



## Effects of Peace Education Program on the Violence Tendencies and Social Problem Solving Skills of Students \*

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### Abstract

The objective of this study was to examine the effects of Peace Education Program on the violence tendencies and social problem solving skills of ninth grade students. The research was carried out using a pretest-posttest-follow-up test control group quasi-experimental design. The study group consisted of a total of 142 students (girls  $n=72$ , 51%; boys  $n=70$ , 49%), 46 (girls  $n=24$ , 52%; boys  $n=22$ , 48%) of which were in the experimental group, 48 (girls  $n=24$ , 50%; boys  $n=24$ , 50%) were in the control group and 48 (girls  $n=24$ , 50%; boys  $n=24$ , 50%) were in the placebo group. The research was carried out at the western region of our country during the 2013-2014 academic year in Anatolian high schools where mostly children of middle socioeconomic status families are educated and where interpersonal conflicts are frequently observed. The ages of the participants ranged between 14 and 16 ( $\bar{X}=14.70$ ,  $ss=.53$ ). Violence Tendency Scale and Social Problem-Solving Inventory-Revised were used as measurement instruments. The research findings indicated that violence tendencies of students in the experimental group decreased and social problem solving skills increased significantly in comparison with those of the students in the control and placebo groups.

### Keywords

Peace  
Peace education  
Violence tendency  
Social problem solving skills  
High school students

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### Introduction

In recent years, it is observed that the number of descriptive studies determining the prevalence of violent, aggressive, or bullying behaviors among students in schools has increased considerably in our country (Pişkin, 2010; Pişkin et al., 2011; Uzbaş & Topçu Kabasakal, 2009). Striking results were obtained in these studies based on samples recruited from primary, secondary, and high schools located in various regions of our country. In these studies carried out with the participation of students, teachers, administrators, and school counselors, it is observed that behaviors such as violence, aggression, and bullying are still prevalent in schools (Pişkin, 2010; Pişkin et al., 2011;

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Uzbaş & Topçu Kabasakal, 2009); teachers occasionally applied to destructive methods such as shouting at students, scolding students, referring them to the school counselor or school discipline committee without any explanation even though they (teachers) are inclined to solve these problems with positive strategies (Siyez, 2009); school counselors spare more time for individual counseling and parent meetings, implement group counseling and group guidance programs at very low ratios, and that they perceive themselves to be partially competent in managing student misbehaviors in schools (Uzbaş, 2009; Uzbaş, Öz, & Topçu Kabasakal, 2012). It is possible to state that incidents of violence and negative behaviors at schools cannot be solved via “zero-tolerance policies”; that even though if a short-term solution is obtained, it will not ensure a permanent and effective solution in the long run (Bickmore, 2001; Casella, 2003). Within the framework of all these problems, the guidance and psychological counseling services provided at schools should be reexamined and instead of crisis intervention or remedial approaches, inclination of conducting preventive and developmental guidance studies and following alternative approaches should be increased. Instead of establishing peace among students through power and oppression, primary prevention programs which may provide peacemaking and peacebuilding skills to the students should be utilized. The school counselors have a special responsibility in this regard.

International literature review indicates that researchers (Johnson & Johnson, 1995a) pointed out that conflicts are natural and inevitable parts of life and people can resolve these conflicts by resorting to violence as well as negotiating face-to-face in a constructive way. Hence, instead of trying to prevent student-to-student conflicts at schools, a proactive approach should be followed to teach the students how they can resolve their conflicts constructively and peacefully and a new code of conduct should be developed. When the literature is reviewed, it is observed that starting from the beginning of the 2000s, in order to prevent behaviors such as violence, aggression, and bullying at primary, secondary, and high school levels and to develop problem solving skills, many training programs have been adapted/developed and their effectiveness were tested (Akgün & Araz, 2014; Bedel & Arı, 2011; Türnüklü, Kaçmaz, İkiz, & Balcı, 2009). Some of the training programs that have been adapted/developed in these studies are as follows: Interpersonal Problem Solving Skills Training (Bedel & Arı, 2011), Turkish version of First Step to Success Program in Preventing Antisocial Behaviors (Diken, Cavkaytar, Batu, Bozkurt, & Kurtılmaz, 2011), Conflict Resolution (Akgün & Araz, 2014), and Peer Mediation Training (Türnüklü, Kaçmaz, Gürler, Şevkin et al., 2010; Türnüklü, Kaçmaz, Gürler, Türk et al., 2010). In addition to these studies, recently it is observed that training programs (Sadri-Damirchi & Bilge, 2014; Sağkal, 2011; Sağkal, Türnüklü, & Totan, 2012) based on the peace concept and peacebuilding strategy have been developed and tested.

Peace education is a type of training in which knowledge, skills, attitudes, and values that enhance the constructive resolution of conflicts and establish harmonious relationships are taught (Johnson & Johnson, 2006). When the literature is reviewed, it is seen that different peace education models are implemented at different regions in the world and that the content and scope of each of these models differ respectively (Reardon, 2000). The researchers (Bar-Tal & Rosen, 2009; Harris, 2004) state that it is usual for the content and scope of peace education program to differ from society to society according to their socio-political structures and the types of violence encountered in the community. For example, whereas multiculturalism, empathy, and decreasing hostility stand out as main topics in a region where ethnic conflicts abound; global problems, human rights as well as topics of equality and justice are handled in cultures where peace reigns (Harris, 2010). Although the content and scope of peace education programs differ, it is possible to state that the main goal of any peace education is to prevent all forms of violence at an intraindividual, interpersonal, intergroup, and international level and to provide knowledge, skills, attitudes, and values that will assure the establishment of peace (Carter, 2008; Harris & Morrison, 2003). Therefore, when considered within the context of school settings, as the ultimate goals of peace education, preventing school/student violence and providing social problem solving knowledge, skills, and attitudes ensuring peace can be indicated.

Benbenishty and Astor (2005) defined school violence as behaviors carried out to give physical harm to individuals at schools or their properties as well as the properties at school or behaviors that are carried out to inflict emotional harm. Whereas Henry (2000) has defined school violence as the use of force by individuals, institutions, or social processes with the purpose of limiting others and diminishing them from their positions. With this definition, the researcher has emphasized not only physical violence but also the psychological, economic, social, and ethical dimensions of violence. Even though there are some differences in the conceptualization of school violence among researchers, when it is evaluated as a whole it is observed that school violence is considered as having a multidimensional structure that includes delinquent and aggressive behaviors preventing development and learning, and damaging school climate (Furlong & Morrison, 2000). According to Harris (1990), the traditional education practices that increase violence are (i) teachers perceiving themselves as the source of knowledge instead of constructing knowledge together with the students, (ii) encouraging competition among students instead of cooperation, (iii) expecting students to accept the knowledge presented to them directly instead of questioning them, (iv) putting forth the class norms and to expect the students to obey, and (v) adopting an authoritative class management instead of a democratic class management. It is observed that when faced with school violence, the researchers use primary prevention programs in order to decrease risk factors, increase protective factors, and to cope with the violent incidents at schools. The reasons why researchers make use of prevention programs to cope with violent events at schools are that the students recognize their peer groups, they become aware of alternative behavior norms, and to establish a bond between and among the students participating in these training programs (Miller & Kraus, 2008). Moreover, due to necessity of such prevention studies, a need for revision of the professional roles of school counselors in the 21<sup>st</sup> century is emphasized in the literature (Furlong, Morrison, & Pavelski, 2000). According to the researchers (Furlong et al., 2000), in the 21<sup>st</sup> century school counselors should try to decrease the risk factors causing school violence and to increase connectedness of students to the schools by the way of conducting early screening and implementing prevention programs.

Social problem solving model was first developed by D'Zurilla and Goldfried (1971) and was revised by D'Zurilla, Nezu, and Maydeu-Olivares (2002, 2004). *Social problem solving* includes the conscious, reasonable, and intentional solution process for all kinds of problems (intrapersonal, interpersonal, social etc.) that the individual can face in real life (D'Zurilla et al., 2002, 2004). According to the social problem solving theory, it is thought that social problem solving skill has a multidimensional structure. According to this theory, social problem solving consists of two partially independent dimensions, (i) *problem orientation* and (ii) *problem solving style* (D'Zurilla et al., 2002, 2004). Problem orientation contains relatively permanent cognitive-affective patterns that reflect the tendency of the individual for solving the problems that he or she faces in real life. Problem solving style involves the cognitive-behavioral actions of an individual to solve problems that he or she faces in real life. Problem orientation is handled in two fundamental dimensions which are *positive problem orientation* and *negative problem orientation* (D'Zurilla et al., 2002, 2004). Positive problem orientation reflects the tendencies of an individual to see problems as an opportunity, to believe that he/she can solve this problem, to trust their skills about this issue, to strive and overcome these problems, whereas negative problem orientation reflects the tendencies of an individual to see problems as severe threats, to feel themselves as incompetent, and to distrust themselves. Problem solving styles are covered in three fundamental dimensions of *rational problem solving*, *impulsive/careless problem solving*, and *avoidant problem solving* (D'Zurilla et al., 2002, 2004). Whereas in rational problem solving style, the individual solves the problems he/she faces in real life in a rational and systematic manner; in impulsive/careless problem solving style, he/she acts without considering various options; and in the avoidant problem solving style, he/she postpones solving the problem or expects the problem to be resolved by itself. Thus, it is possible to state according to the social problem solving theory that only rational problem solving style is functional and that the others are not functional. Recent researches indicated that social problem solving skill as a coping strategy is linked with lower depression (Özdemir, Kuzucu, & Koruklu, 2013; Siu & Shek, 2010), aggressiveness (Özdemir et al.,

2013), anxiety (Siu & Shek, 2010), life stress, loneliness, and suicide attempt (Hirsch, Chang, & Jeglic, 2012), and higher hope (Chang, 1998), self-esteem, life satisfaction (Hamarta, 2009), better interpersonal relationships (Sumi, 2012), and family functioning (Siu & Shek, 2010).

