Prevalence of depression and associated factors among military personnel in the air base in Taif region

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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 of their job 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 and it is found that there is a limited research in Saudi Arabia to assess depression among military personals.

Objectives To determine the prevalence of depression among military personnel in Taif region and the factors that is predisposing to depression.

Material and Methods Cross sectional study among king Fahad Air Base military personnel, Taif region, in Saudia Arabia, 2009. A sample of 357 participants was selected randomly. The tool of the study was self administered questionnaire of Beck Depression Inventory Scale. **Result** it showed prevalence of depression among studied population is17.1% and the associated significant factors are sibling, work type, smoking, sick person at home and problematic relation with co-worker, supervisor, subordinates, fathers and relatives in univariate analysis but it is difference in multivariate logistic regression analysis where the significant factors are those having female sibling only and relations with supervisors and relatives.

Conclusion and recommendations This study revealed that prevalence of depression among military personnel is relatively high as compared to reported rates in other non-Saudi military personnel. The current depression rate is expected to be similar to the general population. Many factors predispose to the occurrence of depression among the studied participants which include difficulties in relation between military personnel and their supervisors or their relatives in addition to community stress on married personnel who have only female siblings or no siblings at all. This study raises the importance of social factors and their implication on occurrence of depression among military personnel. Both supervisors and military personnel are in need for training programs to improve their skills for better communication and adaptation in cases of stress whether at work or in the community.

Keywords: Depression; Military; Beck Depression Inventory Scale; Saudi Arabia

Running title: depression and associated factors among military personnel

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INTRODUCTION

Depression is a mental disorder characterized by a pervasive low mood, low self-esteem, and loss of interest or pleasure in normally enjoyable activities which adversely affects a person's family, work or school life, sleeping and eating habits, and general health.¹ According to the World Health Report 2001, Mental Health is one of the most common diagnostic disorders in the world and among patients who are attending primary health care settings. ² It has been found that, depression has been also considered as commonly presented psychiatric complaint among military personnel.³

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, Fewer than 25 % of those affected have access to effective treatments.²

In the primary care in U.S, about 11.3 % of patients were suffering from depressive disorders,⁴ and around 9% of those who are attending military primary health care sittings,⁵ and because of that , WHO and U.S. Preventive Services Task Force recommended screening for depression for all patients in primary care.⁶

The military personnel can be at risk of their job including daily training, temporary camping away from home, missions, frequent changing of home from place to place and exposure to dangerous equipment or material.

Workplace's health climate are significantly related to job satisfaction, decreasing job stress and improving health status and unhealthy workplace's climate corresponded to increase rate of sickness absences.⁷

Research was performed related to supervisor abusing for militaries that affect relationship between them, such as helping each other, compliance about instruction which will affect working effectiveness.⁸

It is important to detect depression among military and treat it during the training which may lead to attrition if not detected and treated. Department of defense of U.S. gives figures of 390 million dollars were lost because attrition from military service in 1996.⁹ 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. ¹⁰

Depression screening measures do not diagnose depression on clinical basis, but they provide an indication of the severity of symptoms and assess the severity within a given period of time (for examples, the past seven to 14 days). Although each measure has a unique scoring system, higher scores consistently reflect more severe symptoms. All measures have a statistically predetermined cut-off score at which depression symptoms are considered significant. Some measures group scores into different levels of severity of symptoms. The Beck's Depression Inventory (BDI) scale, which is used in the current study, is one of the popular tools, which are used to assess the severity of depression through designed 21 sets of questions.¹¹

This study aimed at determining the prevalence of depression among military personnel in Taif region and identifying its associated risk factors.

SUBJECTS AND METHIODS

A nested case-control study was conducted including militaries who are working at King Fahd Air Base in Taif City which is located in western region of Saudi Arabia. It started by cross-sectional approach to determine the prevalence of depression among militaries followed by case-control approach to identify associated risk factors for depression among them.

Sample size was calculated using Epi-info software version 6 and based on estimated prevalence of depression to be 20% among military personals and the worst acceptable is 24% at 95% confidential interval, then minimal sample size is 357 among 8000 total population in King Fahd Air Base in Taif Region.

