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Efficacy Of Aggression Replacement Training Program On Social Problem Solving And Aggression Among Institutionalized Adolescents

Mohamed Mostafa Mahmoud Sultan
Assistant Lecturer of Psychiatric & Mental Health Nursing, Faculty of Nursing, Cairo University, Giza City, Egypt. https://orcid.org/0009-0007-6112-3070 Email: Mohamed.sultan@cu.edu.eg

Afaf Abd Elhamid Abd El Rahman
Professor of Psychiatric & Mental Health Nursing, Faculty of Nursing, Cairo-University, Egypt.

Hanan Ebrahim Abd El Aziz
Professor of Psychiatric & Mental Health Nursing, Faculty of Nursing, Cairo-University, Egypt.

Abstract

Background: Institutionalized adolescents often presented with poor social problem solving (SPS) skills and higher levels of aggressive behavior. This study evaluated the efficacy of a structured training program in cultivating problem-solving abilities and reducing aggression among adolescents be presented in care institutions.

Aim: The current study aims to evaluate the efficacy of "Aggression Replacement Training Program" on social problem solving and aggression among institutionalized adolescents.

Design: A randomized controlled trial design (pre- post and one month after implementation of program) was used in this study.

Sample: A simple random sample of (66) institutionalized adolescents divided into two groups participated in this study; (33) institutionalized adolescents in study group received "Aggression Replacement Training Program " while a comparative group (33) institutionalized adolescents in control group received the institutionalized traditional program).

Setting: The Institution of Education and Intellectual Events Astray", Giza.

Tools: Three tools for data collection were used: socio demographic data sheet, aggressive behavior questionnaire and social problem-solving inventory - revised (SPSI-R).

Results: There was statistically significant difference between all social problem-solving subscales at pre, post and follow up in the study group and no difference in control group and there was statistically significant difference between the total of aggressive behavior at pre, post and follow up in the study group and no difference in control group.

Conclusions: The study concluded that the program has effectively enhanced social problem-solving skills and reduced aggressive behavior among institutionalized adolescents.

Recommendation: The "Aggression Replacement Training Program " can be used as a measure of promoting adaptive social functioning and behavioral adjustment.

Keyword: Aggression replacement training program, Institutionalized adolescents, social solving problem, Aggressive Behavior

1. Introduction

Adolescence is a multilayered transitional period from childhood to adulthood, characterized by substantial and interrelated physical, emotional, social, and cognitive maturation. This period is typically originated by the biological changes of puberty and ends in full maturity, though its timing, duration, and experience are heavily influenced by cultural contexts [1]. According UNICAF, 2017 population of Egypt ranged from 10-19 years old represent 19% of total population [2].

The adolescents could show conduct behaviors that included violence and aggression as he or she expressed an interest in being autonomous and those behaviors can eventually become permanent. It is noted that behaviors that include violence and aggression reach their peak generally in high school and that adolescents have an increasing tendency to offend during this period. The unfriendly and unsupportive school environment, failure, and lack of prosocial activities can lead to aggressive behavior [3].

Social problem-solving is defined as a "self-directed process by which individuals attempt to identify, discover, and/or develop adaptive coping strategies for problems in every-day living". It is a multi-dimensional construct consisting of emotional, cognitive, and behavioral aspects of real-world problem-solving [4].

Social problem-solving consists of two dimensions, namely, problem orientation and problem-solving style. Problem orientation is a schema consisting of cognitive or emotional reactions including individuals' beliefs and attitudes toward everyday problems, and problem-solving-style refers to the cognitive or behavioral strategies used in solving stressful problems and challenges [4].

Adolescents with higher levels of positive orientation had higher levels of positive emotion and empathy. Positive problem orientation referred to an individual's belief that problems can be solved and had the skills essential to address challenges effectively. This mindset substitutes resilience and adaptive coping strategies, that were crucial during adolescence and it characterized by significant emotional and social changes, the individuals with a positive problem orientation are likely to experience positive emotions. Positive emotions, as joy, and hope, could enhance an adolescent's well-being and life satisfaction [5].

Conduct problems describe behaviors that violate either age-appropriate societal norms or the rights of others. They include: physical or verbal aggression, theft, lying, arguing with authority, defiance, violation of rules, property destruction, fire setting, and truancy. Conduct problems that interfere with everyday functioning in social, academic, or occupational tasks may meet the criteria for either oppositional defiant disorder (odd) or conduct disorder (CD) [6].

Aggressive behaviors during adolescence are associated with negative immediate and long-term outcomes for both victims and perpetrators. For example, victims of bullying have more mental health problems during adulthood than those who have not been bullied and adolescents who display aggression are more likely to have drug problems, present depressive symptoms and be arrested as an adult [7].