In conclusion, it was aimed in this research that in order to prevent school violence considered as having effects on students' psychological adaptation processes and to develop social problem solving skills, within the scope of school-based primary prevention study, to resolve student-to-student conflicts, "Peace Education Program" based on themes of peacemaking and peacebuilding relevant to the ninth grade level was developed, implemented, tested, and a program manual was prepared to present to the practitioners in the field. To this end, the effects of peace education program on the violence tendencies and social problem solving skills of ninth grade students were investigated. The central hypothesis of the study was stated as follows:

*"The linear combination of the violence tendencies and social problem solving skills posttest and follow-up test mean scores (adjusted for pretest differences) of experimental group differed significantly in comparison with the control and placebo groups."*

## Method

### Research Design

In this study, in order to examine the effects of the Peace Education Program on the violence tendencies and social problem solving skills of ninth grade students a pretest-posttest-follow-up test control group quasi-experimental design was used. The first factor of the 3x3 split-plot design used in the study denotes the independent treatment groups (experiment, control, and placebo), whereas the second factor denotes the repeated-measures related with the dependent variables (pretest-posttest-follow-up test). The design of the study was presented in Table 1.

**Table 1.** Research Design

Groups	Pretest	Treatment	Posttest	Follow-Up (8 Weeks Later)
Experimental	VTS* Tr-SPSI-R**	Peace Education Program (16 Course Hours)	VTS* Tr-SPSI-R**	VTS* Tr-SPSI-R**
Control	VTS* Tr-SPSI-R**	-----	VTS* Tr-SPSI-R**	VTS* Tr-SPSI-R**
Placebo	VTS* Tr-SPSI-R**	Placebo Program (16 Course Hours)	VTS* Tr-SPSI-R**	VTS* Tr-SPSI-R**

\*VTS: Violence Tendency Scale

\*\*Tr-SPSI-R: Social Problem-Solving Inventory-Revised

As can be seen in Table 1, Violence Tendency Scale (Haskan & Yıldırım, 2012) and Social Problem-Solving Inventory-Revised (D'Zurilla et al., 2002; Eskin & Aycan, 2009) were administered to the experimental, control, and placebo groups as pretest prior to the treatment. Peace education program was applied to the participants in the experimental group in a total of 16-sessions (1 session = 1 course hour) and for a 13-week period following the pretest measurements. In parallel to experimental treatment period, a group guidance program was applied to the participants in the placebo group in a total of 16-sessions (1 session = 1 course hour) and for a 13-week duration. Programs that have been experimentally proven to be effective regarding effective studying techniques (Kaya Zengin, 2009) and exam anxiety (Özdemir & Ergene, 2005) have been used as placebo program. During this period, any treatment was given to the control group students. At the end of the experimental treatment, the posttest was administered to all groups. Violence Tendency Scale and Social Problem-Solving Inventory-Revised were applied to all groups 8 weeks after the posttest administration and follow-up measurements were performed.

### **Study Group**

This study was carried out with the participation of ninth grade students attending four different high schools during 2013-2014 academic year in the city center of Aydın. Common characteristics of the high schools participated in the study are as follows: (i) They have transferred from a general high school status to Anatolian high school status recently which enroll students with the lowest entrance scores compared to other high schools, (ii) the students mostly came from middle socioeconomic status families, and (iii) interpersonal conflicts occur between and among the students. Therefore, it was paid attention that schools with similar characteristics formed the experimental, control, and placebo groups. One of these schools comprised the experimental group, two comprised the control group, and the other one comprised the placebo group. The reason for forming experimental, control, and placebo groups in different schools was to minimize the interaction between students who do and who do not receive peace education.

The method for assigning students to the experimental, control, and placebo groups can be summarized as such: After implementing peace education program, the students who participated in this training are expected to fulfill the role of peacemaker, facilitate the negotiation process between and among their friends, help the disputants to reach a constructive and peaceful resolution. Thus, the objective was to train at least 6 peacemakers from each class at the ninth grade level in order to reach such a goal. When selecting students who will be trained as peacemakers, the following criteria were considered: (i) student opinions and (ii) voluntariness of students, whose names were determined as peacemakers as a result of student opinions in the class, to attend the training. During the process of selecting peacemaker students, the primary criterion was student opinions. In this process, the question asked to each student was as follows: *“Whose help would you seek when you fight or have a conflict with your friends in the classroom? Name three of your friends that you trust the most in order of importance.”* The preferences of the students and their levels of preference were written down in the preference evaluation table. The scores were given according to the preference levels of the selected students. Those who were ranked first received 3 points, those who were ranked second received 2 points, and those who were ranked third received 1 point. After scores were given to the names that were listed by the students according to the order of importance, scores in the preference evaluation table were added for each student. Six students (3 girls, 3 boys) who received the highest scores were determined as peacemakers. The students who want to participate in this training voluntarily were asked to have the “Parent/Custodian Informed Consent Form” signed and to deliver this form during the first session to the researchers. When there were some students from among the 6 in the list who did not want to participate in this training, students with the next highest scores were appointed to the groups. The same steps were followed to assign the students to the control and placebo groups. A total of 48 students, 24 girls and 24 boys, were included in the experimental, control, and placebo groups each. However, two participants dropped from the experimental group because these two students enrolled in different high schools during the fall semester. As a result, the study group consisted of a total of 142 students, 72 of which are girls and 70 were boys. The age of the participants ranged between 14 and 16 ( $\bar{X} = 14.70$ ,  $ss = .53$ ).

The reasons for selecting the most preferred students as class peacemakers via sociometry technique based on student opinions were (i) selecting peacemakers from among the students who were accepted, supported, and trusted by their friends (Törnüklü et al., 2009), (ii) that individuals share their problems, conflicts, and private matters with their friends who they trust the most (Törnüklü et al., 2009), (iii) selecting peacemakers from not only those who lead the class with their positive behaviors but also with their negative behaviors (Bickmore, 2001, 2002), and (iv) that the students who are selected as peacemakers will be able to represent their friends (culture, gender etc.) (Bickmore, 2001, 2002; Cunningham et al., 1998; Day-Vines, Day-Hairston, Carruthers, Wall, & Lupton-Smith, 1996; Lindsay, 1998).



### ***Independent Variable***

The independent variable of this study was the “Peace Education Program”. Peace education program has been developed to be able to resolve the interpersonal conflicts constructively and peacefully between and among ninth grade students. The training program consisted of 16-sessions, each of them lasting 40 minutes. A “Peace Education Program: Trainer Manual” and a “Peace Education Program: Student Activity Book” were prepared to assist the researchers in the implementation process as well as to contribute to the future studies by making it available for the use of other researchers/practitioners. Peace education program was based on relevant theories and similar programs in the literature (Danesh & Clarke-Habibi, 2007; Johnson & Johnson, 1995b, 1995c; Libresco & Balantic, 2006; Sağkal, 2011; Türnüklü et al., 2009; UNESCO, UNHCR, & INEE, 2005). A review of national and international literature was conducted to create activities that are responsive to the needs of school district and cultural characteristics. Techniques such as role-playing, discussion, pair and group works, brainstorming, and case study were used while implementing the activities. Peace education program consisted of four main parts:

- *Understanding the Nature of Peace and Violence*: This part consists of activities that will enable students to understand the nature of peace and violence. The objective is to ensure that students reach a level of awareness regarding the pioneers of peace (e.g., Mevlana, Hacı Bektaş Veli, Yunus Emre, Mustafa Kemal Atatürk, Mahatma Gandhi, and Martin Luther King) in addition to the concepts of violence and peace.
- *Elements that Prevent and Support Peace*: This part consists of activities that will enable students to become aware of elements that prevent peace (stereotypes-prejudices-discrimination) and support peace (building unity in diversity, tolerance).
- *Basic Skills for A Peaceful Individual*: In this part, it is aimed that students will acquire the necessary skills (active listening, I-language, empathy, and anger management) to be a peaceful individual.
- *“Peacemaking” Technique as A Conflict Resolution Method*: In this part, it is aimed that students will acquire peacemaking skills to be able to resolve interpersonal conflicts constructively and peacefully.

