Iranian Evolutionary Educational Psychology Journal
IEEPJ
University of Hormozgan
Online ISSN: 2588 - 4395
Homepage: https://ieepj.hormozgan.ac.ir

The Ineffectiveness of Anger Management on Increasing Prosociality: An Experimental Study on Iranian Female High School Students

Alireza Azimpour[✉1], Someyeh Baziari[2], Parisa Abdolrezapour[3], Habib Hadianfard[4]

1. Assistant professor of psychology, Salman Farsi University of Kazerun, Kazerun, Iran, Corresponding author email: a.azimpour@kazerunsfu.ac.ir
2. MA in Psychology, Salman Farsi University of Kazerun, Kazerun, Iran
3. Associate professor of Applied Linguistics, Shiraz University, Shiraz, Iran
4. Professor of Psychology, Shiraz University, Shiraz, Iran

Article Info

Article type:
Research Article

Article history:
Received 21 Nov. 2023
Received in revised form 28 Feb. 2024
Accepted 15 Apr. 2024
Published online 01 June 2024

Keywords:
Aggression,
Anger management,
Cognitive behavioral therapy,
Empathy,
Moral Identity,
Prosocial Behaviors

ABSTRACT

Objective: The causal relationship of antisocial and prosocial tendencies has been in doubt, despite the existing negative correlation. This study addresses this issue by examining the effectiveness of anger management on aggression as an antisocial variable and some prosocial variables including prosocial behaviors, empathy and moral identity.

Methods: From a sample of 146 female high school students in Tangestan (Iran), 40 students with higher aggression were randomly assigned to the experimental and control groups. Participants were asked to complete questionnaires on mentioned variables as pretest, posttest, and 1-month follow up. Ten sessions of CBT-based anger management were administered to the experimental group.

Results: The findings indicated the effectiveness of the intervention on decreasing the aggression level. However, the intervention could not change prosocial variables.

Conclusions: This study showed that decreasing aggression itself is not the cause of increasing prosociality. It seems that to increase prosocial tendencies, other interventions -in addition to anger management- are required.

Cite this article: Azimpour, A., Baziari, S., Abdolrezapour, A. & Hadianfard, H. (2024). The ineffectiveness of anger management on increasing prosociality. *Iranian Evolutionary Educational Psychology Journal*, 6 (2), 217-234.
DOI: https//doi.org/ 10.22034/6.2.217
© The Author(s).
Publisher: University of Hormozgan.
DOI: https// doi.org/ 10.22034/6.2.217

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Introduction

Antisocial and prosocial tendencies may be considered as opposite terms conceptually and by common sense. Some classical views of human nature consider one of them as innate and the other as outcome of social learning (Evcan, 2019). However, some evidence in evolutionary psychology consider both antisocial (Elbert et al., 2017) and prosocial (Piliavin & Charng, 1990) tendencies as innate, originating from human nature and also, not opposite tendencies. In this regard, Elbert et al. (2017) claimed that hostility and aggression against enemies is cultivated as prosocial behavior by societies in the time of war. In the same manner, it was approved that although morality may activate cooperation within groups, it can also activate aggression between groups (Böhm et al., 2018). There may be two spectrums for prosocial tendencies and also for antisocial tendencies in the human's evolutionary capacity; both capacities may be somewhat necessary for human's adaptation. Similarly, in a study it was found that children with combination of aggression and prosocial behavior were more regarded as popular by their peers (Kornbluh & Neal, 2016).

Although, aggression as an antisocial tendency negatively correlate with prosocial/moral–related variables such as prosocial behavior (Houltberg et al., 2016) moral reasoning (Feindler & Engel, 2011), moral identity (Hardy et al., 2015; Hardy et al., 2012; Sage et al., 2006), and empathy (Hardy et al., 2015; Hardy et al., 2012; Jolliffe & Farrington, 2004; Lovett & Sheffield, 2007), two reviews (Lovett & Sheffield, 2007; Vachon et al., 2014) indicated that empathy as a fundamental component of prosocial tendencies has a weak or even no relationship with aggression. Likewise, neurobiological studies among people with appetitive aggression showed that they can feel others' emotions and experience empathy (Elbert et al., 2017).

However, there are some pieces of evidence about the causality; In a review(Anderson et al., 2010), it was concluded that exposure to violent video games is a causal risk factor for both increased aggression and decreased empathy as well as prosocial behavior. To ensure the existence of the causal linkage between antisocial and prosocial tendencies, the experimental design can be helpful. If a mere aggression-reduced intervention (e.g., CBT based anger management) can increase prosocial variables, the causal relationship would be confirmed. One of the successful (Deffenbacher et al., 2002; DiGiuseppe & Tafrate, 2003; Henwood et al., 2015; Lee & DiGiuseppe, 2018) interventions to reduce aggression is anger management based on cognitive behavioral therapy (CBT). The Social-Cognitive model and Social Learning Theory serve as the

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

conceptual framework of anger management interventions. The reviews confirmed the effect sizes from small, medium to large (DiGiuseppe & Tafrate, 2003; Henwood et al., 2015).