Stratified random sample with proportional allocation technique was applied. Participants will be selected from different ranks according to their proportions by systematic random sampling technique within each category.

Beck depression inventory scale, Arabic version, ¹² was distributed to the selected sample to fill it. The survey is consisting of three sections; socio demographic information, occupational history and Beck depression scale (standardized Arabic version) which composed of (21 questions or items), each with four possible responses. Each response is assigned a score ranging from zero to three, indicating the severity of the symptom and consider the cut-off point of depression at 14 score and above. The Beck's Depression Inventory (BDI) questionnaire was found to have 100% sensitivity and 89% specificity when evaluated against diagnostic criteria.¹¹

Validity of the questionnaire was assessed by 25 volunteers as a pilot study was conducted before data collection and modifications were done based on the pilot testing results.

Approval for the study has been obtained from the Research and Ethics team, Armed Forces Hospitals, Taif Region. Approval was also obtained from the general director of King Fahd Air Base in Taif region.

Statistical analysis was done using SPSS version 16. Both descriptive analysis and analytic analysis were done. Descriptive statistics included number, percentage, mean, and standard deviation. Analytic statistics included chi square test for comparing 2 or more qualitative variables. Multivariate logistic regression analysis was done for the significant predictors by the univariate analyses.

RESULTS

The study included 356 militaries. Table 1 shows that (44.9%) of the participants were less than 30 years old with a mean (SD) of 33.1 (7.4) years. About (61%) have secondary education whereas 24% were having university education. Married participants were 77.2% with mean marriage duration of 9.9 years. About 52% of the married participants have both male and female siblings, however about 15% have no siblings. The average number of siblings is about 4. About half of the participants (48.9%) have rented house compared to 29.5% have owned house and 21.6% have governmental house.

Table 2 shows that about 53% of the participants get salary of 5000-1000 SR/month and their mean work duration was 11.2 years. It was reported that 61.2% of participants work in

offices and 74% of them were not working in shifts. For those who are working in shifts, the mean number of shifts per month was 9 shifts. However, number of shifts ranged from 1–30 shifts per month. Average shift hours were about 19 hours per shift and 75% of those who are working in shifts have shifts that were 24 hours long.

From Figure 1, the prevalence of depression among the studied population was 17.1% (12.6% mild, 3.4% moderate and 1.1% was severe depression).

Table 3 shows that there is no significant difference between depressed and normal participants regarding education and marital status (P = 0.95, P = 0.87); respectively. However 29.8 % of those who have female siblings only and 27.5 % of those who have no siblings were depressed, compared to 19.6% among those who have male siblings and 9.9 among those who have both male and female siblings (P = 0.004). Moreover, about 22% of those with rented house were depressed compare to 13.3% and 10.4% among those who have owned and governmental house; respectively.

Table 4 demonstrates that there was no significant between depressed and non-depressed participants regarding all reported work related factors (e.g., salary, work type, work shift, promotion delay, rank and moving) (P> 0.05), however participants with desk job were approaching significant higher rate of depression compared to those with field work (P=0.055).

As presented in Table 5, there is significant association between depression and presence of social problems with co-workers (50 %), with supervisors (60 %), with subordinates (80 %), with fathers (66.7%) and with relatives (47.8%). However, although percentage of depressed people who have problems with their wives or friends was higher compare to those who don't have problems, the different was not significant. About 26.3% of participants who have sick person/s at home were more depressed compared to (14.5%) among those who don't have (P = 0.01). Current smoking is associated with significant more depression (23.8%) than ex-smoker (19.5%) and non-smoker (10.5%). From Figure 2, 22 participants with depression reported problems with relatives (36.1%) while 17 of them reported problems with friends (27.9%).

Significant predictors in the univariate analyses were entered in multivariate logistic regression model. Table 6 summarized the results of multivariate logistic regression analysis. The model included the following variables: work type (office vs. field), house (governmental and rented vs. owned), siblings (no siblings, male only, female only vs. both male and female), smoking (current and ex-smokers vs. non smokers), presence of sick persons at home (yes vs. no), relation with co-workers (good and problems vs. excellent), relation with supervisors (good and problems vs. excellent), relation with supervisors (good), relation with fathers (problems vs. good). Significant predictors included having female siblings only, difficulties in relation with supervisors and relatives.