### ***Placebo Program***

The first part of the group guidance program consisting of a total of 16-sessions (1 session = 1 course hour) applied to the placebo group was made up of effective studying techniques. The activities developed for ninth grade students and tested within the scope of Kaya’s (2001) master’s thesis entitled “A group guidance program designed for ninth grade students to gain effective studying habits” were used (Kaya Zengin, 2009). The second part of the training applied to the placebo group consisted of exam anxiety. The activities developed for tenth grade students and tested within the scope of Özdemir’s (2005) master’s thesis entitled “The effect of a program for coping with exam anxiety on tenth grade students’ exam anxiety levels” were used (Özdemir & Ergene, 2005).

### ***Measurement Instruments***

***Violence Tendency Scale (VTS)***. The Violence Tendency Scale (VTS) developed by Haskan and Yıldırım (2012) was used to measure violence tendency which is the first dependent variable of the study. VTS consists of 4 subscales of “The Feeling of Violence”, “Violence Through Information Technologies”, “The Feeling of Harming Others”, and “Applying Violence Against Others” and a total of 20 items. VTS is a three-point Likert scale (1= *Never*, 2= *Sometimes*, 3= *Always*) and its total scores range from 20 to 60. The higher scale score indicate that the individual has a high violence tendency. Haskan and Yıldırım, in their concurrent validity study, determined that VTS is positively linked with Aggression Scale ( $r = .64$ ) and negatively linked with Family Support subscale ( $r = -.28$ ). In the reliability analyses of VTS, the Cronbach’s alpha coefficient was determined as .87 and test-retest reliability level was determined as .83. In this study, the Cronbach’s alpha coefficient was calculated obtained from pretest data administered to the all groups and determined as .86.

***Social Problem-Solving Inventory-Revised (Tr-SPSI-R)***. The short form of the Social Problem-Solving Inventory-Revised developed by D’Zurilla et al. (2002) and adapted into Turkish by Eskin and Aycan (2009) was used to measure the social problem solving skills which is the second dependent variable of the study. The Social Problem-Solving Inventory-Revised Short Form consists of five subscales entitled “Positive Problem Orientation”, “Negative Problem Orientation”, “Rational Problem-Solving Style”, “Impulsivity/Carelessness Style”, and “Avoidance Style” and a total of 25 items. There are five items in each of the subscales and the items are rated on a five-point Likert scale ranging from 0 (*Not at all true of me*) to 4 (*Extremely true of me*). High scores obtained from the Tr-SPSI-R in which subscale and inventory total score can be calculated indicate higher social problem-solving skills. Eskin and Aycan (2009) conducted Confirmatory Factor Analysis to examine the construct validity of the Short Form of Tr-SPSI-R and determined that the goodness-of-fit indices were acceptable [ $\chi^2= 569,29$ ,  $\chi^2/sd= 2.15$ , RMSEA= .04, RMSR= .57, AGFI= .92, CFI= .93, NNFI= .92]. They determined that the Cronbach’s alpha coefficients ranged from .62 to .78 and the test-retest reliability coefficients ranged from .61 to .73. They calculated the correlation coefficients between Tr-SPSI-R Short Form and Problem Solving Inventory, Rosenberg Self-Esteem Scale, Scale for Interpersonal Behavior, Beck Depression Inventory, Beck Hopelessness Scale, and Suicide Probability Scale and determined that Tr-SPSI-R has a good concurrent validity. In this study, the Cronbach’s alpha coefficient was calculated obtained from pretest data administered to the all groups and determined as .60.

### ***Pilot Study***

Following the development of peace education program, expert reviews of three researchers working in the fields of peace education, conflict resolution, and mediation were taken into consideration. The first revisions in the program were made in accordance with expert guidelines. Following the completion of the revisions in the program, a pilot study was conducted in order to test the feasibility of the activities and the efficacy of the developed training program. The pilot implementation of the peace education program was started in the spring term of the 2012-2013 academic year. Sociometry technique was used to recruit the participants as was the case in the actual study. Student opinions were taken as the primary criterion in recruiting the participants. The students volunteered for the study were asked to have their Parent/Custodian Informed Consent Forms signed and to submit them to the researchers during the first session. Since the feasibility of the developed peace education program was to be examined, it was decided to work with a single study group. Based on this decision, only two of the ninth grade classes of a high school located in central school district of Aydın Provincial Directorate for National Education comprised the study group. Thus, 10 students from each class participated in the peace education program. The total number of students was 20 with 10 female and 10 male students. The developed peace education program was implemented two sessions per week for a period of 8 weeks in a total of 16-course hours. The students were asked to fill out the “Activity Evaluation Form” at the end of the study. The researchers have completed the required revisions in the program by taking into consideration the opinions of students put forth in the Activity Evaluation Form as well as by monitoring implementation process and then reapplied to the expert committee, and finalized the “Peace Education Program: Trainer Manual” and “Peace Education Program: Student Activity Book” for the actual study.

### ***Procedure***

Ninth grade is an important period of time during which students start a new school and make new friends. Thus, the study was not started until the fourth week of October in order to ensure that students get to know each other. Since group guidance programs comprised of 16-sessions will be carried out with the students in the experimental and placebo groups, a one-semester working calendar was determined together with the administrators and counselors of these schools. To this end, it was planned to conduct the study regularly during guidance hours. Following the decision of training materials, training environment, and working calendar, in the last week of October in the fall semester of 2013-2014 academic year, sociometry technique was used to determine the names of 6 students from each class comprised of students who will participate in the peace education program

to be trained as peacemakers and those who will be included in the control and placebo groups. After the names of students that will be placed in the experimental, control, and placebo groups were determined, pretests were administered to the all groups, and the experimental treatment was started following the submission of Parent/Custodian Informed Consent Forms. The 16-session programs implemented to the experimental and placebo groups were completed in a period of 13 weeks. During this period, no treatment was applied to the students in the control group. The trainings given to the experimental and placebo groups were completed at the end of the fall semester of 2013-2014 academic year. Following the completion of the training programs applied by second author of this study, posttests were administered to the students in the experimental, control, and placebo groups. Whereas follow-up measurements were conducted with all groups 8 weeks after the posttest administration.

### ***Data Analysis***

The criterion of participation rate to the training sessions was taken into account during the analysis of participant data. Accordingly, it was planned to use data from students who attended the peace education program of 70% and above. When attendance of experimental group participants was checked after the training phase, it was observed that individual attendance rates ranged between 75% and 100%, whereas group attendance rate was 92%. Similarly, it has been observed for placebo group that individual attendance rates ranged between 75% and 100%, whereas group attendance rate was 96%. These results indicated that experimental and placebo group students attended the sessions regularly and program participation rates were high both for individual and group attendance.

The decision tree put forth by Tabachnick and Fidell (2007) was used to determine which analytical strategy will be used in this study in which the significance of group differences was evaluated. Repeated Measures One-Way Multivariate Analysis of Covariance (MANCOVA) that aims to create the linear combination of the dependent variables for maximizing mean group differences was used in this study including two dependent variables, one independent variable, two covariates, and three different measurement time points. The advantages of MANCOVA are that it prevents Type I error inflation due to multiple testing of correlated dependent variables, that it can reveal the group differences that can not be obtained in separate ANCOVAs, and that the use of covariate decreases the systematic bias as well as within group or error variance (Dattalo, 2013; Hair, Black, Babin, & Anderson, 2010; Raykov & Marcoulides, 2008; Tabachnick & Fidell, 2007).

In this study, prior to the repeated measures one-way MANCOVA, One-Way Multivariate Analysis of Variance (MANOVA) was conducted on the data set in order to determine whether there are statistically significant differences between groups with regard to violence tendency and social problem solving skills pretest scores that will be used as covariates in the analyses. Prior to this analysis, data screening procedures (*descriptive statistics, missing values, univariate and multivariate outliers*) were conducted and it was determined that basic assumptions (*required sample sizes for the groups, normality assumption, homogeneity of the variance-covariance matrices, correlations between the dependent variables*) were met.

After it was determined that pretest scores did not differ between groups, the main analyses were performed to examine the effect of experimental treatment. Prior to the repeated measures one-way MANCOVA, data screening procedures (*descriptive statistics, missing values, univariate and multivariate outliers*) were conducted and the assumptions (*required sample sizes for the groups, normality assumption, linearity, homogeneity of regression, homogeneity of the variance-covariance matrices, multicollinearity*) were examined. Pillai's Trace was used to evaluate the significance of the multivariate *F*-test instead of the Wilks' lambda because the assumption of homogeneity of variance-covariance matrices was violated. Since Mauchly's test of sphericity was significant ( $p < .001$ ), Greenhouse-Geisser estimates of sphericity were used to correct the degrees of freedom (Tabachnick & Fidell, 2007). Finding a significant multivariate effect in repeated measures one-way MANCOVA indicated that there are statistically significant differences between the groups. Partial eta-squared



( $\eta_p^2$ ) was calculated to measure proportion of the variance in the dependent variables accounted for by the independent variable. Univariate *F*-test results were also examined for each of the dependent variables. Bonferroni-correction was applied to reduce Type I error rate and alpha level was determined as .025 (.05/2). Because the factor has more than two levels (experimental, control, and placebo group) and univariate *F*-test results were found to be significant, by using a special command for the SPSS, pairwise comparisons were made in order to examine whether there are statistically significant differences between the groups for the adjusted mean scores for each dependent variable. In addition to the contrast analyses, Bonferroni-corrected post hoc tests were performed for these pairwise comparisons. In the analyses, Bonferroni-correction was used to prevent the increase of Type I error rate. The corrected alpha value was set at .004 (.025/6) since three different pairwise comparisons (experimental vs control, experimental vs placebo, and control vs placebo groups) were to be made for each dependent variable in the analyses.

