



Experimental Research

The effect of problem-solving skills education on suicide ideation and self-esteem of inpatients at the psychiatry service: A follow-up study*

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Abstract

Objectives: This study focused on exploring the effect of education program held to improve problem-solving skills for the patients who were hospitalized at a psychiatry service and had suicide ideation upon self-esteem and suicide ideation.

Methods: The study was done as a follow-up study with a pre-test, post-test, and control group. The study was conducted with 34 patients –17 patients assigned to the experimental group and 17 patients to the control group. A three-session problem-solving skills development program was held for the patients. The scales were again administered to the patients 3 weeks and 6 weeks later the training and patients were followed-up. The study data were gathered using the “Information Request Form,” “Rosenberg Self-esteem Scale” and “Beck Scale for Suicide Ideation.”

Results: In the study, the experimental and the control groups were similar in terms of gender, marital status, educational status, family type, those with whom they lived together, employment status, economic status, suicide history, problem-solving level, and medical diagnosis ($p>0.05$). After the problem-solving training, there were statistically significant differences among the average suicide ideation scores of the experimental group patients ($p<0.05$). The experimental group patients’ self-esteem scores increased while their suicide ideation scores decreased. In terms of the variables of gender and previous suicide attempts, intragroup comparisons of the patients in the experimental and control groups showed that a statistically significant difference existed between average scores of self-esteem and suicide ideation ($p<0.05$), however, there was no significant difference in intergroup comparisons ($p>0.05$).

Conclusion: In the study; a three-session problem-solving skills development program was held for the inpatients with suicide ideation and their self-esteem went up while suicide ideation went down.

Keywords: Problem-solving skills; self-esteem; suicide ideation.

Suicide occurs in three ways: thoughts to kill oneself, attempts to kill oneself, or to kill oneself.^[1,2] Suicide rates in each society have been rising year by year. Annually, more than 700.000 people die of suicide over the world. Globally, 1.4% of cause of deaths were due to suicide.^[2-4] Suicide can be seen in all age groups but according to the statistics of 2019, it is the fourth leading cause of death among those aged 15–29 years.^[5]

A suicide attempt is an act in which an individual tries to kill himself but survives. Many factors such as genetic, neurobiological and familial factors, family suicide history, traumatic experiences, mortal diseases, and secondary diseases that accompany psychiatric diseases lead to suicide attempts.^[6,7] Besides, psychiatric diseases such as depression, schizophrenia, alcohol, and substance use pave the way to suicide.^[7] Suicide behavior and suicide ideation can

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Submitted Date: September 21, 2022 **Revised Date:** August 29, 2023 **Accepted Date:** September 23, 2023 **Available Online Date:** March 29, 2024

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also arise from one's inability to cope with problems in his life. Problem-solving is closely related to self-confidence, psychological adaptation, efficacy of communication skills, decision-making styles, and academic and social self-esteem. Poor problem-solving skills result in hopelessness and suicide behavior.^[8] Studies report that people regard suicide as an act that can solve problems.^[1,9,10] Suicide ideation and suicide behaviors are triggered by problems that many people suffer from in daily life and occur due to the deterioration of specific coping skills.^[11] It is known that those who are challenged and commit suicide have low functional problem-solving skills.^[10,12]

Suicide is closely correlated with an individual's problem-solving skills and self-esteem. High self-esteem helps an individual cope with difficulties and stressing life events and prevents him against suicide behaviors, whereas low self-esteem leads to depression, hopelessness, and suicide.^[13] Among those inpatients who receive psychiatric services, suicide risk is higher than others.^[14,15] There are no clear evidence about the efficacy of the interventional programs designed for the risky population, which is one of the disadvantages of suicide and suicide attempts. Besides, knowledge of the efficacy of the existing interventions is limited to a small number of randomized studies.^[16] Although some interventions are seen to be successful, it is a fact that integration and dissemination of these programs into common clinical practices is very difficult.^[17] There is a need for further studies so that the existing outcomes can be maintained and treatment plans that contribute to more satisfactory treatment approaches in different settings such as emergency services, primary care services, or inpatient units can be designed for patients with suicide inclination.^[18]

In the current studies, problem-solving skills are reported to be poor and insufficient among psychiatric patients.^[1-3,16] Furthermore, many studies are done in the literature about problem-solving therapy. However, it is interesting that studies on problem-solving training offered by nurses for inpatients of psychiatry services are insufficient. Yet, if these patients' problem-solving skills can be improved through trainings to be organized by psychiatric nurses, crucial contributions can be made to prevent suicide resulting in the end of one's life. Psychiatric nurses play a key role in the prevention of suicide and in the care of those who attempt suicide.^[7,19] Psychiatric nurses can help patients who are hospitalized at psychiatry services and have suicide ideation improve problem-solving skills by making them identify the problem itself and see that there are different problem-solving methods. Therefore, there is an urgent need for training programs that improve well-planned problem-solving skills and that psychiatric nurses can use for inpatients with a suicide ideation at psychiatric services. This study was done to determine the effect of the education given to improve problem-solving skills on suicide ideation and self-esteem among the patients who attempted suicide.

