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Cognitive behavioral therapy (CBT) based anger management program among adolescents

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Abstract−

This study was conducted to test and determine the effectiveness of an Anger Management Program based on cognitive-behavioral psychotherapy among adolescents aged between 11 and 18 years old(M=14.4, SD=1.43). Nine hundred and eighty-one students (males 444, females 537) from secondary schools in Ulaanbaatar city and other provinces in Mongolia participated in this research, and State-Trait Anger Expression Inventory-2 Child and Adolescent(STAXI-2 C/A) were utilized to measure the dependent variable. From the sample from Ulaanbaatar city, 40 students with above-average and high levels of anger indicators were selected and divided into experimental and control groups. The experimental group was further divided into 2 groups; Group 1(12-13 age) and Group 2 (14-16 years old). Each group received 8 sessions of Cognitive Behavioral Therapy (CBT) based on an Anger Management Program twice a week for 1 month. Based on the post-test and the follow-up test, the experimental group has demonstrated shown an increase in anger control and overall decrease in mean score in anger management difficulties. Also, parents, guardians, and teachers of the participants filled a questionnaire to evaluate the changes simultaneously with pre-test, post-test and follow-up test.

Keywords: Adolescents, Anger, Cognitive Behavioral Therapy, Anger Management.

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1. INTRODUCTION

With a population of 3.4 million as of 2021, 33.8% of the population of Mongolia is young people under the age of 24 years and 16.0% being adolescents [1]. According to a study conducted in 2018, parents, teachers, and adolescents' self-assessment reported that the prevalence of emotional and behavioral disorders was 8.7%, 8.8%, and 9.4%, respectively in Mongolia [2]. Lkhamaa and Ariunzaya conducted a study in 2021 [3], titled "Result of the assessment of the needs, problems and psychological risks of psychological services of adolescents" with 1710 students from 5 schools in Ulaanbaatar city, capital of Mongolia. The results show that 39.9% of all respondents were interested in seeing a psychologist, 49.4% were interested in psychological assessment of their personality and career, whereas 29.5% were interested in taking psychological training on learning to control their emotions, developing their abilities, and communication skills. It was found that 15.4% were interested in receiving advice regarding their ongoing issues [4].

In 2021, 170 adolescents aged between 11-18 years old, 154 parents/guardians, and 99 teachers from Ulaanbaatar city and other provinces in Mongolia a total of 423 people - participated in research to determine the need for intervention to teach anger management for adolescents [5]. Most participants believed that adolescents need support to learn more appropriate way to manage their anger, since it is common to engage in self-harm or unpleasant and dangerous behavior towards others. In addition, researchers found that anger management, self-awareness, and relaxation techniques should be utilized to increase communication and coping skills and needs to be included in the program and activities.

Based on the studies above, it is necessary to implement life skills and preventative programs to support the development of social communication skills of adolescents to manage emotions including but not limited to anger, particularly through the use of problem-solving and conflict resolution skills. This study supports improving the learning anger management skills of Mongolian adolescents, protecting their psychological health, and preventing exposure to any anger risks.

1.1 PURPOSE

This study was conducted to test and determine the effectiveness of an Anger Management Program based on CBT among adolescents. Hypothesized that the

adolescents participating in this program will show increase in ability to manage their anger, with decreased negative indicators, simultaneously.

1.2 RESEARCH DESIGN

(1) State-Trait Anger Expression Inventory-2 Child and Adolescent (STAXI-2 C/A) were used to identify anger level of 981 (males 444, females 537) between the ages of 11-18 years (M=14.4, SD=1.43) from various secondary schools in Ulaanbaatar and other provinces in Mongolia.

(2) From the sample of Ulaanbaatar city, 40 students with above-average and high levels of anger indicators were selected and divided equally into experimental and control groups. Those 20 students from the experimental group were divided into two different age groups, 12 to 13 years group and 14 to 16 years group, and received 8 sessions of CBT based on an Anger Management Program each. Signed consent forms were obtained from all students and their parents/guardians upon they were informed of the study and made decision to volunteer.

(3) ABA (single-case design) was used to evaluate the dependent variable: baseline condition in which no intervention is present (Phase A), intervention condition in which an independent variable is introduced (Phase B), and again returned to baseline condition (Phase A). STAXI-2 C/A was utilized to measure the dependent variables pre-, post-intervention and 1 month later. This information is examined to see whether there are changes in how the participant deals with anger. Students and their parents/guardians completed the forms to assess the effectiveness of the Anger Management Program. In addition, the data of pre-, post-, and follow-up studies were done based on descriptive, Friedman's ANOVA test, and the Mann-Whitney U Test using SPSS 26.0 software to analyze the effect of the program.

