PREVALENCE OF DEPRESSION AND ASSOCIATED FACTORS AMONG MILITARY PERSONNEL IN BOTSWANA DEFENCE FORCE

Ronnie Kabo Rammolai, BSc

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PREVALENCE OF DEPRESSION AND ASSOCIATED FACTORS AMONG MILITARY PERSONNEL IN BOTSWANA DEFENCE FORCE

By

Ronnie Kabo Rammolai

A Dissertation Submitted in (Partial) Fulfillment of the Requirements for the Degree of Master of Science (Clinical Psychology) of

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Science a dissertation entitled; **"Prevalence of depression and associated factors among military personnel in Botswana Defence Force",** in (partial) fulfillment of the requirements for the degree of Master of Science (Clinical Psychology) of Muhimbili University of Health and Allied Sciences

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Dr. Saidi Kuganda MD, MMed/Psychiatry

(Supervisor)

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Date

DECLARATION AND COPYRIGHT

I, **Ronnie Kabo Rammolai,** declare that this **dissertation** is my own original work and that it has not been presented and will not be presented at any other university for a similar or any other degree award.

Signature …… **Date** ……

ACKNOWLEDGMENT

I would like to thank the Lord Almighty God for making this work possible. His grace and mercy have made this possible.

I would like to express my gratitude and appreciation to my supervisor; Dr. Kuganda
MAY THE ALMIGHTY GOD BLESS YOU!

DEDICATION

I thankfully dedicate this work to my family, my wife and children for their love and support.

ABSTRACT

Background: Depression is common disorder, affecting about 121 million people worldwide. It is among the leading causes of disability worldwide. Depression can be reliably diagnosed and treated in primary care. The military personnel can be at risk because of their job which including daily training, temporary camping away from home, missions, frequent changing of home from place to place and exposure to dangerous equipment or material. It is important to detect depression among military and treat it during the training, which may lead to attrition if not detected and treated. It is found that there is a limited research in Botswana to assess depression among military personnel.

Objectives: To assess the prevalence of depression and factors associated with depression among personnel in Botswana Defence Force in Sir Seretse Khama Barracks in Gaborone, Botswana.

Methodology: This was a cross sectional study using quantitative methods. The study population was 268 personnel from Botswana Defence Forces at Sir Seretse Khama Barracks in Gaborone, Botswana. Data was collected using the PHQ-9 to screen for depression, a semi-structured questionnaire to capture the socio-demographic characteristics. The Conflict Tactics Scale 2 was used to measure Intimate Partner Violence and to measure social support; the Multidimensional Perceived Social Support Scale (MSPSS) was used. Data was analysed using SPSS 23.0. The outcome measure was depression in the past two weeks. Ethical clearance was obtained from MUHAS Senate Research and Publications Committee.

Results: A total of 268 participants were included in the study, of which 215 (80.2%) were male and 53 (19.8) were female. All these participants were from the Sir Seretse Khama Barracks. The age range was 19-50 with the mean age (SD) of 29.4 (6.4). Most of the participants belonged to the age group 25-34 (57.5%). 123 (45.9%) of the population was never married, while of the sample had secondary education with 179 (66.8%) the remaining population of 89 (33.2%) had higher education. Non-Commissioned Officer (NCO) were the most participants at 63.8%, followed by the Senior Officers (SO) with 26.5% and Junior Officers at 9.7%.

The prevalence of depression was 23.1%, among socio-demographic characteristics age (34-44 years) was associated with depression when adjusting for risk factors (AOR 3.4 with 95% Confidence Interval (CI) 1.22-9.44); p =0.019) and those with ≥ 45 years (AOR 5.1 with 95% CI 1.07-11.29; p=0.041). Intimate partner violence was associated with depression (AOR 2.86 with 95% CI 1.37-5.94; p<0.001); low perceived social support was associated with depression (AOR 4.69 with 95% CI 1.84-11.96; p=0.001) when adjusted for confounders.

Conclusions and Recommendations: The study found that one in every four military personnel in Botswana Defence Force to have depression. In addition the study discovered likelihood of developing depression among the BDF personnel increased with the increase of age. Intimate Partner Violence and low social support are independently associated with depression when adjusted for confounders. With the findings from this study the researcher would recommend to the military command that; there should be screening and early interventions of depression among military personnel. There should also screening and early interventions for IPV among military personnel.

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LIST OF ABBREVIATIONS

BDF	Botswana Defence Force
CTS2	Conflict Tactics Scale
IPV	Intimate Partner Violence
MSPSS	Multidimensional Perceived Social Support Scale
SPSS	Statistical Package for Social Sciences
SSKB	Sir Seretse Khama Barracks
PHQ-9	Patient Health Questionnaire
PI	Principal Investigator
WHO	World Health Organization
DSM-5	Diagnostic and Statistical Manual

DEFINITION OF TERMS

Depression: The Diagnostic and Statistical Manual-5 outlines the following criterion to make a diagnosis of depression. The individual must be experiencing five or more symptoms during the same 2-week period and at least one of the symptom should be either (1) depressed mood or (2) loss of interest or pleasure.

Depressed mood most of the day, nearly every day. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day. Significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day. A slowing down of thought and a reduction of physical movement (observable by others, not merely subjective feelings of restlessness or being slowed down). Fatigue or loss of energy nearly every day. Feelings of worthlessness or excessive or inappropriate guilt nearly every day. Diminished ability to think or concentrate, or indecisiveness, nearly every day. Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

Intimate partner violence: The physical, emotional, sexual or psychological oppression of an individual by someone who knows an individual's life by virtue of a current or past intimate relationship (Ogundipe et al., 2018)

Social Support: Social support is a broad construct that includes the sources of support, this includes who in the social network provides support, the types of support provided (emotional, informational or advice, or materialistic support), and one's satisfaction with the support they received (Vyavaharkar et al., 2007).

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Depression is diagnosed when an individual has experienced five or more of the following symptoms during the same two week period and at least one of the symptoms should either be depressed mood or loss of interest or pleasure according to Diagnostic and Statistical Manual for Mental disorders DSM (5). The symptoms include;

1. Depressed mood most of the day, nearly every day.
2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day.
3. Significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day.
4. A slowing down of thought and a reduction of physical movement (observable by others, not merely subjective feelings of restlessness or being slowed down).
5. Fatigue or loss of energy nearly every day.
6. Feelings of worthlessness or excessive or inappropriate guilt nearly every day.
7. Diminished ability to think or concentrate, or indecisiveness, nearly every day.
8. Recurrent thoughts of death, recurrent suicide ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

Depression is a common disorder, affecting about 121 million people worldwide. It is among the leading causes of disability worldwide. In the United State of America, depression, affects approximately one in six adults during their lifetime (Survey, 2015). When left untreated, depression can lead to diminished work productivity, absenteeism, lost wages, and other physical ailments. It has been found that, depression has been also considered as commonly presented psychiatric complaint among military personnel. For instance, in a study done in U.S. military found that 9.4% of service members reported probable depression in the past 12-months.

They also found out depression was more prevalent among enlisted personnel than in officers and among women than men (Survey, 2015).

Yet in another longitudinal study conducted in Canada Armed Force reported the prevalence of major depression was 29.2 new cases per 1000 person-years at risk. Female sex, age 30 years and older, and non-officer ranks were associated with significantly higher incidence rates (Thériault *et al.*, 2019). This results were comparable to the U. S studies. In addition a study conducted in Brazil reported the prevalence of common mental disorder CMD which included depression, anxiety and post-traumatic stress disorder to be 33% (Martins and Lopes, 2012). Finally a study done in Rwanda shows that 22.5% screened positive for depression (Harbertson et al., (2013).

The military personnel are at risk of getting depression because of the nature of their job. During the course of their work, a military personnel undergoes hardship like serious daily training, temporary camping away from home, carrying out dangerous missions, frequent changes to their living condition e. g moving to different houses and exposure to dangerous equipment or material (Harbertson et al.,2013) . In addition workplace environment is significantly related to job satisfaction, job stress. Thus unhealthy workplace's climate corresponded to increase rate of sickness absences (Al-amri and Al-amri, 2013).

