Original Research

The Effect of Education Based on the Theory of Planned Behavior on Aggression: The Case of School Boys in Iran

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Abstract:

Background:

Education plays an important role in reducing aggression and correcting behavior. The present study investigated the effect of education based on the theory of planned behavior on aggression

Methods:

90 adolescents with an age range of 15-13 years. In the experimental group (45 people), five 90-minute training sessions were held in groups based on the components of the theory of planned behavior. Prior to the intervention, there was no significant difference between the two groups in the total score of aggression components (i.e. physical, verbal and hostile dimensions).

Results:

However, immediately after the educational treatment and one month after it, these dimensions of aggression and the total score of aggression in the treatment group were significantly lower than those of the control group (P<0.001).

Conclusion:

Based on this study, education based on the theory of planned behavior is an effective method in controlling aggression and boosting attitude, power awareness and decision making in adolescents.

Keywords: Education, Pattern of Planned Behavior, Aggression, Adolescence.

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Introduction

Adolescence is one of the most pivotal age periods and adolescents are one of the most vulnerable social groups in every society. The importance of this critical stage becomes more prominent inasmuch as adolescent's health is considered as the foundation upon which the future health of the whole society is founded (1). Unfortunately, the evidence suggests a high prevalence of mental disorders in childhood and adolescence. According to the World Health Organization, the ratio of mental disorders in different countries for the population under the age of 16 varies from 12 to 29 percent; merely 10 to 22 percent of the cases are diagnosed by the medical care system (2). One of the emotions prevailing among adolescents is anger. Anger is the consequence of encountering an obstacle that, consequently, leads to aggression— which is a general reaction to the desires being left unmet. Aggression is a critical risk factor in the science of psychopathology and a sign of several disorders among children and adolescents. Aggression appears to be the most rampant and disturbing behavior among deviant human behaviors in society. Furthermore, in the stages of human development from childhood to senility, the most aggressive behavior is witnessed during adolescence(3).

Studies have reported a high prevalence of aggressive behaviors during adolescence, especially in schools(4). All the world over, 25,000 homicides occur between the ages of 10 and 29 annually, and aggression can be one of their underlying causes. It is worthwhile to note that aggression remains constant if left untreated during childhood, and the response to treatment tends to decline by time, bringing about antisocial personality and other psychiatric disorders(5). Studies in the world, including Iran, have documented that educational and anger management programs are efficacious in curtailing aggression amongst adolescents(5-10). Among these strategies, there are few comprehensive and consistent programs that can cover all facets of aggression. Moreover, in most studies, it has been more the implementation methods which have been varied rather than the presented contents. Thus, there is a void in these studies. The planned behavior pattern provides a framework for studying attitudes through behaviors. According to this model, the most salient factor determining a person's behavior is the intention of the person that leads to a behavior and is a combination of attitudes toward behavior, mental norms and perceived behavioral control(11).

Adolescents and young people are an active and dynamic force in society and, therefore, this active population cannot be overlooked; in effect, it is quintessential to recognize their attitudes, characteristics, problems, issues and desires and elicit the right way to communicate with them or rectify them, if needed (12). Most researchers who have come up with major plans grappling with violence in schools emphasize that violence prevention programs should be part of the curriculum in schools and that students should be as involved, guided and trained in violence prevention as they are in heart disease, cancer and other diseases (13). Therefore, it is necessary to take measures to reduce aggressive behaviors. Due to the dearth of studies in this area, the aim of this study is to determine the effect of education based on the theory of planned behavior on aggression in adolescents aged 13-15.