Many of intervention programs widely used for treating aggression among institutionalized adolescents, one of these interventions is aggression replacement training (ART). ART is a 10-week curriculum 30-hour intervention administered to groups of 8 to 12 youths three times a week developed by Arnold Goldstein and Barry Glick, the main components of ART came to include skill streaming to teach pro-social behavior

(behavioral component), anger control (affective component), and moral reasoning (cognitive component). It was first used in a New York penal institution in 1986. Since its first use, the ART curriculum has been widely implemented in juvenile treatment facilities around the world [8].

It is necessary to address anger management in childhood and adolescence and intervention for aggressive behaviors in two different ways. Chronic, serious and violent delinquency starting at early ages would probably remain the same in relation to committing an offence as an adult. Thus, it would be useful to distinguish those developing unwanted behaviors prior to adolescence from those showing such behaviors during adolescence in order to explain this matter. Effective developmental intervention programmers are essential for this group of offenders [9].

2. Methods

2.1 Aim

To evaluate the efficacy of "Aggression Replacement Training Program" on social problem solving and aggression among institutionalized adolescents.

2.2 Hypothesis

To achieve the aim of the study, the following hypotheses postulated and tested:

H0: There is no statistically significant difference in aggression scores between the experimental and control group after implementation of the program.

H0: There is no statistically significant difference in social problem-solving abilities scores between the experimental and control group after implementation of the program.

2.3 Design

A randomized controlled trial design (pre- post and at one month follow up).

2.4 Setting

This study was carried at "Institution of Education and Intellectual Events Astray" in Giza governorate.

2.5 Participants

A simple random sample of (66) institutionalized adolescents. The groups were randomly allocated by using a random sampling technique; with a list of institutionalized adolescents with their assigned code number for every participant will be in a box. Starting to draw a number randomly allocated; the first number allocated to the study group and the other one to the control group. This study is a double-blind study where the participants, researcher, and institutionalized adolescents were blinded to group allocation.

Inclusion criteria

Age ranges from 12 years old and more

Male only

2.6 Data Collection Tools

Tool 1: Sociodemographic data sheet: This tool developed by the researcher consists of level of education, age, and type of institutionalization, substance abuse and duration of institutionalization etc...

Tool 2: Aggressive behavior questionnaire: The questionnaire consists of (28) items. The questionnaire aims to measure aggressive behavior levels. All items were answered by using a 4-point Likert scales format (1-4) with response options of extremely= (4), slightly= (3), sometimes= (2), rarely= (1). The total score of the

scale is (28-112). Internal consistency, cronbach's alpha coefficients were found to be 0.89 for the total score [10].

Tool 3: Social Problem-Solving Inventory - Revised (SPSI-R): Is a self-report inventory of social problem-solving processes that was designed to assess the major components of the social problem-solving model. The SPSI-R consists of 52-items. The SPSI-R employs a 5-point response scale with a textual response format ranging from "not at all true of me" (0) to "extremely true of me" (4). The SPSI-R divided into five major subscales which measure five problem-solving dimensions: 1st subscale: Positive problem orientation (PPO), 2nd subscale: Negative problem orientation (NPO), 3rd subscale: Rational problem solving (RPS), 4th subscale: Impulsivity/ carelessness style (ICS), and final subscale: Avoidance style (AS). The total score of the scale is (0-208). Internal consistency (α=0.69 -0.95) and test-retest reliability (r =0.68 -0.91) [11].

2.7 Procedure

An official permission was granted upon a letter issued from the faculty of nursing to the Ministry of Social Solidarity. After the institutional consent form was obtained, the researcher met potential subjects, explained the purpose of the study, assured them about confidentiality and anonymity, finally invited them for participation. They were also informed about the right to withdraw from the study at any time without giving any reason. Written consent was obtained from each participant's caregivers before pre-test and data collection. The researcher collected data from each participant in more than one session.

Assessment phase (1 session)

Baseline assessment was carried out by using the selected tools. Each participant was interviewed individually in a semi-structured interview. The questionnaires were read, explained and the choices were recorded by the researcher. The participants were divided randomly into two groups (Intervention group was received aggression replacement training program and the control group who didn't receive the program) with taking into consideration the blinding during allocation of groups.

Implementation phase (10 sessions)

Participants were divided into two groups randomly first group was experimental group and the other one was control group. These participants and their caregiver were informed about aim, objectives, content of the program, and number of session's type of activities and their responsibility to abide with the program rules. The program was implemented in 10 weeks 3 sessions per week. The following techniques were used during the program application group discussion, feedback, homework, role play, ABC work sheet, hassle log, social consequences work sheet and my agreement work sheet.