Clark et al noted in their research that supervisor abuse is common in many militaries around the world. This in turn affect relationship between military personnel especially the junior staff and their senior counterpart (Clark et al., 2012). The toxic environment also make it hard for military personnel to be able to help one another or even work effectively (Tepper, Simon and Park, 2017). It is important to detect depression among military and effective treatment applied. Department of defence of U.S. gives figures of 390 million dollars were lost because of attrition from military service in 1994 (Office, 1994). Also it has been found that only 19% of military personnel with significant mental health problems seek treatment. Thus, untreated mental illness represents a serious concern in the military (Manuscript,2011).

There is a growing body of evidence emphasizing the importance of assessments in mental health and its association with other public health problems in resource-limited countries, particularly sub- Saharan Africa. Among the researcher are Nduna et al 2012 who did their research on young men and women in Cape Town South Africa. While assessments on mental illness among civilians within the sub-Saharan Africa region are accumulating, data among military personnel, who are difficult to reach due to deployment in remote base locations and demobilization, are scarce Harbertson et al., (2013)

1.2 Problem Statement

Over the years, many researchers have turned their attention to studies on depression in general population and turned a blind eye on depression and associated factors in the military personnel. This is further supported by Britton, Ouimette and Bossarte, (2012) by stating that inadequate literature exists on depression and associated factors among military personnel. Therefore, according to Ngum et al., (2017) stated that problems are special types of questions which arise for which knowledge is needed. The researcher's curiosity has been provoked by the fact that there has never been a research undertaken that target the military personnel in Botswana. It is imperative; to perform the study of this nature to find out what is happening in Botswana since there has never been a study of this nature carried out locally.

A study done by Harbertson indicates that military personnel has found to be of high risk of having depression due to their nature of work which includes daily training,temporary camping away from home,missions, frequent changing of home from place to place and exposure to dangerous equipment or material.It was imperative to conduct this study inorder to know the mental health status of the military personnel because depression may become a serious health condition (Harbertson et al.,2013).WHO affirms this as it stated that depression can cause the affected person to suffer greatly and function poorly at work and in family or even lead to suicide (World Health Organisation 2020) .Therefore the nature of military personnel needs them to be in their good mind state for them to perform good at work and also looking at the fact that they handle equipments like firearms which can be dangerous to them and others if not handle carefully.

1.3 Conceptual Frame-Work

There are various biological, psychological and sociological factors that are suspected to play key roles in the development of depression among military personnel. Equal number of men and women develop melancholic depression(Oldham 2014). However, studies have shown that there is a much greater likelihood of women developing non melancholic depression than men (Theriualt , 2019). Physical illness is yet another example of a biological factor that may determine development of depression especially when the individual has a long term illness e. g diabetes. As we age, our brain's general functioning can become compromised and this can affect the neurotransmitter pathway which influence mood state.

Psychosocial factors include level of stress exposed in the military. The training that military personnel undergo is considered to be inhumane at some level and may rewire an individual cognitive capabilities or even lower the stress threshold thus making them susceptible to stress (Kinser and Lyon, 2014). Education was viewed by many especially in the sub-Saharan middle class as a social status, as such level of education may influence development of depression. The level of education will also determine the ranks in the military especially during enlisting either as a commission or non-commission officer (Kinser and Lyon, 2014). Junior officers often complain about mistreatment from their senior counterpart and that may also influence development of depression as they may feel hopeless in certain situations (Kinser and Lyon, 2014). Time and time again military personnel are assigned posts in different stations of work which forces them to move frequently around the country or even outside, hence it is very hard for them to maintain any close friendship. This lack of social support including family being away may also result to depression. Other factors like intimate partner violence may also contribute (Kinser and Lyon, 2014).

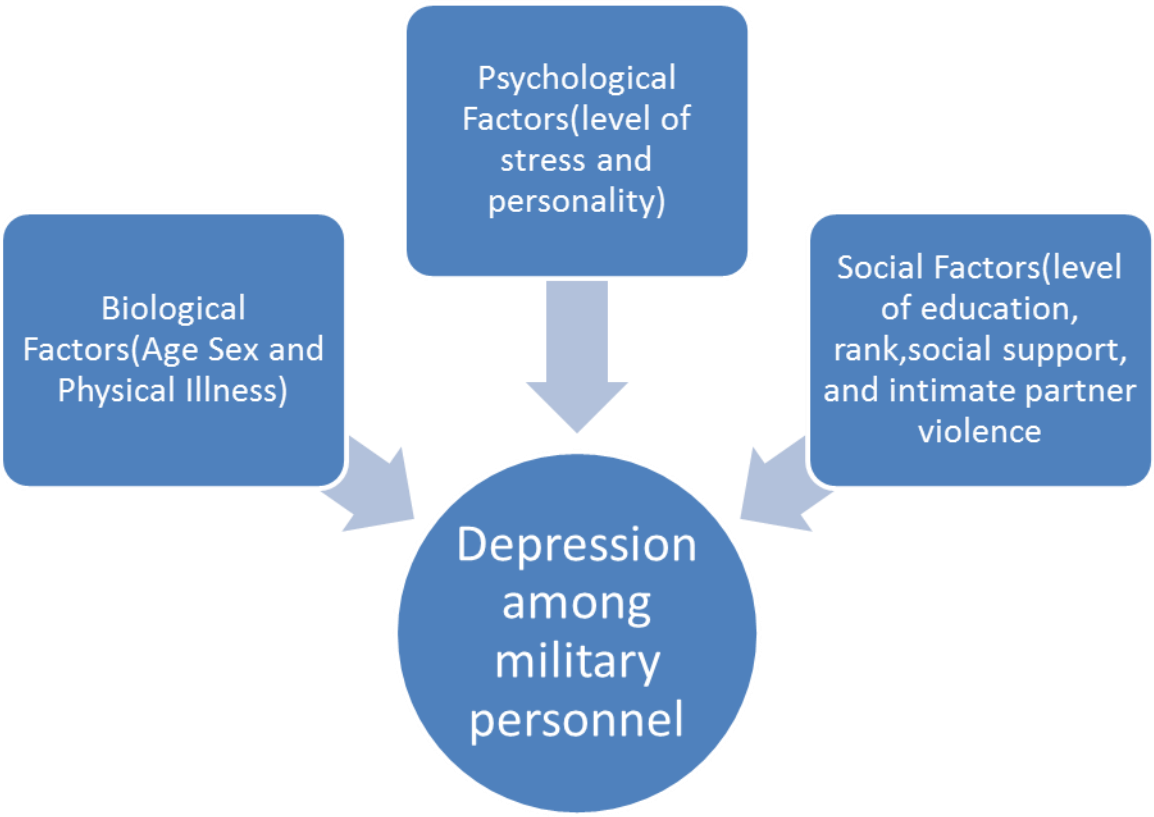

Figure 1: Figure indicate a one way direction interaction between depression and biopsychosocial factors

1.4 Rationale

The military personnel has been found to be of high risk of having depression due to their nature of work which includes daily training, temporary camping away from home, missions, frequent changing of home from place to place and exposure to dangerous equipment or material (Harbertson et al.,2013). In a study done among military personnel in Rwanda found that the prevalence of depression among military personnel was 22.5% (Harbertson et al.,2013). In addition, there are no study on depression among military personnel done in Botswana.

Findings from this study will build on the knowledge about the magnitude of depression among military personnel as well as some of factors associated with depression, it so that the health care providers can see the need to screen and offer treatment of depression for military personnel. The study is also for partial fulfillment of Master of Science degree in Clinical Psychology.

1.5 Research Questions

What is the prevalence of depression and associated factors among military personnel in Botswana Defense Force at Sir Seretse Khama Barracks in Gaborone, Botswana?

1.6 Objectives of the study

1.6.1 Broad Objective

To assess the prevalence of depression and associated factors among Botswana Military personnel at Sir Seretse Khama Barracks in Gaborone, Botswana.