## Results

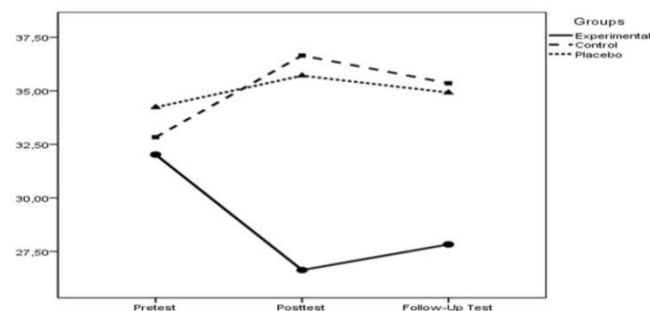
Based on the central hypothesis of the study, Violence Tendency Scale and Social Problem-Solving Inventory-Revised were administered as pretest, posttest, and follow-up test to the participants who make up the experimental, control, and placebo groups and the descriptive statistics related with the data acquired from these measurements were presented comparatively in Table 2. In addition, the changes in the pretest, posttest, and follow-up test mean scores of the experimental, control, and placebo groups for Violence Tendency Scale and Social Problem-Solving Inventory-Revised were indicated by the line graphs in Figure 1 and Figure 2.

**Table 2.** Descriptive Statistics for Pretest, Posttest, and Follow-Up Measures

DV Group*	Time	$\bar{X}$	<i>sd.</i>	$\bar{Y}$	<i>se</i>	%95 CI		$\bar{Y}_i$	<i>se_i</i>	%95 CI <sub>i</sub>		
						Lower Bound	Upper Bound			Lower Bound	Upper Bound	
Violence Tendency	Experimental	Pretest	32.02	6.58	-	-	-	-	-	-	-	
		Posttest	26.63	4.54	27.19	.71	25.79	28.59	27.77	.59	26.60	28.93
		Follow-up	27.83	5.27	28.35	.68	27.00	29.69				
	Control	Pretest	32.83	6.85	-	-	-	-	-	-	-	-
		Posttest	36.65	6.75	36.66	.70	35.29	38.04	36.00	.58	34.86	37.15
		Follow-up	35.35	5.79	35.34	.67	34.02	36.66				
	Placebo	Pretest	34.23	5.63	-	-	-	-	-	-	-	-
		Posttest	35.71	6.46	35.16	.70	33.77	36.55	34.80	.59	33.64	35.95
		Follow-up	34.92	6.16	34.43	.68	33.10	35.76				
Total	Pretest	33.04	6.39	-	-	-	-	-	-	-	-	
	Posttest	33.09	7.48	-	-	-	-	-	-	-	-	
	Follow-up	32.77	6.67	-	-	-	-	-	-	-	-	
Social Problem Solving Skills	Experimental	Pretest	12.88	2.50	-	-	-	-	-	-	-	
		Posttest	14.84	2.30	14.78	.29	14.20	15.36	14.74	.26	14.23	15.26
		Follow-up	14.76	2.01	14.71	.30	14.11	15.30				
	Control	Pretest	12.40	2.29	-	-	-	-	-	-	-	-
		Posttest	12.00	2.78	12.25	.29	11.68	12.82	12.16	.26	11.65	12.66
		Follow-up	11.81	2.52	12.06	.30	11.47	12.65				
	Placebo	Pretest	13.18	2.62	-	-	-	-	-	-	-	-
		Posttest	13.12	2.49	12.93	.29	12.36	13.51	12.99	.26	12.48	13.50
		Follow-up	13.24	3.00	13.05	.30	12.45	13.64				
Total	Pretest	12.82	2.48	-	-	-	-	-	-	-	-	
	Posttest	13.30	2.77	-	-	-	-	-	-	-	-	
	Follow-up	13.25	2.81	-	-	-	-	-	-	-	-	

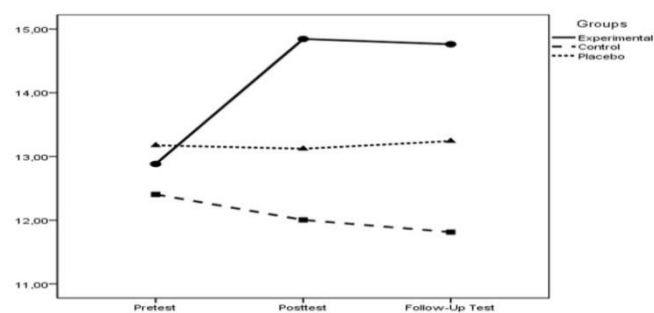
\* Experimental group, *n*=46; Control group, *n*=48; Placebo group, *n*=48

As can be seen in Table 2, it has been determined that there was a decrease in the violence tendency posttest scores ( $\bar{X}=26.63$ ) in comparison with the pretest scores ( $\bar{X}=32.02$ ) of the experimental group, that even though there was a slight increase in the follow-up test scores ( $\bar{X}=27.83$ ) compared to posttest scores, the follow-up test mean score was still lower in comparison with the pretest mean score. It has been observed that there was a slight increase in the violence tendency posttest scores ( $\bar{X}=36.65$ ) in comparison with the pretest scores ( $\bar{X}=32.83$ ) of the control group, that even though this increase has dropped a bit in the follow-up test scores ( $\bar{X}=35.35$ ), it was still greater in comparison with the pretest mean score. However, it has been determined that there was no remarkable differences between the violence tendency pretest ( $\bar{X}=34.23$ ), posttest ( $\bar{X}=35.71$ ), and follow-up test scores ( $\bar{X}=34.92$ ) of the placebo group. The descriptive statistics related to second dependent variable of the study have shown that there was an increase in the social problem solving skills posttest scores ( $\bar{X}=14.84$ ) in comparison with the pretest scores ( $\bar{X}=12.88$ ) of the participants in the experimental group and that this increase was also retained on the follow-up test scores ( $\bar{X}=14.76$ ). However, no remarkable change was observed in the social problem solving skills pretest ( $\bar{X}=12.40$ ), posttest ( $\bar{X}=12.00$ ), and follow-up test ( $\bar{X}=11.81$ ) measurements of the control group and the social problem solving skills pretest ( $\bar{X}=13.18$ ), posttest ( $\bar{X}=13.12$ ), and follow-up test ( $\bar{X}=13.24$ ) measurements of the placebo group.



**Figure 1.** Line Graph Indicating the Change in the Violence Tendency Scale Pretest, Posttest, and Follow-Up Test Mean Scores for the Experimental, Control, and Placebo Groups

As can be seen in Figure 1, it was determined that the violence tendency pretest mean scores of the experimental, control, and placebo groups were close to each other prior to the experimental intervention; that when they are evaluated in terms of posttest and follow-up test scores, the violence tendency scores of the experimental group decreased; that there was a slight increase in the posttest mean score of the control group; and that there were no remarkable differences between the pretest, posttest and follow-up test measurements of the placebo group.



**Figure 2.** Line Graph Indicating the Change in the Social Problem-Solving Inventory-Revised Pretest, Posttest, and Follow-Up Test Mean Scores for the Experimental, Control, and Placebo Groups

As can be seen in Figure 2, it was determined that the social problem solving skill pretest mean scores of the experimental, control, and placebo groups were quite close to each other prior to the experimental treatment; that when they are evaluated in terms of posttest and follow-up test scores, social problem solving skills of experimental group increased in the posttest measurement and this increase was also retained on the follow-up measurement; and that there were no remarkable differences between the pretest, posttest, and follow-up test measurements for the control and placebo groups.