Evaluation phase & follow up.

Upon termination of the program and after one month, all participants were reassessed using the same pre assessment tools (socio demographic data sheet, aggressive behavior questionnaire and social problem-solving inventory - revised (SPSI-R)) to evaluate the effect of the program and also for celebrating their achievement.

2.8 Statistical Analysis

A Statistical Package for Social Science (SPSS) version 20 is used for statistical analysis of data, Parametric inferential statistics as descriptive (mean &SD), t-test, (ANOVA) and regression analysis were used to examine the differences and similarities between study variable as well as analysis of variance to examine found correlations. Probability (p-value) less than 0.05 was considered significant and less than 0.001 considered as highly significant.

3. Results

Table (1) shows that there were insignificant statistical differences in demographic data between study and control groups (P>0.05) which means that they are comparable groups.

Table (2) reveals that there were insignificant statistical differences (p=0.11) social problem-solving subscales between control& study groups at preprogram implementation phase which means that both groups are comparable.

Table (3): reveals that, there was significant statistical difference (P≤0.05) in total social problem solving among study group over the different time points with elevation in post program (174 ± 61.53) and follow up scores (155.17 ± 51.07) more than preprogram scores (48.98 ± 51.77).

Table (4): reveals that, there was insignificant statistical difference (P=0.11) in total social problem solving among control group between the different time points.

Figure (1) illustrates that social problem-solving level is similar between the different time points at among control group, also it was similar at pretest phase between control and study groups. But there was an obvious improvement of social problem-solving level among the study group over the time with improvement in posttest (72.7% high) and follow up (63.6% high) than pretest (21.2% high).

Table (5) reveals that there was significant statistical difference (p≤0.05) in aggressive behavior mean scores between control & study groups at preprogram implementation phase.

Table (6): reveals that, there was significant statistical difference (P≤0.05) in total aggressive behavior among study group with decreasing mean scores in post program (37.35 ± 1.59) and follow up (41.02 ± 0.94) more than preprogram scores (98.86 ± 0.46).

Table (7): Shows that, there was insignificant statistical difference (P=0.34) in total aggressive behavior among control group between the different time points.

Figure (2): Clarifies that there wasn't improvement of aggressive behavior level among control group between the different time points: severe cases at pretest (63.6%), posttest (69.7%), follow up (66.6%), and there was an improvement of aggressive behavior level among the study group over the different time points: severe cases at pretest (63.7%), posttest (18.2%), and follow up (18.2%).

Table (1): Comparing the studied participants' personal data between study and control groups.

Personal data		Study (n=33)		Control (n=33)		Chi square	
		No	%	No	%	X2	P
Age:	12 to less 14	23	69.7	26	78.8	0.44	0.66
	14 to less 16	10	30.3	7	21.2		
	Mean ± SD	14.15 ± 3.16		14.45 ± .2.44			
Educational Level: Read and write		11	33.3	7	21.2	4.07	0.40
	Primary school	12	36.4	10	30.3		
	Preparatory school	6	18.2	12	36.4		
	Secondary school	4	12.1	4	12.1		
Smoking:	Yes	17	51.5	14	42.4	0.68	0.18
	No	16	48.5	19	57.6		
Duration of Stay in the Institution: Less than 5 years		8	24.2	10	30.3	1.81	0.08

5 years and more	25	75.8	23	69.7		
Mean ± SD	6.45 ± 3.27		6.12 ± 4.17			
Reasons for Placement in the Institution: Fatther's death	11	33.3	6	18.2		
Mother's death	6	18.2	7	21.2		
Death of both parents	2	6.1	5	15.2	6.77	0.34
Father's abandonment	3	9.1	7	21.2		
Parents' divorce	4	12.1	4	12.1		
Economic circumstances	6	18.2	2	6.1		
Mandated by the judiciary	1	3.0	2	6.1		

*p is significant at ≤0.05.

Table (2): Comparing social problem-solving subscales between control & study groups at preprogram implementation.

Preprogram				
Social problem-solving subscales	Control	Study	Independent T-test	
	Mean±SD	Mean±SD	T	P
Positive problem orientation	4.96 ± 3.96	5.86 ± 6.84	0.65	0.06
Negative problem orientation (recoded)	10.12 ± 6.11	6.26 ± 5.4	1.31	0.31
Problem Definition and Formulation	5.94 ± 6.04	5.47 ± 3.93	0.42	0.42
Generation of alternative solutions (gas)	4.36 ± 6.96	4.11 ± 8.84	0.38	0.38
Decision Making (DM)	5.27 ± 7.84	4.98 ± 5.96	0.17	0.17
Solution Implementation and Verification	6.86 ± 5.06	5.8 ± 6.84	0.04	0.04
Impulsivity/carelessness style (ICS) (recoded)	8.87 ± 7.84	7.64± 7.16	0.67	0.67
Avoidance style (AS) (recoded)	7.96 ± 3.96	8.86 ± 6.8	0.07	0.07
Total	54.34 ± 47.77	48.98 ± 51.77	0.91	0.11

*p is significant at ≤0.05.

