



The Impact of Social Group Work Based on Cognitive-Behavioral Therapy Approach on the Level of Depression in Soldiers

Zahra Farsi,¹ Kayvan Shokri,^{2,*} and Shahla Aliyari³

¹PhD, Associate Professor, Faculty of Nursing, AJA University of Medical Sciences, Tehran, Iran

²Master of Social Work, Faculty of Nursing, AJA University of Medical Sciences, Tehran, Iran

³PhD, Assistant Professor, Faculty of Nursing, AJA University of Medical Sciences, Tehran, Iran

*Corresponding author: Kayvan Shokri, Master of Social Work, Faculty of Nursing, AJA University of Medical Sciences, Kaj St, Shariati St, Tehran, Iran. Tel: +98-2177500404, Fax: +98-2177500929, E-mail: shokri.keivan@gmail.com

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Abstract

Background: Maintaining physical health and psychological readiness in military personnel and soldiers is very important.

Objectives: This study aimed to investigate the effects of social group work based on cognitive-behavioral therapy approach on the soldiers' level of depression.

Methods: This is an experimental study conducted in 2016 - 2017. 60 soldiers of a military setting with mild to severe depression were randomly selected. Then, the soldiers were randomly assigned to intervention and control groups. Soldiers in the intervention group participated in cognitive-behavioral group therapy sessions that were conducted by a master of social worker who was trained. The level of depression was assessed before and after intervention with Beck depression inventory. Data were analyzed with statistical software SPSS (version: 16) at the level of $P < 0.05$.

Results: Independent t-test showed that the depression scores in the intervention (22.66 ± 9.49) and control (24.16 ± 7.64) groups had no significant difference in the pre-test stage ($P = 0.503$). However, the depression scores in the intervention (16.26 ± 30) and control (21.90 ± 8.46) groups were significantly different in the post-test stage ($P = 0.002$). The paired t-test showed that depressive symptoms significantly reduced in the intervention group in the post-test stage ($P < 0.0001$), but this difference was not significant in the control group ($P = 0.286$). The results of analysis of covariance showed that cognitive-behavioral group therapy training had a significant effect on reducing depression levels ($P < 0.01$).

Conclusions: The result of this study showed that social group work based on cognitive-behavioral therapy approach could reduce levels of depression in soldiers. Further studies on long-term effects of this intervention are recommended.

Keywords: Cognitive-Behavioral Therapy, Depression, Social Group Work, Soldier, Military

1. Background

Depression is of the most common psychiatric disorders and its growing trend has created serious problems. It is predicted that by the year 2020, depression will be the second-leading cause of disability after cardiac ischemia. A national study of diseases and injuries in Iran showed that mental illnesses and behavioral disorders are the biggest health problems after intentional or inadvertent injuries in terms of disability adjusted life years-DALYs index (1). The depressive disorder has gained the title of Mental Colds due to its estimated prevalence and incidence of 10% - 25% for women and 5% - 12% for men in their lifetime (1). Amanda et al. believe that the military environments have various psychological impacts on the troops. These people may be exposed to stresses due to, for example, dealing with combat situations, the difficult conditions of life and work, separation from home and family, and conflicts

with colleagues, seniors, or commanders. According to the studies, depression is the cause of 50 percent of suicides among soldiers (2). Panjehband and Shokraei showed that 51% of soldiers in police force had the depression level of moderate to severe; and just 20% of them did not have depression (3).

However, the work force has an effective role in the achievement of militaries. The work force makes plans, uses weapons, decides, makes use of situations, and endures in face of difficulties. To this end, soldier's preparation must be the military's number one priority. Readiness maintenance and physical and mental health of personnel and soldiers are of great importance because people in military environments and battlefields encounter sudden and unexpected incidences such as surrounded, fear, hard training to maintain military readiness, psychological warfare, etc. Numerous studies showed that the

prevalence of depression among soldiers is higher than in the general population (2-4). Depression in soldiers can lead to grave consequences such as withdrawal and even suicide. Therefore, in this population, training, effective, and affordable interventions are very important. However, researchers have paid less attention to reduce depression in soldiers. In addition, to respond appropriately, promote mental health services, and establish related policies in the community, it is essential to be familiar with the proper treatments such as cognitive-behavioral group therapy (CBGT). The cognitive-behavioral approach (CBA) is categorized in social work. The main aim of this approach is to increase and boost the desirable behaviors and reduce the undesirable ones so that people have the right and proper answers to social events. This will increase the capacity of people to create a happy and productive life (5).