One-way MANOVA was performed to determine whether the experimental, control, and placebo groups differed in terms of the pretest mean scores for Violence Tendency Scale and Social Problem-Solving Inventory-Revised. Prior to one-way MANOVA, data screening procedures were conducted and assumptions were tested. It was observed that there was no erroneous coding in the data set as well as no missing values; that all the raw scores were transformed into standard z-scores and these z-scores lied between -3.00 and +3.00; and that using Mahalanobis distance, the maximum value for the data set did not exceed the critical value of 13.82 for the two dependent variables at .001 alpha level. The required sample size was calculated as the first assumption. It is stated that to achieve the power of .80 in MANOVA when assessing medium effect sizes in three-group design, 44 participants per group are required if two dependent variables are used (Hair et al., 2010). It was determined that the requirement for sample size for analysis was satisfied for this study in which there are 46 students in the experimental group, and 48 students each in the control and placebo groups. Secondly, the normality assumption was checked for each of the pretest measurements related with the violence tendency and social problem solving skills of the experimental, control, and placebo groups. It was observed that normality assumptions were met for each of the experimental (Kolmogorov-Smirnov  $z = .673$ ,  $p = .756$ ), control (Kolmogorov-Smirnov  $z = .823$ ,  $p = .507$ ), and placebo groups (Kolmogorov-Smirnov  $z = .886$ ,  $p = .413$ ) for the violence tendency pretest measurements. Similarly, it was also determined that normality assumptions were met for each of the experimental (Kolmogorov-Smirnov  $z = .864$ ,  $p = .444$ ), control (Kolmogorov-Smirnov  $z = .547$ ,  $p = .926$ ), and placebo groups (Kolmogorov-Smirnov  $z = .712$ ,  $p = .690$ ) for the social problem solving skills pretest measurements. Thirdly, the assumption of equal variance-covariance matrices between the groups was examined. Univariate test results (Levene's test) were primarily examined for these two dependent variables regarding this assumption. Levene's test results indicated that the homogeneity of variances was satisfied for the violence tendency pretest [ $F(2, 139) = .172$ ,  $p = .842$ ] and social problem solving skills pretest measurements [ $F(2, 139) = .683$ ,  $p = .507$ ]. In order to test the homogeneity of variance-covariance matrices among the groups, dependent variables were assessed collectively. Box's M Test [ $M = 3.809$ ,  $F(6, 476327) = .622$ ,  $p = .713$ ] demonstrated that the assumption of homoscedasticity was met for the two variables collectively. Finally, Bartlett's test of sphericity [ $\chi^2(2) = 144.014$ ,  $p = .000$ ] indicated that correlation between dependent variables was sufficient to continue the analysis. Furthermore, correlations between the dependent variables were checked for each level of the independent variable. Moderately significant negative correlations were found at the .001 alpha level between the dependent variables for the the experimental ( $r = -.54$ ), control ( $r = -.47$ ), and placebo groups ( $r = -.42$ ). After conducting the preliminary data screening procedures and determining that the assumptions were met, one-way MANOVA was performed on the two dependent variables. Multivariate test results demonstrated that there were no mean differences in the composite dependent variable, namely violence tendency and social problem solving skills pretest measurements, among the experimental, control, and placebo groups [Wilks' lambda ( $\lambda$ ) = .942,  $F(4, 276) = 2.088$ ,  $p = .08$ ].

After determining that pretest mean scores of groups did not differ, the actual analyses were conducted to examine the effects of treatment. Repeated measures one-way MANCOVA was performed to investigate whether there are differences between the groups for the linear combination of the posttest and follow-up test mean scores of violence tendency and social problem solving skills after adjusting for preexisting differences on pretest scores. Prior to repeated measures one-way MANCOVA, data screening procedures were employed and assumptions were checked. It was

determined that there was no erroneous coding and missing values in the data set; that the participants' test scores were transformed into standard z-scores and these z-scores ranged between -3.00 and +3.00; and that using Mahalanobis distance, no multivariate outlier was detected at .001 level. Moreover, the data for each variable were examined by scatterplots and no outliers were detected. Since the data of the participants were not classified as outlier, all the data collected from 142 participants (experimental group,  $n=46$ ; control group,  $n=48$ ; placebo group,  $n=48$ ) were used in the analysis. As the first assumption, sufficiency of sample size was examined and it was determined that there were 46 students in the experimental group and 48 students each in the control and placebo groups and the sample sizes for the groups were quite close and sufficient. Secondly, scatterplots were examined for each pair of dependent variables within each group and it was observed that the linearity assumption was satisfied. Thirdly, normality assumptions for the pretest, posttest, and follow-up test data of the violence tendency and social problem solving skills dependent variables of the experimental, control, and placebo groups were checked (see Table 3).

**Table 3.** Kolmogorov-Smirnov Test Results Regarding the Normality Assumption in Pretest, Posttest, and Follow-Up Test Measurements for the Each Dependent Variable of the Experimental, Control, and Placebo Groups

Groups	DVs	Pretest		Posttest		Follow-Up	
		Kolmogorov-Smirnov z	<i>p</i>	Kolmogorov-Smirnov z	<i>p</i>	Kolmogorov-Smirnov z	<i>p</i>
Experimental	VTS*	.673	.756	.960	.316	1.024	.245
	Tr-SPSI-R**	.864	.444	1.096	.181	.951	.326
Control	VTS*	.823	.507	.578	.892	.746	.633
	Tr-SPSI-R**	.547	.926	.681	.742	.876	.426
Placebo	VTS*	.886	.413	.772	.590	.839	.483
	Tr-SPSI-R**	.712	.690	.944	.335	.669	.762

\*VTS: Violence Tendency Scale

\*\*Tr-SPSI-R: Social Problem-Solving Inventory-Revised

As can be seen in Table 3, Kolmogorov-Smirnov test results for pretest, posttest, and follow-up test measurements of experimental, control, and placebo groups for both dependent variables indicated that *p* values were greater than .05, in other words, normality assumptions were met. Fourthly, as a one of the most important assumptions of MANCOVA, in order to test the homogeneity of regression slopes, it was examined whether the correlation between each covariate and dependent variables differ significantly between the groups. The obtained results showed that the interaction between the covariates and independent variable for either dependent variable was no significant, in other words, the assumption of the homogeneity of regression slopes was met: Violence tendency pretest covariate in respect of violence tendency [ $F(2, 133)= 1.372, p= .26$ ] and social problem solving skills dependent variable [ $F(2, 133)= .325, p= .72$ ]; social problem solving skills pretest covariate in respect of violence tendency [ $F(2, 133)= .562, p= .57$ ] and social problem solving skills dependent variable [ $F(2, 133)= 2.423, p= .09$ ]. Fifthly, the assumption of univariate homogeneity of variance across the three groups was tested using Levene's test. Levene's test results indicated that in both violence tendency follow-up test [ $F(2, 139)= 2.032, p= .14$ ] and social problem solving skills follow-up test measurements [ $F(2, 139)= 1.139, p= .32$ ], the assumption of homogeneity of variances was met, whereas in violence tendency posttest [ $F(2, 139)= 4.779, p= .01$ ] and social problem solving skills posttest measurements [ $F(2, 139)= 3.877, p= .02$ ], the assumption of homogeneity of variances was violated. In addition to this analysis, by testing the equality of the variance-covariance matrices among the groups, the dependent variables were assessed collectively. Box's M test [ $M= 46.422, F(20, 69126)= 2.225, p= .001$ ] showed that the assumption of the homogeneity of the variance-covariance matrices was violated. However, Tabachnick and Fidell (2007) stated that even if the assumptions of the homogeneity of the variances or the equality of variance-covariance matrices were violated, MANCOVA can be performed in cases when ratio of the largest variance to the smallest variance for

the dependent variable over the groups is maximum 10:1 and when the sample sizes are relatively equal to each other (maximum 4:1). Accordingly, it was determined that the variance ratios in the experimental, control, and placebo groups' violence tendency pretest ( $46.91/31.71= 1.48$ ), posttest ( $45.55/20.64= 2.21$ ), and follow-up tests ( $37.91/27.75= 1.37$ ) were less than 3 and similarly that the variance ratios of the experimental, control, and placebo groups' social problem solving skills pretest ( $6.85/5.25= 1.30$ ), posttest ( $7.74/5.27= 1.47$ ), and follow-up tests ( $9.06/4.03= 2.25$ ) were less than 3. In addition, it was also determined that the ratio of the largest variance to the smallest variance was less than 3 for violence tendency ( $46.91/20.64= 2.27$ ) and social problem solving skill measurements ( $9.06/4.03= 2.25$ ) and that the 10:1 criterion was met as stated by Tabachnick and Fidell (2007). In terms of the sample sizes, it was observed that size of the study groups ( $48/46= 1.04$ ) was almost equal and that the 4:1 criterion stated by Tabachnick and Fidell (2007) was satisfied. Finally, Bartlett's test of sphericity was computed. Bartlett's test of sphericity demonstrated that correlations between the dependent variables were sufficient to analyze between subjects [ $\chi^2(2)= 99.453, p= .000$ ] and within subjects effects [ $\chi^2(2)= 116.463, p= .000$ ]. In addition, when the correlations between dependent variables were examined, no problems with multicollinearity were found. In the light of all these findings, it was decided that the hypothetical assumptions were verified and thus repeated measures one-way MANCOVA was performed on the data set (see Table 4). Pillai's Trace was used instead of Wilks' lambda to evaluate multivariate test results. The reason for this was that Pillai's Trace is suggested to use instead of Wilks' lambda to evaluate multivariate *F*-test in cases where the assumption of equality of the variance-covariance matrices is violated (Tabachnick & Fidell, 2007). Since Mauchly's test of sphericity was significant ( $p < .001$ ), degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity (Tabachnick & Fidell, 2007).