DISCUSSION

The overall prevalence of depression among Saudi military personnel in the current study is 17.1%. This percentage is considered relatively high when compared with a study of US soldiers returning from combat in Iraq and Afghanistan which showed that 11.4% of the active duty soldiers and Marines were depressed before deployment and that number rose to 15% after deployment.¹³

Military environment presents unique stressors, including potential injury or death, witnessing the loss of human life, prolonged geographic separation from families, living in close quarters with other soldiers, and being unable to communicate with loved ones. ¹⁴

Depression is a common mood disorder that impairs both social and occupational functioning. The lifetime prevalence rates of depression are 7 to 12% for men and 20 to 25% for women.¹⁵ Despite the increasing public awareness about mental disorders like depression, many individuals with depression are not identified and do not receive treatment. Military US soldiers who screened positive for mental health disorders were unlikely to directly seek mental health care. In 1999, the U.S. Surgeon General called for mental health care to be recognized as a necessary component of good health and well-being.¹⁶

Primary care clinics are the frontlines for early identification and treatment of behavioral health problems. Each year, one in five primary care patients suffers from a mental illness, whereas <50% receive treatment. ¹⁷ Depression and anxiety disorders are the most common problems, presenting in >25% of all primary care patients. Specifically, mental health disorders represent 9% of all ambulatory care visits to military primary care clinics and are the fifth leading diagnosis in all ambulatory care visits. Accordingly, the World Health Organization and the U.S. Preventive Services Task Force recommended primary care screening of all patients for depression, and many military primary care clinics are now using mental health screening questionnaires to capture symptoms of depression. ⁶

Untreated mental illness represents a serious concern in the military. The association between job stress and mental illness in the military population suggests that efforts to decrease work stress in the military would decrease the costs of mental illness among military personnel.¹³

Despite of the importance of early detection and management of depression, the current study may be the first screening of depression among military personnel in Saudi Arabia.

Furthermore, prevalence of depression among Saudi general population has not been accurately estimated, perhaps because of under reporting and lack of wide scale research studies. Accordingly, it is difficult to compare the current estimate of depression among Saudi military personnel with the general population. In US, each year, somewhere between 18.5% and 29.5% of the U.S. population suffers from one or more psychiatric disorders.¹⁸ Other studies reported that mental health care utilization and overall mental health status in military personnel has been shown to be similar to that of the civilian population, including the fact that only 19% of military personnel with significant mental health problems seek treatment.¹⁰

Variant risk factors may predispose to depression among military personnel. In a study of Navy recruits, sailors with a family history of mental illness, a family history of alcohol abuse, or a history of psychiatric problems were more likely to develop depression. Another study on depression in entry-level military personnel reported that, only verbal abuse was associated with increased risk of depression.¹⁹ Physical and sexual abuse would not generally be common in the controlled environment of army forces. Redirection or correction comments by instructors or others in a position of authority could be perceived as a recurrence of the verbal abuse experienced before entry into military service.¹⁹ This finding is in accordance with our findings in the current study where presence of problems or difficulties in the relation of the military personnel with their supervisors was significantly higher among personnel with depression both in the univariate and multivariate analyses.

Status of social relations with different people at work, at home and with friends were studied in the current research. However, although difficulties in the relation with co-workers, supervisors, subordinates, fathers and relatives were scientifically associated with depression in the univariate analysis, none of them was significant in the multivariate analysis except the relation with supervisors and 2nd grade relatives. Difficulties with supervisors were also reported in other studies to be associated with military job stress in addition to work responsibilities and work hours. Military mental health patients often complain about difficulties with their supervisors. Research has demonstrated that military personnel working for abusive supervisors perform fewer organizational citizenship behaviors, such as "helping coworkers with work related problems, not complaining about trivial problems, behaving courteously to coworkers and speaking approvingly about the organization to outsiders.⁸ These intangibles are not required by the job, but are critical to the organization's effectiveness in accomplishing its mission. In the military, conflict between supervisors and subordinates is often resolved in favor of the supervisor.¹⁴ Unfortunately, military personnel do not have the option to quit when dealing with a difficult supervisor. One hypothesis is that a small subset of military supervisors with poor management and interpersonal skills may account for a large fraction of the work stress reported by military personnel.¹⁹