Table (3): Comparing social problem-solving subscales among study group between the different time points.

Study group					
Social problem-solving subscales	Pre	Post	Follow up	Repeated measures ANOVA	
	Mean± SD	Mean± SD	Mean± SD	F	P

Positive problem orientation	5.86 ± 6.84	17.06 ± 7.94	14.96 ± 6.99	11.95	0.00
Negative problem orientation (recoded)	6.26 ± 5.4	32.47 ± 8.35	30.39 ± 7.45	12.25	0.00
Problem Definition and Formulation	5.47 ± 3.93	18.16 ± 6.04	14.15 ± 5.66	11.05	0.00
Generation of alternative solutions (gas)	4.11 ± 8.84	19.66 ± 6.94	15.86 ± 5.75	12.97	0.00
Decision Making (DM)	4.98 ± 5.96	17.57 ± 8.64	16.25 ± 4.59	13.28	0.00
Solution Implementation and Verification	5.8 ± 6.84	19.75 ± 7.31	15.96 ± 6.89	9.33	0.00
Impulsivity/carelessness style (ICS) (recoded)	7.64± 7.16	29.17 ± 8.35	27.64 ± 7.44	11.95	0.00
Avoidance style (AS) (recoded)	8.86 ± 6.8	20.16 ± 7.96	19.96 ± 6.3	13.65	0.01
Total	48.98 ± 51.77	174 ± 61.53	155.17 ± 51.07	45.20	0.00

*p is significant at ≤0.05.

Table (4): Comparing social problem-solving subscales among control group between the different time points.

Control group					
Social problem-solving subscales	Pre	Post	Follow up	Repeated measures	
	Mean±SD	Mean±SD	Mean±SD	F	P
Positive problem orientation	4.96 ± 3.96	5.17 ± 5.96	5.94 ± 5.64	1.05	.10
Negative problem orientation (recoded)	10.12 ± 6.11	11.68 ± 4.32	10.69 ± 7.22	0.63	.18
Problem Definition and Formulation	5.94 ± 6.04	6.54 ± 7.87	5.96 ± 6.85	1.95	.28
Generation of alternative solutions (GAS)	4.36 ± 6.96	5.18 ± 5.56	4.94 ± 5.08	1.85	.42
Decision Making (DM)	5.27 ± 7.84	4.27 ± 7.1	5.89 ± 6.28	1.47	.38
Solution Implementation and Verification	6.86 ± 5.06	6.75 ± 5.96	5.94 ± 5.6	1.27	.28
Impulsivity/carelessness style (ICS) (recoded)	8.87 ± 7.84	8.06 ± 7.64	8.96 ± 8.1	1.56	.49
Avoidance style (AS) (recoded)	7.96 ± 3.96	8.17 ± 5.96	7.94 ± 5.64	0.85	.36
Total	54.34 ± 47.77	55.82 ± 50.37	56.26 ± 50.41	4.88	.11

*p is significant at ≤0.05.