**Table 4.** Repeated Measures One-Way MANCOVA Results of the Experimental, Control, and Placebo Groups for the Linear Combination of the Violence Tendency and Social Problem Solving Skills Posttest and Follow-Up Test Mean Scores Adjusted According to the Violence Tendency and Social Problem Solving Pretest Mean Scores

Effect	Dependent Variables	Univariate Test Results			Multivariate Test Results		
		<i>F</i>	<i>p</i>	$\eta_p^2$	<i>F</i> (Pillai's Trace)	<i>p</i>	$\eta_p^2$
Group	Violence Tendency	57.655	.000*	.457	22.756 (.499)	.000*	.249
	Social Problem Solving Skills	26.392	.000*	.278			
	Violence Tendency	.128	.721	.001			
Time	Social Problem Solving Skills	.022	.882	.000	.064 (.001)	.938	.001
	Violence Tendency	3.167	.045	.044			
Time*Group	Social Problem Solving Skills	.278	.757	.004	1.919 (.054)	.108	.027
	Violence Tendency						

\*  $p < .001$

Repeated measures one-way MANCOVA results revealed no main effect for time of assessment (pretest-posttest-follow-up test) [Pillai's Trace= .001,  $F(2, 136)= .064, p= .94, \eta_p^2= .001$ ] and no significant group-by-time interaction [Pillai's Trace= .054,  $F(4, 274)= 1.919, p= .11, \eta_p^2= .03$ ]. However, it was detected that for the linear combination of the violence tendency and social problem solving skills posttest and follow-up test mean scores (adjusted for pretest differences) there was a significant multivariate effect for group (experimental-control-placebo) [Pillai's Trace= .499,  $F(4, 274)= 22.756, p= .000, \eta_p^2= .25$ ]. Partial eta-squared ( $\eta_p^2$ ) was calculated to explore proportion of the variance in the dependent variables explained by the independent variable. Based on the partial eta-squared, it was determined that 25% [a high effect size according to Green and Salkind (2005)] of the variance of the linear combination of dependent variables was associated with the group factor.



Univariate ANCOVAs were performed for each of the dependent variables since the main effect was determined for group factor in the multivariate analysis. Prior to analysis, Bonferroni-correction was made to prevent Type I error inflation ( $.05/2 = .025$ ). Univariate  $F$ -tests indicated a statistically significant difference among the groups in terms of violence tendency [ $F(2, 137) = 57.655$ ,  $p = .000$ ,  $\eta_p^2 = .46$ ] and social problem solving skills [ $F(2, 137) = 26.392$ ,  $p = .000$ ,  $\eta_p^2 = .28$ ]. Because the factor had more than two levels (experimental, control, and placebo groups) and univariate  $F$ -test results were significant, a special command was performed on SPSS software to conduct pairwise comparisons in order to determine whether there are statistically significant differences between the groups for the adjusted mean scores of each dependent variable. Bonferroni-correction was used in the analyses in order to prevent the increase of Type I error ratio. Because three different pairwise comparisons (experimental vs control, experimental vs placebo, and control vs placebo) will be made for each dependent variable, the corrected alpha was set at  $.004$  ( $.025/6$ ). Results obtained for the pairwise comparisons of the adjusted mean scores of the posttest and follow-up test for groups are presented in Table 5.

**Table 5.** Pairwise Comparisons of Adjusted Mean Scores of Posttest and Follow-Up Test For Groups

Groups	Dependent Variables	Adjusted mean scores of posttest and follow-up test ( $\bar{Y}_i$ )	Adjusted mean differences ( $\bar{Y}_i - \bar{Y}_k$ )		
			1.	2.	3.
1. Experimental	Violence Tendency	27.77	-		
	Social Problem Solving Skills	14.74	-		
	Violence Tendency	36.00	-8.235*	-	
2. Control	Social Problem Solving Skills	12.16	2.585*	-	
	Violence Tendency	34.80	-7.028*	-1.206	-
	Social Problem Solving Skills	12.99	1.751*	.834	-
3. Placebo					

\*  $p < .004$

As can be seen in Table 5, when the pretest scores were controlled, it was determined that violence tendency adjusted mean scores ( $\bar{Y}_i = 27.77$ ) of students in the experimental group was lower in comparison with that of the control ( $\bar{Y}_i = 36.00$ ) and placebo group ( $\bar{Y}_i = 34.80$ ) [experimental vs control,  $p = .000$ ; experimental vs placebo,  $p = .000$  for violence tendency dependent variable] and that social problem solving skills adjusted mean score ( $\bar{Y}_i = 14.74$ ) of experimental group was greater, at a statistically significant level, than those of the control ( $\bar{Y}_i = 12.16$ ) and placebo group ( $\bar{Y}_i = 12.99$ ) [experimental vs control,  $p = .000$ ; experimental vs placebo,  $p = .000$  for social problem solving skills dependent variable]. However, no statistically significant difference has been determined as a result of the pairwise comparisons carried out between the control and placebo groups for violence tendency adjusted mean scores ( $p = .149$ ) as well as social problem solving skills adjusted mean scores ( $p = .024$ ). Bonferroni-corrected post hoc test was also used in addition to the contrast analyses in order to examine the univariate effects detected in the study. Each comparison was tested at the  $.004$  ( $.025/6$ ) alpha level as was the case for previous comparisons. Bonferroni-corrected post hoc tests revealed that the violence tendencies of the students in the experimental group decreased significantly in comparison with those of the control ( $p = .000$ ) and placebo groups ( $p = .000$ ). However, no statistically significant difference was found between the control and placebo groups ( $p = .448$ ). Similarly, a statistically significant increase has been determined in the social problem solving skills of the students in the experimental group in comparison with those of the students in the control ( $p = .000$ ) and placebo groups ( $p = .000$ ). However, no statistically significant difference was observed between

the control and placebo groups in respect of the social problem solving skills posttest and follow-up test mean score adjusted according to pretest scores ( $p = .072$ ). All these results suggest that the students in the experimental group who participated in peace education program reported lower violence tendency and higher social problem solving skills in comparison with those of the students in the control and placebo groups.

### **Discussion, Conclusion, and Suggestions**

In this study, the central hypothesis was tested in order to investigate the effects of peace education program on the violence tendencies and social problem solving skills of ninth grade students. In the analysis in which repeated measures one-way MANCOVA was used, both for the combination of posttest and follow-up test mean scores (adjusted according to pretest mean scores) and for the univariate  $F$ -test results, statistically significant differences between the groups were determined. When the partial eta-squared value was examined, it was determined that, according to Green and Salkind (2005), the statistically significant results obtained in this study had a high effect size. Pairwise comparisons between the groups put forth that the violence tendencies of participants in the experimental group decreased and social problem solving skills increased significantly in comparison with those of the participants in the control and placebo groups. In the comparisons between control and placebo groups for both dependent variables, there were no statistically significant differences between these two groups. Based on these results, within the limitations of this study, it can be stated that peace education program is effective in decreasing the violence tendencies of students as well as increasing their social problem solving skills. When it was investigated whether the results obtained in the current research are in accordance with previous researches, it was observed that similar findings are reported in the literature. In national and international literature, in experimental researches based on themes of conflict resolution, negotiation, peer mediation, or peace education and conducted with primary school, middle school, and high school sample (Akgün & Araz, 2014; Durant, Barkin, & Krowchuk, 2001; Karataş, 2011; Sadri-Damirchi & Bilge, 2014; Sağkal, 2011; Shapiro, Burgoon, Welker, & Clough, 2002; Türnüklü, Kaçmaz, Gürler, Şevkin et al., 2010), aggressiveness levels of participants in the experimental group decreased significantly compared to participants in the placebo and/or control groups. Similarly, in national literature, in experimental researches on elementary, middle, and high school samples regarding conflict resolution, negotiation, peer mediation, or peace education (Akgün & Araz, 2014; Bedel & Arı, 2011; Karataş, 2011; Sadri-Damirchi & Bilge, 2014; Türnüklü, Kaçmaz, Gürler, Türk et al., 2010), it was determined that conflict resolution skills of the students in the experimental group increased significantly in comparison with students in the placebo and/or control groups.

When the events experienced today are taken into account, it is observed clearly that there is a great need for decreasing stereotypes, prejudices, and discrimination at the individual, local, and global level; accepting and respecting differences; establishing unity in diversity; ensuring that individuals understand others' emotions and thoughts; promoting healthy interpersonal relationships among individuals; resolving and managing conflicts constructively and peacefully; reinforcing the culture of dialogue, reconciliation, forgiveness, tolerance, and peace; respecting local values as well as following universal ethical principles; and ensuring that especially equality and social justice is grounded in the community. Thus, it is thought in this study that developing, implementing, testing the effectiveness of a primary prevention program based on the themes of peacemaking and peacebuilding has provided a relatively minor contribution to the creation of a peaceful school, society, country, and world. It is predicted that significant benefits can be attained for both schools and the society in terms of time and costs if such preventive studies become more widespread.

It seems worthwhile to discuss the implications of this research related to schools of the future. When peace and reconciliation are sought at the interpersonal, intergroup and international levels, change and transformation can begin with just by individuals. In this regard, the roles and responsibilities to be undertaken by schools and teachers are very crucial. Teaching and learning environments which are insensitive to culture of peace will more probably increase competition and

rivalry. This context inevitably will create its own human being. Therefore, at each school, peacemaker/peer mediator students must be trained with the idea of peace and peacemaking begins with individual. When tens, hundreds, thousands, tens of thousands, and even hundreds of thousands of peacemaker/peer mediator students are trained in that way, they will be able to transfer skills of peacemaking, negotiation, reconciliation, and dialogue applied in school setting to any other context in adult social life. Thereby, family interactions, work environment, and relations with neighbors will improve further in the future.