Given the accumulating data on work stress in the military, it is worth considering which aspects of the military work environment cause work stress in military employees. However, in the current study, none of the work-related factors was significantly associated with depression among the studied military personnel. Perceptions about a workplace's health climate are significantly related to job satisfaction, job stress, health status, and sickness absence.⁷

Military mental health patients frequently complain of job stress when presenting for treatment at military mental health clinics. Two recent studies have established a connection between work stress and mental illness in military populations.¹⁴ Examples of job stress in the current study include shift work, where reported average shift hours were about 19 hours per shift and 75% of those who are working in shifts have shifts that are 24 hours long. Meanwhile, long shift hours were not significantly associated with depression among the studied military personnel.

Job stress is significantly associated with office work and this finding was reported in our study where office work personnel were more depressed compared to field work personnel, however, the association was approaching significance. This is in accordance with plenty of other researches which link the development of stress diseases (e.g., coronary heart disease, hypertension, etc) among those working in offices, both because of the lack of physical activity and the mental stressful work which may be more in the military with urgency and sensitivity of orders.⁹

Generally, in the current study, social factors showed more potential association with depression compared to job stress factors. Married personnel who have female siblings only or no siblings were more depressed as compared to those who have male siblings and those who have both male and female siblings. However, having female siblings only was significantly associated with depression both in univariate and multivariate analyses.

Living in rented houses was significantly associated with depression in the univariate and not in the multivariate analysis, which reflects the effect of socio-economic status on the development of depression. Prevalence of depression was significantly higher among current smokers. This association was detected in the univariate analysis only which reflects that smoking may be an outcome of depression and not an independent risk factor.

Another social stress factor which was significantly associated with depression is the presence of sick person living in the same house.

This finding represents the social burden of having sick persons inside home which usually disturb the social activities and well-being of other personnel especially in conservative communities like Saudi Arabia.

The current study is limited in that it is a cross-sectional, self-report survey of a convenience sample. In an environment of high stress, endorsement of depressive symptoms at high levels may represent difficulty adjusting to the situation, rather than major depression. Although the survey was anonymous, some individuals might have been concerned about potential identification and might have reported lower rates of symptoms. The questions used to determine previous mental health treatment and verbal, physical, and sexual abuse have not been validated against clinical interviews, and their psychometric properties are not known. The age of occurrence, nature, and duration of reported abuse were not assessed. Data on history of abuse and previous mental health treatment may be a useful adjunct for depression screening in primary care settings. Gathering these data at the entry-level may be important, despite many soldiers may elect to omit information that could potentially bar them from entering the military, then it may be best to perform screening of depression during basic training. This was not a diagnostic survey but, rather, a measure of the possible prevalence of depression. Determining clear rates of depression would have required formal diagnostic interviews and would have

sacrificed anonymity. Moreover, the study was conducted among active duty military personnel, and the findings may be difficult to be generalized to the general population.

In view of the stigma associated with formal mental health encounters, primary care providers may have the best opportunity to perform screening and to provide appropriate treatment or referral.

The current findings demonstrate that high levels of depressive symptoms are common in this population, and suggest that social factors (e.g., having only female siblings, relation with supervisors and relation with relatives) are predictive of increased risk for depression in this population.

This study poses some interesting questions regarding rates of psychiatric illness in the military population. Given that a psychiatric history is known to place individuals at increased risk for developing subsequent psychiatric problems, consistent, effective, and efficient assessment and treatment of the mental health of soldiers is imperative. Educational and outreach programs, coupled with primary care screening, may be of benefit in pursuing these objectives. Early detection of depression, using simple validated measures such as the Beck depression and Patient Health Questionnaire 9 (PHQ-9)^{11, 12} early in the career of military personnel may greatly enhance the overall combat readiness of Saudi Army soldiers.