1.6.2 Specific Objectives

1. To assess the prevalence of depression among military personnel at Sir Seretse Khama Barracks in Gaborone, Botswana.
2. To assess factors associated with depression among military personnel at Sir Seretse Khama Barracks in Gaborone, Botswana.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Prevalence of depression According to Kessler et al., (2003) the total number of people with depression world-wide is estimated to exceed 300 million. This number is equivalent to 4.4%. Depression is ranked as the single largest contributor to global disability at 7.5%(World Health Organization). Depression is the major contributor to suicide deaths, which number close to 800,000 per year(World Health Organization). In Africa prevalence of depression among women is 6% while prevalence of depression among men is about 4.8%. Also depression in youth is higher compared to older adult(World Health Organization).

Depression has been found as commonly presented psychiatric complaint among military personnel compared to the general population (Warner et al.,2007). Studies that were done worldwide and regionally on the area of mental health have shown that mood disorder especially depression are common among military personnel (Seedat et al.,2003; Gadermann et al.,2012; Harbertson et al.,2013; Thèriault et al.,2019).

Globally, the prevalence of depression among military personnel has shown to be high compared to that of the general population. For example, in a meta-analysis and simulation study done in US among military personnel, the prevalence of major depression among US military personnel was estimated at 30.7% using the PHQ-9 to assess depression while that of the general population was estimated to be 16.2% (Gadermann et al.,2012). In Canada, a longitudinal study conducted in Canada Armed Force estimated the prevalence of Major depression among military personnel to be 29.2% (Thèriault et al.,2019). In Brazil, the estimated prevalence of common mental disorder (CMD) which included depression, anxiety and post traumatic stress disorder to be 33% (Martins and Lopes, 2012). In Saudi Arabia a study among military personnel reported 17.1% of prevalence of depression and Beck's Depression Inventory (BDI) was used to assess depression with a cut off point of 14 and above (Al-Amri et al.,2013). Though these studies prevalence may vary according to their regions or maybe because of the use of different tools used to assess depression, the evidence remains

that there is high levels of depression that is associated with the military life. The authors even recommended that more research has to be carried out and efforts made towards screening and offering treatment for depression among military personnel as it leads to adverse effects.

In Africa there have been very minimal studies done to determine the association between military personnel and depression. However, a study done in Rwanda reported a prevalence of depression to be 22.5% and a Centre for Epidemiologic Studies Depression Scale (CES-D) was used to assess depression (Harbertson et al.,2013). Also another study done in South Africa estimated the prevalence of Post Traumatic Sress Disorder among military personnel to be 25.8% and the Clinical Administered Post Traumatic Stress Disorder Scale-Current Diagnotic version (CAPS-1) was used to assess the PSTD (Seedat et al.,2003). Nonetheless the high prevalence of depression remains of a common problem for the military personnel. According to the best knowledge of the researcher, the has never been any study conducted about the prevalence of depression among military personnel in Botswana Defence Force.

2.2 Demographic characteristics associated with Depression among Military personnel

Several demographic factors have been found from research to be associated with depression among military personnel. From numerous studies these factors have been shown to be; belonging to a particular age group, sex, having a lower rank, low education and being single (Warner et ., 2007; Inversen et al.,2009;Cederbaum et.,2017)

Most of the demographic factors with depression among military personnel are common across the globe. In a study done in Canada for example, the factors associated with depression included; Sex, a particular age group, lower rank (Theriault 2019). Another study in US showed similar findings; a higher prevalence of depression in females, lower education, being single and belonging to a particular age group (Gadermann et al., 2012).

In Africa and the Sub-Saharan region, the relationship between depression among military personnel remains true to the “theme”, gender, age, socioeconomic status have all been found to be associated with depression among population. In a study by (Harbertson et al., 2013) in

Rwanda, being a female, having a lower economic status and belonging to a certain group of age and unmarried were associated with depression.

2.3 Social Support as a factor of Depression among Military personnel

Research has proven in several studies that social support is a protective factor for depression in military personnel (Al-Amri et al.,2013; Thompson, 2016; Ketcheson, King and Richardson, 2018). Being in military can be challenging as it involves daily training, temporary camping away from home, missions, deployment and exposure to dangerous equipment. These challenges however may be reduced by social support and this support can be like producing an conducive working environment and availing emotional support (Al-Amri and Al-Amri,2013).

Tepper, Simon and Park also highlighted that, it is hard for military personnel to work effectively in a toxic environment (Tepper, Simon and Park, 2017). In addition to the conducive working environment, Clack et al, indicated that it is common in militaries around the world for supervisors abusing their junior staff which affect their work relationship hence no/decreased social support from superiors (Clack et al.,2012).

A study by Ketcheson, King and Richardson has found that social support is an important factor in the prevention/reduction of depression among military personnel as it showed that people having no one to turn to when they have a problem showed greater depressive symptoms. Also a study done in Botswana but in a population based study by (Gupta, 2010), found that a single men had high levels of depression and these could be linked to the lack of support from a significant other.

2.4 Intimate Partner Violence

IPV is a global health issue that impacts both civilian and military population. Previous studies have shown a high prevalence of IPV among military personnel (Sparrow et al.,2017; Warner et al.,2007). A study in United Kingdom found out that verbal abuse was associated with increased risk of developing depression among the military personnel (Sparrow et al.,2017).

Another study highlighted that, it is likely that daily stressors of military life including frequent relocation or family separation may impact relation satisfaction and may lead to higher rates of IPV (American Phychological Association Presidential Task Force on Military Deployment Services For Youth FaSM, 2007)

The gender Based Violence Indicators Study in Botswana of 2009 found that over two thirds (67%) of women in the country had experienced some form of partner and non-partner violence in their lifetime, with 29% reporting having experienced partner violence in the 12 months before the survey (statistics Botswana, 2013). In an analysis of BAIS-IV data done by Moroka, it was found that the lifetime prevalence rate of IPV was reported to be 34% in Botswana, the researcher did an analysis of data from the BAIS-IV, which is a national survey done by statistics Botswana every four years (Modie Moroka, 2016).

There is a need for more studies to be conducted to find out the prevalence of IPV among military personnel in Botswana and how this associated with higher levels of depression in order to fill in the gap that exist, as can be seen in literature or lack there off.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design

This study was a cross-sectional study utilizing quantitative methods that was conducted to assess the prevalence and assess the associated factors of depression among military personnel at Sir Seretse Khama Barracks in Gaborone, Botswana. A cross-sectional design was used because cross-sectional studies are generally quick, easier and relatively less costly to perform the study . The study was a descriptive cross-section design as the data was collected in a period of a month.

3.2 Study Site

The study was conducted in Sir Seretse Khama barrack located in Greater Gaborone area in Botswana. SSKB camp was selected because it comprised of all the arms of Botswana Defence force which include: Air arm, Ground force arm, Defence logistic arm, and Botswana Defence Force Headquarters. Thus it was the most populated camp in Botswana. The population of military personnel in SSKB was about 12000 people distributed among all arms and with different ranks.

3.4 Study Population

The study population was military personnel in Botswana Defence force at Sir Seretse Khama Barracks during the time of the study who would voluntarily consent to participate.

3.5 Sample Size Calculation

A simple formula from (Sullivan and Soe,2007) was used to select participants for this study. The prevalence of depression in Rwanda Defense Force was used from the study done in Rwanda by Harbertson.

The formula is as follows:

$$\boldsymbol{n = \frac{(z^2)P(1-P)}{d^2}}$$

Where:

n = sample size,

Z = Z statistic for a level of confidence,

P = Prevalence of depression 22.5% (Harbertson et al., 2013). This was prevalence in Rwanda Defense Force the closest African country which has investigate depression in the military

D = precision (in proportion of one; if 5%, d = 0.05)

$\boldsymbol{n}$ =(1.96^2) 0.225 (1 – 0.225)

0.05^2

n=267.95

n=**268**

3.6 Sampling procedure and technique

Botswana Defence force had a total of seven barracks which include, Sir Seretse Khama Barrack, Glen Valley, Village, Eastern Military Garrison, One Military Garrison, Maun Base Camp and Thebephatshwa Air Base. The study was conducted in Sir Seretse Khama barrack located in Greater Gaborone area in Botswana this was because the camp was comprises of all the arms of Botswana Defence force which include: Air arm, Ground force arm, Defence logistic arm, and Botswana Defence Force Headquarters. Thus it was the most populated camp in Botswana. The population of military personnel in SSKB was about 12000 people. To control for the sampling bias the participants were randomly selected to participant in the study out of the population of 12000 personnel. The personnel were first divided into groups based on the branch assigned to that was through stratified random sample with proportional allocation technique was applied as shown in table 1 below. Participants were then selected from different ranks according to their proportions by systematic random sampling technique within each category.

