Original Article

The Effectiveness of Empathy and Problem-Solving Skills Training on Social Self-efficacy and Mental Security of High School Boys

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Abstract

Background: Teaching empathy and problem-solving skills is effective in improving students' self-efficacy and quality of social life. We aimed to compare the effectiveness of empathy and problem-solving skills training on social self-efficacy and psychological security of Assaluyeh second high school boys.

Methods: This was a quasi-experimental study on all male high school students in Assaluyeh in the academic year of 2019-2020, of whom 45 were purposefully selected and assigned to two experimental groups and controls group. One experimental group received empathy training and the other group received problem-solving training in eight 90-minute sessions. To collect data, the social self-efficacy and Maslow's psychological security questionnaires were used. Analysis of covariance was done using SPSS-24 software.

Results: Empathy and problem-solving training was effective on social self-efficacy and psychological security of high school boys ($P<0.001$). Also, no significant difference was found between the effectiveness of empathy skills training and problem-solving training on social self-efficacy and psychological security ($P<0.746$).

Conclusion: Empathy and problem-solving training increased social self-efficacy as well as psychological security in high school boys.

Keywords: Empathy; Problem solving; Self-efficacy; Security

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Introduction

Self-efficacy plays an important role in success and adaptation to the challenges of adolescence.[1] Self-efficacy is defined as confidence in one's ability to perform a behavior to achieve the desired outcome.[2] Social self-efficacy is one of the most important factors in establishing favorable social relationships.[3] Self-efficacy allows a person to manage his/her learning after frustration or confrontation or experience of failure and to endure social obstacles and pressures.[4] People with high perceived self-efficacy, instead of focusing on failures and weaknesses, focus on positive traits and successes, and trust their ability to do their tasks correctly and on time, and feel empowered in difficult situations.[5]

Another factor that helps adolescents cope with the challenges of adolescence is psychological security.[6] psychological security includes lack of anxiety, calmness, lack of nervousness, social interest, kindness, interest in others, empathy, inclination to religion, science and philosophy, self-confidence, adaptation to the environment, dominance and superiority, adaptation and assimilation.[7] Successful presence in society as a result of social adjustment creates social desirability and adequacy, and this affects adolescents' sense of security.[8] A person who feels secure has feelings of friendship and love, belonging, comfort and convenience, acceptance of self and others, self-esteem, strength, encouragement, emotional stability, contentment, social interest, kindness, empathy.[9]

One of the skills whose training can help the development of social skills of this sensitive group is empathy training.[10] Empathy skills mean the ability to enter the world of others. The basic capacity of individuals is to regulate relationships, support joint activities, and teamwork. This ability plays an essential role in social life and is a motivating force for social behaviors and behaviors that lead to group cooperation.[11] In the training of empathy individuals learns, recognizes, and understands their feelings and others, and the interpretation of situations, and will be able to achieve proper empathic behavior, and seek to upgrade their social recognition.[12] Researchers have confirmed the role of life skills training, including empathy in increasing students' self-efficacy,[13] as well as the role of coping and empathy skills in strengthening

security and mental health.[14]

Another skill that leads to increasing the ability of children and adolescents in the face of life problems and challenges is problem-solving skills.[15] Problem-solving skills is a method that teaches the person to use its effective cognitive skills to cope with challenging situations. Problem-solving including five steps: self-perception, the definition of problem, providing a list of different solutions, deciding on the most suitable solution and testing the solution.[1]. And during the elimination of the problem-solving process, it's a good time that people can discover or identify the effective coping methods with challenging life events.[15] One study showed that security increases as social problem-solving skills increase.[17] Also, communication skills and intermediate problem-solving skills are important predictors for social self-efficacy.[18] In addition, researchers have indicated that psychological safety is related, directly and indirectly, to the creative resolution capacity of the problem, through rethinking.[19]

Students are among the most important groups in the country, and the reason for this is the role that they have in the future of the country. On the other hand, many students have a degree in secondary school, and some are not able to continue education and leave. This happens because high school is the age puberty and students face issues and tensions caused by puberty, including social impairment. Regarding these issues, the need for life skills training, including empathy skills and problem-solving to students in adolescence, is doubled, and research on the impact of this training on improving mental health and self-efficacy and quality of social life seems necessary. On the other hand, although limited research has been done investigating the effectiveness of empathy and problem-solving skills on social and communication skills of students, there is no research on the effectiveness of empathy skills training and problem-solving on self-efficacy and psychological security of students. Therefore, we aimed to compares the effect of empathy skills training and problem solving on social self-efficacy and psychological security of secondary school boys.

