worry but not unique. Previous studies, especially from Latin America, have shown that majority of patients with substance use disorder tend to suffer from depression (Ferigolo et al., 2009; Pirraglia et al., 2005; Pradhan et al., 2012). The worry stems from the fact that even in Uganda drug-abuse related problems are common especially among older males with less education and among students (Kruse et al., 2015; Nalugya-Sserunjogi et al., 2016).

Measures to reduce depression risks among adults in the study area

Study participants suggested a range of different measures which can be incorporated into efforts to prevent the development of depression both locally and in other areas. The suggested measures include guidance and counselling, awareness campaigns and self-help projects, improved access and quality of medical services as well as stress management and spiritual care services (Table 4). While the frequency of mentioning these measures was generally low (only counselling and guidance exceeded 50%), this does not mean they would not have considerable impact on depression. For example, studies have found that self-regulation and physical exercises are efficient in preventing the development of depression among adults (Harnois and Gabriel, 2000; Nazroo and Edwards, 1998; Strauman and Eddington, 2017). Moreover, regular physical activities help improve cognitive functions along with mental wellbeing and develop a sense of purpose in one's life. It is therefore inferred that these and other measures not mentioned by the study participants, for example adopting the model of using lay health counsellors for the implementation of depression treatment and prevention programs (Patel et al., 2010; Tan et al., 2014; Cuijpers et al., 2016), can help reduce depression risks in the general adult population.

Conclusions

The prevalence of depression in three sub-counties of Nyamitanga, Rugando and Rwanyamahembe in Mbarara district stands at 27.7%. The results also indicate that discrimination, household size, level of education and drug-abuse related problems are important risk factors associated with the prevalence of depressive disorders in the area. Measures for reducing the development of depression levels among adults (which were identified by study participants) include guidance and counselling, awareness campaigns and self-help projects, improved access and quality of medical services as well as stress management and spiritual care services.

Recommendations

The generally high prevalence of depression in the area calls for urgent interventions by Government and other stakeholders and these should address problems of drug-abuse, discrimination, large households and lack of education. First, patients with drug-abuse related problems should be helped by intervening early in incipient depressive symptomatology and by supporting them to live healthy lifestyles. Second, people with depression should be included as a vulnerable and marginalized group requiring prioritized attention and engagement within education, employment, health, social protection and poverty reduction strategies and programmes. Finally, longitudinal studies are needed to continuously assess the levels of depression in the area and to test the effectiveness of measures (identified by study participants) for addressing this mental health challenge.

Declarations

Author contributions: KA conceived the study, collected data and undertook data analysis and interpretation while WBL, SE, BM and TM provided guidance and critical input throughout the study. All authors read and agreed to the final manuscript.

Competing interests: The authors have no competing interests to declare.

Availability of data and materials. The datasets used and analyzed during the current study are available from the corresponding author (SS) on reasonable request.

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Corresponding Author. Kiconco Allen

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Tables

Table 1: Summary of descriptive statistics of variables used in logistic regression analysis

Variable	Category	n (%)
Age (years)	Mean; median; range	35.9; 32; 18–85
Gender	Male	171 (44.6%)
	Female	212 (55.4%)
Marital status	Married	257 (68.0%)
	Unmarried	121 (32.0%)
Household size	Mean; median; range	5.5; 5; 1–20
Employment status	Employed	136 (35.8)
	Self-employed/Unemployed	380 (64.2)
Level of education	None	38 (10.0%)
	Primary	112 (29.6%)
	Secondary and above	229 (60.4%)
Smoking	Yes	30 (7.8%)
	No	353 (92.2%)
Problem alcohol use	Yes	92 (24.2%)
	No	288 (75.8%)
Drug use	Yes	19 (5.0%)
	No	360 (95.0%)
Family support	Yes	287 (76.9%)
	No	86 (23.1%)
Discrimination	Yes	66 (17.6%)
	No	309 (82.4%)
HIV status	Negative	299 (83.5%)
	Positive	59 (16.5%)
Diabetic	Yes	28 (9.9%)
	No	254 (90.1%)
Cancer status	Diagnosed with cancer	13 (4.8%)
	No cancer	257 (95.2%)

Taking medications	Yes	99 (25.9%)
	No	283 (74.1%)

Table 2: Frequency of symptoms of depression endorsed by study participants (n = 383)

Symptom of depression	Not at all	Occasionally	Quite often	Very often
Feeling sad	123 (32.1%)	175 (45.7%)	68 (17.8%)	17 (4.4%)
Feeling hopeless about the future	265 (69.2%)	83 (21.7%)	21 (5.5%)	13 (3.4%)
Feeling lonely	249 (65.0%)	91 (23.8%)	27 (7.0%)	16 (4.2%)
Crying easily	244 (63.7%)	99 (25.8%)	28 (7.3%)	12 (3.1%)
Feeling everything is an effort	209 (54.6%)	116 (30.3%)	44 (11.5%)	14 (3.7%)
Feeling of worthlessness	289 (75.5%)	57 (14.9%)	30 (7.8%)	7 (1.8%)
Feeling tense	192 (50.1)	138 (36.0%)	36 (9.4%)	17 (4.4%)

Table 3: Logistic regression of factors associated with depression among adults (n = 383). The outcome variable was probable depression which was a binary variable determined for each participant using a cut-off of 1.75.