What is presently known on this subject?

- A suicide attempt is the most important cause of hospitalization to psychiatry clinics. Moreover, most of the patients hospitalized at psychiatry clinics carry suicide risks. These risks are closely associated with one's problem-solving skills and self-esteem.

What does this article add to the existing knowledge?

- In this article, it has been demonstrated how improving the problem-solving skills of patients with suicide risk has contributed to decreasing suicide ideation and to increasing self-esteem.

What are the implications for practice?

- Psychiatric nurses can reduce suicide ideation and increase self-esteem by improving problem-solving skills among the patients with suicide ideation. In the article, the effect of a training program that psychiatric nurses can use has been demonstrated.

Hypotheses of the Study

H1. There is a difference between average pre-test and post-test scores of the self-esteem scale among the experimental group to whom the education was held to improve problem-solving skills.

H2. There is a difference between average pre-test and post-test scores of the suicide ideation scale among the experimental group to whom the education was held to improve problem-solving skills.

H3. There is a difference between the average post-test scores of the suicide ideation scale of the experimental and control groups.

H4. There is a difference between the average post-test scores of the self-esteem scale of the experimental and control groups.

Materials and Method

Research Design

The study was done as a follow-up study with a pre-test, post-test, and control group.

Study Sample

The study sample was consisted of those who were hospitalized at a psychiatry service of a university hospital, had suicide ideation, were aged between 18 and 65 years, had no communication barrier, whose severity of psychiatric symptoms eased, and who volunteered to join the study. The sample size was calculated as 34. In the power analysis, the sample size achieved an alpha=0.05, power=0.80, and effect size=60% (g power 3.1.9.9). Seventeen patients were assigned to the experimental group and 17 patients to the control group. To obtain blinding, the control group was included in the study after the education of the experimental group was completed. At the clinic where the study was done, patients do not receive problem-solving training. As a part of the current study, a program was designed and the effect of problem-solving education upon suicide ideation and self-esteem was examined.

Data Collection Tools

Information Request Form

The form was consisted of 13 questions that were based on the literature, were developed by the authors and addressed participants' descriptive characteristics and their suicide attempt process.^[1-3,6,7,10]

Rosenberg Self-Esteem Scale (RSE)

The Turkish reliability and validity tests of the scale, developed in 1965, were performed by Çuhadaroğlu (1985). The scale has 63 multiple-choice questions. The 1st, 2nd, 4th, 6th, and 7th items measure positive self-perception, whereas the 3rd, 5th, 8th, 9th, and 10th items measure negative self-perception. Scoring ranges from 0 to 30. Scores below 15 suggest low self-esteem.^[20]

Beck Scale for Suicide Ideation (BSSI)

Turkish adaptation of the scale was performed by Dilbaz et al.^[21] The scale, having 21 items, is scored between 0 and 2. The items between the 1st and 5th assess "characteristics of attitudes toward life and death," the items between the 6th and 11th "suicidal ideation and desire characteristics," items between the 12th and 15th "characteristics of the desired attempt," items between the 16th and 19th "realization of the desired attempt" and items between 19th and 21st "background factors" but items regarding "background factors" are not included in the general assessment. The lowest score is 0, whereas the highest score is 38. A high score indicates that suicide ideation is high, evident, and serious.

Data Collection and Implementation of the Study

Information Request Form, RSE, and BSSI were administered to the patients who were hospitalized at psychiatry service due to suicide attempt through face-to-face interviews 3 days after their hospitalization. Problem-solving skills development program was individually held for the patients through face-to-face interview method 5 days after their hospitalization at the clinic. Problem-solving skills development program was organized under five sessions. The number of the sessions was limited to three sessions because of patients' hospitalization duration and practicability. Each session lasted 45 min. Each session was consecutively implemented one after another. Follow-ups were conducted 3 weeks and 6 weeks later after the patients were discharged. Problem-solving skills development program was never organized before at the psychiatry clinic where the study was done.