This is comprehensible that interventions that have moral education dimension like Aggression Replacement Training (ART) (Feindler & Engel, 2011) affect prosocial tendencies. But the effect of CBT-based anger management on increasing prosocial tendencies is not well-established in the literature. DiGiuseppe and Tafrate (2003) conclude that anger interventions are more specific for aggression and it could not affect other variables. Nevertheless, there are some evidence of its effect on positive variables (DiGiuseppe & Tafrate, 2003; Lee & DiGiuseppe, 2018) or prosocial behaviors (Kellner et al., 2008). However, the intention of those from positive and prosocial behavior was any non-angry behaviors that are educated in anger management as an alternative of aggression and not moral behavior (DiGiuseppe & Tafrate, 2003). The term prosocial behavior, in this study, refers to moral and helping behavior (Penner et al., 2005).

Some antisocial behaviors begin in adolescence and are more common among low socio-economic regions. Therefore, there is a need for interventions to treat or prevent aggression among adolescents (Weis, 2020). Due to some evidence about the lower amount of direct aggression (Björkqvist, 2018) and a higher amount of prosocial tendencies (Azimpour et al., 2015) among females, the focus of such interventions were more on male participants. However, there are also some pieces of evidence that show the indirect aggression is more prevalent among females (Björkqvist, 2018; Weis, 2020). Then, considering the aggression of adolescent girls and having some interventions specially in low socio-economic is necessary. In this regard, the present study attempts to examine a CBT-based anger management protocol (Reilly & Shopshire, 2014) on aggression and its dimensions (i.e., Physical, verbal, anger, hostility) (Buss & Perry, 1992) and also some well-established prosocial-related variables (i.e., empathy, moral identity, and prosocial behaviors) (Aquino et al., 2009; Azimpour, 2019) among some female adolescents in a city with relatively low socio-economic status. In addition, the correlations between the prosocial-related variables and aggression were studied as a marginal aim.

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Material and Methods

Participants

A number of questionnaires were administered among the students of a girls' high school in Tangestan (a city in Iran) to measure their aggression, empathy, moral identity and prosocial behaviors. 146 students (Age mean= 16.19; SD= 0.917) accepted to participate and completed the questionnaires. Among them, 40 students with higher total aggression scores were selected for the intervention. They accepted to participate in the interventions and were randomly assigned to the experimental and control groups. The design was experimental and control group with pretest, posttest and (1-month) follow up. As ethical consideration Informed consent was obtained from the participants. All participants were free not to participate and could stop participation at any time.

Measures

Buss-Perry Aggression questionnaire (BPAQ): The 29-items scale (Buss & Perry, 1992; Ganjeh et al., 2013) was used to measure total aggression and its subscales, including physical aggression, verbal aggression, anger (i.e., emotional component of aggression) and hostility (i.e., cognitive component of aggression). Via present data (N= 146), Cronbach's α was less than 0.7, as a desirable reliability (Groth-Marnat, 2003) for verbal aggression (0.303), anger (0.462), hostility (0.476); however, it was desirable for physical aggression (0.699) and the total score of aggression (0.806).

Prosocial Tendencies Measure (PTM): This measure was developed by Carlo and Randall (2002) to assess prosocial behaviors of late adolescents. It consists 23-items which assess six types of prosocial behaviors, including altruistic (i.e., helping without anticipating the rewards from external sources), anonymous (i.e., helping performed without the knowledge of whom helped), dire (i.e., helping in crisis or emergency situations), emotional (i.e., helping under emotionally evocative circumstances), compliant (i.e., helping in response to a verbal or nonverbal request), and public (i.e., helping in front of others) prosocial behaviors (Azimpour et al., 2012; Carlo & Randall, 2002). In the current sample, Cronbach's α was 0.482 for public, 0.346 for emotional, 0.558 for altruistic, 0.681 for compliant, 0.608 for dire, 0.831 for anonymous, and 0.608 for dire prosocial behavior. The low amount of reliabilities (α< 0.7) may be attributed to low numbers among items of subscales (Groth-Marnat, 2003).

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Self-importance of Moral Identity: the scale (Aquino & Reed II, 2002; Azimpour et al., 2014) with 10-items was used to assess two aspects of moral identity including Internalization (i.e., the degree to which the moral traits are central to the self-concept) and Symbolization (i.e., the degree to which the moral traits are reflected in the respondent's actions in the world). Aquino and Reed II (2002) in developing this scale showed its construct validity via factor analysis and also reported desirable Cronbach's α for it (for internalization: 0.77 and for symbolization: 0.76). Among the present data, Cronbach's α was 0.854 for internalization and 0.713 for symbolization.