2. THEORETICAL BACKGROUND

Researchers have concluded that the main reason why adolescents seek psychological counseling and treatments is due to their negative behavior, hostility, and aggression [6]. Hence, the main goal of anger management programs is to manage the unpleasant feelings, emotions, and physical symptoms caused by anger [7]. During group psychotherapy, adolescents are taught to define anger, identify and manage it in various situations, as well as support and motivate fellow group members [8].

Currently, cognitive-behavioral psychotherapy (CBT) is the most common method used to address negative behaviors such as anger, hostility, and aggression. An analysis of 50 studies involving 1,640 people over the last 20 years concluded that the effect of reducing anger problems was 76% greater than that of a control group with a mean effect size of .70 [9]. According to Patrick. M [10], Cognitive-behavioral therapy can be utilized to treat anxiety, depression, and behavioral and affective disorders, particularly anger. This psychotherapy treatment teaches psychoeducation about anger and positive management skills (problem-solving, self-confidence, relaxation). A meta-analysis study, covering 21 studies and 19 reports, was conducted in 2004 which analyzed the usage of CBT to reduce aggression and anger. According to the paper, researchers concluded that the CBT was effective with the mean effect size of 0.67 [11].

Malaysian researchers Lee Shu Chin and Nor Shafrin Ahmad [12] conducted a study using Adolescent Anger Rating Scale (AARS) to measure the anger and frustration of 318 students aged 15-16 from 4 different schools in Malaysia. Out of 318 students, 43 students (22 males and 21 females) with higher anger problems were chosen and were divided into groups of 8-12 members and received group counseling based on CBT for eight weeks with each session lasting 90-120 minutes. The counseling had the following learning objectives: Session 1 – Introduction, anger therapy; Session 2 – Basic concept of anger, Session 3 – Types of anger, automatic thoughts; Session 4 – Changing negative automatic thoughts; Session 5 – Relaxation through breathing exercises, Session 6 – Communication skills, Session 7: Problem-solving skills, and Session 8: Conclusion to group counseling. A pre-, post-, and follow-up study has shown that group counseling based on CBT positively affected adolescents with anger problems.

In a study conducted in Mongolia in 2019, "Experimental research using cognitive and behavioral therapy on the example of teenage students", 12-16 years old, students' anger level was measured by the Kellner method. Chosen from 222 students, 12 students received individual CBT; their anxiety, depression, and physical pain decreased, and the scores of angry and frustrated students have decreased from 16.58 to 5.75 [13].

3. RESEARCH MEASURE

The State-Trait Anger Expression Inventory-2 Child and Adolescents (STAXI-2 C/A), developed by Thomas M. Brunner and Charles D. Spielberger [14], was established to

measure the state anger, trait anger, expression and control of anger in children and adolescents between the ages of 9-18.

Table 1. Descriptions of STAXI-2 C/A total 8 main scales and subscales [15].

Scale/subscales	Descriptions
State Anger (S-Ang)	Measures the intensity of angry feelings and the extent to which a youth feels like expressing anger at a particular time.
State Anger-Feeling (S-Ang/F)	Measures the intensity of the angry feelings a youth is currently experiencing.
State Anger-Expression (S-Ang/VP)	Measures the intensity of current feelings related to verbal or physical expressions of anger.
Trait anger (T-Ang)	Measures how often angry feelings are experienced over time.
Trait Anger-Temperament (T-Ang/T)	Measures the disposition to experience anger without specific provocation.
Trait Anger-Reaction (T-Ang/R)	Measures the frequency with which angry feelings are experienced in situations that involve frustration and/or negative evaluation.
Anger Expression-Out (AX-O)	Measures how often angry feelings are expressed in verbally or physically aggressive behavior.
Anger Expression-In (AX-I)	Measures how often angry feelings are experienced but not expressed (e.g., suppressed).
Anger Control (AC)	Actions how often a youth tries to control the inward or outward expression of angry feelings.

Official permission to use the test was obtained from the author upon translating the measure from English to Mongolian and then with back translation. The STAXI-2 C/A showed high internal consistency with Cronbach's alpha value of 0.784. This method was used because this figure is close to the normative figure of the original English version.

The Intervention Process: Each group had eight sessions with an average duration of 90 minutes. The researcher discussed the anger meter and reviewed homework in the first 10-15 minutes of each session. The end of each session was held in the following way: share feelings, discuss learning new things, assess the next session homework, summarize the session and receive feedback.

Table 2. The developed program consisted of a total of 8 sessions as follows.

