Effectiveness of Cognitive Behavioral Anger Management Therapy on Physical Aggression and Self-Esteem of Students

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Anger management includes a range of skills that can help identify and control anger symptoms. The aim of this study was to investigate the effect of group cognitive-behavioral therapy of anger management on reducing physical aggression and increasing the level of self-esteem of students with high anger levels. For this purpose, during a quasi-experimental study with pre-test, post-test and control group, 225 middle school students were selected from schools in Tehran and randomly divided into two experimental groups (48 boys and 64 girls) and control group (58 boys and 54 girls).) Were located. Students in the experimental group received 10 weeks of cognitive-behavioral anger control therapy and students in the control group received no treatment during this period. Students in both groups were assessed for anger, aggression and self-esteem before and after the program. The results of analysis of covariance showed a significant difference between the experimental and control groups in physical aggression and self-esteem. The findings support the positive effects of anger management cognitive-behavioral therapy in this age group.
Keywords: anger management, cognitive behavior therapy, physical aggression, self-esteem

Introduction

Aggression is currently an important concern for society because of the adverse consequences generated for both the victims and aggressors. For instance, there is a strong association between having suffered maltreatment and presenting social maladaptation or psychiatric disorders (Cullerton-Sen et al., 2008). Victims of aggression are more likely to suffer from depression, anxiety, stress, and sleeping difficulties. Moreover, people characterized by aggressive behavior as preparators show a higher probability of substance abuse, involvement in delinquent activities, personality disorders, low academic performance, school absenteeism, and personal relationship problems (Coccaro, Lee, & McCloskey, 2014).

Aggressive behavior in youth is a serious community problem, and is a common reason for referral to pediatric mental health services, contributing to almost 50% of presentations (Pickett et al., 2013). Aggressive behavior

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bears a high cost for the child and is often associated with low self-esteem, low frustration tolerance, poor social skills, depressive symptoms, and contributes to behavioral problems (Card, Stucky, Sawalani, & Little 2008; Huitsing & Monks, 2018), academic failure or poor educational achievement, reduced employment prospects, social isolation, violence, and a tendency to commit crime and suicide (Turney& McLanahan, 2015). The types of aggression are one of the topics that have been more seriously addressed in recent years. The vast majority of aggression research has involved the assessment of behaviors that are either physical or verbal in nature. This makes the distinction between these types of behaviors especially relevant. Factor analytic studies support the delineation of these two subtypes (Buss & Perry, 1992).

Physical aggression can be defined as a person's intentionally injuring of others through physical harm (such as pushing, hitting, kicking, etc.) (Taylor & Jose, 2014). Verbal and physical aggression are differently associated with psychological problems: Verbal aggression is more related to anxiety, depression, and low self-concept than physical aggression. Physical aggression is associated to low affective empathy, whereas verbal aggression is not (Yeo, Ang, Loh, Fu, & Karre, 2011).

Childhood physical aggression is a major risk factor for various negative outcomes such as violent delinquency and criminality during adolescence and adulthood (Pingault et al., 2013). Longitudinal studies show that aggressive school children are at very high risk of being violent in adolescence and beyond. Preschoolers who maintained high levels of physical aggression, hyperactivity–impulsivity, and noncompliance displayed the highest number of disruptive behavior symptoms in first grade for all categories according to their teacher. They were also among the most disadvantaged of their class for school adjustment indicators including language and cognitive skills, attitude toward learning, and implication at the end of the first grade (Tremblay, Côté, Salla, & Michel, 2017).