Methods

This was a semi-experimental study with pre-test, post-test, with control group design. The statistical population consisted of all secondary school students in Assaluyeh, southern Iran, during of 2019-2020. The sampling method was purposeful. Since in semi-experimental research, the sample size is recommended to be at least 15 in each group, in the present study, 45 boys were selected.[20] Inclusion criteria were being secondary school students in Assaluyeh city who agreed to participate in all intervention sessions who did not receive individual counseling and psychological services during participation in healthcare sessions. Students with special physical or psychological illness, those who were absent in intervention sessions or

were unwilling to continue to participate in the research, were excluded. 45 boys were selected and randomly and equally divided into two experimental groups and a control group. One experimental group received empathy training and the other group received problem-solving training in eight 90-minute sessions and the control group did not receive any training. After completing the training sessions, experimental and control groups were in the same post-test conditions. The participants were assured that their information would remain confidential. Also, after completion of training sessions on educational groups and post-test, treatment sessions were also done for the control group in order to observe ethical principles. The following tools were used to collect data:

Social Self-efficacy questionnaire

This questionnaire was constructed in 1989 by Connolly to measure adolescent self-efficacy. The questionnaire has 25 items that measure social determination, performance in social situations, participation in social groups, aspects of friendship and intimacy, and help. The questionnaire is scored on a 7-point Likert scale (from impossible = 1 to too simple = 7). In this questionnaire, high score represents high self-efficacy.[21] Sarvghad and colleagues measured the reliability of the adolescent self-efficacy questionnaire with using Cronbach's alpha method, which was 0.85.[22] In this study, the reliability coefficient of the questionnaire was 85% using the Cronbach's alpha method.

Maslow's Psychological Security Questionnaire

The questionnaire was devised in 2004 by Maslow to measure psychological security for adolescents aged 15 to 19, based on the widespread theoretical and clinical studies. It consists of 71 Yes/No questions.[23] Zare and Aminpour reported the validity of this test to be 92% using Cronbach's alpha method. The content validity of the questionnaire was confirmed by relevant experts. A higher score in this test represents higher psychological security of the individual.[23] In this study, the reliability coefficient of the questionnaire was 87% using the Cronbach's alpha method.

Empathy and Problem-solving Skills Training

The empathy skills training program was set up in eight 90-minute session and emphasizing the foundations of five factors: Knowledge enhancement, application, evaluation, analysis, and composition (Table 1).[24]

The problem-solving skills training program was based on the issue of problem solving by Goldfried and Davison during eight sessions of 90 minutes (Table 2).[25]

Data were analyzed by covariance analysis and Bonferroni post hoc in SPSS-24 software.

Results

The mean and standard deviations (SDs) for research

variables in experimental and control groups in the post-test phase are presented in Table 3.

First, the normality of data distribution was checked and confirmed using Kolmogorov-Smirnov test ($P < 0.05$). The homogeneity of variance distribution was checked and confirmed using Levine's test for social self-efficacy ($Z = 0.608$ and $P = 0.454$) and psychological security ($Z = 0.751$ and $P = 0.364$). Box's M test results ($P = 0.287$, $F = 1.531$ and Box's $M = 9.170$) also indicate the difference between covariances and the use of covariance analysis was allowed. Therefore, the assumptions of the statistical test of multivariate analysis of covariance were established and this test could be used to analyze the data.

In order to investigate the effect of empathy skills training and problem solving on social self-efficacy and psychological security, multivariate covariance analysis was used (Table 4).

As Shown in Table 4, the F ratio of multivariate covariance for dependent variables shows that there is a significant difference in social self-efficacy and psychological security between experimental and control groups. Therefore, at least one of the treatments has a significant effect on the dependent variables. To find out which training was effective, post hoc test was used (Table 5).

As shown in Table 5, there was no significant difference between the effectiveness of empathy skills training and problem solving on psychological security and social self-efficacy. In fact, it can be said that Empathy skills

Table 1. Summary of Empathy Skills Training Sessions

Session	Content
First	Referrals and diagnosis of overall position
Second	At each meeting, training five skills, application, evaluation, analysis and combination on the agenda.
Third	When are we sympathy? What do they do when others empathize? What do we feel when we are empathy?
Fourth	In this meeting, what are the empathy barriers?
Fifth	What skills do we need for empathy? What are the interpretive errors? And what is humanity in relationships?
Sixth	What are the interpretive errors? (Naming, labeling, recognizing, humanitarianism and reflexes),
Seventh	What skills does empathy need? Listening techniques, reflection, attention to body language, expression, avoidance, labeling, recognizing, humanitarianism and reflexes.
Eighth	How empathy is strengthened. Summing up, practicing training and post-test.

Table 2. Summary of Problem-Solving Skills Training Sessions

Session	Explain Sessions
First	Introduction and familiarity with members of the group, expression of group regulations, discussing the importance of problem-solving skills
Second	A detailed recognition of the problem and then a list of goals
Third	Positive and negative self-opinion
Fourth	Teaching flexibility and selecting available goals
Fifth	'brainstorming') Find multiple solutions to solve the problem).
Sixth	Learn how to evaluate solutions
Seventh	In this session, problem solving steps were described with objective examples, including decision making, planning to implement the best selected solution and eventually assessing the outcome in this process
Eighth	At this stage, students ask themselves whether the problem is really solved. If yes, the problem-solving process is completed and if the answer is no, the second solution is selected from the list of priorities and re-establish other steps and this process continues until the problem is resolved.