Basic Empathy Scale: It consists of 20-items that measures cognitive, affective, and total empathy (Jafari et al., 2017; Jolliffe & Farrington, 2004). In this study, Cronbach's alphas were 0.541, 0.601, and 0.695 respectively.

Intervention

The intervention was according to Reilly and Shopshire (2014) cognitive behavioral manual for anger management. It initially was designed for substance abuse and mental health adult clients in twelve 90-minute weekly sessions. But to administrate it on the population of high school students, some changes were made to it. Due to the time period of the semester, and limitation for getting free time and place for interventions in the school, the intervention was done in ten relatively one-hour sessions, two sessions per week (see Table 1). In fact, some sessions of the standard package were mixed. The therapist (second author of the article) was a M.A. student of psychology and had passed a course in cognitive behavioral therapy and had clinical experience under the supervision of the first author of the article who was a cognitive behavioral therapist.

Table 1. Interventions in the sessions

Sessions	Content
Session 1	Explaining the purpose and overview, group rules, payoffs and the consequences of anger, myths about anger, anger meter, assigning homework
Session 2	Checking homework, identifying events that trigger anger, identifying cues that occur in response to the anger-provoking events, assigning homework
Session 3	Checking homework, instructing and exercising relaxation through breathing, assigning homework
Session 4	Checking homework, discussing about the aggression cycle, instructing and exercising progressive muscle relaxation, assigning homework
Session 5	Checking homework, instructing the A-B-C-D model (activating event-beliefs-emotional, consequences-dispute), instructing thought stopping, assigning homework
Session 6	Checking homework, reviewing the contents of previous sessions, assigning homework
Session 7	Checking homework, assertiveness training, assigning homework
Session 8	Checking homework, instructing conflict resolution model, assigning homework
Session 9	Checking homework, discussing about anger and family, assigning homework
Session10	Checking homework, reviewing the contents of the sessions

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Results

The missing data among 146 students were replaced with median. 54 students were in grade ten, 50 students were in grade eleven and 42 students were in grade twelve. The field of study of 66 students were humanity and the field of study of 80 students were sciences. Table 2 represents descriptive statistics of these students in the variables. As the table represents except public prosocial behavior and also emotional prosocial behavior, the skewness and kurtosis of other variables were between ±1 that indicates normal distribution of them.

Table 2. Descriptive statistics of primary sample

	Mean	SD	Skewness	Kurtosis
Total score of aggression	73.11	15.15	.33	.08
Physical aggression	19.65	5.04	.53	-.06
Verbal aggression	13.64	3.15	.03	-.13
Anger	18.57	6.01	.32	-.49
Hostility	21.25	5.93	.32	-.55
Total score of empathy	72.21	8.22	-.20	.01
Cognitive empathy	33.20	4.08	-.25	-.34
Affective empathy	39.01	5.62	-.1	.01
Internalization of moral Identity	30.25	5.94	-1.84	3.33
Symbolization of moral identity	21.68	6.04	-.05	-.35
Public prosocial behavior	7.06	5.18	7.23	70.14
Compliant prosocial behavior	7.71	1.86	-.41	-.75
Emotional prosocial behavior	14.72	3.94	3.26	26.25
Dire prosocial behavior	9.71	2.78	-.22	-.37
Anonymous prosocial behavior	19.67	4.61	-.57	-.47
Altruistic prosocial behavior	10.59	3.96	.52	-.45

Table 3 represents Pearson correlation coefficients of the variables among the primary sample. According to Table 3, among the 55 correlation coefficients between prosocial variables and aggressive variables, there were only 12 significant correlations (21.82%). Empathy and its dimensions did not have any significant correlation with aggression. In addition, internalized moral identity only correlated negatively with physical aggression. Anonymous prosocial behavior and then altruistic prosocial behavior had higher number of significant negative correlations with aggression and its dimensions. The effect sizes of significant correlations between moral variables and aggressive variables all were small ($r<0.3$), except the medium effect size ($0.5<r<0.3$) (Cohen, 2013) of the correlation between altruistic behavior and hostility.