Traditionally, low self-esteem has been associated with, among other things, negative outcomes, such as depression, anxiety, and anger, as well as aggressive and violent behaviors (Lee & Hankin, 2009). However, other researchers have doubted this assertion and insisted that aggression and violent behaviors result from high self-esteem. Various scholars have since studied the relationship between self-esteem and aggressive behaviors, and findings have varied widely (Bushman & Thomaes, 2011). Most researchers regard low self-esteem as the foundation of problem behaviors, including violence and aggression. In an attempt to improve their self-esteem, individuals with low self-esteem may display aggression to avoid the

humiliation and feelings of inferiority brought about by failure (Zapf & Einarsen, 2011). In their analysis of literature published between 1986 and 2006 on self-esteem and aggression, Walker and Bright (2009) showed a close negative relationship between the two factors. The research found that negative self-esteem was related to aggression and bullying. It was explained that aggression and bullying behavior is a sign of low self-esteem. This view suggests that individuals with low self-esteem behave aggressively, in order to increase their own self-esteem (Yavuzer, Karatas, Civilidag,&Gundogdu, 2014).

The management of anger and aggression as a major public safety issue, involving mental health care workers in a variety of settings including juvenile and adult detention facilities, schools, community mental health centers, and psychiatric hospitals (Milkman & Wanberg, 2007). Anger management is defined by Schultz (2007) as a set of strategies intending to constructively control the emotions and feelings and expressions of anger. Anger management techniques, often-learned in-group settings, are used to encourage people to both control and effectively channel their anger. In a review of interventions for reducing aggression and violence in adolescents and adults, McGuire (2008) reported that most interventions could be broadly divided into the following categories: anger management, behavioral interventions, interpersonal skills training, structured individual counseling, teaching family homes, cognitive skills programs, cognitive self-change and multi-modal programs. Smith, Larson, and Nuckles (2006) provided an in-depth review of school-based anger intervention outcomes conducted between 1980 and 2004. According to their review, the most effective interventions employed cognitive behavioral techniques including anger regulation and control, problem-solving to learn alternatives to aggression as an expression of anger, and cognitive restructuring to change maladaptive thought processes. Many anger management programs include coping skills or problem-solving training, which involves the use of education, therapist modeling, skills rehearsal, and in vivo trials so that the client acquires a repertoire of adaptive responses to use in potentially volatile situations. Meta-analyses and reviews of the literature (e.g. Fernandez, Malvaso, Day, &Guharajan, 2018) including studies of prison populations, conclude that there are clinically significant anger reduction effects as a result of CBT interventions.

Cognitive behavioral anger management training is based on the hypothesis that aggressive behavior is elicited by an aversive “trigger” stimulus that is followed by both physiological arousal and distorted cognitive responses, which result in the emotional experience of anger. To prevent an aggressive

reaction to a triggered stimulus, it is necessary to learn to match the intensity of the response to the realistic aversiveness of the stimulus and to process the interpersonal exchange so that they can exhibit a more prosocial response (Feindler & Engel, 2011). The anger management treatment protocols focus on the three hypothesized components of the anger experience: physiological responses, cognitive processes, and behavioral responses. If anger reactions are comprised of heightened physiological arousal, cognitive distortions, impulsive thoughts, and aggressive responding, then the intervention must focus on helping young people develop self-control skills in each of these areas. Given the continued problems of violence and aggression in middle and high school students, along with the negative impact on the academic success and emotional well-being of students examination of children and adolescent, anger management is important.
Keeping in view the above present study explored the effectiveness of a school-based cognitive behavioral anger management program (CBTAM) on the level of physical aggression and self-esteem of school students with high level of anger.

Method
A pretest-posttest experimental design was used in this study. The CBTAM group was compared with a control group not given any intervention. The effects of CBTAM were measured by comparing pre-test and post-test scores in dependent variables in both experimental group and control group. The initial participants of present study comprised of 1000 students from 10 public guidance schools from grades 6 to 8 in the city of Tehran, Iran. Among students who completed screening questionnaire 244 students met the criteria for inclusion in the study. Students that scored in the upper one-fourth of scores on the screening questionnaire were included in the experimental phase. Scores equal or over 117 were found to be in the upper one-fourth (maximum score = 156). Those subjects who did not reach the cut off criteria were excluded from the study. Therefore, the current experiment was focused on students with higher levels of anger. Final participants compromised of 126 girls and 118 boys (n=244) who were randomly assigned to the experimental group (n=123) and control group (n=121). Out of these 113 students in experimental group (49 boys and 64 girls) and 112 students in control group (58 boys and 54 girls) completed the study (n=225).
Inclusion Criteria: (a) Student speaks and reads Persian, (b) No history of chronic or serious illness by parental report, (c) No known cognitive or sensory impairments that would preclude participation, (d) Scored in the

upper one-fourth of scores on the screening questionnaire (e) Parental consent and student assent.