Cognitive-behavioral group therapy suggests a set of different approaches in working with small groups. It is a combination of behavioral cognitive interventions, involves strategies of small groups, and considers an experimental approach in the field of social work. The base of treatment in CBA is its emphasis on individuals cognitive dysfunctions and deviations on the one hand and lack of appropriate cognitive-behavioral skills to deal with internal and external pressures and the pursuit of happiness (or escape from negative emotional feelings) on the other hand (6). It is believed that group treatment is effective in most mental disorders because the person in the group will watch the way they deal with the community and this will help them to improve their insight. In addition to the new communication experiences with others, they will meet new people and feel more strength, and their confidence will increase (7). The aim of CBGT is to deploy the patient's abilities to provide realistic and accurate assessments of situations that they may encounter in the workplace (8).

One goal of social group work based on CBA is active coping and problem-solving skills training to improve depression. Proficiency of patients in these skills leads to a reduction in dysfunctional thoughts (9). Different results have been reported in previous studies about effectiveness of CBGT. The results of some studies have shown the effectiveness of CBGT on decreasing depression in patients (4, 10-12). In contrast, Oie and Dingle performed some studies on the impact of CBGT. Their findings were not compatible with each other and they stated that this method requires being more studied (13). Some researchers have shown that individual therapy is more beneficial than group therapy in reducing depression. They argued that the dependencies between members of the group could have negative consequences on mental health. They have concluded that empirical evidence regarding the role of group pro-

cesses in group psychotherapy, particularly in cognitive-behavioral therapy (CBT), is still weak and needs further study (14). Another study showed that cognitive therapy did not affect depression in women with breast cancer (15). In a clinical trial, the intervention group received the cognitive therapy and pharmacotherapy and the control group only received medical treatment. After treatment, depression decreased in both the groups (16). Few studies have been conducted in this regard in Iran. Considering the aforementioned points and contradictions in the results of previous studies, the present study aimed to investigate the impact of social group work based on CBA on depression among soldiers.

2. Methods

2.1. Study Design

This is an experimental study conducted in 2016 - 2017.

2.2. Participants

The study population included all soldiers of a military setting. Inclusion criteria included willingness to participate in the study, ability to read and write in Persian, Beck depression inventory (BDI) score of 14 - 63, at least 2 months history in military services, ability to participate in group work sessions. The exclusion criterion was withdrawal of the subjects from the study.

2.3. Sample Size

The sample size, according to a previous study (17) at the confidence level of 95% and power of 90%, was calculated to be 24 subjects for each group. For results to be more valid, regarding a 20% dropout rate, we considered 30 subjects in each group.

133 out of 310 eligible soldiers who had a depression score less than 14, were not included. In addition, 54 soldiers refused to participate in the study. Of 123 soldiers who had the inclusion criteria, 60 soldiers were recruited with simple random sampling using a computer-generated list of random numbers by the second researcher-assistant that was concealed by the use of security envelopes and was the only person to have access to the codes. Then, the subjects were randomly allocated to two groups of intervention ($n = 30$) and control ($n = 30$) by throwing a coin.

2.4. Intervention

The soldiers of the intervention group were divided into two groups ($n = 15$). Then, eight-session CBGT protocol was performed for both the intervention groups (Table 1) by a Master of Social Worker who was trained, while the control group received no intervention.

Table 1. Cognitive-Behavioral Group Therapy Protocol

Session	Treatment Protocol
1	Creating a positive and supportive relationship between soldiers and social worker
	Trying to create a positive perception of the membership in the group
2	Trying to increase confidence and relationship between members, and create a positive atmosphere
	Doing group activities to enhance members' confidence
3	Trying to improve cognitive skills
	Trying to understand efficient and inefficient beliefs in dealing with issues
	Using cognitive restructuring techniques to correct belief and perception of problems and dysfunctional behaviors
4	Trying to improve behavioral skills
	Training to raise brave skills
	Exercising brave skills through role playing
5	Trying to improve motivational skills
	Learning the skill of self-efficacy and its stages (self-regulation, experience of succession, and self-talk)
	Helping subjects create a purpose in life and use self-regulation
6	Being familiar with some social models
	Trying to progress in the skills learned in the previous session
	Exercising self-talk techniques effectively when faced with problems
7	Trying to improve emotional skills
	Training how to deal with stress
	Training the methods of relaxation
8	Trying to improve foresight skill and ending teamwork
	Checking the feelings of the subjects and reviewing the process of teamwork