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Table 3. Correlation coefficients of the variables among all sample (N: 146)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1															
2	.72**	1														
3	.66**	.34**	1													
4	.81**	.49**	.39**	1												
5	.77**	.32**	.48**	.43**	1											
6	-.00	-.04	.07	.03	-.04	1										
7	-.11	-.13˜	.02	-.07	-.12	.78**	1									
8	.08	.03	.09	.1	.03	.89**	.42**	1								
9	-.11	-.14*	-.05	-.02	-.12	.34**	.31**	.28**	1							
10	-.04	-.08	.01	-.09	0.03	.19*	.29**	.06	.26**	1						
11	.136˜	.167*	.08	.14	.15*	-.08	.02	-.13˜	-.09	.1	1					
12	-.1	-.1	-.05	.09	-.06	.19*	.15*	.16*	.31**	.02	.01	1				
13	.04	-.04	.09	.06	.02	.26**	.27**	.19*	.21**	.24**	.18*	.14˜	1			
14	-.1	-.07	.04	-.11˜	-.11˜	-.02	-.02	-.02	.24**	.17*	.1	.23**	.23**	1		
15	-.27**	-.22**	-.21**	-.171*	-.23**	.12˜	.19*	.04	.22**	.07	-.12	.39**	.07	.28**	1	
16	-.24**	-.21**	-.151**	-.03	-.311**	.13˜	.16*	.08	.19**	-.03	-.45**	.09	-.07	-.03	.24**	**1**

1.Total score of aggression, 2. Physical aggression, 3. Verbal aggression, 4. Anger, 5. Hostility, 6. Total score of empathy, 7. Cognitive empathy, 8. Affective empathy,9. Internalization of moral Identity, 10. Symbolization of moral identity, 11. Public prosocial behavior, 12. Compliant prosocial behavior, 13. Emotional prosocial behavior, 14. Dire prosocial behavior, 15. Anonymous prosocial behavior, 16. Altruistic prosocial behavior; **: p<0.01, *: p<0.05, ˜:p<0.05 (1-tailed)

The mean of total aggression among the 40 selected participants was 92.09 (SD= 8.76) and 65.95 (SD= 9.97) among the participants who were not selected (Independent t= 14.59; p<0.001). To compare aggression and the other variables among the pretests of control (20 students) and experimental groups (20 students), Multiple Analysis of variance (MANOVA) was used. Using the total score of a scale besides the score of the subscales in a MANOVA as dependent variables is not recommended due to their high correlations and collinearity (Grice & Iwasaki, 2008). Hence, two MANOVAs were used, one for the total scores of aggression and empathy as dependent variables and another for all other subscales as dependent variables. Both MANOVAs indicated non-significant differences (for the first, Pillai's trace= 0.026; F= 0.49; p= 0.614, and for the second, Pillai's trace= 0.315; F=0.82; p=0.643).

Considering the skewness and kurtosis of between ±3 as the criteria of normality (Kline, 2023), among the 40 participants, some variables in pretest or posttest or follow-up did not have a normal distribution. Then, the univariate data outlier screening was done; Z scores outside the range of ±3 separately for pretest, posttest or follow up of both experimental and control groups was probed. Finally, one participant in the experimental group and three participants in the control group were excluded from analysis. Then, multivariate screening of outlier data by Mahalanobis method was

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

examined and no data were excluded by the method. After omitting the outliers, only the kurtosis of few variables were a little more than 3. Some statisticians consider Kurtosis greater than 10 as a problem for normality (Kline, 2023), then such values were negligible.

To prevent collinearity because of using the total score of a scale, besides the scores of its subscales in a MANOVA as dependent variables (Grice & Iwasaki, 2008), two repeated measure MANOVA were used, one for the total scores of aggression and empathy as dependent variables and another for all other subscales as dependent variables. For the first repeated measure MANOVA, Box's test was not significant (p= 0.189); then, the covariance was equal. Also, for the first, the Levene's test of equality of error variances for all variables in pre, post and fallow up, except posttest of total aggression (p= 0.043), were not significant; therefore, their variances were equal. Mauchly's Test of sphericity was not significant for both variables (p>0.05).

Within-subject effects of the factors × groups for Roy's Largest Root was significant (F= 4.143, p>0.05, η^2= 0.109, Observed Power= 0.713) but Pillai's Trace (F= 2.091, p>0.1, η2= 0.058, Observed Power: 0.609), Wilks' Lambda (F= 2.112, p>0.1, η2= 0.095, Observed Power= 0.614), and Hotelling's Trace (F= 2.131, p>0.1, η2= 0.061, Observed Power= 0.618) have borderline statistical significance (p>0.1). Such significance may be because of the low sample size and it is sometimes acceptable (Figueiredo Filho et al., 2013). In fact, due to the low sample size and also the significance of Roy's Largest Root, it can be noted that the findings confirmed multivariate difference.

For the second repeated measure MANOVA (for all other variables), according to the Levene's test of equality of error variances, except in pretest of cognitive empathy (p = 0.037) and follow up of anonymous prosocial behavior (p= 0.037), all variables in pre, post and follow up were not significant; then, their variances were equal. In addition, Mauchly's Test of Sphericity was not significant except for physical aggression (p= 0.007), anger aggression (p= 0.036), and Internalization of moral identity (p= 0.036). For these 3 variables, the significance have to be examined by Greenhouse-Geisser method. In within-subject effects of the factors × groups, there were not any significant F in any criteria (e.g. for Pillai's Trace, F= 1.044, p= 0.42 , η2= 0.207, and Observed Power= 0.817).