This was done by dividing the total number of the study population (12000) by the sample population 268 and selecting the 44th participant. The study population in SSKB had further be draw base on the number of personnel in each branch on the Botswana Defence Force (BDF) as follows:

Table 1: Sample size distribution among BDF personnel

Names of Branches of BDF	Total population	Number of study population
Admin Force(BDF HQ)	1500	34
Air force	3000	67
Ground Force	5000	112
Logistic Force	2500	55
Total number	12000	268

3.7 Selection Criteria

3.7.1 Inclusion criteria

Military personnel who were present at the time of data collection. Military personnel who voluntarily agreed to participate and signed the consent form.

3.7.2 Exclusion criteria

Military personnel who would have refuse to give consent will not be included in the study. Those at the time of the study who would not be present at the camp would not be included too.

3.8 Data Collection Tools

3.8.1 Demographic measures

A structured questionnaire was used to collect the social demographic characteristics that are; Age, marital status, educational level and rank.

3.8.2 Depression

The questionnaire was attached with the 10-item Patient Health Questionnaire (PHQ-9) that was used to screen for depression The PHQ-9 is the depression module from the Patient Health Questionnaire, which scores each of the 9 DSM-IV criteria (Monahan et al., 2008) . The PHQ-9 scores ranged from 0 to 27 with five severity categories: minimal (0–4), mild (5–9), moderate (10–14), moderately severe (15–19) and severe (20–27) (Kroenke, Spitzer and Williams, 2001). A cut off point of 9 was used because it is the universally standard cut off point.

3.8.3 Intimate Partner Violence

Intimate Partner Violence was measured with the use of the short form of Conflict Tactics Scale 2 (CTS2). The CTS2 scale is the most widely used instrument for measure intimate partner violence, and the shortened scale is usually used in place of the original long scale when testing time in limited time (Lund and Winke, 2008). The CTS2 included scale to measure three tactics used when there is conflict in the relationships of dating, cohabiting or married couples, in this study however, only the experience of abuse was measured and responses are on Likert Scale from 1 to 4), higher scores indicated higher experience of violence. IPV was dichotomized into violence and no violence, those who reported to never having experienced any form of violence at all making up the no violence group and those who had experience violence even once making up the violence group).

3.8.4 Perceived Social Support

Social support was measured using the Multidimensional Perceived Social Support Scale by Zimet, the MSPSS was one of the most used of social support and had been used and validated in some studies in Sub Saharan Africa (Dambi et al., 2014). The scale had 12 items with questions divided into 3 domains (significant other, family and friends) scored on a Likert scale from 1 to 7(Very strongly Disagree, Strongly Disagree, Mildly Disagree, Neutral, Mildly Agree, Strongly Agree, Very Strongly Agree.

Two research assistants were trained using the tools and assisted in data collection. Data was be collected at the SSKB and the principal investigator participated in data collection and selection of samples.

3.9 Validity and reliability

The PHQ-9 had been found to be a valid and reliable measure of depression, in a validation study done by (Kroenke, Spitzer and Williams, 2001; Monahan et al., 2008), the scale was found to be a valid measure of depression as well reliable with a Cronbach's score between 0.86-0.89, test-retest reliability of the PHQ-9 was also found to very good (Kroenke, Spitzer and Williams, 2001). The CTS2 was used in a variety of ways in a number of settings it had generally been found to be a reliable and valid instrument to measure IPV in different populations and across cultures (Chapman and Gillespie, 2019). The MSPSS had been validated across different cultures in Uganda it was found to be valid and reliable using Cronbach's alpha, the MSPSS demonstrated good internal consistency at 0.83 (Nakigudde et al., 2009).

3.10 Data Analysis; dependent and independent variables

Data was entered using statistical package for the Social Science (SPSS for windows version 23). Bivariate analyses was done to determine the presence of associations between independent and outcome variables reported. Logistic regression was applied for identification of independent associated risk factors for all bivariate variables with associations at $p<0.2$.

Independent Variables: Demographic factors; age, sex, marital status and level of education
Intimate partner violence and social support
Dependent Variable: Depression

3.11 Ethical Considerations

Ethical clearance to conduct this study was obtained from the MUHAS Senate Research and Publications Committee as well as permission from the Commander of Botswana Defense Force. The study population was verbally informed about the study, and those who showed interest and fell into the sampling pattern and volunteered to participate in the study were provided with detailed information about the study. Those who voluntarily consented for participation in the study were then recruited.

The participants were then interviewed by the research assistants after giving informed consent to participate. Data collection was done from morning till late afternoon.

In order to maintain confidentiality of the data, no identifying information was kept or attached to the questionnaires. Data was kept in a secure place of which only the PI has access. Data will be kept for three years before being destroyed in case there is a need for reference or data cleaning.

The consent form clearly stated the benefits and risks of participating in the study. For those participants who will have depressive or suicidal symptoms will be referred to the in military in house counsellor for the psychological treatment or referral to psychiatrist.

Participants were informed that there was no financial gain for participation in the study. They were also given the contacts of the PI, the research supervisor as well as the contacts of the director of research and publication committee from MUHAS. Participants were also informed they could contact the Commander of Botswana defense force if they had any complaints about the research or research assistant.

CHAPTER FOUR

4.0 RESULTS

A total of 268 participants were included in the study, of which 215 (80.2%) were male and 53 (19.8) were female. All these participants were from the Sir Seretse Khama Barracks. The age range was 19-50 with the mean age (SD) of 29.4 (6.4). More than half of the participants belonged to the age group 25-34 (57.5%). Nearly half of the participants were never married 123 (45.9%), two third of them had secondary education 179 (66.8%). Non Commissioned Officer (NCO) were nearly two third of the participants at 63.8%. These results are summarised in the table below:

Table 2: Socio-demographic and psychosocial characteristics(n=268)

Variables	Mean (SD)	N (%)
Age		
Mean age (years)	29.43 (6.44)	
18-24		55(20.5)
25-34		154(57.5)
35-44		48(17.9)
≥ 45		11(4.1)
Sex		
Male		215(80.2)
Female		53(19.8)
Marital Status		
Married		107(39.9)
Single		123(45.9)
divorced/separated		29(10.8)
Widow		9(3.4)
Education		
Secondary Education		179(66.8)
College/university		89(33.2)
Rank		
NCO		171(63.8)
JO		26(9.7)
SO		71(26.5)
IPV life time		
No IPV		115 (42.9)
IPV		153 (57.1)
Perceived Social support		
Low		78(29.1)
Moderate		130(48.5)
High		60(22.4)

4.1 Prevalence of Depression

The dependent variable was depression which was analyzed using a cutoff point of 9 for the PHQ-9 and the variable was dichotomized into (Depression and no Depression) for the purposes of analysis. The prevalence of depression in the past two weeks was 23.1%.

This was then categorised into severity scores of which 8.38% had mild depression, 5.41%had moderate depression, 6.67% had moderately severe depression and 2.55% severe depression.

4.2 Distribution of depression by socio demographic characteristics and other factors

The following table shows distribution of depression by socio-demographic characteristics and psychological factors of interest. More participants were within the age group of 45 years or more (45.5%), female (32.1%), those who experienced intimate partner violence (32%) and low social support (44.9%) were significantly associated with depression.