Mental illness is associated with decreased productivity, increased absenteeism, increased conflict, increased medical utilization, increased accidents, increased workforce turnover, unemployment, increased long and short-term disability, and lower morale. Decreased productivity in employees with depression has been estimated to cost employers \$44 billion annually, of which 81% is accounted for by decreased productivity at work and 19% by

absenteeism. ^{9,10} Reflecting these consequences on the military services, would emphasize the ultimate importance and need to detect, monitor and treat mental health problems including depression as early as possible.

The current study also indicates an important need for further study, effective screening, preventive counseling, and early intervention. Most active duty, military personnel are in the primary age range placing them at risk for the onset of depression.

Multiple methods for improving resilience of soldiers and improving adaptation in stressful environments have been reported. Implementing training programs targeting young soldiers and continuous assessment of the effectiveness of these programs in improving adaptation may be useful. This type of training helps soldiers recognize signs and symptoms of stress and depression in themselves and others and decreases the stigma of seeking assistance.

In conclusion, this study revealed that prevalence of depression among military personnel is relatively high as compared to reported rates in other non-Saudi military personnel. The current depression rate is expected to be similar to the general population. Many factors predispose to the occurrence of depression among the studied participants which include difficulties in relation between military personnel and their supervisors or their relatives in addition to community stress on married personnel who have only female siblings or no siblings at all. This study raises the importance of social factors and their implication on occurrence of depression among military personnel. Both supervisors and military personnel are in need for training programs to improve their skills for better communication and adaptation in cases of stress whether at work or in the community.

| Variables | Frequency | Percent | |
|------------------------|---------------|---------|--|
| Age (years) | | | |
| -30 | 160 | 11 9 | |
| 30-40 | 13/ | 37.7 | |
| <u>>40</u> | 62 | 17 4 | |
| Range | 21_! | 53 | |
| Mean (SD) | 33.1 (| 7.4) | |
| Education | | | |
| | | | |
| Primary | 15 | 4.2 | |
| Intermediate | 37 | 10.4 | |
| Secondary | 219 | 61.5 | |
| University | 85 | 23.9 | |
| Marital status | | | |
| Manufad | 075 | 77.0 | |
| Married | 275 | 11.2 | |
| Not married | 01 | 22.8 | |
| Range | 1_2 | 0 | |
| Mean (SD) | ۲-۲ ۵ ۵ (۱ | 3 9) | |
| Siblings (n=275) | 5.5 (0 | | |
| cisiiiige (ii=210) | | | |
| No | 40 | 14.5 | |
| Males only | 46 | 16.8 | |
| Females only | 47 | 17.1 | |
| Both males and females | 142 | 51.6 | |
| Range | 1-12 | | |
| Mean (SD) | 3.7 (2.2) | | |
| House | | | |
| | 4.0- | <u></u> | |
| Owned | 105 | 29.5 | |
| Kented | 1/4 | 48.9 | |
| Governmental | ((| 21.6 | |

Table 1: Socio-demographic characteristics of the studied population (n=356)

| Variables | Frequency | Percent | |
|----------------------------|------------|-----------|--|
| Salary (SR/month) | | | |
| 5000 | 05 | 40.0 | |
| <5000 | 65 | 18.3 | |
| 5001-10000 | 189 | 53.1 | |
| >10000 | 102 | 28.7 | |
| Work duration (years) | | | |
| Panga | 1.2 | ſ | |
| Mean (SD) | 11 2 (| 2 8 0) | |
| Median | 0 II.2 | 0.0) | |
| Main type of work | 5 | | |
| | | | |
| Field work | 138 | 38.8 | |
| Office work | 218 | 61.2 | |
| Work in shifts | | | |
| | | | |
| Yes | 93 | 26.1 | |
| No | 263 | 73.9 | |
| Number of shifts/month | | | |
| Dense | 4.0 | 0 | |
| Kange Maan (SD) | | | |
| Median | 9.0 (8.4) | | |
| Shift duration/day (bours) | // | | |
| Shint duration/day (nours) | | | |
| 8 | 12 | 16.0 | |
| 12 | 7 | 9.3 | |
| 24 | 56 | 74.7 | |
| Mean (SD) | 18.9 (7.3) | | |
| Median | 24 | | |