Materials and Methods

Participants

This clinical trial study was performed on 90 students studying in Abdullah Nejad and Salman Farsi public schools in Mashhad, Iran in 2018. In this study, students were selected through non-random availability sampling method. First, two schools were selected from among Mashhad schools that were almost identical in terms of grade level,

Table 1: Educational Intervention plans

Session	Descriptions	Training method	Educational materials/aids	Time	Trainer
First session	Start some warm-ups to establish a friendly atmosphere; explain the purpose of the meetings; express the expectations and rules of the meetings; have an introduction on the dimensions of health, recognizing anger and aggression and all kinds of aggressive behaviors; homework	Lectures and group discussions	Whitebeard Magic power point, Educational clips	90 minutes	Researcher
Second session	Reviewing previous session; counting the causes of aggression, the importance of good interaction with others, self-awareness skills, listening skills, the risk of violence in adolescents and the effects and dangers of aggression; brainstorming the willingness to alter attitudes; practical demonstration of communication with others; homework	Lectures and group discussions	Whitebeard Magic power point, Educational clips	90 minutes	Researcher
Third session	Having tutorials on: how to live together; the effects of the media and others on aggression; what parents and teachers say about aggression (teachers' speeches aimed at boosting the right mental norms).	Lectures and group discussions	Whitebeard Magic power point, Educational clips	90 minutes	Researcher
Fourth session	Preventive interventions for aggression control; strengthening communication skill, empathy skills and problem solving skills; various methods for resolving differences and conflicts; practical demonstrations about empathy and problem solving; homework	Lectures and group discussions	Whitebeard Magic power point, Educational clips	90 minutes	Researcher
Fifth session	The previous sessions were reviewed; various methods of dealing with problems, anger management methods, appropriate apology methods and effective relaxation methods (slow breathing) were zoomed on; having practical demonstrations by students to emphasize the issue	Lectures and group discussions	Whitebeard Magic power point, Educational clips	90 minutes	Researcher

approximate number of students, geographical location and educational facilities. The two schools were then divided into experimental and control groups randomly. Male students

aged 15-13 who were living with their parents, had the ability to communicate verbally, were studying and obtained a score of 77.8 or higher in the Bass and Perry Aggression Questionnaire were included in the study. Their selection was finalized after parental consent was garnered. Based on a health and mental well-being report approved by a health agent, they also had no acute or chronic physical or mental illness. Students with severe traumatic experiences, severe illness, decease of loved ones, parental unemployment, relocation and a history of psychiatric illness, and medication use were excluded from the study. Students who wished to drop out for any reason or those who missed more than two scheduled sessions were excluded from the study. In this study, we tried to control the moderating variables by randomly selecting the participants, removing the variables affecting the research results and monitoring the participants

Table 2: Mean and frequency distribution of demographic and background variables for adolescents studied in the treatment and control groups

Variables		Case group	Control group	Test results
Age		13.9 ± 0.8	13.9 ± 0.9	P = 0.928*
Grade level	Seventh Eighth Ninth	15(33.3) 14(31.1) 16(35.6)	11(24.4) 15(33.3) 19(42.2)	P = 0.377*
GPA (from 20)		16.9 ± 1.9	17.4 ± 1.5	P = 0.160**
Number of family members		4.7 ± 1.0	4.6 ± 0.9	P = 0.733*
Birth order		1.8 ± 1.1	1.8 ± 0.9	P = 0.838*
Number of sisters		0.7 ± 0.7	0.8 ± 0.7	P = 0.302*
Number of brothers		1.0 ± 0.9	0.8 ± 0.7	P = 0.107*
Economic status	High Good Average Low	6 (13.3) 20 (44.4) 16 (35.6) 3 (6.7)	3 (6.7) 26 (57.8) 15 (33.3) 1 (2.2)	P = 0.763*
entertainment facilities	Yes No	37 (82.2) 8 (17.8)	43 (95.6) 2 (4.4)	P = 0.090***
Aggression	Yes No	16 (35.6) 29 (64.4)	11 (24.4) 34 (75.6)	P = 0.250****

(*: Mann- Whitney, **: Independent t test, ***: exact fisher, ****: chi – square)

Table 3: The mean and standard deviation for verbal, physical, anger and hostility dimensions of aggression and the total aggression score of the studied adolescents before and after the intervention