Putting all these results together, it can be useful to emphasize some of the strengths of this research. In this study, (i) development of "Peace Education Program: Trainer Manual" and "Peace Education Program: Student Activity Book", (ii) applying to the expert committee, (iii) with pilot study, feasibility testing of package program prior to the experimental treatment, (iv) making final revisions of the peace education program based on expert opinions, participant evaluations, and implementation experiences of the researchers, (v) using control and placebo groups in order to compare the effectiveness of the experimental treatment, and (vi) in addition to pretest and posttest applications, the administration of follow-up test in order to assess the long-term effectiveness of the intervention were main features that make the research methodologically strong.

It has to be stated that all these results obtained in this study have certain limitations. First of all, the methodological limitation of this study was using a quasi-experimental design instead of a true-experimental design because of the fact that students could not be assigned to the experimental, control, and placebo groups randomly. Secondly, the fact that the study was conducted at Anatolian High Schools, located in the center of a western city, where mostly students from middle socioeconomic status families are educated and interpersonal conflicts are experienced frequently was a limitation of the study with regard to the characteristics of the sample group. Other limitations related to the sample group were using sociometry technique based on student opinions when assigning students to the groups as well as the level of education and ages of the participants. Another limitation of the study was that cadre approach was used instead of total student body approach. Moreover, this study is limited with the peace education program developed by the researchers and the dependent variables used in the study. Finally, the competencies of the researcher who implemented the training program were among the limitations of the study.

It is thought that the following suggestions should be taken into consideration by researchers who will undertake similar studies in the future: (i) The peace education program used in this study can be implemented at similar school settings in order to test the consistency of the results obtained in this study, (ii) peace education programs can be developed that are suitable for different age and class groups and their effectiveness can be evaluated, (iii) the effectiveness of peace education programs can be tested on different sample groups, (iv) the effects of peace education on different dependent variables can be examined (anger management, communication skills etc.), (v) long-term effectiveness of the peace education programs implemented in schools can be examined, (vi) the effectiveness of peace education programs can be examined comparatively with package programs such as conflict resolution and peer mediation, violence prevention, and social skills training, and (vii) cadre and total student body approaches can be applied simultaneously to carry out comparative studies. Finally, it is also thought that establishing the cooperation between and among researchers, principal, school counselors, and teachers is very important for such studies to be successful. Thus, the researchers from outside the schools, who will conduct the study, should ensure that such cooperation is established if they will get involved with the schools.

## References

- Akgün, S. & Araz, A. (2014). The effects of conflict resolution education on conflict resolution skills, social competence, and aggression in Turkish elementary school students. *Journal of Peace Education*, 11(1), 30-45. doi:10.1080/17400201.2013.777898
- Bar-Tal, D. & Rosen, Y. (2009). Peace education in societies involved in intractable conflicts: Direct and indirect models. *Review of Educational Research*, 79(2), 557-575. doi:10.3102/0034654308330969
- Bedel, A. & Arı, R. (2011). Kişiler arası sorun çözme beceri eğitiminin yetiştirme yurdunda yaşayan ergenlerin yapıcı problem çözme ve sürekli öfke düzeylerine etkisi [Interpersonal problem solving skills training's effect on the adolescents' living in orphanages constructive problem-solving and the level of trait anger]. *Pegem Eğitim ve Öğretim Dergisi*, 1(4), 1-10.
- Benbenishty, R. & Astor, R. A. (2005). *School violence in context: Culture, neighborhood, family, school, and gender*. New York: Oxford University Press.
- Bickmore, K. (2001). Student conflict resolution, power "sharing" in schools, and citizenship education. *Curriculum Inquiry*, 31(2), 137-162. doi:10.1111/0362-6784.00189
- Bickmore, K. (2002). Peer mediation training and program implementation in elementary schools: Research results. *Conflict Resolution Quarterly*, 20(2), 137-160. doi:10.1002/crq.17
- Carter, C. C. (2008). Voluntary standards for peace education. *Journal of Peace Education*, 5(2), 141-155. doi:10.1080/17400200802264347
- Casella, R. (2003). Zero tolerance policy in schools: Rationale, consequences, and alternatives. *Teachers College Record*, 105(5), 872-892. doi:10.1111/1467-9620.00271
- Chang, E. C. (1998). Hope, problem-solving ability, and coping in a college student population: Some implications for theory and practice. *Journal of Clinical Psychology*, 54(7), 953-962.
- Cunningham, C. E., Cunningham, L. J., Martorelli, V., Tran, A., Young, J., & Zacharias, R. (1998). The effects of primary division, student-mediated conflict resolution programs on playground aggression. *Journal of Child Psychology and Psychiatry*, 39(5), 653-662. doi:10.1111/1469-7610.00365
- D'Zurilla, T. J. & Goldfried, M. R. (1971). Problem solving and behavior modification. *Journal of Abnormal Psychology*, 78(1), 107-126. doi: 10.1037/h0031360
- D'Zurilla, T. J., Nezu, A. M., & Maydeu-Olivares, A. (2002). *Manual for the Social Problem Solving Inventory-Revised*. North Tonawanda, NY: Multi-Health Systems.
- D'Zurilla, T. J., Nezu, A. M., & Maydeu-Olivares, A. (2004). Social problem solving: Theory and assessment. In E. C. Chang, T. J. D'Zurilla, & L. J. Sanna (Eds.), *Social problem solving: Theory, research, and training* (pp. 11-27). Washington, DC: American Psychological Association.
- Danesh, H. B. & Clarke-Habibi, S. (2007). *Education for peace curriculum manual: A conceptual and practical guide. Education for peace integrative curriculum series* (Volume I). Vancouver: EFP - International Press.
- Dattalo, P. (2013). *Analysis of multiple dependent variables*. Oxford Scholarship Online. doi:10.1093/acprof:oso/9780199773596.003.0003
- Day-Vines, N., Day-Hairston, B., Carruthers, W., Wall, J., & Lupton-Smith, H. (1996). Conflict resolution: The value of diversity in the recruitment, selection, and training of peer mediators. *School Counselor*, 43(5), 392-410.
- Diken, İ. H., Cavkaytar, A., Batu, E. S., Bozkurt, F., & Kurtılmaz, Y. (2011). Effectiveness of the Turkish version of "First Step To Success Program" in preventing antisocial behaviors. *Education and Science*, 36(161), 145-158.
- Durant, R. H., Barkin, S., & Krowchuk, D. P. (2001). Evaluation of a peaceful conflict resolution and violence prevention curriculum for sixth-grade students. *Journal of Adolescent Health*, 28, 386-393. doi: 10.1016/S1054-139X(00)00194-4

- Eskin, M. & Aycan, Z. (2009). Gözden Geçirilmiş Sosyal Sorun Çözme Envanteri'nin Türkçe'ye (Tr-SSÇE-G) uyarlanması, güvenilirlik ve geçerlik analizi [The adaptation of the Revised Social Problem Solving Inventory into Turkish (Tr-SPSI-R): A reliability and validity analysis]. *Türk Psikoloji Yazıları*, 12(23), 1-10.
- Furlong, M. & Morrison, G. (2000). The school in school violence: Definitions and facts. *Journal of Emotional and Behavioral Disorders*, 8(2), 71-82. doi:10.1177/10634266000800203
- Furlong, M., Morrison, G., & Pavelski, R. (2000). Trends in school psychology for the 21st century: Influences of school violence on professional change. *Psychology in the Schools*, 37(1), 81-90. doi:10.1002/(SICI)1520-6807(200001)37:1<81::AID-PITS9>3.0.CO;2-O
- Green, S. B. & Salkind, N. J. (2005). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (4<sup>th</sup> ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7<sup>th</sup> ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Hamarta, E. (2009). A prediction of self-esteem and life satisfaction by social problem solving. *Social Behavior and Personality: An International Journal*, 37(1), 73-82. <http://dx.doi.org/10.2224/sbp.2009.37.1.73>
- Harris, I. M. (1990). Principles of peace pedagogy. *Peace & Change*, 15(3), 254-271. doi:10.1111/j.1468-0130.1990.tb00555.x
- Harris, I. M. (2004). Peace education theory. *Journal of Peace Education*, 1(1), 5-20. doi:10.1080/1740020032000178276
- Harris, I. M. (2010). History of peace education. In G. Salomon & E. Cairns (Eds.), *Handbook on peace education* (pp. 11-20). New York: Psychology Press.
- Harris, I. M. & Morrison, M. L. (2003). *Peace education* (2<sup>nd</sup> ed.). Jefferson, NC: McFarland & Company.
- Haskan, Ö. & Yıldırım, İ. (2012). Şiddet Eğilimi Ölçeği'nin geliştirilmesi [Development of Violence Tendency Scale]. *Eğitim ve Bilim*, 37(163), 165-177.
- Henry, S. (2000). What is school violence? An integrated definition. *The ANNALS of the American Academy of Political and Social Science*, 567, 16-29. doi:10.1177/000271620056700102
- Hirsch, J. K., Chang, E. C., & Jeglic, E. L. (2012). Social problem solving and suicidal behavior: Ethnic differences in the moderating effects of loneliness and life stress. *Archives of Suicide Research*, 16, 303-315. doi:10.1080/13811118.2013.722054
- Johnson, D. W. & Johnson, R. T. (1995a). *Reducing school violence through conflict resolution*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Johnson, D. W. & Johnson, R. T. (1995b). *Teaching students to be peacemakers* (3<sup>rd</sup> ed.). Edina, MN: Interaction Book Company.
- Johnson, D. W. & Johnson, R. T. (1995c). *Our mediation notebook* (3<sup>rd</sup> ed.). Edina, MN: Interaction Book Company.
- Johnson, D. W. & Johnson, R. T. (2006). Peace education for consensual peace: The essential role of conflict resolution. *Journal of Peace Education*, 3(2), 147-174. doi:10.1080/17400200600874792
- Karataş, Z. (2011). Psikodrama teknikleri kullanılarak yapılan grup uygulamasının ergenlerin çatışma çözme becerilerine etkisinin incelenmesi [Investigating the effects of group practice performed using psychodrama techniques on adolescents' conflict resolution skills]. *Kuram ve Uygulamada Eğitim Bilimleri*, 11(2), 601-614.
- Kaya, M. (2001). *Lise 1. sınıf öğrencilerine verimli ders çalışanları kazandırmada grup rehberliğinin etkisi* [The effect of group guidance on providing first grade high school students to gain effective studying habits] (Unpublished master's thesis). İnönü University Institute of Social Science, Malatya.