Sessions	Descriptions
Sessions 1	Creating the groups, establishing the rules together, introducing the goals and activities for the anger management program, how to evaluate anger meter and expressions of their feelings.
Sessions 2	ABC principles, negative automatic thoughts, and a basic understanding of anger.
Sessions 3	The difference between anger and aggression, expectations and anger.
Sessions 4	The adolescent characteristics, brain development, relaxation exercises
Sessions 5	Anger and shame, case-based communication skills.
Sessions 6	Anger and self-confidence, case-based problem-solving.
Sessions 7	Anger and peer bullying, role-playing exercise; session.
Sessions 8	Anger and family, conclusions

4. RESEARCH ANALYSIS

In this study, 40 students were ages 12-16 years (M=14.1, SD=1.22), with 17 adolescents in the experimental group, and 20 in the control group. Of the participants, 43.2% (n=16) were boys, 56.8% (n=21) were girls; 37.8% (n=14) were secondary grade, 62.2% (n=32) were high school students. Professionals started the intervention with 20 students from the experimental group; however, the data of 17 students were analyzed because three students in the experimental group had privacy issues.

Table 3. Outcomes of Anger Management Program for Adolescents (STAXI-2 C/A).

Scale	Time	Experimental group				Control group			
		Mean	*SD*	*n*	Assymp. Sig.	*Mean*	*SD*	*n*	Assymp. Sig.
S-Ang	Pretest	60.52	11.424	17	.000	57.80	12.639	20	.006
	Posttest	46.58	6.490	17		54.35	12.317	20	
	Follow up test	45.41	4.886	17		53.00	12.624	20	
S-Ang/F	Pretest	58.82	11.248	17	.000	56.40	12.491	20	.032
	Posttest	45.35	6.163	17		54.40	13.873	20	
	Follow up test	43.41	3.825	17		52.00	11.814	20	

S-Ang/VP	Pretest	60.76	11.355	17	.000	57.80	12.935	20	.002
	Posttest	47.94	6.656	17		54.25	11.451	20	
	Follow up test	47.17	6.326	17		51.00	8.596	20	
T/Ang	Pretest	61.88	9.841	17	.001	59.20	12.454	20	.513
	Posttest	56.35	15.819	17		57.70	12.864	20	
	Follow up test	51.76	13.202	17		53.65	14.647	20	
T-Ang/T	Pretest	58.76	12.997	17	.002	58.50	10.560	20	.691
	Posttest	55.52	11.822	17		59.00	11.173	20	
	Follow up test	50.94	11.227	17		53.70	15.400	20	
T-Ang/R	Pretest	62.11	9.486	17	.001	55.65	14.176	20	.455
	Posttest	51.05	14.930	17		53.90	12.989	20	
	Follow up test	50.94	12.432	17		50.50	13.884	20	
AX-O	Pretest	49.35	10.988	17	.423	48.00	7.341	20	.700
	Posttest	50.82	11.370	17		50.80	11.754	20	
	Follow up test	48.64	11.346	17		48.00	10.886	20	
AX-I	Pretest	55.64	8.388	17	.013	52.25	11.428	20	.589
	Posttest	51.47	9.368	17		54.15	12.827	20	
	Follow up test	51.94	11.059	17		55.20	10.826	20	
AC	Pretest	44.47	8.938	17	.026	48.35	11.003	20	.531
	Posttest	50.41	8.761	17		50.65	8.573	20	
	Follow up test	51.47	9.118	17		49.95	11.250	20	

Note. a. Friedman's ANOVA test
b. Asymptotic significances level at p< .05 which is information on the last row of the two groups.
c. SD, standard deviation.
d. Mean, average, or the most common value in a collection of numbers

The Friedman ANOVA test was analyzed; there was no statistically significant difference between the T-scores of the control group adolescents for the scales STAXI-2 C/A before and after the anger management program. However, the experimental group students decreased T-scores of the pre-test, post-test, and follow-up test, and the score of the anger control increased after this program. In addition, there is a statistically significant difference ($p<.05$) in all indicators other than the anger expression-out ($p>.423$).