Table 3: Association of depression with socio-demographic and psychosocial factors characteristics (n=268)

Variables	No Depression	Depression	Total N=268 (%)	Chi-square	p-value
Age					
18-24	44(80)	11(20)	55(100)		
25-34	124(80.5)	30(19.5)	154(100)	7.350	**0.062**
35-44	32(66.7)	16(33.3)	48(100)		
≥ 45	6(54.5)	5(45.5)	11(100)		
Sex					
Male	170(79.1)	45(20.9)	215(100)		
Female	36(67.9)	17(32.1)	53(100)	2.970	**0.085**
Marital Status					
Married	84(78.5)	23(21.5)	107(100)		
Single	94(76.4)	29(23.6)	123(100)		0.822
divorced/separated/Widow	28(73.7)	10(26.3)	38(100)	0.392	
Education					
Secondary/Education	137(76.5)	42(23.5)	179(100)	0.033	0.856
College/university	69(77.5)	20(22.5)	89(100)		
Rank					
NCO	131(76.6)	40(23.4)	171(100)	2.497	0.287*
JO	23(88.5)	3(11.5)	26(100)		
SO	52(73.2)	19(26.8)	71(100)		
IPV life time					
No	102(88.7)	13(11.3)	115(100)	15.853	**<0.001**
Yes	104(68)	49(32)	153(100)		
Perceived Social support					
Low	43(55.1)	35(44.9)	78(100)	29.273	**<0.001**
Moderate	111(85.4)	19(14.6)	130(100)		
High	52(86.7)	8(13.3)	60(100)		

Key: **Fisher's exact test *, p<0.2**

4.3 Multivariate logistic analysis of factors associated with depression among military personnel in Botswana Defence force

Multivariate logistic regression analysis was conducted for all factors that had shown associations with depression in the bivariate analyses (p <0.2). Table below summarizes these findings.

Among socio-demographic characteristics only age was independently associated with depression, those within the age group 35-44 years were three times more likely to be depressed with p =0.019 (AOR 3.4 with 95% CI 1.22-9.44) and those within the age group 45 years and above were five times more likely to be depressed compared to those in the youger age group p =0.041 (AOR 5.1 with 95% CI 1.07-11.29). Participants who had experienced IPV were approximately three times more likely to be depressed p<0.001 (AOR 2.86 with 95% CI 1.37-5.94). Those who had low social support were approximately five times more likely to be depressed compare to those who had high social support p=0.001 (AOR 4.69 with 95% CI 1.84-11.96).

Table 4: Independent strength of associations between depression and psychosocial factors (N=268)

Variables	Crude Odds Ratio (95% CI)	P value	Adjusted Odds Ratio (95% CI);	p value
Sex				
Female	1.78(0.92,3.47)	0.087	1.92(0.91,4.03)	0.085
Male	Ref		Ref	
Age				
18-24	Ref		Ref	
25-34	0.97(0.45,2.09)	0.934	1.12(0.47,2.66)	0.794
35-44	2.0(0.82,4.88)	0.128	3.4(1.22,9.44)	**0.019**
≥ 45	3.33(0.86,12.96)	0.082	5.06(1.07,11.29)	**0.041**
Intimate partner violence				
Yes	4.78(2.70,8.45)	**<0.001**	2.86(1.37,5.94)	**0.005**
No	Ref		Ref	
Perceived Social support				
Low	5.29(2.21,12.43)	**<0.001**	4.69(1.84,11.96)	**0.001**
Moderate	1.11(0.46,2.70)	0.814	0.911(0.36,2.33)	0.846
High	Ref		Ref	

Key: Key: CI=confidence interval, OR=odds ratio, AOR=adjusted odds ratio, **p<0.05**

CHAPTER FIVE

5.0 DISCUSSION

The study was aimed at assessing the prevalence of depression among military personnel in the Botswana Defense Forces and the factors associated with the depression. The study was the first in Botswana to go further and determine whether demographic factors, social support and intimate partner violence were associated with depression among military personnel.

5.1 Prevalence of Depression

The study found the prevalence of depression to be 23.1% when using the cutoff point of 9 in the PHQ 9. Majority of the participants (76.9%) scored below the cutoff point meaning they were not depressed and 3.36% were found to be severely depressed. The prevalence of 23.1% is almost similary to the one used to determine the sample size which is of Rwanda (Harbertson et al.,2013). The study however was published eight years ago with the prevalence of depression 22.5% and it used the Center for Epidemiologic Studies Depression Scale (CES-D) to assess depression compared to this study which the researcher used PHQ-9, therefore there might be some differences in the tests and the prevalence of depression might have changed since then.

The prevalence of depression is lower compared to 33% rate that was found in the study conducted in Brazil. (Martins and Lopes, 2012). This study prevalence rate was also lower to that found by Theriault et al.,2019 of 29.2 new cases per 1000 person years, even though the were investigating the incident rate and not prevalence. In addition the study prevalence rate was higher compared to the Gadermann et al., 2012 study where they found the prevalence rate of major depression among current deployed to be 12%, 13.1% among previously deployed and 5.7% among those who have never been deployed. The differences could be due to the factor that this was a meta-analysis of 25 epidemiological studies as such it was the average of them all.

Finally the prevalence rate of 23.1% was also slightly higher compared to the prevalence rate of 17.1% found in the study conducted by Al Amri et al.,2013. This difference maybe as a results of the different tools used to assess depression. Al Amri et al.,2013 used Beck's Depression Inventory.

5.2 Factors Associated with depression

5.2.1 Socio Demographic Characteristics associated with depression

Among sociodemographic characteristics being female and older age were associated with depression in the bivariate analysis. When adjusting for confounders only age was had an independent association with depression. The study shows there was association of depression for every increase with age. These findings are similar to some other studies conducted in Africa and other parts of the wide. (Warner et al., 2007; Iversen et al., 2009; Harbertson et al., 2013; Cederbaum et al., 2017).

5.2.2 Perceived Social Support

The study shows that participants reported to be having low social support from their partners, families, and friends. A large percentage of 61.5% reported that they have low social support. Low social support was found to be independently associated with depression in the study. This shows that people with low social support were at high risk of being depressed. Ketcheson, King and Richardson (2018) also in their study noted that people having no one to turn to when they have a problem showed greater depressive symptoms.

5.2.3 Intimate Partner Violence

Intimate Partner Violence is another factor associated with depression among military personnel this is similar to other studies (Sparrow et al, 2017). The current study affirms this statement as a more than half percentage (57.1) of participants which shows IPV were depressed compared to those who has never been violated by their partn

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study found out that one in every four military peronnel has risk of developing depression in Botswana defense force. It also showed that military personel who experince inimate partner violence, those who were single,and those with perceived low social support were more susceptible to depression.

6.2 Recommendations

With the findings from this study the researcher would recommend to the commander of Botswana defense force that;

1. There should be screening and early interventions of depression among military personnel.
2. There should be screening and early interventions for IPV among military personnel.

6.3 Study Limitations

Temporality of PTSD or depression and other associated risk factors could not be discerned because of the cross-sectional study design. Also, data collections of this nature are extremely rare in sub-Saharan military populations, and while every effort was made to use screening tools that had been validated and piloted in Rwanda or other sub-Saharan African countries, or among military populations, cultural differences in interpretations behind the meanings of some questions may have under- or overestimated the prevalence rates reported in this study.

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APPENDICES

Appendix I: Informed Consent (English Version)

Principal Investigator: Mr. Ronnie Kabo Rammolai

TITLE OF STUDY: PREVALENCE OF DEPRESSION AND ASSOCIATED FACTORS AMONG MILITARY PERSONNEL IN BOTSWANA DEFENCE FORCE

Information to Participants

My name is Ronnie Kabo Rammolai (*for research assistant, insert your name*), I am a student from Muhimbili University of Health and Allied Science in Tanzania; I am conducting a study on the prevalence of depression and associated factors among military personnel in Botswana defence force.

As one of the military personnel, I would like to thank you for your interest in taking part in this study.

Your participation is voluntary, you are free to take part or not take part. There will be no consequences should you refuse or choose to withdraw from the study. The interview will take approximately 30 minutes of your time.