Instruments

The Children`s Inventory of Anger (ChIA, Nelson & Finch, 2000) was used as screening for selecting children high on anger. ChIA is a 39- item self-report measure. Internal consistency for 6- and 7- year- old is .95. Estimates for test-retest reliability were reported by Nelson & Finch (2000), was .75 and for the entire sample and .66 for the younger children. Nelson & Finch (2000) investigated the concurrent validity of the ChIA by examining its relation to children`s performance on other relevant measures. Correlations between Total scores on the ChIA and the Aggression Questionnaire were moderate (r = .44).

Aggression Questionnaire (AQ, Buss & Perry, 1992) was used to assess physical aggression. Each AQ item describes a characteristic related to aggression, and the individual taking the test rates the description on a scale from 1=”extremely uncharacteristic of me” to 5=”extremely characteristic of me” (Buss &Perry, 1992). The Buss–Perry Aggression Questionnaire is a typical example of a trait measure of aggression. It is a brief measure, consisting of 29 items scored on four scales, Physical Aggression (PHY), Verbal Aggression (VER), Anger (ANG), and Hostility (HOS). Responses are summed to produce subscale and total scale scores. Findings have supported the validity of the AQ as a measure of aggression, anger, and hostility to the extent that it is now accepted as a potential standard measure (Eckhardt, Norlander, & Deffenbacher, 2004).

The Coopersmith Self-Esteem Inventory – School Form (SEI-SF) (Coopersmith, 2002) was use to assess self-esteem in children. It is intended for children aged 8–15 years and consists of 58 items: 50 self-esteem items and 8 items that constitute the lie scale, which is a measure of a student’s defensiveness. The SEI is designed to measure evaluative attitudes toward the self in social, academic, family, and personal areas of experience. The self-esteem items yield a total score and separate scores for four sub-scales: general self, social self–peers, home–parents and school–academic. The sub-scales allow for variances in perceptions of self-esteem in different areas of experience. Since its development, the SEI has been administered to tens of thousands of children and adults participating in research studies or in special educational or clinical programs to enhance self-esteem. All socioeconomic ranges and many ethnic and cultural groups are represented.

The current enhanced anger management intervention focused on the control of emotional and impulse responding, as well as on the appropriate

expression of anger in an assertive and rational manner, by teaching arousal management skills and cognitive strategies designed to promote the enhancement and generalization of self-control skills (Feindler& Weisner, 2005). Below is a brief description of the key elements of the intervention protocol:

The key elements of the intervention protocol
Session 1: Comprises of group orientation which includes introduction of identification of emotions with emphasis on anger. Subjects were taught to practice identification of angry responses and deep-breathing relaxation exercises.
Session 2: Self-assessment of anger and ABCs of behavior i.e. Self-analysis of behavioral triggers, incidents-activating behavior and consequences.
Session 3: Refuting aggressive beliefs and reinterpretation of those beliefs: Group identification of various cognitive distortions; subjects practice re-attribution exercises.
Session 4: Introduce relationship effectiveness techniques.
Session 5: Self-instruction training: Introduction of in-the-moment self-coaching techniques for non-aggressive behavioral responses.
Session 6: Anticipation of consequences: Subjects taught to practice thinking ahead – prediction and evaluation of possible consequences of aggressive behaviors.
Session 7: Problem solving training: Introduction of multi-step problem solving processes including self-evaluation, reinforcement, and feedback.
Session 8: Bullying Prevention and Specific Problem-Solving Techniques. Here goal is to build awareness of types of teasing, use of rumors, and methods to evaluate friendships. Participants are taught to practice confrontation, apologizing and self-respect skills.
Session 9: Program review: Exercises designed to utilize all skills and concepts introduced over previous 8 sessions are given. Individualized feedback to students is given. In the end, assessment instruments are administered.
Session 10: Follow up Booster session: Review of all skills, including definition, demonstrated examples and discussion of appropriate situations in which skills can be used is done. Therapist checks with students regarding changes and progress since completing the program. Students are provided feedback and reinforcement to encourage skill maintenance and generalization.