Variables		Case group	Control group	Inter-group test results
	Before intervention	16.0 ± 2.9	16.6 ± 3.3	P = 0.378*
Verbal	Immediately after intervention	13.0 ± 2.6	17.2 ± 3.1	P < 0.001*
aggression	One month after intervention	13.6 ± 2.6	17.2 ± 3.4	P < 0.001**
	The difference between pre and post intervention	-3.0 ± 2.5	0.6 ± 2.4	P < 0.001**
		P < 0.001	P = 0.138	
	Intra-groups results	Freidman	Repeated	
			measures	P = 0.647*
		27.1 ± 5.7		P < 0.001*
Physical	Before intervention	21.7 ± 5.7	26.6 ± 5.3	P < 0.001*
aggression	Immediately after intervention	21.9 ± 4.8	28.2 ± 5.2	P < 0.001**
	One month after intervention	-5.4 ± 3.5	27.5 ± 5.3	
	The difference between		1.6 ± 2.8	
	Intra-groups results	P < 0.001		
		Repeated	P < 0.001	P = 0.008*
	Before intervention	measures	Repeated	P < 0.001*
	Immediately after intervention		measures	P < 0.001*
Anger	One month after intervention	23.8 ± 4.4		P < 0.001*
	The difference between	18.0 ± 4.2	21.3 ± 4.3	
	Intra-groups results	18.4 ± 4.1	23.0 ± 5.0	
		-5.9 ± 3.6	23.0 ± 4.7	
	Intra-groups results		1.7 ± 3.4	P = 0.310*
		P < 0.001		P < 0.001*
	Before intervention	Repeated	P < 0.001	P < 0.001**
	Immediately after intervention	measures	Repeated	P < 0.001**
Hostility	One month after intervention		measures	
	The difference between	26.8 ± 4.9		
	Intra-groups results	21.6 ± 4.1	25.7 ± 5.2	
		22.1 ± 3.9	27.3 ± 5.7	P = 0.167**
	Intra-groups results	-5.2 ± 3.9	26.7 ± 4.7	P < 0.001*
			1.6 ± 2.8	P < 0.001**
		P < 0.001		P < 0.001**
Total score for	Before intervention	Friedman	P = 0.001	
aggression	Immediately after intervention	93.8 ± 12.6	Repeated	
	One month after intervention	74.3 ± 12.3	measures	
	The difference between	76.0 ± 11.1		
	Intra-groups results	-19.4 ± 8.0	90.2 ± 9.8	
			95.7 ± 11.3	
	Intra-groups results	P < 0.001	94.5 ± 9.5	
		Friedman	5.5 ± 6.4	
			P < 0.001	
			Friedman	

) *: independent T test, **: Mann- Whitney)

Training procedure

As exhibited in Table 1, aggression control training, through education based on planned

theory, was conducted in 5 sessions. Held in groups, these trainings were performed two days a week for 90 minutes. The Bass and Perry questionnaire for gauging aggression and the questionnaire for planned behavior theory were completed immediately and one month after the intervention in both groups.

After the training sessions, a copy of the training booklet was given to the treatment group to observe the ethical standards.

Bass and Perry Aggression Questionnaire (BPAQ)

The Bass and Perry questionnaire, which is a self-report inventory, was used to gauge adolescent aggression. This questionnaire includes 29 items and four subscales which are physical aggression (verbal), verbal aggression, anger and hostility (holding grudge). Participants for each item are required to reply on a 5-point Likert scale: totally expresses my characteristics (5), partially expresses my characteristics (4), only slightly expresses my characteristics (3), is partly contrary to my characteristics (2), is completely contrary to my characteristics (1). The range of scores in this tool is between 29 and 145, which includes: 9 items of physical aggression subscale with the range of scores between 9 and 45; 5 items for the verbal aggression subscale with the range of scores between 5 and 25; the anger subscale with 7 items and the scores having a gamut of 7 to 35; and the hostility subscale comprised of 8 items with a score range between 8 and 40. Item 17 from the physical aggression subscale and item 7 from the anger subscale were scored reversely. The information in this section was completed by students in both groups before, immediately after and one month after the intervention.