All the information that you provide will be confidential, the questionnaires used will not bear any identifying information such as your name or national identity card. Some of the questions in this questionnaire may arouse raw or negative emotions. If at any point this happens you are free to take a break or end the interview. You are free and are advised to ask any question at any point during the interview if need arises.

The information that you provide will only be used for research purposes and no one will be able to access this information except the researcher.

Should there be a need for mental health services or counseling preceding the interview, arrangements will be made so that you can be offered an intervention relevant to your needs.

Remember that there is no direct benefit to you for participating in this study; however, the results obtained will help to provide an idea as to the magnitude of depression in the military personnel to help health care providers provide better care. As this is an academic-based research, there is no payment offered for your participation.

Agreement

I have read and understand the above information. I have understood that my participation is solely voluntary, and no payment that will be obtained by participating. Please put (√) if Agree or

Disagree. Agree [ ]

Client signature ……

(Tel number……...…), Date (dd/mm/yy)

If you have any questions or need further clarification concerning this study, please feel free to contact the principal researcher (Ronnie Kabo Rammolai) on +267 7504429. You may also contact my supervisor on +255 713498335.

Additionally, in case of any complaints based on this research, please forward your complaints to:

1. The Commander Botswana Defence Force
   Private Bag X06\
   Gaborone
   Tel: (+267) 3662100

2. Director of MUHAS Senate Research and Publications Committee
   P.O Box 65001 Dar Es Salaam TEL NO. +255 222151596

Disagree [ ]

Client signature ……

(Tel number……...…), Date (dd/mm/yy)

Reason for refusal ……..

Appendix II: Informed Consent (Setswana Version)

Tumalano Ya Go Tsaya Karolo

Mmatlisisi Mogolo: Ronnie Kabo Rammolai

SETLHOGO SA PATLISISO: PREVALENCE OF DEPRESSION AND ASSOCIATED FACTORS AMONG MILITARY PERSONNEL IN BOTSWANA DEFENCE FORCE

Kitsiso Go Ba Ba Tsayang Karolo

Leina lame ke Ronnie Kabo Rammolai (*kgotsa leina la yo o thusang*). Ke moithuti go tswa sekolong sa dithuto tse dikgolwane sa Muhimbili University of Health and Allied Science ko Tanzania; ke dira dipatlisiso mabapi le selekano sa bolwetsi jwa maikutlo a ko tlase mo ba bereking ba sesole sa Botswana.

Jaaka mongwe wa ba bereki ba sesole sa Btswana ke lebogela gore o bo o dumetse go tsaya karolo mo patlisisong e.

Go tsaya karolo mo patlisisong e ga go patelediwe ebile o ka tlhopha go tsaya karolo kana go sa tseye karolo. Ga gona ditlamorago dipe fa e le gore o tlhopha go sa tsaya karolo kgotsa go tlogela go tsaya karolo fa o setse o simolotse. Ke solofela gore potsoloso e e ka tsaya metsotso e ka nna masome a mararo.

Dikarabo tse o re di fang di a go nna sephiri ebile dipampiri tse re di dirisang ga di na go nna le sepe fela se se supang gore o mang jaaka leina la gago kgotsa nomore ya Omang.

Dipotso dingwe tse re di botsang di ka nna tsa gogomosa maikutlo kgotsa tsa utlwisa botlhoko, fa e le gore se se a diragala ka nako epe re tsweletse ka potsoloso, o na le tetla ya go tsaya metsotsonyana kgotsa go emisa potsoloso. O na le tetla ya go botsa dipotso ka nako epe fela potsoloso e ntse e tsweletse fa o tlhoka go dira jalo.

Dikarabo tse o di fang di a go dirisiwa fela mo dipatlisisong, ga gona ope yo o ka kgonang go bona dikarabo tse ko ntle ga ba ba dirang dipatlisiso tse.

Fa e le gore go a tlhokafala gore o sidilwe maikutlo o fetsa potsoloso, o ka re bolelela mme thulaganyo ya dirwa gore o fetisediwe ko go ba ba maleba.

Gakologelwa gore ga gona dipoelo dipe tse di lebaneng wena ka sebele, fela maduo a patlisiso e a tlaa thusa go fa lesedi la gore ke batho ba le kahe mo sesoleng sa Botswana ba ba na leng bolwetsi jwa maikutlo a a ko tlase mme se se ka thusa ba botsogo go tokafatsa dithuso tsa bone. Jaaka dipatlisiso tse e le tsa sekolo kgotsa di dirwa ke moithuti, ga gona dituelo dipe tse o tlaa di neelwang ga o tsaya karolo.

Tumalano

Ke badile ebile ke tlhalogantse tsotlhe tse di kwadilweng fa godimo. Ke a tlhaloganya gore go tsaya karolo ga go patelediwe ebile ga go duelelwe. Supa gore o a dumela kgotsa ga o dumalane ka letshwao la (√).

Ke a dumalana [ ]

Monwana: ……

Mogala: …… letsatsi:……..

Fa o na le dipotso kana o tlhoka go tlhalosediwa ka botlalo ka patlisiso e, o ka nna wa ikgolaganya le mmatlisi mogolo (Ronnie Kabo Rammolai) mo mogaleng wa +267 7504429. Kana +255718038160

Mo godimo ga moo, fa e le gore o na le dingongorego ka patlisiso e, o ka ikgolaganya le

1. The Commander Botswana Defence Force
   Private Bag X06
   Gaborone
   TEL: + (267) 3662100
2. Director of MUHAS Senate Research and Publications Committee P.O Box 65001
   Dar Es Salaam
   TEL NO. +255 222151596

Ga ke dumele [ ]

Monwana: ……

Mogala: ……...… Letsatsi:……

Lebaka la go sa dumalana ……

Appendix III: Questionnaire (English & Setswana)

Please choose the answer that is correct/Tlhopa ka karabo e leng nnete.

Date of interview/Letsatsi: {...../...../2020}Questionnaire serial No/Nomore: .....

Name of interviewer/Leina la mmotsolosi: .....

II. Demographic Characteristics of Respondent/Dintlha Ka Yo o Arabang Dipotso

1. Gender of respondent/Bong
    1. Male/Monna
    2. Female/Mosadi

2. Age/Dingwaga

    .....

3. What is your marital status? / A o nyetswe kgotsa ga o a nyalwa?

    1. Never married/ga ke ise ke nyalwe
    2. Married/Ke nyetswe
    3. Divorced/separated/Ke kile abo ke nyetswe mme ke kgaoganye le mokapelo
    4. Widow/Motlholagadi

4. What is your highest level of education/O feletse fa kae ka dithuto tsa sekolo?

    1. No formal education/ga ke a tsena sekolo
    2. Primary school/sekolo se sepotlana
    3. Secondary school/sekolo se segolwane
    4. Tertiary education/dithuto tse dikgolwane
    5. Rank/Maemo

    ……

Appendix IV: PHQ-9 Questionnaire- (English Version)

Over the past two weeks how often have you been bothered by the following problems

1. Little interest or pleasure in doing things
    1. Not at all
    2. Several days
    3. More than half the days
    4. Nearly everyday
2. Feeling down, depressed, or hopeless
    1. Not at all
    2. Several days
    3. More than half the days
    4. Nearly everyday
3. Trouble falling or staying asleep, or sleeping too much
    1. Not at all
    2. Several days
    3. More than half the days
    4. Nearly everyday
4. Feeling tired or having little energy
    1. Not at all
    2. Several days
    3. More than half the days
    4. Nearly everyday
5. Poor appetite or overeating
    1. Not at all
    2. Several days
    3. More than half the days
    4. Nearly everyday

6. Feeling bad about yourself, or that you are a failure or have let yourself or your family down
    1. Not at all
    2. Several days
    3. More than half the days
    4. Nearly everyday
7. Trouble concentrating on things, such as reading the newspaper or watching TV
    1. Not at all
    2. Several days
    3. More than half the days
    4. Nearly everyday
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual
    1. Not at all
    2. Several days
    3. More than half the days
    4. Nearly everyday
9. Thought you would better be dead or of hurting yourself in some way
    1. Not at all
    2. Several days
    3. More than half the days
    4. Nearly everyday
10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?
    1. Not difficult at all
    2. Somewhat difficult
    3. Very difficult
    4. Extremely difficult

Appendix V: PHQ-9 Questionnaire (Setswana Version)

Mo dibekeng tse pedi tse di fetileng go makgetho a le kahe o tshwenngwa ke mangwe a mathata a latelang? Dirisa letshwao "✓" go supa karabo ya gago mo dikarabong tse o di filweng fa tlase.