Problem-solving Skills Development Education

The objective of the program is to help patients who were hospitalized at psychiatry service due to suicide attempts cope with the problems that they suffer from effectively. In the study, the education program was provided by the authors under three sessions so that the program could be admin-

istered to and reach the patients more effectively and used more successfully in the system. Narration, discussion, question-answer, assignment, and role-play scenarios were used. In the first session, a training was given about the problem, nature of the problem, significance of problem-solving and problem-solving process, and the existing problems that the participants had were determined. In the second session, one of the primary problems experienced by the participants was chosen and discussed. Brain-storming method was used for the participants to select solution options and possible solution options were offered so that they could think about them. The advantages and disadvantages of each option were discussed and the participants were instructed to decide on one solution option. The participants were asked to plan how to implement the solution option chosen and how these plans would be implemented was discussed. A problem to which the patient could have a solution was chosen when they were at the clinic. In the third session, how solution options were used was assessed and the difficulties were discussed.

Information request form, RSE, and BSSI were again administered to the patients through face-to-face interviews at the 3rd and 6th week after hospitalization. The implementation scheme of the study is shown.

Ethical Suitability of the Study

This study received ethics approval (decision dated and numbered: 2017-07/04; July 26, 2017) and official approval from the institution. The education program was held after written and oral consents of the participants who accepted to join the study were obtained. This research was conducted in accordance with the principles of the Declaration of Helsinki.

Data Assessment

Kolmogorov-Smirnov test was conducted to understand whether or not data followed a normal distribution. To compare quantitative data, the Chi-square test, independent samples t-test, and ANOVA (repeated measurements) test were used. To identify which group caused the difference, the Bonferroni test was employed. The accepted margin of error was set to $p < 0.05$.

Results

A total of 34 patients – 17 patients assigned to the experimental group and 17 patients assigned to the control group – were recruited for the study. The age of the experimental group patients ranged between 21 and 63 and their average age was 37.23 ± 12.26 years. About 58.8% of the participants were male, 41.2% of them were married, 52.9% of them had secondary school degrees, 47.1% of them had nuclear families, 41.2% of them lived together with spouse, 47.1% of them were not working, 41.2% did not have an income that met expenses, and costs and 70.6% of them had previous suicide attempt history.

The age of the control group patients ranged between 20 and 58 years and they were averagely aged 37.52 ± 12.26 years. 52.9% of the participants were male, 70.6% of them were married, 41.2% of them had secondary school degrees, 76.5% of them had nuclear families, 58.8% of them lived together with spouse, 70.6% of them were unemployed, 64.7% did not have an income that met expenses and costs, and 70.6% of them had previous suicide attempt history. The experimental and control groups were similar in terms of demographic characteristics ($p > 0.05$). In the first measurement, there was no difference between the total scores of the problem-solving skills scale of the experimental and control groups ($p > 0.05$) (Table 1).

In the pre-test, no significant difference was found between patients' average scores of suicide ideation and self-esteem scales ($p > 0.05$). When patients' pre-education suicide ide-

ation scores and the post-discharge 1st follow-up and 2nd follow-up suicide-ideation scores were compared; a statistically significant difference was identified between the scores of the experimental and control groups ($p < 0.05$). A statistically significant difference was found between pre-education self-esteem scores and 1st follow-up and 2nd follow-up self-esteem scores after discharge among the experimental group patients ($p < 0.05$) and in the post-discharge period, patients' self-esteem scores rose, whereas their suicide ideation scores considerably fell ($p < 0.05$). On the other hand, a statistically significant difference was identified in the control group patients' suicide ideation scores between pre-education and the post-discharge 1st follow-up and 2nd follow-up ($p < 0.05$) and patients' suicide ideation scores decreased after hospital discharge; yet, no statistically significant difference was detected in the self-esteem scores ($p > 0.05$) (Table 2).

Table 3 shows patients' average self-esteem scores and average suicide ideation scores in pre-education and post-discharge follow-ups in terms of gender. It was noted that there was a statistically significant difference among the experimental and control group patients' self-esteem and suicide ideation scores after the hospital discharge ($p < 0.05$). Self-esteem score in female patients of the experimental group went up more after hospital discharge, whereas their suicide-ideation score went down more. In the control group, the self-esteem score in female patients rose slightly more than male patients after hospital discharge, whereas their suicide-ideation score went down more than male patients (Table 3).