Descriptive statistics including means and standard deviations, were calculated for both Experimental and Control groups on Pre-test and Post-test,. Comparative analysis between the experimental group and control group was performed using analysis of covariance (ANCOVA). In each variables the post-test scores was used as the dependent variable and the pre-test scores used as the covariate After testing the data to see if it met the requirement of homogeneity of regression, analyses of covariance were performed to test the hypotheses.

Results

Means and standard deviations, for Experimental group and Control groups on Pre-test and Post-test were calculated

Table 1. Means, Standard Deviations for Pre-test and Post-test scores of Experimental Group and Control Group

Variables	Pre-test				Post-test			
	Experimental Group		Control Group		Experimental Group		Control Group	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Physical Aggression	23.84	7.02	23.85	7.52	17.92	7.25	23.89	7.36
Self-esteem	61.22	13.94	61.07	13.98	67.55	13.37	61.42	13.61

Table 1 shows pre-test and post-test scores on physical aggression and self-esteem for experimental group and control group.
The ANCOVA was calculated by first checking for the homogeneity of regression of the Physical Aggression scores of Treatment and Control groups. The interaction (group*Pre-test) value (F= 1.955) was not significant. Hence, the assumption of homogeneity of regression slopes was not violated. This indicates a linear relationship between the covariate (Pre-test scores) and the independent variable (treatment group).

Table 2. Analysis of covariance of the Experimental and Control groups for the mean scores on the Physical Aggression

Source of Variation	Sum of Squares	df	Mean Square	F	P
Pre-test	7759.101	1	7759.101	413.764	0.001*
Group	1991.575	1	1991.575	106.203	0.001*
Error	4163.047	222	18.752		
Corrected Total	13922.649	224			

* Significant at 0.01 level

Table 2 shows that after adjusting for Pre-test scores, there was a significant effect of the between subjects factor group, F (1,222) = 106.203, p<0.001. Adjusted Post-test scores suggest that the treatment had an effect on reducing the Aggression scores of students who received CBTAM as compared to students who were in control group and did not receive the treatment.
Table 3 shows that after adjusting for pre-test scores, there was a significant effect of the between subjects factor group, F (1,222) = 95.508, p<0.001. Adjusted post-test scores suggest that the treatment had an effect on improving the Self-Esteem scores of students who received CBTAM as compared to students who were in control group and did not receive the treatment.

Table 3. Analysis of covariance of the Experimental and Control groups for the mean scores on the Self-Esteem

Source of Variation	Sum of Squares	df	Mean Square	F	P
Pre-test	35921.900	1	35921.900	1698.397	0.001*
Group	2020.044	1	2020.044	95.508	0.001*
Error	4695.404	222	21.150		
Corrected Total	42730.240	224			

* Significant at 0.01 level

Discussion

The present study was designed to evaluate the effects of cognitive behavioral therapy anger management on the level of physical aggression and self-esteem of students with high level of anger in grade 6-8. As hypothesized, the findings of the study showed significant decrease in physical aggression and significant enhancement in self-esteem in experimental group who attended CBTAM sessions in comparison with control group who did not received treatment. These findings are consistent with the results of the other studies.

Ostrov et al. (2009) tested the initial effects of a brief, classroom-wide program for young children in early childhood centers that targeted relational and physical aggression (and victimization), prosocial behavior, and friendship formation skills. The initial findings suggested that brief program tended to reduce both physical and relational aggression as well as physical and relational victimization, while prosocial behavior (e.g., inclusion) tended to increase.