Mohammadi reported high validity for this inventory; each factor of the aggression questionnaire had a high correlation with the whole questionnaire, having the minimum and maximum correlation of 0.7 and 0.81, respectively. In the test-retest coefficient method, the total coefficient ratio on the aggression questionnaire was 0.78. In the descriptive method, the Spearman-Brown correlation coefficient was reported to be 0.73 for the whole scale, and the internal consistency measured by Cronbach's alpha index was reported to be 0.89 for the entire questionnaire(14). The other studies confirmed the validity and reliability of BPAQ(15).

The Questionnaire of Planned Behavior Theory

This questionnaire is comprised of different questions (i.e. 5 questions related to the construct of attitude, 4 questions related to the construct of mental norm, 4 questions related to the construct of intention, 6 questions related to the structure of perceived behavioral control and 11 questions related to the construct of behavior). These questions tap into the construct of planned behavior and measure attitude with 5 statements on a 5-point Likert scale (strongly agree (5), agree (4), no idea (3), disagree (2), strongly disagree (1)). The score range is between 5 and 25 and the higher the score, the closer to correct attitude towards aggression. Mental norm is measured with 4 questions on a 5-point Likert scale (strongly agree (5), agree (4), no idea (3)), disagree (2), strongly disagree (1)) and the score range is between 4 and 20; the higher the score , the closer the participant is to the right mental norm for aggression. The intention factor has 4 questions on a 5-point Likert scale (Strongly agree (5), agree (4), no idea (3), disagree (2), strongly disagree (1) and has a score range of 4 to 20. Here, the a higher the score, the stronger the intention of the individual to quit aggressive behavior. The component of perceived behavioral control, comprised of 6 questions, shows the degree of control of the studied samples in the prevention of aggression. These questions should be answered on a 5-point Likert scale (i.e. always (5), most of the time (4), sometimes (3), rarely (2) and never (1)) and the score range for this

subscale is between 6 and 30. Moreover, 11 questions measure aggressive behavior on a 5-point Likert scale (always (5), most of the time (4), sometimes (3), rarely (2) and never (1)). The range of scores to be obtained for this subscale was between 11-55. The validity and reliability of the questionnaire were confirmed by a schematic study which used Cronbach's alpha method to measure its reliability. The reliability of the scales where as follows: attitude construct α:0.0728, mental norm α:0.0682, intention α:0.0764, perceived behavioral control: α:0.0709, and behavior: α:0.0796 (16).

Data analysis

Data analysis was performed by SPSS software (version 16). First, the normality of the quantitative variables was tested by Kolmogorov–Smirnov and Shapiro-Wilk tests.

Table 4: Mean and standard deviation for attitude, intention, mental norm, perceived behavioral control and behavior of adolescents before and after the intervention in the treatment and control groups

Variables		Case group	Control group	Inter-group test results
Attitude	Before intervention	14.8 ± 4.6	12.6 ± 3.4	P = 0.012*
	Immediately after intervention	10.9 ± 3.7	14.6 ± 4.2	P < 0.001**
	One month after intervention	10.9 ± 3.4	13.6 ± 3.9	P = 0.001**
	The difference between	-3.9 ± 4.1	2.0 ± 3.3	P < 0.001**
	Intra-groups results	P < 0.001 Friedman	P < 0.001 Repeated measures	P = 0.763*
Intention		13.1 ± 4.1	13.4 ± 3.5	P < 0.001**
	Before intervention	16.7 ± 2.7	13.7 ± 3.1	P < 0.001**
	Immediately after intervention	17.0 ± 2.1	13.5 ± 2.9	P < 0.001**
	One month after intervention	3.6 ± 2.7	0.3 ± 3.7	
	The difference between	P < 0.001	P = 0.891	
	Intra-groups results	Friedman	Friedman	P = 0.242**
				P = 0.064**
Mental norm		16.4 ± 3.1	16.7 ± 3.9	P = 0.098**
	Before intervention	17.6 ± 2.8	16.0 ± 4.3	P = 0.003**
	Immediately after intervention	17.6 ± 2.4	16.1 ± 3.9	
	One month after intervention	1.2 ± 2.1	- 0.7 ± 4.0	
	The difference between	P < 0.001	P = 0.508	
	Intra-groups results	Friedman	Friedman	P = 0.006*
				P < 0.001*
Perceived control behaviour		19.2 ± 5.3	16.5 ± 3.3	P < 0.001*
		21.5 ± 4.3	16.5 ± 3.6	P = 0.001**
	Before intervention	22.3 ± 3.6	16.6 ± 2.5	
	Immediately after intervention	2.3 ± 3.7	0.0 ± 3.6	
	One month after intervention			P = 0.298**
	The difference between	P < 0.001	P = 0.993	P < 0.001**
	Intra-groups results	Friedman	Repeated measures	P < 0.001**
				P < 0.001*
Behaviour		27.1 ± 6.8	29.1 ± 7.0	
	Before intervention	22.4 ± 6.2	30.9 ± 6.6	
	Immediately after intervention	22.4 ± 5.2	30.8 ± 6.6	
	One month after intervention	-4.7 ± 4.4	1.8 ± 4.0	
	The difference between			
	Intra-groups results	P < 0.001 Repeated measures	P = 0.001 Friedman	