Table 4. Indicators Determine Statistically Significant Differences between the Experimental and Control Groups (STAXI-2 C/A)

Scale	Test time	Z	Asymp. Sig. (2-tailed)
State Anger (S-Ang)	Pre-test	-.322	.748
	Post-test	-2.150	.032
	Follow up test	-2.250	.024
State Anger-Feeling (S-Ang/F)	Pre-test	-.321	.748
	Post-test	-2.186	.029
	Follow up test	-2.946	.003
State Anger-Expression (S-Ang/VP)	Pre-test	-.123	.902
	Post-test	-1.850	.064
	Follow up test	-1.463	.144
Trait anger (T-Ang)	Pre-test	-.751	.452
	Post-test	-.810	.418
	Follow up test	-1.817	.069
Trait Anger-Temperament (T-Ang/T)	Pre-test	-.699	.484
	Post-test	-1.012	.312
	Follow up test	-2.114	.035
Trait Anger-Reaction (T-Ang/R)	Pre-test	-.308	.758
	Post-test	-1.029	.303
	Follow up test	-1.228	.129
Anger Expression-Out (AX-O)	Pre-test	-1.051	.293
	Post-test	-.843	.399
	Follow up test	-1.648	.059
Anger Expression-In (AX-I)	Pre-test	-.430	.667
	Post-test	-1.215	.224
	Follow up test	-.724	.469
Anger Control (AC)	Pre-test	-1.611	.107
	Post-test	-.707	.480
	Follow up test	-.227	.782

Note. a. Mann-Whitney U test
b. Grouping variable: groups
c. Asymptotic significances level at ($p < .05$) which is information on the last row of the two groups.

The pre-test demonstrated no statistically significant difference in mean total and subscale scores of the experimental and control group adolescents for the STAXI-2 C/A. However, scores of the two groups obtained immediately after the anger management program and follow-up test conducted 8 sessions later revealed that scores of the experimental group were consistently significantly lower than those of the control group adolescents ($P<.05$).

Table 5. Parent and caregiver ratings of outcomes of cognitive-behavioral psychotherapy based adolescent anger management support program.

Survey item	Test time	Mean score /parents/	Mean score /teachers/
The child/student seems to have trouble managing his anger.	Preprogram rating	5.1	6.3
	Post-program rating	3.3	4.0
	Post-program/one-month rating	2.5	-
The child/student gets angry about things that should not be angry.	Preprogram rating	5.1	5.2
	Post-program rating	2.9	4.0
	Post-program/one-month rating	3.2	-
The child/student misbehaves when he is angry.	Preprogram rating	4.0	5.8
	Post-program rating	2.3	3.5
	Post-program/one-month rating	2.4	-
The child's/student's anger is increasing as time goes by.	Preprogram rating	4.6	6.0
	Post-program rating	1.8	3.1
	Post-program/one-month rating	1.7	-
The child/student has learned to manage his anger and frustration by participating in this program.	Preprogram rating	8.0	7.0
	Post-program rating	8.8	7.9

Compared to the pre-test, post-test, and follow-up evaluation of the parents and guardians, the child's anger-related difficulties decreased between 1.6-2.9 points after the training. Parents evaluated their child's anger management skills improved between 8.0-10.0 points after the training. Moreover, after a month, the result was relatively stable.

5. CONCLUSION

Anger is one of the most critical social problems that need to be studied clinically, and cognitive-behavioral psychotherapy is the most common method used to deal with this problem. According to prior research, American researcher Brett Pellegrino for adolescents with anger who received special education based on CBT. In this study, the State-Trait Anger Expression Inventory-2 Child and Adolescent (STAXI-2 C/A) method to detect anger problems in children aged 9-18 years, and other caregiver and teacher questionnaires were used in pre-, post-, and follow-up studies to measure outcomes. Research has shown that adolescents' anger management and self-soothing skills improve, and caregivers have fewer problems with negative expressions of anger [16]. CBT effectively treats anxiety, depression, and behavioral and affective disorders, particularly

anger [10]. Similarly, this study implemented a cognitive-behavioral psychotherapy-based support program to improve adolescent anger management skills in a short time in Mongolia. Analyzing the results before, directly after, and one month after the program's start, the researchers found that negative anger indicators of adolescents in the experimental group's mean scores decreased and, in contrast, their anger control scores increased. There were statistically significant differences in most of the anger indicators of the adolescents in the experimental group. In particular, the intensity of the angry feelings a youth were experiencing declined, which is related to verbal or physical expressions of anger, the disposition to experience anger without specific provocation, and the frequency with which angry feelings are experienced in situations that involve frustration and/or negative evaluation. In addition, there was a decrease in angry feelings expressed in verbally or physically aggressive behavior and, angry feelings experienced but not expressed (e.g., suppressed). In contrast, there was an increase in how often a youth tried to control the inward or outward expression of angry feelings. The pre-test, post-test, and follow-up evaluations of parents, guardians, and teachers corroborated the decreased indicators in which their child and student had difficulty managing their anger, got angry about things they should not be mad about, acted up when angry. The Anger Management Program based on cognitive-behavioral psychotherapy improved adolescents' anger management skills. In the future, researchers should recruit study groups from countryside schools of different levels with a larger number of adolescents. Mixed-method interventions may also help to further define the result of this program.

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