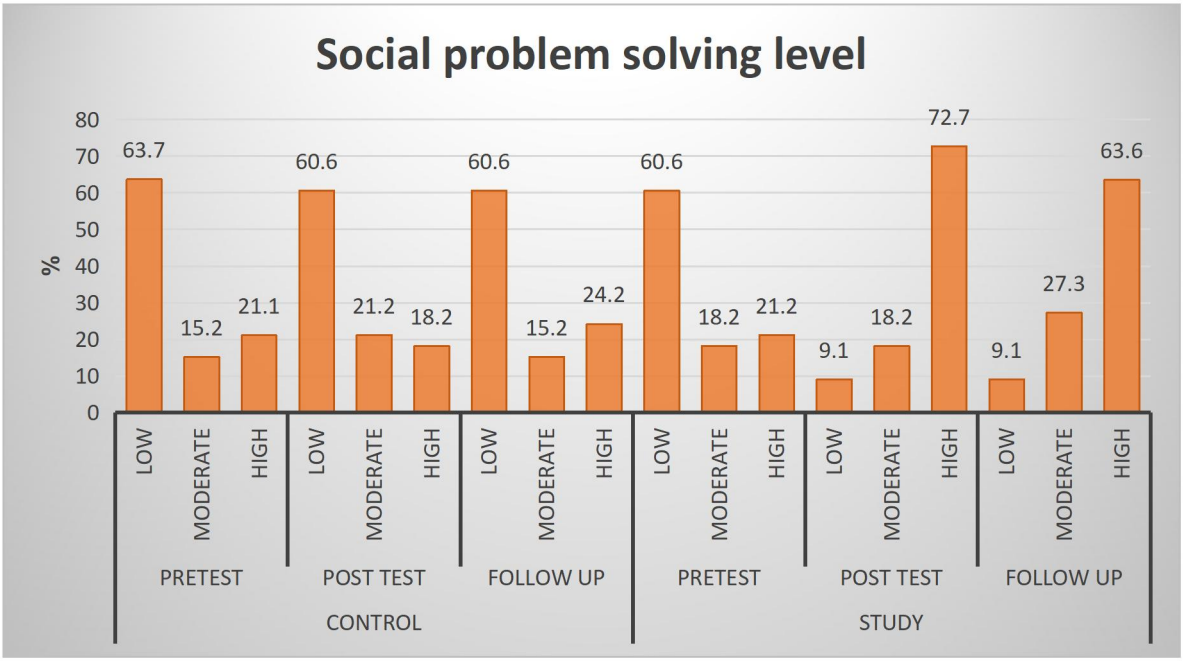

Figure (1): comparing social problem-solving level among control group between the different time points.

Table (5): Comparing aggressive behavior between study & control groups at preprogram implementation

Preprogram aggressive behavior				
Items	Control group	Study group	Independent T-test	
	Mean±SD	Mean±SD	t	p
Aggressive behavior	97.73 ± 0.66	98.86 ± 0.46	8.07	0.00

*p is significant at ≤0.05.

Table (6): Comparing aggressive behavior subscales among study group between the different time points.

Study group					
Items	Pre	Post	Follow up	Repeated measures	
	Mean±SD	Mean±SD	Mean±SD	F	p
Study group	98.86 ± 0.46	37.35 ± 1.59	41.02 ± 0.94	56.27	0.00

*p is significant at ≤0.05.

Table (7): Comparing aggressive behavior subscales among control group between the different time points.

Control group					
Items	Pre	Post	Follow up	Repeated measures	
	Mean±SD	Mean±SD	Mean±SD	F	p
Control group	97.73 ± 0.66	98.94 ± 1.3	98.63 ± 0.44	0.76	0.34

*p is significant at ≤0.05.

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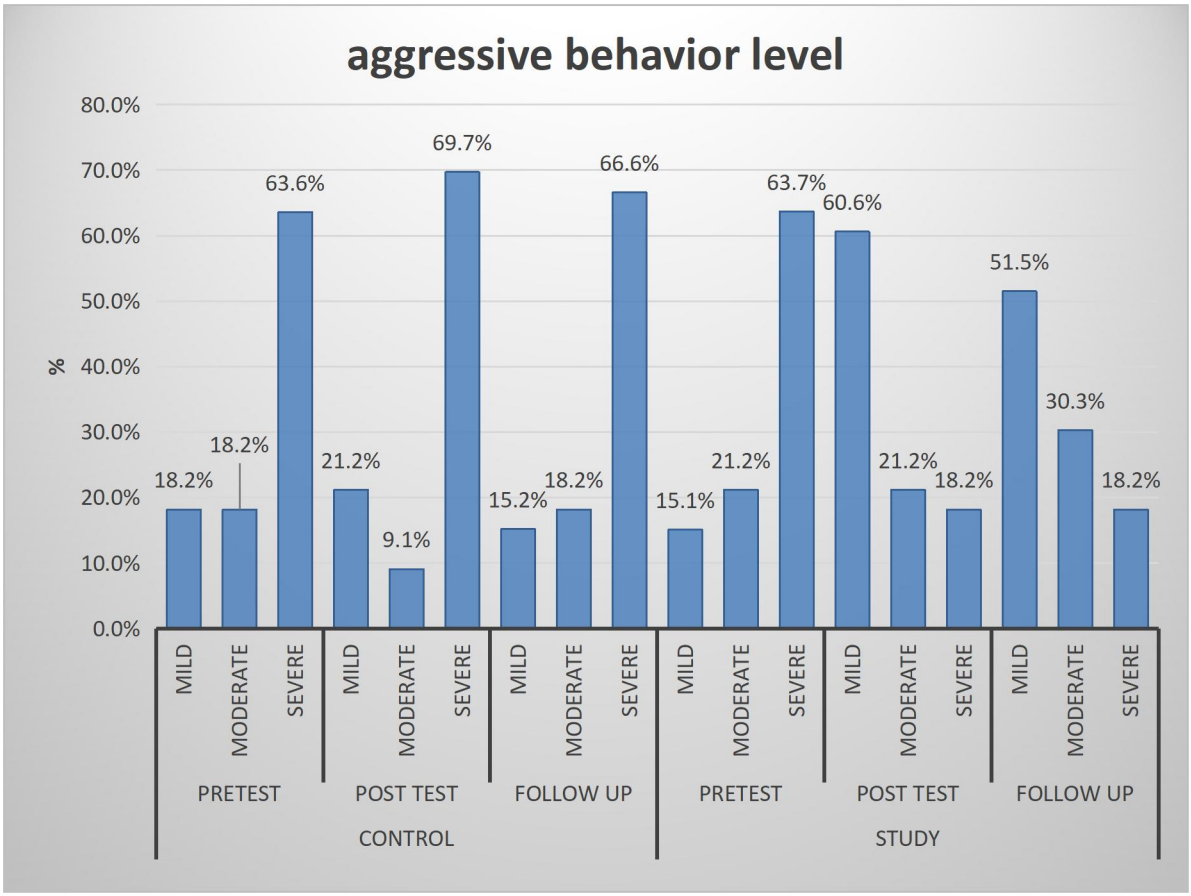