(*: independent T test, **: Mann- Whitney)

Central tendency, frequency and distribution indices were used to describe the characteristics of students. Homogeneity of qualitative variables were assessed by Chi-square or Fisher tests; quantitative variables with normal distribution were analyzed by independent t-test. Variables without normal distribution were analyzed by Mann-Whitney test. To achieve the main objectives of the study, for intergroup comparison, independent t-test (or alternatively Mann-Whitney test in case the data were non-normal) was utilized. Analysis of variance with repeated measures (or Friedman test if distribution was normal) was used for intragroup comparison. The relationship between the main variables with the contextual and moderating variables in the two groups was investigated by two-way analysis of variance. In all tests, 95% confidence interval and 80% power were considered; significance level in the tests were considered to be less than 0.05.

Ethical considerations

Having introducing themselves, the researchers explained the purpose, context and objectives of the research to the students. Then, the informed consent form was completed by the participants and the parents in the school in the presence of the researchers. This study has been approved by the ethics committee at the School of Nursing and Midwifery of Mashhad University of Medical Sciences with design code of 961419 and ethics code of IR.MUMS.REC.1397.064. This study has been registered in irct.ir site (code: IRCT20180813040780N1).

Results

In this study, 45 students were included in the treatment group and 45 students in the control group. Table 2 summarizes the personal characteristics of the two groups. According to the test results, the two groups were homogeneous in terms of demographic and background variables (P value> 0.05). In the treatment group, 50% and in the control group 36.4% of the adolescents who had reported aggression in relatives, their father was the aggressive person.

Independent t-test was used to compare the two groups in terms of quantitative normal variables and Mann-Whitney test was used for quantitative non-normal variables. For intra-group tests and three-stage comparison in normal variables, analysis of variance with repeated measures was used and in non-normal variables, Friedman test was used. In cases where there was a significant difference between the three stages, Bonferroni post hoc tests was used for normal variables and Dan test was used for non-normal variables. Table 3 summarizes the information on mean and standard deviation for verbal, physical, anger and hostility dimensions of aggression as well as the total aggression score of the studied adolescents before and after the intervention in the treatment and control groups.

In addition to the aggression score and its dimensions, the score of the constructs of the theory of planned behavior was measured in the stages before the intervention, immediately after the intervention and one month after it; the results are displayed in Table 4.