In Table 4, patients' average self-esteem scores and average suicide-ideation scores in pre-education, 1st follow-up and 2nd follow-up after hospital discharge were shown in terms of suicide attempt history. It was noted that a statistically significant difference was detected between self-esteem scores and suicide ideation scores after discharge among the experimental and control groups ($p < 0.05$). It was found that in the experimental group, self-esteem scores increased more after hospital discharge among those patients without previous suicide attempt and their suicide ideation decreased more. As for the control group, self-esteem scores increased after hospital discharge among those patients with previous suicide attempts, whereas among those patients without previous suicide attempts, suicide ideation decreased. No statistically significant difference was seen between the experimental and control groups ($p > 0.05$) (Table 4).

Discussion

In the study which was conducted to determine the effect of problem-solving training upon self-esteem and suicide ideation among the patients who were hospitalized in psychiatry clinic due to suicide ideation, it was understood that there were significant differences between patients' average self-esteem and suicide ideation scores after the training program and H1 and H2 hypotheses were supported. In intergroup comparisons, significant differences existed between the groups in the

Table 1. Patients' descriptive characteristics

| Characteristics | Experimental group Number (%) | Control group Number (%) |
|--|----------------------------------|-----------------------------|
| Gender ¹ | | |
| Female | 7 (41.2) | 8 (47.1) |
| Male | 10 (58.8) | 9 (52.9) |
| Marital status ¹ | | |
| Single | 5 (29.4) | 2 (11.8) |
| Married | 7 (41.2) | 12 (70.6) |
| Divorced | 5 (29.4) | 3 (17.6) |
| Educational Status ¹ | | |
| Primary School | 4 (23.5) | 5 (29.4) |
| High School | 9 (52.9) | 7 (41.2) |
| University | 4 (23.5) | 5 (29.4) |
| Family Type ¹ | | |
| Nuclear | 8 (47.1) | 13 (76.5) |
| Extended | 6 (35.3) | 2 (11.8) |
| Fragmented | 3 (17.6) | 2 (11.8) |
| People with whom participants lived together ¹ | | |
| Mother-Father | 4 (23.5) | 4 (23.5) |
| Spouse | 7 (41.2) | 10 (58.8) |
| Other | 6 (35.3) | 3 (17.6) |
| Employment Status ¹ | | |
| Employed | 9 (52.9) | 5 (29.4) |
| Unemployed | 8 (47.1) | 12 (70.6) |
| Economical Status ¹ | | |
| Income equal to expenses | 10 (58.8) | 6 (35.3) |
| Income lower than expenses | 7 (41.2) | 11 (64.7) |
| Previous suicide attempt ¹ | | |
| Yes | 12 (70.6) | 12 (70.6) |
| No | 5 (29.4) | 5 (29.4) |
| Average score of Problem Solving Scale ¹ | 109.82±24.90 | 102.70±22.35 |

¹: $p < 0.05$; t: independent sample t-test.

Table 2. Comparison of average self-esteem scores and average suicide ideation scores of pre-education and follow-up interviews after the hospital discharge

| Variables | Pre-test ±SD | 1 st Follow-up ±SD | 2 nd Follow-up ±SD | p-value |
|------------------|--------------|-------------------------------|-------------------------------|---------|
| Suicide ideation | | | | |
| Experimental | 18.00±9.19 | 7.88±7.97 | 3.88±5.65 | 0.000 |
| Control | 16.94±6.74 | 7.88±5.89 | 7.29±6.40 | 0.000 |
| Self-esteem | | | | |
| Experimental | 14.17±4.88 | 17.35 ±5.68 | 17.23±5.72 | 0.014 |
| Control | 13.41±5.12 | 15.47±6.12 | 15.29±6.24 | 0.373 |

p1: ANOVA test significance value p2: t test significance value; t: Independent sample t-test; F: Repeated measures ANOVA.