The non-significant multivariate effects points to the non-existence of differences in the combination of the variables, but besides such non-significant multivariate effects, there might be

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

significant univariate effects (Grice & Iwasaki, 2008). Table 4 shows univariate differences of all variables in addition to differences of mean and standard deviation. As the table shows, the significant changes were for the decreases of total aggression, physical aggression, anger, and hostility. This variable change did not have a significant quadratic. Then, the follow ups are not significantly different from the posttest. Considering Partial Eta squared between 0.06 to 0.14 as a medium effect size, and more than 0.14 as a large effect size (Cohen, 2013), it can be said that among the significantly changed variables, anger decreased with a large effect size, total aggression, physical aggression and hostility decreased with a medium effect size.

Table 4. Univariate within-subject (group × factor) and mean differences and standard deviation.

	Group	Pretest	Posttest	Follow up	F	Partial Eta squared	Observed power	Quadratic
		Mean (SD)	Mean (SD)	Mean (SD)				
Total Aggression	Examination	92.69 (6.64)	70.50 (19.76)	69.12 (14.36)				
	Control	90.55 (8.85)	81.08 (18.89)	80.42 (19.01)				
	Univariate within subject (group × factor)				3.541*	0.094	0.640	**1.58**
Total Empathy	Examination	73.94 (14.36)	60.89 (5.39)	70.45 (9)				
	Control	71.23 (9.90)	63.62 (6.82)	70.90 (9.36)				
	Univariate within subject (group × factor)				1.35	0.38	.281	**1.43**
Physical Aggression	Examination	24.26 (3.67)	18.93 (4.81)	18.98 (4.27)				
	Control	22.86 (5.20)	22.92 (7.36)	22.99 (6.55)				
	Univariate within subject (group × factor)				4.76*[G]	.123[G]	.704[G]	**3.25**
Verbal Aggression	Examination	16.69 (2.65)	13.7 (3.81)	13.26 (2.9)				
	Control	15.65 (2.59)	13.84 (3.4)	14.4 (2.59)				

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

	Univariate within subject (group × factor)				1.51	.042	.311	**0.01**
Anger	Examination	24.05 (3.76)	18.37 (4.45)	17.36 (5.6)				
	Control	26.24 (3.92)	21.03 (5.52)	21.43 (5.59)				
	Univariate within subject (group × factor)				21.54*[G]	.388	1	**.09**
Hostility	Examination	27.29 (5.02)	19.5 (7.3)	19.51 (5.29)				
	Control	25.8 (4.93)	23.29 (5.56)	21.6 (6.89)				
	Univariate within subject (group × factor)				3.26*	.088	.20	**3.73**
Cognitive empathy	Examination	33.63 (3.53)	29.41 (4)	32.68 (4.63)				
	Control	31.91 (4.88)	30.62 (4.31)	31.97 (5.04)				
	Univariate within subject (group × factor)				1.56	.04	.32	**2.58**
Emotional empathy	Examination	40.31 (3.89)	31.48 (5.73)	37.77 (4.85)				
	Control	39.32 (6.15)	33 (3.6)	38.93 (5.66)				
	Univariate within subject (group × factor)				.754	.02	.173	**.4**
Internalization of moral Identity	Examination	29.53 (5.08)	29.78 (5.44)	29.7 (5.98)				
	Control	29.29 (7.41)	28.61 (4.93)	29.04 (5.82)				
	Univariate within subject (group × factor)				.136[G]	.004	.07	**.095**
Symbolization of moral Identity	Examination	22.21 (6.11)	22.41 (6.05)	21.69 (5.49)				
	Control	20.6 (5.35)	23.10 (6.82)	21 (5.16)				
	Univariate within subject (group × factor)				.87	.0.25	.195	**.58**
Public Prosocial Behavior	Examination	6.63 (2.86)	6.54 (2.86)	6.26 (3.48)				