Only interaction between the educational level and the group (P=0.012), the interaction between the number of family members and the group (P=0.026) and the interaction between the number of brothers and the group (P=0.015) were significantly different for the overall score of aggression one month after the intervention vis-à-vis before it. In other cases, there was no independent or interactive effect of contextual and intervening variables on the difference in the overall score of aggression one month after the intervention compared with before it (P>0.05). In none of the cases was there an independent or interactive effect of the contextual and intervening variables on

the difference in verbal aggression score one month after intervention compared with pre-intervention time (P>0.05). The only significant interactional effects with the physical aggression score were observed between the number of family members and the group (P=0.028), the interaction between the birth order and the group (P=0.036) and the interaction between the number of brothers and the group (P=0.038), one month before the intervention compared with the pre-intervention period. In other cases, there was no significant independent or interactive effect of contextual and intervening variables on the difference in physical aggression score one month after the treatment compared with the pre-intervention time (P>0.05). The only significant interaction was the effect of mother's occupation and group (P=0.039) on anger score in two time periods: before and one month after intervention. In other cases, the independent or interactive effect of contextual and intervening variables on the difference in anger score one month after the intervention in contrast to pre-intervention phase was not significant (P>0.05). Only the effect of aggression in relatives (P=0.009) on the difference in hostility score was significantly different one month after the intervention in contrast to pre-intervention phase. In other cases, there was no significant independent or interactive effect of contextual and intervening variables on the difference in hostility score one month after the intervention in contrast to pre-intervention phase. (P>0.05).

Discussion

In this study, in the control group before the intervention, the scores of verbal, physical, hostility and anger dimensions of aggression were higher than those of the treatment group. Immediately after the intervention and one month after it in the treatment group, the scores for verbal, physical, hostility and anger dimensions were significantly reduced compared with those of the control group. Regarding the intra-group comparisons, the decrease in verbal, physical, hostility and anger dimensions of aggression in the pupils participating in the treatment group actually indicates the effectiveness of the method. Moreover, there were no significant differences between the two stages immediately and one month after the intervention, which indicates the continuity of the educational method. In fact, in Jones's study, the results of the anger management program lasted up to 28 weeks after the treatment (17). Lavafpour in his study, which is in line with this study, documented that the mean of these dimensions of aggression before the intervention compared to the post-intervention stage was statistically significant (p=0.001) (18).

The results unveiled that the total aggression score in student adolescents in the pre-intervention stage and in the treatment group was higher than that of the control group; nonetheless, immediately and one month after the intervention, the total aggression score declined in the treatment group. Thus, it is safe to state that education based upon the theory of planned behavior has had a positive effect on reducing the overall score of aggression. Immediately after the intervention as well as one month after the intervention were significantly different from the pre-intervention stage. However, the two stages of immediately after and one month after the intervention were not significantly different, giving credence to the continuity of the educational method.

The results of this study are consistent with the study by Lavafpour et al (18). The results showed the positive effect of anger management and aggression intervention using forgiveness therapy model on the level of aggression in male students. In their study also the Bass and Perry aggression questionnaire was used and the educational content was akin to that of the present study(18). The study by

Maleki et al. signaled that this type of education has been able to reduce the aggression evinced by male adolescents. However, in this study, a teen-specific-aggression questionnaire (Eiseng) was used to measure aggression (5). The results of the research by Vaziri et al. were also in harmony with the results of the present study, showing that adolescents are educable and better and more successful results can be achieved at the lowest cost (19).

Being consistent with the findings of the present study, the results of the study by Bry and Kellener revealed a reduction in aggression in the treatment group. It is worthy to note that this reduction was also present during the sessions. That is, the reduction of aggressive behavior is perceivable from week 8 of the intervention and lasts up to 6 months after the intervention, and the results continue until one month after the intervention (19). In a study by Kimiaei et al., it was demonstrated that emotional intelligence training in the experimental group had a positive effect on the dimensions of failure, physical aggression and relationships with peers but did not have an effect on relationships with authorities. The conflict between studies could be due to differences in training methods and the sample size being larger in the present study. While in the mentioned study, Nelson's anger intensity measurement tool was used, in our study, Bass and Perry aggression questionnaire was used(20). According to the results of the study by Vedadian et al., education was effective in resolving conflicts between parents and adolescents, but had no effect on reducing adolescent aggression(21). The results of research by Alijanzadeh et al. exhibited that behavioral therapy reduces adolescent aggression but has no effect on verbal, physical and hostile dimensions of aggression(22).