Table 3. Comparison of average self-esteem scores and average suicide ideation scores of pre-education and follow-up interviews after the hospital discharge in terms of gender

| Variables | Gender | Pre-test X̄±SS | 1 st Follow-up X̄±SS | 2 nd Follow-up X̄±SS | F | p-value |
|------------------|--------|-------------------|------------------------------------|------------------------------------|---------|---------|
| Self-esteem | | | | | | |
| Experimental | Female | 13.71±5.15 | 17.42±6.80 | 17.14±6.93 | 62.157 | 0.000 |
| | Male | 14.50±4.94 | 17.30±5.16 | 17.30±5.12 | 134.357 | 0.000 |
| Control | Female | 13.12±3.72 | 15.50±7.42 | 15.75±6.38 | 107.281 | 0.000 |
| | Male | 13.66±6.34 | 15.44±5.17 | 14.88±6.47 | 76.758 | 0.000 |
| t (female) | | 0.256 | 0.522 | 0.405 | | |
| p (female) | | 0.299 | 0.860 | 0.702 | | |
| T (male) | | 0.321 | 0.781 | 0.905 | | |
| p (male) | | 0.415 | 0.589 | 0.322 | | |
| Suicide ideation | | | | | | |
| Experimental | Female | 20.28±8.69 | 10.14±10.33 | 4.71±5.55 | 10.814 | 0.001 |
| | Male | 16.40±9.65 | 6.30±5.92 | 3.30±5.94 | 35.030 | 0.001 |
| Control | Female | 15.50±5.04 | 8.50±7.23 | 10.12±7.62 | 6.801 | 0.001 |
| | Male | 18.22±8.05 | 7.33±4.79 | 4.77±3.99 | 15.235 | 0.000 |
| t (female) | | 1.280 | 0.361 | -1.549 | | |
| p (female) | | 0.037 | 0.414 | 0.158 | | |
| t (male) | | -0.444 | -0.415 | -0.628 | | |
| p (male) | | 0.600 | 0.844 | 0.986 | | |

2nd follow-up in terms of suicide ideation, and the H3 hypothesis was supported. Since no difference was found between the experimental and control groups in relation to self-esteem, the H4 hypothesis was rejected. In the experimental group, the self-esteem score rose after problem-solving training, whereas the suicide ideation score fell. Because self-esteem is an expression of one's belief, self-approval, or self-disapproval in his/her own sufficiency, significance, achievement, and worth, high self-esteem indicates that one considers himself to be worthy, whereas low self-esteem indicates that a person considers himself low, insufficient or incompetent.^[22] Self-esteem is known to be an important preventive factor against stressful experiences and suicide ideation. Low self-esteem is an important factor in the increased suicide ideation and high self-esteem manifests itself as a protector against suicide.^[22,23] When someone is deprived of problem-solving skills, nega-

tive outcomes may happen including hopelessness and suicide behavior.^[23,24] Therefore, intervention to suicide ideation is one of the basic components of care and therapy. In clinical care, it is necessary to support and to strengthen psychiatric patients psychosocially. In this sense, we are of the opinion that our study demonstrated the importance of patients' problem-solving skills development. Especially, using this education program planned as three sessions, the fact that patients were encouraged to use their skills and the knowledge against their own problems may have enabled the program to be useful. On the other hand, a decrease in suicide ideation was seen in the patients in the control group but no statistically significant difference was found in their self-esteem; which is striking. Pharmacological therapy and hospitalization may have led to a decrease in their suicide ideation. Although these two important factors are true both for the experimental group

Table 4. Comparison of average self-esteem scores and average suicide ideation scores of pre-education and follow-up interviews after the hospital discharge in terms of suicide attempt story

| Variables | Suicide attempt story | Pre-test $\bar{X} \pm SS$ | 1 st Follow-up $\bar{X} \pm SS$ | 2 nd Follow-up $\bar{X} \pm SS$ | F | p-value |
|------------------|-----------------------|------------------------------|---|---|---------|---------|
| Self-esteem | | | | | | |
| Experimental | Yes | 14.16±4.28 | 16.83±5.71 | 16.83±5.63 | 144.669 | 0.000 |
| | No | 14.20±6.72 | 18.60±6.06 | 18.20±6.49 | 48.617 | 0.002 |
| Control | Yes | 12.75±4.95 | 15.75±6.42 | 16.41±5.90 | 182.041 | 0.000 |
| | No | 15.00±5.74 | 14.80±5.97 | 12.60±6.87 | 26.453 | 0.007 |
| t(yes) | | 0.749 | 0.436 | 0.177 | | |
| p (yes) | | 0.708 | 0.956 | 0.966 | | |
| t (no) | | -0.202 | 0.998 | 1.324 | | |
| p (no) | | 0.778 | 0.567 | 0.848 | | |
| Suicide ideation | | | | | | |
| Experimental | Yes | 20.58±8.47 | 8.50±8.71 | 5.08±6.40 | 47.535 | 0.000 |
| | No | 11.80±8.52 | 6.40±6.46 | 1.00±.70 | 39.469 | 0.003 |
| Control | Yes | 17.50±7.03 | 8.25±6.23 | 7.83±6.42 | 74.552 | 0.000 |
| | No | 15.60±6.54 | 7.00±5.52 | 6.00±6.89 | 15.243 | 0.017 |
| t(yes) | | 0.969 | 0.081 | 0.081 | | |
| p (yes) | | 0.468 | 0.394 | 0.394 | | |
| t (no) | | -0.791 | -0.158 | -1.614 | | |
| p (no) | | 0.596 | 0.963 | 0.054 | | |