Table 2: Work characteristics of the studied population (n=356) Image: Comparison of the studied population (n=356)

| Variables | Depressi | Chi | P- value | |
|-----------------------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------|-------|
| | NormalDepressedN (%)N (%) | | square value | |
| Education | | | | |
| Primary Intermediate Secondary University | 12 (80) 31(83.8) 183 (83.6) 69 (81.2) | 3 (20) 6 (16.2) 36 (16.4) 16 (18.8) | 0.35 | 0.95 |
| Marital status Married Single | 227 (82.5) 68 (82.71) | 48 (17.5) 13 (16.04) 0.27 | | 0.87 |
| Sibling No sibling Male only Female only Male and female | 29 (72.5) 37 (80.4) 33 (70.2) 128 (90.1) | (9) (72.5) 11 (27.5) (80.4) 9 (19.6) (3) (70.2) 14 (29.8) (28) (90.1) 14 (9.9) | | 0.004 |
| House Own house Rented Governmental | 91 (86.7) 135 (77.6) 69 (89.6) | 14 (13.3) 39 (22.4) 8 (10.4) | 6.95 | 0.031 |

 Table 3: Socio-demographic factors associated with depression among studied population

| Variables | | | | |
|-------------------|-----------------|--------------------|-----------------|---------|
| | Depressi | on status | Chi | P value |
| | Normal N (%) | Depressed N (%) | square value | |
| Salary (SR/month) | | | | |
| < 5000 | 55 (84.6) | 10 (15.4) | | |
| 5000 - 10000 | 152 (80.4) | 37 (19.6) | | |
| > 10000 | 88 (86.3) | 14 (13.7) | 1.76 | 0.41 |
| Work type | | | | |
| Field work | 121 (87.7) | 17 (12.3) | | |
| Desk job | 174 (79.8) | 44 (20.2) | 3.68 | 0.055 |
| Work shift | | | | |
| Yes | 76 (81.7) | 17 (18.3) | | |
| No | 202(84.2) | 38 (15.8) | 0.29 | 0.59 |
| Promotion delay | | | | |
| Yes | 151 (81.6) | 34 (18.4) | | |
| No | 144 (84.2) | 27 (15.8) | 0.41 | 0.51 |
| Rank | | | | |
| Soldier | 67 (84.8) | 12 (15.2) | | |
| Assistant-officer | 149 (81.4) | 34 (18.6) | 0.57 | 0.75 |
| Officer | 79 (84.0) | 15 (16.0) | | |
| Moving | | | | |
| No moving | 242 (84.0) | 46 (16.0) | | |
| Moving | 53 (77.9) | 15 (22.1) | 1.44 | 0.23 |

 Table 4: Work-related factors associated with depression among studied population