The findings of this study indicate that there is no significant relationship between age and aggression. The findings reported by Tarshizi confirm such conclusion (23). However, Sharifi Rad et al. in their research found a significant relationship between age and aggression(24).The findings of our study revealed that there is no significant relationship between place of birth, educational level, parents 'education, parents' occupation, birth order and number of family members, number of siblings and grade point average of the previous year and aggression. Likewise, findings of Tarshizi et al.'s study did not show a significant relationship between these variables and aggression. The findings of this study did not report a significant relationship between economic status and aggression (23). However, the findings of Sharifi Rad et al. indicated a significant nexus between economic status and aggression (24).

The results of this study showed a significant difference in the attitude score of the period immediately after the intervention between the two groups and indicated that the educational intervention has an effect on improving the correct attitude toward aggression of students in the treatment group. The findings regarding the mental norm of the treatment group in three stages showed that the mean scores of the experimental group increased immediately in the stage and one month after the intervention. The mean scores of intention of the students in the intervention group increased significantly in the immediate stage after the intervention and in the follow-up stage compared to the control group. In the study of John Jimmott et al., it was shown that this theory is quite capable of predicting the intent of physical violence behavior and predicted 52.8% of the intent of physical violence. This is consistent with the results of our study for the reduction of aggression (25).

In this study, there was a significant difference in the behavioral control score of the stage immediately and one month after the intervention between the two groups. In the present study, a comparison of the changes in the mean scores of perceived behavioral

control in the intervention group showed a significant upward trend immediately and one month after the intervention. In a study, Tolman et al. concluded that the most predictive component for the construct of violent behavioral intents is perceived behavioral control, and that strengthening this component can have the greatest effect on staving off such behaviors. In this study, behavioral control has been considered as the main and most effective cause of misbehavior; according to our study, strengthening these structures can have preemptive impact (26). In a study by Bernie et al., among the main constructs of the theory, perceived behavioral control was reported to be the most effective component for predicting the intent of physical misconduct. The results for the two groups of control and treatment in controlling aggressive behavior showed a significant difference between the two groups ($P<0.001$). In other words, the difference between the mean scores of the two groups indicated that the educational intervention had an effect on improving the control of aggressive behavior (27). In the educational intervention conducted by Taqdisi et al. in the framework of the empowerment model for the prevention of violence against women, a significant reduction in violence against women was observed after the intervention (28).

The results of Noghabi et al.'s study are in line with the results of our study. Both designs have demonstrated reduced adolescents' aggression, and ameliorated attitudes toward aggression as well as increased intent and understanding of behavior control in adolescents. The findings of this study manifest that there is a significant relationship between hostility (one of the dimensions of aggression) and aggression in relatives. Given the fact that this dimension of aggression is a cognitively oriented and refers to the individual's attitude towards issues, it can be construed that the behavior of relatives is effective in creating or morphing the attitudes in adolescents (29,30).

The results of this study showed that the implementation of a training program based on the pattern of planned behavior reduces the aggression of 13-15-year-old boys. They revealed, further, that the use of aggression management program through the method of patterned behavior would reduce aggression in all dimensions (physical, verbal, anger and hostility) compared to the pre-intervention stage. Based on the literature, it can be stated that the intention of violence is more influenced by the behavior of the individual and is less subject to logic and beliefs as well as mental norms. The introduction of behavioral control construct, perceived as the main predictor of intention, is often due to lack of management education and anger management skills in schools and public media. Through education in schools and strengthening behavior, aggression in students can be curbed. The present study, taking into account the special characteristics of adolescents and their cognitive, emotional and social deficiencies, is an attempt to help improve their condition by exercising anger management programs geared towards adolescents aged 13 to 15 years to reduce their aggression and elevate their social adjustment. In future studies, research designs pinpointing the effect of education based on planned behavior on students 'aggression at different ages and levels of education as well as adolescent anxiety, academic quality and the quality of students' relationships with peers are warranted. or the effect of education based on planned behavior pattern. The effect of on-line education based on the theory of planned behavior on adolescent aggression is another research avenue which merits further research designs.

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declaration of interest statement

The authors would like to declare that there is no conflict of interest in this study.

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