1. Kgogedi/Kgatlhego e e ko tlase go dira sepe fela
    1. Ga go ise go diragale
    2. Malatsi a le mmalwa
    3. Go feta sephatlo sa malatsi
    4. Nako e ntsi kgotsa malatsi otlhe
2. Go ikutlwa o le mowa o o ko tlase, go kotlomela maikutlo kgotsa go felelwa ke tshepo
    1. Ga go ise go diragale
    2. Malatsi a le mmalwa
    3. Go feta sephatlo sa malatsi
    4. Nako e ntsi kgotsa malatsi otlhe
3. Bothata jwa go thulamela, go palelwa ke go robala ka lebaka kgotsa go robalela ruri
    1. Ga go ise go diragale
    2. Malatsi a le mmalwa
    3. Go feta sephatlo sa malatsi
    4. Nako e ntsi kgotsa malatsi otlhe
4. Go ikutlwa o lapile kgotsa o sena maatla gotlhelele
    1. Ga go ise go diragale
    2. Malatsi a le mmalwa
    3. Go feta sephatlo sa malatsi
    4. Nako e ntsi kgotsa malatsi otlhe
5. Go tlhoka keletso ya go ja kgotsa go ja mo go feteletseng
    1. Ga go ise go diragale
    2. Malatsi a le mmalwa
    3. Go feta sephatlo sa malatsi
    4. Nako e ntsi kgotsa malatsi otlhe

6. Go inyatsa, o ikutlwa jaaka motho yo o paletsweng yo o isitseng ba ga bone tlase kgotsa a ikisa tlase
    1. Ga go ise go diragale
    2. Malatsi a le mmalwa
    3. Go feta sephatlo sa malatsi
    4. Nako e ntsi kgotsa malatsi otlhe

7. Bothata le go tlhomama/tsenya mowa mo go se o se dirang, jaaka go bala pampiri ya dikgang kgotsa go lebelela ditshwantsho tsa motshikinyego
    1. Ga go ise go diragale
    2. Malatsi a le mmalwa
    3. Go feta Sephatlo sa malatsi
    4. Nako e ntsi kgotsa malatsi otlhe

8. Go bua kgotsa go tsamaya ka bonya thata mo go lemosegang kgotsa go kgarakgatshega/tlhoka go iketla mo go tseneletseng mo o swegaswegang o tsamaya mo go sa tlwaelesegang
    1. Ga go ise go diragale
    2. Malatsi a le mmalwa
    3. Go feta sephatlo sa malatsi
    4. Nako e ntsi kgotsa malatsi otlhe

9. Dikakanyo tsa gore go ka nna botoka fa o sa tlhole ole mo botshelong kgotsa go ikutlwisa botlhoko/go ikgobatsa
    1. Ga go ise go diragale
    2. Malatsi a le mmalwa
    3. Go feta sephatlo sa malatsi
    4. Nako e ntsi kgotsa malatsi otlhe

10. Fa e le gore o tlhophile nngwe ya mathata a, mathata ao a dirile bokete go le kahe gore o kgone go bereka, go tlhokomela dilo ko lwapeng, kgotsa go kgona go tshedisana le batho ba bangwe?
    1. Ga go bokete gotlhelele
    2. Go boketenyana
    3. Go bokete tota
    4. Go bokete mo go feteletseng

Appendix VI: Conflict Tactics Scale (English Version)

Assesses for history of violence

No matter how well a couple gets along, there are times when they disagree, get annoyed with the other person, want different things from each other or have fights or arguments because they are in a bad mood, are tired or for some other reason. Couples also have many different ways of trying to settle their differences. I am going to read you a list of things that might happen when you and your partner have differences. Please tell me how often the following things have been done to you in the past one year. Also let me know if your partner has not done one of the things in the last year, but it has happened before.

0= this never happened 1= happened Once 2=2-3 times in the past year 3= 4-10 times in the past year 4= >10 times in the past year

	First time	After a year
I explained my side of the disagreement to my partner		
My partner insulted or swore at me.		
My partner shouted or yelled at me.		
My partner stomped out of the house during a disagreement.		
My partner did something to spite me.		
My partner showed respect for my feelings about an issue.		
My partner destroyed something belonging to me.		
My partner threatened to hit or throw something at me.		
My partner threw something at me that could hurt.		

My partner twisted my arm or my hair.		
My partner shoved or pushed me.		
My partner beat me up.		
My partner grabbed me.		
My partner threatened me with a knife or a gun.		
My partner used a knife or a gun on me.		
My partner punched or hit me with something that could hurt.		
My partner choked me.		
My partner burned or scalded me on purpose.		
My partner suggested a compromise to a disagreement.		
My partner kicked me.		
My partner made me have sex without a condom.		
My partner used force to make me have sex.		
My partner insisted on sex when I did not want to (but did not use physical force)		
My partner used threats to make me have oral sex.		
My partner used threats to make me have sex.		

Appendix VII: Conflict Tactic Scale – (Setswana Version)

Sedirisiwa se, se dirisiwa go sekaseka motlhala wa kgokgontsho, selekanyo sa kgotlhang le ka fa e diregang ka teng.

Go sa kgatlhalesege gore bakapelo ba utlwana/ba tshwaragane go le kahe,go na le dinako tse ba sa dumalaneng,ba tenegelanang,ba batlang dilo tse di pharologanyo mo go yo mongwe kgotsa ba nna le dintwa kgotsa dikomano ka gore ba na le maikutlo a a tlhakatlhakaneng ka nako eo,ba lapile kgotsa mabaka mangwe fela a sele. Baratani gape ba na le tsela tse di farologaneng tsa go rarabolola dipharologanyo tsa bone.Ke tsile go go balela dingwe tsa dilo tse di diragalang fa wena le mokapelo wa gago le nna le kgotlhang.Ke kopa ka boikokobetso o mpolelele gore dilo tse di latelang di go diragaletse makgetlho a le kahe mo ngwageng e e fetileng .Gape o nkitsise fa mokapelo wa gago a ise a dire sepe sa dilo tseo mo ngwageng e e fetileng ,mme a kile a di dira go le pele.
0=Se ga se ise se diragale 1=Go diragetse gangwe fela
2=Gabedi goya go gararo mo ngwageng o fetileng 3=Gane go ya go lesome mo ngwageng o fetileng 4=Ga some mo ngwageng o fetileng.

	Lekgetlho la ntlha	Morago ga ngwaga
Ke tlhaloseditse mokapelo wameletlhakore lame la tlhoka kutlwisisanyo		
Mokapelo wame o nea nthoga		
Mokapelo wame o ne a nkgarumela		
Mokapelo wame o ne a tswa ka tshakgalo mo ntlong fa gare ga tlhoka kutlwisisanyo		
Mokapelo wame o ne a dira sengwe go nkutlwisa botlhoko/go Ntshola		

Mokapelo wame o ne a supa tlhompho /tlotlo mo maikutlong ame mabapi le kgang ngwe		
Mokapelo wame o ne a senya sengwe se e leng same		
Mokapelo wame o ne a dira matshosetsi a go mpetsa kgotsa gontika ka sengwe se se ka Gobatsang		
Mokapelo wame o ntikile ka sengwe se se ka bakang dikgobalo		
Mokapelo wame o ne a sokeletsa letsogo lame kgotsa a nkgoga ka Moriri		
Mokapelo wame o ne a Nkgarametsa		
Mokapelo wame o ne a nketeka/mpetsa		
Mokapelo wame o ne a ntsubula		
Mokapelo wame o ne a ntshosetsa ka thipa kgotsa tlhobolo		
Mokapelo wame o ne a dirisa tlhobolo/thipa mo go nna		
Mokapelo wame o ne a mpetsa ka mabole kgota a mpetsa ka sengwe se se ka gobatsang		
Mokapelo wame o ne a nkgama		
Mokapelo wame o ne a mphisa/ntshuba kamaikaelelo		