In this study, we tried to push the soldiers toward behavioral goals. Thus, some reinforcements and bonuses were considered. We have adopted various strategies to help the members cooperate in determining the list of new behaviors. The most commonly used strategies were questioning about the activities, habits, and good times that they have had in the past. Because depression is a bad feeling that soldiers have experienced and according to the fact that origin of feelings in an individual is his/her thoughts, we tried to lead the soldiers to identify automatic thoughts and by establishing discussion and group interaction, we encouraged them to try to change thoughts and consequently their feelings. Therefore, researchers presented some solutions to the soldiers to identify dysfunctional thinking patterns and replace them with rational and efficient thought patterns. In addition, in the process of work group, there was a possibility of getting feedback from other members, creating a sense of empathy, and watching others' reactions in dealing with problems provided for the members of the group and soldiers shared their experiences. In addition, it was very impor-

tant to give assignments in training sessions and keep soldiers doing it at the time of leisure because the assignment was a kind of practice to deal with the problematic and challenging situations in real life, consequently increasing the effectiveness of the methods.

2.5. Pre-Test and Post-Test

Before and after the intervention, both groups were assessed with the BDI to obtain pre-test and post-test scores.

2.6. Instrument

2.6.1. Individual Characteristic Questionnaire

This questionnaire included age, education level, marital status, length of military service, and number of family members.

2.6.2. Beck Depression Inventory

The BDI is a 21-item self-report instrument intended to assess the existence and severity of symptoms of depression as listed in the American psychiatric association's diagnostic and statistical manual of mental disorders fourth

edition. There is a four-point scale for each item ranging from 0 to 3. Total score of the individual would be the sum of scores of all items in the range of 0 - 63 in which the higher score indicates a higher depression level. Total score of 0 - 13 is considered minimal range, 14 - 19 is mild, 20 - 28 is moderate, and 29 - 63 is severe (18).

The BDI is a standard tool and its validity and reliability in various populations have been approved (19, 20). Also, the validity and reliability of BDI were confirmed in Iranian studies (20, 21). In this study, Cronbach's alpha coefficient was calculated as 0.88.

2.7. Ethical Considerations

The study followed the principles of Helsinki declaration as approved by the ethics committee of the AJA University of Medical Sciences. The aim of the study was explained to the subjects and written informed consent was obtained from them. We assured the soldiers about their right to refuse to participate or withdraw from the study at any time. We also assured the subjects that they would not be harmed and their personal information would be anonymous and confidential. There were no religious and cultural contradictions for the subjects in the study. We considered rights to publish the results of the study.

2.8. Data Analysis

The statistical package for the social Sciences (SPSS) version 18 software (SPSS, Inc. Chicago, IL, USA) was used for statistical analysis. Descriptive statistical tests (mean, standard deviation, frequency, and percentage) were used for individual characteristics. Kolmogorov-Smirnov and Levine tests were used to evaluate normal distribution of scores and equality of variances. Independent sample t-test and paired t-test were used to compare quantitative variables in both the groups. In addition, chi-square and Fisher's exact tests were performed for comparing qualitative variables. In addition, the effect of pre-test was controlled by using analysis of covariance method. $P < 0.05$ was considered to indicate statistical significance.

3. Results

The mean age was 21.90 ± 52.50 and 22.33 ± 2.78 years in the intervention and control groups, respectively (Independent t-test, $t = 0.336$, $df = 58$, $P = 0.529$). The results revealed that soldiers in the two groups were similar in terms of individual characteristics (Table 2). According to the results of Kolmogorov-Smirnov test, the intervention and control groups had a normal distribution ($P > 0.05$). In order to study the homogeneity of variances, the Leven

test was used for both groups. The assumption of homogeneity of variances was confirmed ($P > 0.05$).

The results of independent samples t-test showed no significant difference in the mean and standard deviation of depression scores between the two groups in the pre-test stage ($P = 0.503$) and the two groups were homogeneous. While, there were significant differences between the two groups in terms of depression scores in the post-test stage ($P = 0.002$), indicating that the depression score in the control group was higher than in the intervention group (Table 3).

Paired t-test showed that the mean and standard deviation of depression score in the intervention group reduced in the post-test stage ($P < 0.0001$). While, the mean and standard deviation of depression score in the control group showed no significant change in the post-test stage ($P = 0.286$) (Table 3).

As seen in Table 4, the effect of intervention after removing the effect of pre-test is statistically significant ($P < 0.01$). At the same time, the coefficient of determination was calculated as 0.350.

4. Discussion

The results of this study showed that the two groups were homogeneous in terms of depression scores before the intervention. Hence, we can conclude that the significant difference in the mean and standard deviation of depression scores in post-test has been due to social group work based on CBT. In other words, we can state that the method of CBGT is effective in reducing depression of soldiers. Other studies have reported similar results that are in line with this study findings (4, 10-12, 22-25). For example, Hyun et al. showed that CBT is an effective treatment for depression in soldiers (22). Karlin et al. showed CBT is an effective and acceptable treatment for older veterans in real environments with high depression level (23).