Explanatory variable	Bivariate analysis		Multivariate analysis	
	OR (95% CI)	P-value	AOR (95% CI)	P-value
Age (years)				
18-24	Ref.			
25-34	0.85 (0.45 – 1.60)	0.611		
35-44	0.93 (0.44 – 1.96)	0.844		
45-54	0.89 (0.42 – 1.90)	0.767		
≥ 55	2.14 (0.96 – 4.77)	0.062		
Gender				
Male	0.93 (0.59 – 1.46)	0.761		
Female	Ref.			
Marital status				
Married	0.68 (0.42 – 1.09)	0.109		
Unmarried	Ref.			
Household size				
≤ 5 members	0.56 (0.35 – 0.9)	0.017	0.54 (0.32 – 0.93)	0.026
> 5 members	Ref.			
Employment status				
Employed	0.98 (0.61 – 1.56)	0.927		
Not employed	Ref.			
Level of education				
None	Ref.			
Primary	0.44 (0.21 – 0.95)	0.036	0.36 (0.15 – 0.88)	0.024
Secondary	0.35 (0.16 – 0.75)	0.007	0.30 (0.12 – 0.76)	0.011

Tertiary	0.34 (0.16 – 0.73)	0.006	0.37 (0.15 – 0.92)	0.032
Smoking				
Yes	2.14 (1.0 – 4.57)	0.050		
No	Ref.			
Problem alcohol use				
Yes	1.9 (1.16 – 3.13)	0.011	1.22 (0.64 – 2.33)	0.544
No	Ref.			
Drug use				
Yes	4.92 (1.88 – 12.88)	0.001	4.44 (1.34 – 14.74)	0.015
No	Ref.			
Family support				
Yes	0.47 (0.28 – 0.78)	0.004	0.57 (0.31 – 1.06)	0.075
No	Ref.			
Discrimination				
Yes	3.34 (1.93 – 5.79)	<0.001	2.33 (1.22 – 4.45)	0.010
No	Ref.			
HIV status				
Positive	2.01 (1.13 – 3.6)	0.018	0.97 (0.4 – 2.36)	0.949
Negative	Ref.			
Diabetic				
Yes	2.08 (0.95 – 4.56)	0.067		
No	Ref.			
Cancer status				
With cancer	2.31 (0.76 – 7.05)	0.140		
No cancer	Ref.			

Taking medications				
Yes	2.14 (1.31 – 3.48)	0.002	1.86 (0.9 – 3.85)	0.095
No	Ref.			

Table 4: Measures for reducing the risk of depression among adults in the study area

Measures	Frequency	Percentage
Guidance and counselling	214	55.9
Awareness campaigns and self-help projects	168	43.9
Improved access and quality of medical services	112	29.2
Stress management and spiritual care services	42	11.0
Socialisation and problem sharing	42	11.0
Establishing specialised clinics and rehabilitation centres	19	5.0
Timely screening and adherence to medication	16	4.2
Nutritional management and physical exercise	14	3.7
Treating patients with respect	12	3.1
Improving self-esteem and avoiding negative influence	11	2.9
Total	383	100.0

Figures

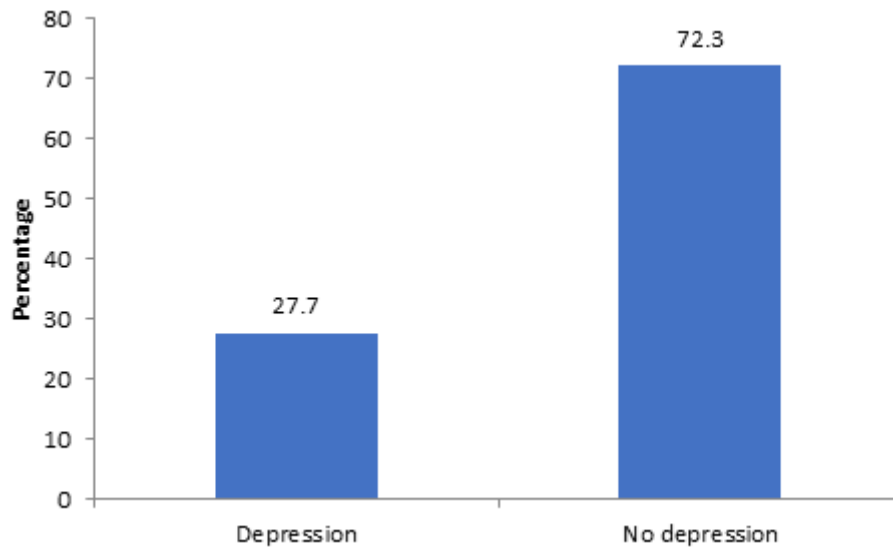


Figure 1

Prevalence of depression among adults in the study sample determined using scores from a 7-item version of Hopkins Symptom Checklist for Depression. Depression prevalence among adults was a binary variable determined for each participant using a cut-off of 1.75.