- Kaya Zengin, M. (2009). Lise I. sınıf öğrencilerine verimli ders çalışma alışkanlıkları kazandırmaya dönük bir grup rehberliği programı [A group guidance program providing first grade high school students to gain effective studying habits]. In S. Erkan & A. Kaya (Eds.), *Deneysel olarak sınanmış grupla psikolojik danışma ve rehberlik programları III* [Experimentally tested group counseling and guidance programs III] (2<sup>nd</sup> ed., pp. 145-199). Ankara: Pegem Akademi.
- Libresco, A. S. & Balantic, J. (Ed.). (2006). *Peace lessons around world*. New York: Hague Appeal for Peace.
- Lindsay, P. (1998). Conflict resolution and peer mediation in public schools: What works? *Mediation Quarterly*, 16(1), 85-99. doi:10.1002/crq.3890160109
- Miller, T. W. & Kraus, R. F. (2008). School-related violence: Definition, scope, and prevention goals. In T. W. Miller (Ed.), *School violence and primary prevention* (pp. 15-24). New York: Springer.
- Özdemir, A. (2005). *Sınav kaygısı ile başa çıkma programının lise II. sınıf öğrencilerinin sınav kaygısı düzeyine etkisi* [Effectiveness of test anxiety coping program on test anxiety levels of junior high school students] (Unpublished master's thesis). Hacettepe University Institute of Social Science, Ankara.
- Özdemir, A. & Ergene, T. (2005). Sınav kaygısıyla başa çıkma programının lise ikinci sınıf öğrencilerinin sınav kaygısı düzeyine etkisi [Effectiveness of test anxiety coping program on test anxiety levels of junior high school students]. In S. Erkan & A. Kaya (Eds.), *Deneysel olarak sınanmış grupla psikolojik danışma ve rehberlik programları II* [Experimentally tested group counseling and guidance programs II] (pp. 273-295). Ankara: Pegem Akademi.
- Özdemir, Y., Kuzucu, Y., & Koruklu, N. (2013). Social problem solving and aggression: The role of depression. *Australian Journal of Guidance and Counselling*, 23(1), 72-81. doi:10.1017/jgc.2013.1
- Pişkin, M. (2010). Examination of peer bullying among primary and middle school children in Ankara. *Education and Science*, 35(156), 175-189.
- Pişkin, M., Öğülmüş, S., Çinkır, Ş., Ayas, T., Babadoğan, C., Çokluk, Ö., ... Şahan, B. (2011). *Liselerde şiddetin saptanması ve okul temelli şiddeti önleme programının geliştirilmesi* [Determining violence in high schools and developing a school based violence prevention program] (Tübitak/Sobag Project Report, Project No: 108K305). Ankara: Tübitak/Sobag.
- Raykov, T. & Marcoulides, G. A. (2008). *An introduction to applied multivariate analysis*. New York: Routledge.
- Reardon, B. A. (2000). Peace education: A review and projection. In B. Moon, M. Ben-Peretz, & S. Brown (Eds.), *Routledge international companion to education* (pp. 397-425). New York: Routledge.
- Sadri-Damirchi, E. & Bilge, F. (2014). The effect of peace education program on the seven-grade student's conflict resolution and communication skills. *Education and Science*, 39(175), 309-318. doi:10.15390/EB.2014.2983
- Sağkal, A. S. (2011). *Barış eğitimi programının ilköğretim 6. sınıf öğrencilerinin saldırganlık eğilimleri, empati düzeyleri ve barışa ilişkin görüşleri üzerindeki etkisinin incelenmesi* [Investigating the effect of peace education program on the sixth grade elementary students' aggressiveness tendencies, empathy levels, and perceptions related to peace] (Unpublished master's thesis). Dokuz Eylül University Institute of Educational Science, İzmir.
- Sağkal, A. S., Türnüklü, A., & Totan, T. (2012). Kişilerarası barış için empati: Barış eğitiminin empati becerilerine ekileri [Empathy for interpersonal peace: Effects of peace education on empathy skills]. *Kuram ve Uygulamada Eğitim Bilimleri*, 12(2), 1447-1460.
- Shapiro, J. P., Burgoon J. D., Welker, C. J., & Clough, J. B. (2002). Evaluation of the peacemakers program: School-based violence prevention for students in grades four through eight. *Psychology in the Schools*, 39(1), 87-100. doi:10.1002/pits.10040
- Siu, A. M. H. & Shek, D. T. L. (2010). Social problem solving as a predictor of well-being in adolescents and young adults. *Social Indicators Research*, 95(3), 393-406. doi:10.1007/s11205-009-9527-5

- Siyez, D. M. (2009). Liselerde görev yapan öğretmenlerin istenmeyen öğrenci davranışlarına yönelik algıları ve tepkileri [High school teachers' perceptions of and reactions towards the unwanted student behaviors]. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi*, 1(25), 67-80.
- Sumi, K. (2012). Relationship of social problem-solving ability with interpersonal relationships: A prospective study among Japanese women and men. *Psychological Reports: Relationships & Communications*, 111(3), 929-937. doi:10.2466/21.20.28.PR0.111.6.929-937
- Tabachnick, B. G. & Fidell, L. S. (2007). *Using multivariate statistics* (5<sup>th</sup> ed.). Boston, MA: Allyn and Bacon.
- Türnüklü, A., Kaçmaz, T., Gürler, S., Şevkin, B., Türk, F., Kalender, A., & Zengin, F. (2010). The effects of conflict resolution and peer mediation training on primary school students' level of aggression. *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, 38(1), 13-22. doi:10.1080/03004270902760668
- Türnüklü, A., Kaçmaz, T., Gürler, S., Türk, F., Kalender, A., Zengin, F., & Şevkin, B. (2010). The effects of conflict resolution and peer mediation training on Turkish elementary school students' conflict resolution strategies. *Journal of Peace Education*, 7(1), 33-45. doi:10.1080/17400200903370928
- Türnüklü, A., Kaçmaz, T., İkiz, E., & Balcı, F. (2009). *Liselerde öğrenci şiddetinin önlenmesi: Anlaşmazlık çözümü, müzakere ve akran-arabuluculuk eğitim programı* [Preventing student violence in high schools: Conflict resolution, negotiation, and peer-mediation training program]. Ankara: Maya Akademi.
- UNESCO, UNHCR, & INEE (2005). *Inter-agency peace education programme: Skills for constructive living*. Paris: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0014/001442/144251e.pdf>
- Uzbaş, A. (2009). Okul psikolojik danışmanlarının okulda saldırganlık ve şiddete yönelik görüşlerinin değerlendirilmesi [The evaluation of school counselors' opinions about school violence and aggression]. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, 9(18), 90-110.
- Uzbaş, A., Öz, F. S., & Topçu Kabasakal, Z. (2012). İlköğretim ve ortaöğretim okullarında reaktif ve proaktif saldırganlık: Okul psikolojik danışmanlarının görüş ve yaklaşımları [Reactive and proactive aggression in elementary and high schools: School counselors' views and approaches]. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, 23, 354-370.
- Uzbaş, A. & Topçu Kabasakal, Z. (2009). İlköğretim okullarında saldırganlık ve şiddet davranışlarının yaygınlığı [The prevalence of aggressive and violent behaviors among elementary school students]. *İlköğretim Online*, 9(1), 93-105.