Nevertheless, the findings of this study are not consistent with those of some other studies. For example, in another study showed that the use of medication (such as sertraline) has a significant effect on reducing depression while CBT has no significant effect on depression in patients (11). In addition, Chitsazan did not confirm the effectiveness of CBT in reducing the depression level in divorced women (26). Many factors influence the effectiveness of CBT. Some researchers have indicated that married people get better results from cognitive therapy than single people (27). In addition, the number of intervention sessions is effective. According to studies, 16 sessions of CBGT are more effective in the treatment of patients with mild to moderate depression (28).

Table 2. Comparison of Individual Characteristics in the Intervention and Control Groups

Variables	Intervention, f(%)	Control, f(%)	Test Result	df	P Value
Age, y			$X^2 = 0.207$	9	0.649
< 20	13 (43.33)	8 (26.66)			
20 - 24	10 (33.33)	11 (36.66)			
24 ≤	7 (23.33)	11 (36.66)			
Education level			$X^2 = 0.297$	112	0.08
High school	9 (30)	3 (10)			
Diploma	11 (36.66)	7 (23.33)			
College education	10 (33.33)	20 (66.66)			
Marital status			Fisher's exact test = 0.218	1	0.640
Single	28 (93.33)	27 (90)			
Married	2 (6.6)	3 (10)			
Service time, mo			$X^2 = 0.122$	57	0.116
3 - 6	6 (20)	3 (10)			
6 - 9	6 (20)	12 (40)			
9 - 12	5 (16.66)	5 (16.66)			
12 - 15	4 (13.33)	5 (16.66)			
15 - 18	4 (13.33)	2 (6.66)			
18 - 21	5 (16.66)	3 (10)			
Number of family members			$X^2 = 0.58$	57	0.612
< 3	4 (13.33)	7 (24.13)			
3 - 6 person	19 (63.33)	15 (51.72)			
6 ≤	7 (23.33)	7 (24.13)			

Table 3. Depression's Mean and Standard Deviation Scores in the Intervention and Control Groups^a

Groups Stages	Intervention Group	Control Group	Between Group Test Result ^b
Pre-test	22.66 ± 9.49	24.16 ± 7.64	t = -0.675, df = 58, P = 0.503
Post-test	16.26 ± 3.23	21.90 ± 8.46	t = 3.403, df = 37.301, P = 0.002
Within group test result^c	t = 6.37, df = 29, P < 0.0001	t = 1.129, df = 29, P = 0.268	

^aValues are expressed as mean ± SD.

^bIndependent sample t-test.

^cPaired t-test.

Therefore, according to what was presented, the reduction of the level of depression in soldiers can be correlated to their participation in CBGT sessions and the type and duration of the intervention.

Most of the mentioned studies examined the effectiveness of CBT in patients with physical disorders and drug dependency. Only one study examined the effectiveness of CBT in soldiers (22). The number of CBT sessions and sample size were higher in the present study than in other studies.

Indeed, non-pharmacological treatments such as CBGT can be used in training and treatment of soldiers suffering depression. The side effects of medications will be reduced by applying this intervention. In addition, more soldiers suffering depression will benefit from the therapy with less time and cost. Therefore, the risk of depression among soldiers and its consequences such as substance abuse, suicide, self-mutilation, aggression, irritability, and sleep disorders can be reduced.

One of the limitations of the present study was the

Table 4. Covariance Analysis to Compare Post-Test Scores of Depression in the Intervention and Control Groups

Source Variance	df	Mean Square	F	Sig.
Pretest	1	107.58	4.00	0.059
Group	1	367.41	13.63	0.01
Error	21	26.94		

short-term follow-up of the soldiers. In addition, due to the use of self-report questionnaire in this study, subjects' answers may not have the sufficient validity.

4.1. Conclusions

In conclusion, CBGT can be considered as a suitable method for psychological intervention in soldiers. It is suggested that CBGT is comparable with other therapeutic approaches in effectiveness when trying to determine the most appropriate treatment approaches to improve the mental health of soldiers. In addition, further studies on long-term effects of this intervention are recommended.

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Footnotes

Authors' Contribution: Kayvan Shokri involved in planning, data collection, data analysis, and writing the paper. Zahra Farsi involved in planning, data analysis, and writing the paper. Shahla Aliyari involved in planning of the study. All authors approved the paper.

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