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

	Control	6.53 (2.6)	6.71 (4.15)	5.81 (2.28)				
	Univariate within subject (group × factor)				.19	.01	.08	**1.99**
Compliant Prosocial Behavior	Examination	7.67 (1.94)	7.52 (1.46)	7.13 (2.64)				
	Control	7.69 (1.72)	7.67 (1.52)	7.8 (1.64)				
	Univariate within subject (group × factor)				.39	.01	.11	**1.4**
Emotional Prosocial Behavior	Examination	15.31 (2.16)	13.85 (3.5)	13.68 (4.19)				
	Control	14.65 (3.43)	14.89 (2.66)	13.63 (3.69)				
	Univariate within subject (group × factor)				.98	.03	.21	**1.91**
Anonymous Prosocial Behavior	Examination	18.6 (4.26)	19.36 (4.44)	19.13 (6.17)				
	Control	19.67 (4.01)	19.31 (3.32)	16.61 (3.8)				
	Univariate within subject (group × factor)				.64	.02	.16	**1.31**
Dire Prosocial Behavior	Examination	10.05 (2.09)	9.10 (2.7)	9.5 (3.08)				
	Control	9.47 (2.94)	10.20 (2.40)	9.56 (2.87)				
	Univariate within subject (group × factor)				1.67	.05	.34	**3.49**
Altruistic Prosocial Behavior	Examination	10.78 (3.90)	10.04 (3.52)	8.73 (3.01)				
	Control	11.52 (4.5)	10.9 (4.95)	10.42 (3.56)				
	Univariate within subject (group × factor)				.32	.028	.21	**.12**

[G]: Greenhouse-Geisser; *: $p < 0.05$

Discussion

The effectiveness of CBT-based anger management on aggression and its dimensions with medium and large effect size was according to the literature. Indeed, the reviews (DiGiuseppe & Tafrate, 2003; Henwood et al., 2015; Lee & DiGiuseppe, 2018) indicated different effect sizes for

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

the effect of anger management interventions on decreasing aggression. However, the intervention was not effective on verbal aggression. Some studies indicated that among females, aggression is more indirect (Björkqvist, 2018). such indirect aggression may be considered conceptually akin to verbal aggression than physical aggression. Then, this non-effectiveness among the female sample may be a considerable weakness of the intervention.

The ineffectiveness of the intervention on the change of any prosocial variable, besides relatively few numbers of significant correlations with low effect sizes between aggressive variables and prosocial variables, may be considered as a confirmation of the independence of prosocial tendencies and antisocial tendencies. The significant correlations were congruent with the previous studies (Feindler & Engel, 2011; Hardy et al., 2015; Hardy et al., 2012; Houltberg et al., 2016; Jambon et al., 2019; Lovett & Sheffield, 2007; Sage et al., 2006), However, the experimentation showed that the results of these few low correlations do not indicate a causal relationship in the form of considering decreasing aggression as the cause and increasing prosocial tendencies as the effect. This is in coordination with considering anger management as specific to aggression and no other psychological variables (DiGiuseppe & Tafrate, 2003).

However, there would be some suggestions to ensure the existence of no causal relationship in subsequent studies. In this study, aggression as a representative of antisocial tendencies in human nature (Elbert et al., 2017) was tried to be inhibited by anger management. But what about studying the effectiveness of activating aggression on decreasing prosociality at least in a short time (due to ethical consideration)? As mentioned in the literature, a review (Anderson et al., 2010) concluded that exposure to violent video games is a causal risk factor for both increased aggression and decreased empathy and prosocial behavior. Further experimental studies are required to address this issue. Also, it is recommended that future research be undertaken to determine the reverse causal relationship. Further research can explore the effectiveness of applying a pure moral-promoter intervention such as empathy training (Teding van Berkhout & Malouff, 2016) or the activation of moral identity (Aquino et al., 2009) on decreasing aggression.

Due to the ineffectiveness of anger management on increase prosociality, It might be useful to integrate some effective moral educational strategies like empathy training (Teding van Berkhout & Malouff, 2016) or moral identity activation (Aquino et al., 2009) with anger management to increase prosociality/morality among students with aggression and antisocial tendencies. This is

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

in the line of Aggression Replacement Training (ART) (Feindler & Engel, 2011) that combined anger management with efforts to increase moral reasoning. Also, due to ineffectiveness of this intervention on decrease female students' verbal aggression, it can be suggested that in future intervention with female samples, the intervention have to be feminized focusing more on verbal and indirect aggression

Limitations and Suggestions

The study is subject to a number of limitations that need to be acknowledged. Firstly, as calculated, some measures do not have an ideal reliability among the primary sample. Indeed, some of the measures have been validated among Iranian university students and they were not validated among Iranian high school students. Validating or making the scales to assess the variables among Iranian high school students has been suggested based on this limitation. Secondly, social desirability was not measured and controlled in the study and it may affect the findings, both in studying the relationships and in the experiment. It may be a suggestion to use it for next studies in order to statistical control in examining the correlations and differences. Thirdly, the placebo effect was not controlled and the control group did not have any kind of neutral intervention. Using it in further studies may make more confident results about effectiveness of the intervention on aggression. fourthly, and as noted, the number and the length of sessions were less than the original package. Obeying the original package of a CBT-based intervention to reduce aggression can be get researches to more confident results. Finally, and as mentioned before, using more feminine aggression scale, concentrating on indirect and verbal aggression may leads to reveal new findings.

