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An investigation of the prevalence of depressive symptoms in soldiers during military training

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Abstract

Objectives. A cross-sectional study was conducted to determine the prevalence of depressive symptoms in soldiers during military training in Chinese army and to identify associations between depressive symptoms and socio-demographic characteristics.

Methods. The self-rating depression scale (SDS) was used to assess self-reported experiences of depression among 1107 young adult males during military training. The following socio-demographic variables are considered as independent variables: age, service time, settlement type, education, levels of family income, family type, education of parents, health status, history of negative accidents, social support status and hobby status. A logistic regression model was used to estimate the association of these variables with depressive symptoms.

Results. 25.20% (n = 279) of the servicemen had depressive symptoms. The soldiers who had high education level (OR = 1.74; 95%CI: 1.37–2.12), come from city or town (OR = 1.39; 95%CI: 1.18–1.61), have served in army for a shorter time (OR = 1.63; 95%CI: 1.43–1.88), had head ache during training course (OR = 1.39; 95%CI: 1.12–2.09), had abdomen ache or diarrhea during training course (OR = 1.85; 95%CI: 1.47–2.13) and had training injury during training course (OR = 1.67; 95%CI: 1.29–1.83) are associated with depressive symptoms.

Conclusions. There was a high prevalence rate of depressive symptoms among soldiers during military training. Special attention should be paid to avoiding depressive symptoms in those who have high education level, come from city or town, have served in army for a shorter time and have health problems during training course.

Keywords: Soldiers; Depressive symptoms; Logistic regression; Cross-sectional study

Introduction

The military service constitutes a unique community with its hierarchic and disciplinary structure, tiresome training applications and separate nature. It is also an environment in which personal, cultural and social differences are not taken into account, and intensive physical effort is required. Soldiers are moved away from the social and physical environment to which they are accustomed and start to live in an unfamiliar new environment with rigidly defined rules. This new environment, with its hierarchical structure and discipline-based order, calls for adaptation to a life style much different from the civilian environment. Various studies conducted on the military personnel in other countries have indicated that depression is an important health problem in this population.

In a study conducted on 470 army enlisted men who returned from Vietnam and were interviewed, 26% of the participants were found to have depressive symptoms [1]. Another study investigated about 1138 Air Force recruits in the US who were referred for mental health evaluation while in basic military training, it was found that the most frequent diagnosis was depressive disorders, which accounted for 31% of all diagnoses [2]. Similar studies also reported that 29.9% of the recruits had depressive symptoms in the Turkish army, and the recruits who smoked or drank, who had low incomes and who were uninterested in sports had higher Beck Depression Inventory (BDI) scores [3].

In recent years, the mental health has been paid more attention to by medical research and public health office of

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China. The results of several epidemiologic investigations carried out in different population show that the prevalence of depressive symptoms found in non-military population is about 16–20% [4–7]. But until now, little study in China has been conducted on the prevalence of depressive symptoms among the young adult population during military training.

Methods

Subjects and subject selection

To determine the prevalence and nature of depressive symptoms among young adult males during their 8 week field military training in southern area of China, a survey was held at the end of August, 2002, the last week of training. We chose south area of China because this military training center has the general fighting training courses with modern military techniques. There, the type of training provides more of a real-world combat training scenario and makes one feel more stressful.

The survey was a systematic random sample of all soldiers in the training center. A random sample of 1220 male soldiers from training group who agreed to undergo a psychological assessment was targeted. They were administered the SDS and an additional questionnaire containing 25 questions on socio-demographic characteristics. After the administration, 113 persons were found to have filled out the forms inadequately (such as marking multiple responses where only one response was required, or not responding to four or more questions in the SDS) and these were excluded from the analysis. Finally, a total of 1107 subjects were included in the analysis.

Instrument

The Chinese version of the SDS was used to determine the prevalence of depressive symptoms. The Chinese form of the SDS has been translated from Zung Self-rating Depression scale in 1985.It has been shown to have adequate reliability and validity [8,9].

Symptoms of depression were assessed using the 20-item Zung self-rating depression scale [10,11]. Items were rated 1–4 with higher scores representing greater symptom severity. The SDS Index has been widely used to evaluate depressive symptoms in medically ill patients and general population [7,12–14].

Procedure

At the first and second day of the last week of combat training, the questionnaire forms were administered to all of the respondents at the same time. It was done when the soldiers were gathered in the field for the afternoon training after lunch. A guarantee and necessary explanations on top of the questionnaire form assured them that the information would remain confidential and not be released. They were asked to answer the questions on their own, not to write their names on the forms. During the administration, none of the commanders of the soldiers were present at the field. The investigators were the experts of our department who were assigned to administer the forms to the soldiers. Before administering the forms, the investigators were trained on how to fill out the forms. During the study, they simply distributed the forms to literate respondents and collected the completed forms.

Demographic data were obtained from the participants with an additional questionnaire form. Data were analyzed by the experts using software of SPSS, version 11.0. Logistic regression model was used to identify significant socio-demographic covariates. The age, service time, settlement type, education, level of family income, family type, education of parents, health status, history of negative accidents, social support status and hobby status were selected for multivariate analysis.

Definitions used in the study

The prevalence of depressive symptoms was investigated. SDS item points of every participant were added and those reaching 51 points or more were accepted to be ‘with depressive symptoms’. Every question of the SDS had four choices and ‘1 pt’ was assigned for ‘a’, ‘2 pt’ for ‘b’, ‘3 pt’ for ‘c’ and ‘4 pt’ for ‘d’ [10,11].

Settlement types (which refer to the type of settlement) were grouped according to where the participants lived before conscription.

The history of negative accidents was grouped according to whether the participants once suffered strong psychological stress from accident in life.

Social support and interpersonal relations status were grouped according to whether the participants had a good social support or interpersonal environment. Having one or several buddy and a good relationship with family members, leaders and comrades reflect the good social support or interpersonal environment.

Health status was grouped according to whether the participants had some uncomfortable symptoms, such as headache, abdomen ache, diarrhea and training injury.

Hobby status was grouped according to whether the participants had one or more hobby in life.

Results

Mean age of evaluated participants (n = 1107) was 19.93 ± 1.06 (range 17–24) and 79.0% of them (875 persons) were age 20–21. Depressive symptoms were detected by the SDS in 25.20% (279 persons) of the study group.

Table 1 shows univariate and multivariate logistic models for the variable presence of depressive symptoms.