and the control group, the fact that scale average scores increased more in the experimental group made us conclude that the program became effective but for more effects, the program should be elaborated. In the study, suicide ideation was reduced, whereas self-esteem increased in the experimental group. As known, there is no pharmacological agent to maximize self-esteem. Therefore, it may be argued that it is important in this study that the effect of psychoeducation implemented as a part of psychosocial care upon the patients is apparent.

In the post-training follow-ups, it was seen that women's self-esteem rose more, whereas their suicide ideation scores fell more. In the studies, it is reported that women seek help for psychological problems more, accept offers of help more, benefit from suicide prevention programs more and their social ties are stronger as compared to men but marriage is not a preventive factor against suicide; however, having stronger family bonds, neighbor relations, and social ties are effective upon avoiding suicide.^[24,25] It is known that the rate of suicide attempts in women is bigger than men.^[4] Yet, it is emphasized that one's previous suicide attempt increases suicide risk.^[24] Mortality rate in those with previous suicide attempts is bigger than those with new suicide attempts and previous suicide attempts are among the most significant indicators of next suicide behaviors.^[26] In this study, self-esteem score was found to go up more among those without previous suicide attempts after the problem-solving training. Literature states the limited number of psychosocial intervention studies.^[26-30] It is suggested that psychosocial care and edu-

cation designed to prevent suicide are important when patients receive clinical care because most of the patients face difficulties having medical checks for various reasons after the hospital discharge until the next suicide attempt recurrence. Of the different risk factors; suicide ideation is one of the most crucial predictors of next suicidal behavior. Studies have proved that severe and dominant ideas are associated with suicide death and even passive thoughts like wish to die are identified as risk factors for suicide death.^[31,32] Therefore, it is important that inpatients should be discharged from clinics after they have been empowered. Besides, studies have demonstrated many proofs that specific psychosocial interventions to reduce suicide attempt will be valuable. Even though the absolute efficacy of individual psychosocial interventions to be used for reducing suicide behaviors has been evaluated through traditional dual meta-analytic approaches; proofs that support their relative effects are inconclusive.^[32,33] To minimize suicide attempts, it is important to understand the relative effects of psychological interventions further and to combine the proofs obtained by conducting as many clinical studies as possible.

Patients with different medical diagnoses were included in the sample group and a study group with only one medical diagnosis was not studied may be a limitation of the study. Furthermore, investigating patients according to different medical diagnosis groups may affect study results. Therefore, it may be helpful that future studies should recruit larger sample groups and patients with the same medical diagnosis.

Conclusion

In this study in which the effect of problem-solving skills development education upon self-esteem, problem-solving skills and suicide ideation among the patients with suicide ideation was investigated; it was concluded that the training program was effective upon decreasing suicide ideation and increasing self-esteem. In this study, patients were followed up after their discharge from the psychiatry clinic after 3 weeks and 6 weeks. Patients who were hospitalized and had suicide ideation constituted the sample of the study. It is recommended that patients should be followed up after discharge 6 months later and 1 year later according to their disease groups.

**This study was funded by Sivas Cumhuriyet University, Commission of Scientific Study Projects.*

Ethics Committee Approval: This study received ethics approval (decision dated and numbered: 2017-07/04; July 26, 2017) and official approval from the institution. The education program was held after written and oral consents of the participants who accepted to join the study were obtained. This research was conducted in accordance with the principles of the Declaration of Helsinki.

Conflict of interest: There are no relevant conflicts of interest to disclose.

Peer-review: Externally peer-reviewed.

Authorship contributions: Concept – H.T., M.K.; Design – H.T., M.K.; Supervision – H.T., M.K.; Fundings – H.T., M.K., F.B.; Materials – F.B.; Data collection &/or processing – H.T., M.K., F.B.; Analysis and/or interpretation – H.T., M.K.; Literature search – H.T., M.K.; Writing – H.T., M.K.; Critical review – H.T., M.K., F.B.

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