Linares, Li, and Shrout (2012) evaluated the effectiveness of a child-focused adaptation of the Incredible Years Child Training program to reduce physical aggression. Results revealed that physical aggression decreased over time. Another study by Goldstein et al. (2018) compared changes in levels of anger and aggression among girls in residential juvenile justice facilities who participated in the Juvenile Justice Anger Management (JJAM) Treatment with those of girls who participated in treatment as usual (TAU) at the facilities. Results revealed greater reductions in reactive physical aggression, anger, and reactive relational aggression among girls in the JJAM treatment condition when compared to girls in the TAU control condition. Sharma, Sharma and Marimuthu (2016) examined the efficacy of mindfulness-based program for the management of aggression and its impact on quality of life. They reported changes at post-intervention in terms of

physical aggression, verbal aggression, anger, hostility, presence of feeling of well-being and ability to relax themselves; decreased urge to smoke, physical quality of life, and environmental quality of life. Kaya and Buzlu (2016) determined effectiveness of Aggression Replacement Training (ART) on problem solving, anger and aggressive behavior among adolescents with criminal attempts in Turkey. After the intervention, the experimental group showed significantly decreased on physical aggression, trait anger, and hostility scores and increased anger control and social problem solving total scores. Singh et al. (2017) evaluated the effectiveness of a mindfulness-based intervention for self-management of verbal and physical aggression by adolescents with Prader–Willi syndrome. Results revealed that mindfulness intervention was effective in reducing verbal and physical aggression. Dehnavi and Ebrahimi (2016) also reported a significant decrease in physical aggression, verbal aggression, anger, and hostility scores of the high school first grade female students after participating in a assertiveness skills training for aggression. Bahari, Jalilian, Sharifirad and Bazani (2017) aimed to study the impact of educational intervention on reduction of aggression among male high school students in Ilam city, Iran. The educational intervention showed good efficiency in reduction of physical aggression, verbal aggression, hostility, and anger, as the subjects reported lower levels of aggression three months after participating in the intervention. The study by Iranaghi, Gharakhanlou, Moradikia, and Hemmati. (2019) compared the effects of physical exercises and anger control skill on male teenagers' aggression. Findings showed that the effectiveness of anger control skill in reducing aggression and its components (physical aggression, verbal aggression, anger, and hostility) were significantly higher than doing physical exercises. Down, Willner, Watts, and Griffiths (2011) compared the efficacy of, and adolescents' preferences for, a Cognitive Behavioral (CBT) and Personal Development (PD) Anger Management (AM) group. Positive outcomes for the treatment groups were indicated by statistically significant changes in adolescents' and carers' ratings of use of AM techniques, and adolescents' reports of improved control over anger, and increased self-esteem. Alavinezhad, Mousavi, and Sohrabi (2014) illustrated the usefulness of art therapy on anger and self-esteem in school children with highly aggressive behavior. After 10 weeks the Art therapy, group showed significant reduction of anger and improvement of self-esteem compared with the control group.

However, several studies assessing the effect of cognitive behavioral approach on anger management came to contradictory results. For instance, Ozabaci (2011) conducted a meta-analysis in 2011 and found that this

approach was not as effective as expected in aggression among children and adolescents. Farajzadeh, Poor Shahriari, Rezaeian, and Ahangar Nazabi (2012) also employed the same approach in group education for anger management. They evaluated the effect of this approach on aggression and social qualification of adolescents living in Welfare Organization's dormitories in Tabriz, Iran. They found that the intervention was not effective in changing adolescents' social skills and aggression levels.

Conclusion

This study applied an anger management program for school students with high anger level and confirmed that the intervention was effective and reduce aggression and improve self-esteem in students at risk of developing more serious behavior problems. If the program used in this study would be standardized and applied as a regular education, it would be helpful to prevent the school students from aggression and problems resulted from low level of self-esteem. Thus, it is recommended that school students be provided with systematic education in schools and training centers in the form of a anger management program prior or during to attending routine training.

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