Figure (2): Comparing aggressive behavior level between study and control groups between at the different time points.

4. Discussion

The incidence of aggressive behavior among institutionalized adolescents has harvested substantial attention because of aggression increased that prompting various intervention strategies. One such approach is the Aggression Replacement Training (ART) program, definitely designed to promote social problem-solving skills and alleviate aggression in this vulnerable population. As institutionalized adolescent faced complex psychological challenges. Research indicated that adolescent in residential treatment display heightened levels of aggressive inclinations and inaccurate moral reasoning compared to their peers in the general population [12].

In relation to age the present study indicated that the majority of participants (74.2%) their ages were between 12 and 14 years old, with a mean score of age 14.3 years (SD ± 2.8) and this age range is an essential developmental period, manifested by substantial physical, social and psychological changes, made it a critical window for health-related interventions. This results in the same line with the study by Reynales-Shigematsu, Rivera-Rivera, Séris-Martínez, & Saenz-de-Miera who found that 12th to 18th age group displayed unique patterns of risk behaviors that differ considerably from mid and late adolescence [13].

Regarding to the educational levels of the institutionalized adolescents had differ with the largest percentage (33.3%) hade a primary school education in both the study group and control. This inconsistency in educational achievement may impact health literacy and alertness, possibly affecting adolescents'

engagement with programs of health promotion and health-related information. The study finding in agreement with Lees et al. who reported that 33% of school-aged children and youth in low-income countries are out of school, compared to only 3% of them in high-income countries [14].

In contrast with Bakhvalova & Miklyaeva who indicated that (6.7%) of the institutionalized adolescents successfully integrated into ordinary schools while the others experienced complications in this process. The significant predictors of successful integration are characterized by the communication skills of them, as well as their relationships with subjects of the educational process [15].

Also, regarding to smoking, the study findings indicated that more than half 53.1% of the studied adolescents had not smoke, it suggested that they had high adherence to a healthier behavior regarding smoking. There were some factors influencing smoking among adolescents include the knowledge about smoking, characteristics of the family, and exposure to the media. It was important to consider factors that could lead to smoking initiation, such as peer influence and stress for the non-smoker adolescents. The study findings are consistent with Hu, et al who reported that around half (46.9%) of adolescents never smoked, while (53.1%) smoked at some point during childhood or adolescence [16].

In relation to the duration of stay, the study findings indicated that more than two third (72.7%) of the Studied adolescents resided in the institutional setting for five years ago or more. Long-term institutionalization could had high effects on adolescents' development and wellbeing. Even though the institutions provided care and stability but the long institutional care cause substantial implications for their socialization, development, and mental health. Institutions become a prime environment for them which is affecting their attachment styles, relationships with peers, and total psychological wellbeing.

The study finding is in agreement with Figueiredo & Silvestre who mentioned that the majority of adolescents who had long term institutionalization their emotional controlling, attention, and sleeping patterns had affected [17]. The study results in the same line with Fernandes & Oliveira-Monteiro who reported that the majority (72.7%) of institutionalized adolescents had been in the institution for five years ago or more [18].

As regard to the reasons for placement, the study findings indicated that around one quarter (25.8%) of the studied adolescents reported that the death of their father was reported as the most common reason for placement. The father loss is a substantial factor leading to institutional placement particularly the father had profound psychological, emotional, and economic effects on a family. Also, in many other cultures, fathers were often prime breadwinners to stability of the family and their death can dislocate the family structure, leaving the family members without suitable support systems.