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Salman Farsi University of Kazerun.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

Funding

The authors did (not) receive support from any organization for the submitted work.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., . . . Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in eastern and western countries: a meta-analytic review. *Psychological bulletin*, *136*(2), 151. https://doi.org/10.1037/a0018251

Aquino, K., Freeman, D., Reed II, A., Lim, V. K., & Felps, W. (2009). Testing a social-cognitive model of moral behavior: the interactive influence of situations and moral identity centrality. *Journal of personality and social psychology*, *97*(1), 123. https://doi.org/10.1037/a0015406

Aquino, K., & Reed II, A. (2002). The self-importance of moral identity. *Journal of personality and social psychology*, *83*(6), 1423. https://doi.org/10.1037/0022-3514.83.6.1423

Azimpour, A. (2019). Moral-related Variables and Mental Health: A Correlational Study. *Iranian evolutionary and educational psychology Journal*, *1*(2), 135-143. https://doi.org/https://doi.org/10.29252/IEEPJ.1.2.135

Azimpour, A., Abbasi, M., Afrozpour, S., & Abbasi Sabuki, S. (2015). Gender differences in some moral-related variables among the Iranian university students. 8th International Conference on Advances in Social Sciences (ICASS),

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Azimpour, A., Naisi, A., SHAHNI, Y. M., Arshadi, N., & Beshlideh, K. (2014). Validation the measure of "the self-importance of moral identity" on university students. *Journal of Personality & Individual Differences*, *3*(4), 19-38. https://jlsb.science-line.com/vol-2-no-2-mar-2012.html

Azimpour, A., Neasi, A., Shehni-Yailagh, M., & Arshadi, N. (2012). Validation of "Prosocial tendencies measure" in Iranian university students. *Journal of Life Science and Biomedicine*, *2*(2), 34-42.

Björkqvist, K. (2018). Gender differences in aggression. *Current opinion in psychology*, *19*, 39-42. https://doi.org/10.1016/j.copsyc.2017.03.030

Böhm, R., Thielmann, I., & Hilbig, B. E. (2018). The brighter the light, the deeper the shadow: Morality also fuels aggression, conflict, and violence. *Behavioral and Brain Sciences*, *41*(98), 31. https://doi.org/10.1017/S0140525X18000031

Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of personality and social psychology*, *63*(3), 452. https://doi.org/10.1037//0022-3514.63.3.452

Carlo, G., & Randall, B. A. (2002). The development of a measure of prosocial behaviors for late adolescents. *Journal of youth and adolescence*, *31*, 31-44. https://doi.org/https://doi.org/10.1023/A:1014033032440

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. Academic press.

Deffenbacher, J. L., Oetting, E. R., & DiGiuseppe, R. A. (2002). Principles of empirically supported interventions applied to anger management. *The Counseling Psychologist*, *30*(2), 262-280. https://doi.org/10.1177/0011000002302004

DiGiuseppe, R., & Tafrate, R. C. (2003). Anger treatment for adults: A meta-analytic review. *Clinical Psychology: Science and Practice*, *10*(1), 70. https://doi.org/10.1093/clipsy.10.1.70

Elbert, T., Moran, J. K., & Schauer, M. (2017). Lust for violence: Appetitive aggression as a fundamental part of human nature. *e-Neuroforum*, *23*(2), 77-84. https://doi.org/10.1515/nf-2016-A056

Evcan, N. S. (2019). Hobbesian Instinctual Reason versus Rousseau's Instinctual Innocence: Backstage logic of colonial expansions and origin of the left–right political dichotomy. *Interventions*, *21*(7), 977-997. https://doi.org/10.1080/1369801x.2019.1585910

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Feindler, E. L., & Engel, E. C. (2011). Assessment and intervention for adolescents with anger and aggression difficulties in school settings. *Psychology in the Schools*, *48*(3), 243-253. https://doi.org/doi:10.1002/pits.20550

Figueiredo Filho, D. B., Paranhos, R., Rocha, E. C. d., Batista, M., Silva Jr, J. A. d., Santos, M. L. W. D., & Marino, J. G. (2013). When is statistical significance not significant? *Brazilian Political Science Review*, *7*, 31-55.

Ganjeh, S. A. R., Dehestani, M., & Zadeh Mohammadi, A. (2013). Comparison of effectiveness of problem-solving skills and emotional intelligence training on decreasing aggression in male high school students. *Knowledge & Research in Applied Psychology*, *14*(2), 38-50.

Grice, J. W., & Iwasaki, M. (2008). A truly multivariate approach to MANOVA. *Applied Multivariate Research*

12(3), 199-226. https://doi.org/10.22329/amr.v12i3.660

Groth-Marnat, G. (2003). *Handbook of psychological assessment*. John Wiley & Sons.