| Variables | Depressi | Chi | P- value | |
|----------------------------|-----------------|--------------------|-----------------|--------|
| | Normal N (%) | Depressed N (%) | square value | |
| Relation with co-workers | | | | |
| Excellent | 240 (87) | 36 (13) | | |
| Good | 53 (69.7) | 23 (30.3) | | |
| There's problems | 2 (50) | 2 (50) | 22.56 | <0.001 |
| Relation with supervisors | | | | |
| Excellent | 218 (90.1) | 24 (9.9) | | |
| Good | 71 (71.7) | 28 (28.3) | | |
| There's problems | 6 (40) | 9 (60) | 37.03 | <0.001 |
| Relation with subordinates | | | | |
| Excellent | 196 (88.7) | 25 (11.3) | | |
| Good | 42 (70) | 18 (30) | | |
| there's problems | 1 (33.3) | 2 (66.7) | | |
| Not apply | 56 (77.8) | 16 (22.2) | 19.94 | 0.001 |
| Problems with wives | | | | |
| Yes | 3 (60) | 2 (40) | | |
| No | 292 (83.2) | 59 (16.81) | 1.86 | 0.39 |
| Problems with kids | | | | |
| No | 222 (82.8) | 46 (17.2) | | |
| Not apply | 73 (83) | 15 (17) | 0.001 | 0.98 |
| Problems with fathers | | | | |
| Yes | 2 (33.3) | 4 (66.7) | | |
| No | 293 (83.7) | 57 (16.3) | 10.73 | 0.005 |
| Problems with relatives | | | | |
| Yes | 24 (52.2) | 22 (47.8) | | |
| No | 271 (87.4) | 39 (12.6) | 35.04 | 0.001 |
| Problems with friends | | | | |
| Yes | 59 (77.6) | 17 (22.4) | | |
| No | 236 (84.28) | 44 (15.7) | 2.03 | 0.361 |
| Sick person/s at home | | | | |
| Yes | 59 (73.8) | 21 (26.3) | | |
| No | 236 (85.5) | 40 (14.5) | 6.03 | 0.01 |
| Smoking | | | | |
| Smoker | 96 (76.2) | 30 (23.8) | | |
| Ex-smoker | 62 (80.5) | 15 (19.5) | | |
| Non-smoker | 137 (89.5) | 16 (10.5) | 9.05 | 0.01 |
| Smoking type | | | | |
| Cigarette | 69 (75.0) | 23 (25.0) | | |
| Shisha | 26 (78.8) | 7 (21.2) | 0.19 | 0.66 |

| Table 5: Social and habitual factors associated | with depression | among studied population |
|-------------------------------------------------|-----------------|--------------------------|
|-------------------------------------------------|-----------------|--------------------------|

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Figure 1: Prevalence of depression among the studied population.



Figure 2: Number of depressed participants who have difficulties in their relation with different groups

| Table (6) Multivariate logistic regression analysis of risk factors associated with depression |
|------------------------------------------------------------------------------------------------|
| among active duty military personnel |

| Predictors | В | SE | P value | OR | 95% CI |
|----------------------------|-------|------|---------|------|-------------|
| Work type | | | | | |
| Office | 0.58 | 0.42 | 0.17 | 1.78 | 0.78, 4.08 |
| House | | | | | |
| Governmental | 0.07 | 0.62 | 0.92 | 0.94 | 0.28, 3.15 |
| Rented | 0.73 | 0.51 | 0.15 | 2.08 | 0.77, 5.61 |
| Siblings | | | | | |
| NO | 0.76 | 0.54 | 0.18 | 2.07 | 0.72, 5.93 |
| Male only | 0.11 | 0.57 | 0.84 | 1.12 | 0.37, 3.39 |
| Female Only | 1.007 | 0.49 | 0.04 | 2.74 | 1.05, 7.17 |
| Smoking | | | | | |
| Current | 0.06 | 0.43 | 0.16 | 1.82 | 0.78, 4.25 |
| Ex-smoker | 0.41 | 0.52 | 0.43 | 1.51 | 0.55, 4.16 |
| Sick person at home | | | | | |
| Yes | 0.44 | 0.42 | 0.29 | 1.55 | 0.69, 3.50 |
| Relation with co-workers | | | | | |
| Good | 0.37 | 0.57 | 0.51 | 1.45 | 0.48, 4.40 |
| There is problems | 1.35 | 1.25 | 0.28 | 3.85 | 0.33, 44.84 |
| Relation with supervisors | | | | | |
| Good | 0.34 | 0.58 | 0.57 | 1.40 | 0.45, 4.38 |
| There is problems | 1.82 | 0.87 | 0.04 | 6.17 | 1.13, 33.59 |
| Relation with subordinates | | | | | |
| Good | 0.20 | 0.57 | 0.73 | 1.22 | 0.40, 3.72 |
| There is problems | 0.61 | 0.61 | 0.32 | 1.84 | 0.45, 6.11 |
| Relation with relatives | | | | | |
| There is problems | 1.28 | 0.46 | 0.005 | 3.58 | 1.47, 8.79 |
| Relation with fathers | | | | | |
| There is problems | 1.15 | 1.32 | 0.39 | 3.15 | 0.24, 41.97 |

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