Table 3. Mean and Standard Deviation of Research Variables in Experimental Groups and Evidence in Pre-test and Post-test

Variable	Test	Empathy Skills Training		Problem-Solving Training		Control Group	
		Mean	SD	Mean	SD	Mean	SD
Social self-efficacy	Pre-test	86.93	8.78	88.53	6.16	84.06	7.98
	Post-test	114.93	21.19	116.55	19.34	89.66	8.11
Psychological security	Pre-test	24.86	3.92	24.53	2.61	25.46	3.80
	Post-test	42.86	6.11	42.53	5.57	29.20	6.04

Table 4. Results of Multivariate Covariance Analysis on Post-test Social Self-efficacy and Psychological Security Scores

The Dependent Variables	Total Stunt sum of Squares	Test Power	DF	Average Squares	Eta	F	P
Social self-efficacy	4684.175	1	2	2342.087	0.815	88.055	<0.001
Psychological security	1776.809	1	2	888.404	0.756	61.955	<0.001

Table 5. Results of the Bonferroni Post Hoc Test for Comparing the Difference Between Social Self-Efficacy and Psychological Security Groups "Empathy Skills Training", "Problem Solving" and Evidence in the Post-test Phase

Variable	Groups Compared	Difference Between Means	Standard Error	P Value
Social self-efficacy	Teaching empathy skills - control group	23.00	1/94	0.0001
	Solving problem-group control	23.34	2.03	0.0001
	Education of empathy skills - problem solving	0.337	1.90	0.746
Psychological security	Teaching empathy skills - control group	14.26	1.42	0.0001
	Solving problem-group control	14.26	1.49	0.0001
	Education of empathy skills - problem solving	0.001	1.39	0.0001

training and problem-solving skills have an equal effect on students' psychological security and self-efficacy.

Discussion

The purpose of this study was to compare the effectiveness of empathy skills training and problem-solving on social self-efficacy and psychological safety of secondary school students. The results of this study showed that both trainings were effective on social self-efficacy and psychological security in secondary school students. This finding is consistent with previous studies.[12-14,17-19]

In explaining the effectiveness of empathy skills training on increasing students' self-efficacy, it can be said that empathy skills training educated them to understand the emotional state of others, understand perspective of another person about the world, understand the purposes and beliefs of others properly and, as a result, promote social self-efficacy.[13] In fact, when people feel common feelings with others, they feel positive about themselves and around themselves and seek to show their desire to other people and earn higher ability, this procedure can raise people's motivation and directly affect their self-efficacy.[12]

In explaining the effectiveness of problem-solving skills training on the increase in social self-efficacy of the students, it should be said the person learns how to think about issues and problems, not what he thinks, and this suggests that cognitive interventions teach the person how to deal with problems and issues correctly. Moreover, it leads the individual to greater cognitive reconstruction and adaptation. In fact, problem-solving skills training makes a person plan in the face of problems and have a variety of solutions to solve it. In addition, adopting various solutions and having a plan, increases the level of people's belief in their abilities and capabilities, and ultimately, it leads to the formation of a trusted problem-solving style. That is, people who are confident in their abilities in the face of adversity have a higher degree of self-efficacy.[18]

Empathy helps people coordinate themselves with what others feel or think about, increasing the possibility of establishing effective contact with the social world. Empathy education by creating proper perceptions of others increases the chances of behaviors that contribute, and this leads to the correct interpretation of others' situations and intentions. With empathy, individuals recognize the consequences of their behavior and thus respond to the demands of others.[14]

In explaining the effect of problem-solving skills training on increasing psychological security of students, learners with the ability to solve their problems consider themselves able to control the situation and perform their duties with more confidence.[26] These people consider themselves to be equipped with constructive strategies and methods to face challenges and have a problem-oriented approach to situations. With this description, it seems that when a person can use positive problem-solving techniques to replace negative thoughts with problem-solving techniques, he suggests different solutions and, most importantly, has the ability to choose the best option and higher decision-making power.[19]

Problem solving has a high correlation with empathy constantly communicated with others and their feelings. The ability to understand the problems of a person and understanding their position and readiness to find a logical solution to help him entail the ability to clarify the subject, creativity in providing solutions, predicting the results of each solution and ultimately analysis of positive and negative points of the solution after its application.[27]

One of the limitations of this study was the small population of study which requires further research. Also, due to the lack of long-term access to the participants, it was not possible to implement a follow-up period to evaluate long-term effectiveness. It is suggested that follow-up studies be performed to investigate the long-term effects of problem-solving skills and empathy on self-efficacy and psychological security of high school boys.

Conclusion

The results of the present study showed that both empathy and problem-solving training were effective on social self-efficacy, psychological security in high school boys.

Conflict of Interest Disclosures
The authors declare no conflict of interest.

Ethical Statement

The participants signed the informed consent form and had the right to leave the study at any time. This research meets guidelines for ethical conduct and report of research. (IAU.Ahvaz.REC.1398.2)

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