The study finding in agreement with Nsabimana, Rutembesa, Wilhelm & Martin-Soelch who mentioned that father death - approximately quarter of study participants (25.8 %) - can lead to substantial distress and poor long-term outcomes for adolescents [19]. The World Health Organization highlighted that the death of a parent is adverse experience that faced by adolescence, it can make adolescents susceptible to mental health problems include grief, depression, and psychosocial challenges that may need institutional care if suitable support not obtainable [20].

As regard to positive problem orientation the study results in line with the study by López & Esposito-Smythers emphasized the critical role of positive problem orientation in promoting mental health and

reducing psychological distress. It buffered the impact of discrimination on suicidal ideation, highlighting its protective role in mental health [21]. Also, in agreement with the study by Akbari, Torabizadeh, Nick, Setoodeh & Ghaemmaghami demonstrated that training intervention significantly improved social problem-solving skills, including fostering a positive orientation toward addressing social challenges [22].

These results were supported by Krause, et al emphasized that problem-solving training could lead to changes in problem orientation, contributing to positive outcomes in the treatment of adolescent's anxiety, it showed that the practicality and flexibility of problem-solving as a key process in therapeutic setting [23]. Also, the study by Yoga, Nik Farid, Yakub, & Dahlui demonstrated the effectiveness of the Super Skills for Life (SSL) Program in improving mental well-being among institutionalized adolescents. The SSL program also improved personal protective factors like resilience and self-esteem, which are closely linked to reduced negative problem orientation [24].

The study results aligned with the study by Askari, Aemmi & Behnam Vashani, which concluded that problem solving skills training can improve self-efficacy, boost a key component of problem-solving and self-concept, which in turn can improve the mental health of adolescents. This is achieved by promoting empowerment, boosting positive mood, and improving cognitive understanding of their challenges. The authors recommended that nurses can implement this training as a simple and cost-effective supportive care strategy [25].

Correspondingly, the study results in line with the study by Agarwal, & Manglani showed that significant improvements in adolescents problem solving skills and decision making after application of the comprehensive multi-component programs which integrated various strategies, including cognitive skill building, emotional regulation, and behavioral problem-solving, to offer a holistic approach [26].

Also, the study result in agreement with the study by Misevičė, Gervinskaitė-Paulaitienė & Lesinskienė emphasized the importance of psychosocial interventions in improving mental health and attachment security among institutionalized adolescents [27]. Another study by Xiao, Shen, Zhang & Lin confirmed that there were positive effects of problem-solving training therapy in adolescents, targeted training can enhance these crucial skills across diverse adolescent groups [28].

Also, in the same with the study by Kolla et al indicated that the cognitive behavioral-based psychosocial intervention program demonstrated significant improvements in impulsivity among adolescents with externalizing behaviors, supporting the effectiveness of structured interventions in reducing impulsivity traits [29]. In line with the study by Carvalho et al highlighted the role of intervention training, such as emotion regulation and parental attachment, in reducing impulsivity among adolescents [30].

The study results in line with the study by Rahimian, Namazi & Aghili which emphasized that the intervention was effective in reducing cognitive avoidance in adolescents [31]. Also, the study by Sukmawati, Lestari & Wardhani showed that intervention had significantly reduced social anxiety levels, and avoidance behaviors in adolescents [32]. Also, in agreement with El-Abbassy, Salam, Berry & Elfeshawy found that positive psychology interventions encouraged mental health, life satisfaction, and happiness levels among adolescents, indicating a shift towards more adaptive coping [33].

Regarding to the social problem-solving levels among institutionalized adolescents in a study group compared to a control group across three phases: pre-program, post-program, and follow-up. The findings

revealed that the after the program increased significantly to 72.7% and at the program follow-up phase slightly decreased but remained high at 63.6%. The results demonstrated the efficacy of the intervention program in improving social problem-solving skills among institutionalized adolescents, with continued improvements observed during the follow-up phase.

The study finding in agreement with the study by Akbari, Torabizadeh, Nick, Setoodeh & Ghaemmaghami demonstrated that emotion regulation techniques training intervention meaningfully improved adolescents social problem-solving skills [22]. Also, in line with the study by Elbably & Nemt-allah showed that intervention training program improved verbal insight and social problem-solving [34]. Correspondingly the study by Fatta, Laugeson, Bianchi & Scattoni showed that the Randomized controlled trials validated the adolescent's program for the education and enrichment of relational skills, recognized that adolescent had improved their social skills post educational enrichment program [35].