Mokapelo wame o ne a gakolola gore re dumalane ka sengwe go itsa kgotlhang		
Mokapelo wame o ne a nthaga		
Mokapelo wame o ne a dira gore ke tlhakanele dikobo re sa dirise Sekausu		
Mokapelo wame o ne a dirisa dikgoka go tlhakanela dikobo le Nna		
Mokapelo wame o ne a gatelela gore re tlhakanele dikobo ke sa batle(Mme a sa dirise dikgoka)		
Mokapelo wame o ne a dirisa matshosetsi go mpatika/mpateletsa go tshameka ka bonna/bosadi jwa gagwe ka molomo kgotsa loleme lame		
Mokapelo wame o ne a dirisa Matshosetsi go dira gore ke tlhakanele dikobo le ene		

Appendix VIII: Multidimensional Scale of Perceived Social Support (MSPSS) – (English Version)

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you Very Strongly Disagree Circle the "2" if you Strongly Disagree Circle the "3" if you Mildly Disagree
Circle the "4" if you are Neutral Circle the "5" if you Mildly Agree Circle the "6" if you Strongly Agree
Circle the "7" if you Very Strongly Agree

1. There is a special person who is around when I am in need.	1234567
2. There is a special person with whom I can share joys and sorrows.	1234567
3. My family really tries to help me.	1234567
4. I get the emotional help & support I need from my family.	1234567
5. I have a special person who is a real source of comfort to me.	1234567
6. My friends really try to help me.	1234567
7. I can count on my friends when things go wrong.	1234567
8. I can talk about my problems with my family.	1234567
9. I have friends with whom I can share my joys and sorrows.	1234567
10. There is a special person in my life who cares about my feelings.	1234567
11. My family is willing to help me make decisions.	1234567
12. I can talk about my problems with my friends.	1234567

Appendix IX: Multidimensional Scale of Perceived Social Support (MSPSS) – (Setswana Version)

Ditaelo: re na le kgatlhego mo go itseng gore o ikutlwa jang ka dintlha tse di latelang. Bala ntlha nngwe le nngwe ka keletlhoko. Supa gore o ikutlwa jang ka ntlha nngwe le nngwe.

Ageletsa 1/Bongwe ga o sa dumalane/ganana thata Ageletsa 2/Bobedi ga o sa dumalane/ganana thata Ageletsa 3/Boraro ga o sa dumalane/ganana go le go nnye Ageletsa 4/Bone ga o sena kakgelo
Ageletsa 5/Botlhano ga o dumalane go le go nnye Ageletsa 6/Borataro ga o dumalane thata Ageletsa 7/Bosupa ga o dumalane thata thata

1. Go na le mongwe yo o botlhokwa yo o teng ga ke mo tlhoka 1234567
2. Go na le motho o botlhokwa o ke amoganang nae go le monate le go le botlhoko 1234567
3. Ba lelwapa lame ba leka ka natla go nthusa 1234567
4. Ke kgona go bonathuso le tshegetso ke e tlhokang mo go ba lelwapa lame 1234567
5. Ke na le motho yo o botlhokwa yo o mphang nametso tota 1234567
6. Ditsala tsame di leka ka thata go nthusa 1234567
7. Ke kgona go ikanya ditsala tsame fa sengwe se sa tsamae sentle 1234567
8. Ke kgona go bua le ba lelwapa lame ka mathata ame 1234567
9. Ke na le ditsala tse ke kgonang go amogana natso go le monate go le botlhoko. 1234567
10. Go na le motho o botlhokwa mo botshelong jwame o kgathalang ka maikutlo 1234567
11. Ba lelwapa lame ba etleesega go nthusa go tsaya ditshwetso 1234567
12. Ke kgona go bua le ditsala tsame ka mathata ame le ditsala tsame 1234567

Appendix X: Approval for ethical clearence

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

OFFICE OF THE DIRECTOR - RESEARCH AND PUBLICATIONS

Ref. No.DA.282/298/01.C/ Date: 29/04/2021

MUHAS-REC-04-2021-580

Ronnie Kabo Rammolai
MSc. in Clinical Psychology, School of Medicine
MUHAS

RE: APPROVAL FOR ETHICAL CLEARANCE FOR A STUDY TITLED: PREVALENCE OF DEPRESSION AND ASSOCIATED FACTORS AMONG BOTSWANA DEFENCE FORCE

Reference is made to the above heading.

I am pleased to inform you that the Chairman has on behalf of the University Senate, approved ethical clearance of the above-mentioned study, on recommendations of the Senate Research and Publications Committee meeting accordance with MUHAS research policy and Tanzania regulations governing human and animal subjects research.

APPROVAL DATE: 29/04/2021
EXPIRATION DATE OF APPROVAL: 28/04/2022

STUDY DESCRIPTION:

Purpose:

The purpose of this observational study is to assess the prevalence of depression and associated factors among Botswana Military personnel.

The approved protocol and procedures for this study is attached and stamped with this letter, and can be found in the link provided: https://irb.muhas.ac.tz/storage/Certificates/Certificate%20-%20596.pdf and in the MUHAS archives.

The PI is required to:

1. Submit bi-annual progress reports and final report upon completion of the study.
2. Report to the IRB any unanticipated problem involving risks to subjects or others including adverse events where applicable.
3. Apply for renewal of approval of ethical clearance one (1) month prior its expiration if the study is not completed at the end of this ethical approval. You may not continue with any research activity beyond the expiration date without the approval of the IRB. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the expiration date.
4. Obtain IRB amendment (s) approval for any changes to any aspect of this study before they can be implemented.
5. Data security is ultimately the responsibility of the investigator.
6. Apply for and obtain data transfer agreement (DTA) from NIMR if data will be transferred to a foreign country.
7. Apply for and obtain material transfer agreement (MTA) from NIMR, if research materials (samples) will be shipped to a foreign country,
8. Any researcher, who contravenes or fail to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine as per NIMR Act No. 23 of 1979, PART III section 10 (2)
9. The PI is required to ensure that the findings of the study are disseminated to relevant stake holders.
10. PI is required to be versed with necessary laws and regulatory policies that govern research in Tanzania. Some guidance is available on our website https://drp.muhas.ac.tz/.

Dr. Bruno Sunguya
Chairman, MUHAS Research and Ethics Committee

Muhimbili University of Health and Allied Sciences
DIRECTOR
Research & Publications
Box 65001

cc: Director of Postgraduate Studies

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +255-22-2150302/6; Ext. 1038; Direct Line:+255-22-2152489;Telefax:+255-22-2152489;E-mail:drp@muhas.ac.tz;Web:https://www.muhas.ac.tz

Appendix XI: Introdudction Letter

UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR – POSTGRADUATE STUDIES

In reply quote;
Ref. No. HD/MUH/B.300/2018

05th May, 2021

The Officer In-Charge,
Botswana Defence Force,
P.O. Box 06,
GABORONE

Re: INTRODUCTION LETTER

The bearer of this letter is Ronnie Kabo Rammolai, a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MSc. Clinical Psychology.

As part of his studies he intends to do a study titled: "***Prevalence of Depression and Associated Factors Among Botswana Defence Force.***"

The research has been approved by the Chairman of University Senate.

Kindly provide him the necessary assistance to facilitate the conduct of his research.

We thank you for your cooperation.

Ms. Victoria Mwanilwa
For: DIRECTOR, POSTGRADUATE STUDIES

cc: Dean, School of Medicine, **MUHAS**
cc: Ronnie Kabo Rammolai

9 United Nations Road; Upanga West; P.O. Box 65001, Dar Es Salaam: Tel. G/Line: +255-22-2150302/6; Ext. 1015; Direct Line:+255-22-2151378;Telefax:+255-22-2150465;E-mail:dpgs@muhas.ac.tz;Web:https://www.muhas.ac.tz