Hardy, S. A., Bean, D. S., & Olsen, J. A. (2015). Moral identity and adolescent prosocial and antisocial behaviors: Interactions with moral disengagement and self-regulation. *Journal of youth and adolescence*, *44*, 1542-1554. https://doi.org/10.1007/s10964-014-0172-1

Hardy, S. A., Walker, L. J., Rackham, D. D., & Olsen, J. A. (2012). Religiosity and adolescent empathy and aggression: The mediating role of moral identity. *Psychology of Religion and Spirituality*, *4*(3), 237. https://doi.org/10.1037/a0027566

Henwood, K. S., Chou, S., & Browne, K. D. (2015). A systematic review and meta-analysis on the effectiveness of CBT informed anger management. *Aggression and violent behavior*, *25*, 280-292. https://doi.org/10.1016/j.avb.2015.09.011

Houltberg, B. J., Sheffield Morris, A., Cui, L., Henry, C. S., & Criss, M. M. (2016). The role of youth anger in explaining links between parenting and early adolescent prosocial and antisocial behavior. *The Journal of Early Adolescence*, *36*(3), 297-318. https://doi.org/10.1177/0272431614562834

Jafari, M. A., Nooroozi, Z., & Foolad Chang, M. (2017). The study of factor structure, reliability and validity of basic empathy scale: Persian form. *Journal of Educational Psychology Studies*, *14*(25), 23-38. https://doi.org/10.22111/JEPS.2017.3099

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Jambon, M., Colasante, T., Peplak, J., & Malti, T. (2019). Anger, sympathy, and children's reactive and proactive aggression: Testing a differential correlate hypothesis. *Journal of Abnormal Child Psychology*, *47*, 1013-1024. https://doi.org/10.1007/s10802-018-0498-3

Jolliffe, D., & Farrington, D. P. (2004). Empathy and offending: A systematic review and meta-analysis. *Aggression and violent behavior*, *9*(5), 441-476. https://doi.org/10.1016/j.avb.2003.03.001

Kellner, M. H., Bry, B. H., & Salvador, D. S. (2008). Anger management effects on middle school students with emotional/behavioral disorders: Anger log use, aggressive and prosocial behavior. *Child & Family Behavior Therapy*, *30*(3), 215-230. https://doi.org/10.1080/07317100802275520

Kline, R. B. (2023). *Principles and practice of structural equation modeling*. Guilford publications.

Kornbluh, M., & Neal, J. W. (2016). Examining the many dimensions of children's popularity: Interactions between aggression, prosocial behaviors, and gender. *Journal of Social and Personal Relationships*, *33*(1), 62-80.

Lee, A. H., & DiGiuseppe, R. (2018). Anger and aggression treatments: a review of meta-analyses. *Current opinion in psychology*, *19*, 65-74. https://doi.org/10.1016/j.copsyc.2017.04.004

Lovett, B. J., & Sheffield, R. A. (2007). Affective empathy deficits in aggressive children and adolescents: A critical review. *Clinical psychology review*, *27*(1), 1-13. https://doi.org/10.1016/j.cpr.2006.03.003

Penner, L. A., Dovidio, J. F., Piliavin, J. A., & Schroeder, D. A. (2005). Prosocial behavior: Multilevel perspectives. *Annu. Rev. Psychol.*, *56*, 365-392. https://doi.org/10.1146/annurev.psych.56.091103.070141

Piliavin, J. A., & Charng, H.-W. (1990). Altruism: A review of recent theory and research. *Annual review of sociology*, *16*(1), 27-65. https://doi.org/10.1146/annurev.so.16.080190.000331

Reilly, P. M., & Shopshire, M. S. (2014). Anger management for substance abuse and mental health clients: A cognitive behavioral therapy manual. *Journal of Drug Addiction, Education, and Eradication*, *10*(1/2), 199.

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]

Sage, L., Kavussanu, M., & Duda, J. (2006). Goal orientations and moral identity as predictors of prosocial and antisocial functioning in male association football players. *Journal of Sports Sciences*, *24*(05), 455-466. https://doi.org/10.1080/02640410500244531

Teding van Berkhout, E., & Malouff, J. M. (2016). The efficacy of empathy training: A meta-analysis of randomized controlled trials. *Journal of counseling psychology*, *63*(1), 32. https://doi.org/10.1037/cou0000093

Vachon, D. D., Lynam, D. R., & Johnson, J. A. (2014). The (non) relation between empathy and aggression: surprising results from a meta-analysis. *Psychological bulletin*, *140*(3), 751. https://doi.org/10.1037/a0035236

Weis, R. (2020). *Introduction to abnormal child and adolescent psychology*. Sage publications.

[Downloaded from ieepj.hormozgan.ac.ir on 2026-11-20]