Regarding the aggressive behavior among study and control groups, the current study demonstrated that there was a statistically significant difference in aggressive behavior among the study group (F=56.27, P=0.00) and there was insignificant statistical difference in control group (F=0.76, P0.34) across three time points: pre, post, and follow-up. This indicated that the intervention program had a measurable impact on reducing aggressive behaviors among the participants and the program involved structured activities, therapeutic approaches, and behavioral strategies employed that contributed to the positive changes observed in the participants.

The study results in line with the study by Yu, Ma, Chao & Jiang emphasized the importance of early prevention and targeted nursing interventions, it reduced aggressive behavior among adolescent patients [36]. Also, the study by Mohamed, Marzouk, Ahmed, Nashaat & Omar indicated that the Cognitive behavioral program on aggression and self-concept among institutionalized children was effective in reducing aggression and improving self-concept [37]. Also, the study findings in line with the study by Baykara & Bilgin found that the psycho education interventions had positive effects on aggression behaviors by decreasing it [38].

Regarding to the aggressive behavior levels, the study results indicated a substantial reduction in severe aggressive behavior among institutionalized adolescents following an intervention program. Definitely, the proportion of adolescents displaying severe aggressive behavior decreased from 69.7% in the pre-program phase to 18.2% in both the post-program and follow-up phases. It suggested a substantial positive impact of the program on behavior modification in institutionalized adolescents. The study findings in line with the study by Tran, Le, Cao, Dam & Nguyen demonstrated a reduction in aggression and an improvement in self-concept after the cognitive-behavioral program implementation among institutionalized children with conduct disorder [39].

Similarly, the study by Schaub, Stander & Montgomery concluded that the rational emotive behavior education (REBE) models had shown effectiveness in reducing aggressive behavior in adolescents [40]. Additional literature review specifically on Cognitive Behavior Therapy (CBT) for reducing aggressive conduct in Indonesian adolescents emphasized CBT's efficacy in reducing aggressive behavior [41].

Equally, the study by Maazallahi, Mortazavi Mehrizi, & Demhari reported positive outcomes of Dialectical Behavior Therapy (DBT) on cognitive flexibility and alexithymia in aggressive adolescents. The cognitive and behavioral approaches are vigorous in addressing aggressive behavior [42]. But the study finding is

contradicted with the study by Zhang et al showed that the role of life events, resilience, self-esteem, and coping styles also meaningfully influenced aggressive behavior among adolescents, suggested that a holistic approach considering these factors can augment intervention outcomes [43].

5. Conclusion And Recommendations

The study concluded that, Aggression Replacement Training Program had an effective impact on improved social problem-solving skills and reduced aggressive behaviors among institutionalized adolescents. The increasing magnitude of negative correlations from pre to follow-up inferred that institutionalized adolescents internalized and applied strategies of problem solving beyond the sessions time, translating cognitive improvements into real and actual behavioral change. The Continuous effects at follow-up highlighted the program's capacity to make long-term adjustments in institutionalized adolescents' competencies of social problem solving and reduction of aggressive tendencies. This study can be replicated with larger subjects in different institutions for generalizing the findings and application of program in institutionalization settings. Also using multiple assessment tools like observation and staff evaluation.

6. Limitations

- small number of subjects of institutionalized adolescents were utilized. Also, total number of subjects was 72 and this limited capabilities of random selection of subjects.
- self report questionnaire not give honest answers from subjects especially in institutionalized settings
- intervention period was presented on limited time and follow up was done after only one month which may not be precise about long-acting effect of the program

7. Abbreviations

SPS	Social problem solving
SPSI-R	Social problem-solving inventory - revised
ODD	Oppositional Defiant Disorder
CD	Conduct Disorder
ART	Aggression replacement training
PPO	Positive problem orientation
NPO	Negative problem orientation
RPS	Rational problem solving
ICS	Impulsivity/ carelessness style
AS	Avoidance style
GAS	Generation of alternative solutions
DM	Decision Making
REBE	Rational Emotive Behavior Education
CBT	Cognitive Behavior Therapy
DBT	Dialectical Behavior Therapy

8. Declarations

8.1 Ethical Considerations

A written ethical approval from "Ethics of Scientific Research Committee" at the Faculty of Nursing - Cairo University. In addition, an official permission from "Institution of Education and Intellectual Events Astray" to conduct the proposed study. A complete description of the purpose and nature of the study were explained to all subjects and they were informed that participation in the current study is entirely voluntary, and

informed written consent was obtained from them, anonymity and confidentiality were protected by coding the data.

8.2 Availability of data and materials

The data that support the findings of this trial are available from the corresponding author upon reasonable request.

8.3 Competing Interests

The authors declare that they have no competing interests.

8.4 Funding

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