

Effectiveness of Social Problem Solving Training Program on Enhancing Self-concept of Adolescents in Zagazig City

Nashwa Saber Atia¹, Salwa Abbas Ali², Amany Sobhy Sorour³ & Hanim Ali Abdel Maqsoud⁴

¹Assistant lecturer of community health nursing, Faculty of nursing, Zagazig University, ² Professor of community health nursing, Faculty of nursing, Zagazig University, ³ Professor of community health nursing, Faculty of nursing, Zagazig University & ⁴ Professor of educational Psychology, Faculty of Education, Zagazig University

Abstract

Background: Self-concept is one of the most important health-related psychological constructs. Low self-concept has a direct impact on the social and psychological adjustment of the adolescents. **Aim of the study** was to evaluate the effectiveness of social problem solving training program on enhancing self-concept of adolescents in Zagazig city. **Subjects & Methods: Research design:** A quasi-experimental pretest-and-posttest design was utilized in this study. **Setting:** The study was conducted in two secondary schools in Zagazig city. **Subjects:** A sample of 45 adolescents had low self-concept selected by using a random multi-stage cluster sampling technique.. **Tools of data collection** were; socio-demographic data, Tennessee Self-concept Scale (TSCS), and Social Problem Solving Inventory-Revised (SPSI-R). **Results:** The study results revealed post-intervention statistically significant differences in adolescents' total social problem solving, negative problem orientation and avoidance problem solving, indicating improvement. Also, there was a statistically significant improvement in moral self-concept after the intervention. **Conclusion:** The training program is effective in ameliorating adolescents' social problem solving ability which in turn was a positive predictor of their self-concept. **Recommendations:** It is recommended to implement the developed program on a wider scale in the study settings and in similar ones for more generalization and further studies are needed to assess the effect of various factors on self-concept to assist in building more effective and more tailored interventions for adolescents.

Key words: Adolescents, Social Problem Solving, Training program, and Self-concept-Enhancing

INTRODUCTION

One fifth of the world's populations, a total of 1.2 billion people, are adolescents aged 10–19 years and 85% of them are in the developing world ^(1&2). Egypt is the most populous country in the Arabic region with 92.5 million inhabitants of which 25% are adolescents ⁽³⁾.

Adolescence is the developmental period of transition between childhood and adulthood ⁽⁴⁾. It is accompanied by dramatic physical, cognitive, social, and emotional changes that present both opportunities and challenges for the

adolescent, the family, and the broader community ⁽⁵⁾. These changes make adolescence as a critical period for positive development of self-concept.

Self-concept refers to the totality of a complex, organized and dynamic system of learned beliefs, attitudes and opinions that each person holds to be true about his or her personal existence ⁽⁶⁾. It is not innate, but is developed or constructed by the individual through interaction with the environment and reflecting on that interaction. This aspect of self-

concept is important because it indicates that it can be modified or changed ⁽⁷⁾.

An individual's self-concept may be either positive or negative ⁽⁸⁾. Negative self-concept during adolescence has been associated with maladaptive behavioral and emotional problems; disturbed peer and family relationships; depression and mood instability; and risky sexual or other acting-out behaviors including substance abuse, crime, and poor school performance ^(9,10).

Enhancing self-concept is a vital goal as it is an important mediating variable that causally impacts on a variety of desirable outcomes to lead the life successfully ⁽⁷⁾. Thus, intervention programs on improving self-concept is important to help high school students to improve their lives ⁽¹¹⁾.

One of the most important skills which can strengthen adolescents' mental health and development to encounter future problems is problem solving skills in general terms and social problem solving in specific terms ⁽¹²⁾. Social problem solving (SPS) is the process by which individuals attempt to identify, discover, or create adaptive means of coping with stressful problems they encounter in everyday life ⁽¹³⁾. Problem solving ability that is regarded as an indicator on social capability might be a key component of psychological adaptation ⁽¹⁴⁾.

The nurse can promote a positive self-concept by identifying client's strengths; listening to the client's self-description; involving the client's in decision making; keeping goals realistic; encouraging the client to think positively; maintaining an environment conducive to client self-

expression; and explaining to the client how to use positive self-talk instead of negative self-talk ⁽¹⁵⁾.

Significance of the study

Adolescents in Egypt form around 25 percent of the country's population, and represent even greater proportion of the country's human potential⁽²⁾. Self-concept has great impact on adolescent's personality and behavior. Recent research suggests that low self-concept in adolescence may be a harbinger for poor longer-term outcomes, such as fewer years of post-secondary education, greater likelihood of joblessness and financial difficulties, as well as poorer mental/physical health and higher rates of criminal behavior. Owing to few studies that had been conducted in this field, this study conducted to high light adolescents' self-concept and the effect of social problem solving ability on their self-concept.

Aim of the study

The aim of this study was to evaluate the effectiveness of social problem solving training program on enhancing adolescents' self-concept.

Research hypotheses:

- Social problem solving ability of adolescents will be improved in post-test than in pre-test.
- Social problem solving training program will positively affect self-concept of adolescents.

Subjects & Methods

Research design

A quasi-experimental pretest-posttest research design was used in this study.

Study setting

The study was conducted at two secondary schools in Zagazig city. These schools were Gamal Abd El-

Naser School for girls and Zagazig Military High School for boys.

Sampling technique

A random multistage cluster sampling technique was used in the recruitment of this study subjects as follows:

❖ Stage 1

At this stage, from the two educational administrations of Zagazig city, the East and West administrations, the researcher randomly selected two schools:

- ✓ Gamal Abd El-Naser secondary school for girls from West educational administration of zagazig city
- ✓ Zagazig military secondary school for boys from East educational administration of zagazig city

❖ Stage 2

This stage involved selection of the classes as clusters from schools according to the required sample size. This was done through random sampling of the classes. All students in the selected classes were included in the sample. These were as follows:

- ✓ Gamal Abd El-Naser secondary school for girls 84 students
- ✓ Zagazig Military High school for boys 97 students

This division was based on the ratio calculated from the numbers of students obtained from the General Department of Information and Computer (GDIC) affiliated to the Education Department at El-Sharkia Governorate.

❖ Stage 3

After the statistical analysis of Tennessee Self-concept Scale collected from 181 participants, 45 adolescents who had lowest self-concept scores, were selected for the intervention. This intervention sample was 9 boys and 36 girls.

Study subjects

The sample consisted of 45 adolescents had low self-concept scores (14 to 18 years old) enrolled in the schools in the study setting. A sample of 181 adolescents assessed to determine a prevalence of low self-concept of 30 % or higher with 3.5 standard error and 95 % confidence level. The sample size is estimated to detect the difference between the rate of self-concept among adolescents ($p_1=45%$) according to Ferriera et al ⁽¹⁶⁾ and the pre-test and the expected rate at the posttest ($p_2=62%$) based on an Odds Ratio of 2, with a 95% level of confidence (α error = 5%), and a study power of 80% (β error=20%). Using the equation for the difference between two proportions (Epi Info 6.04), the estimated sample size was 45 subjects. A multistage cluster sampling technique was used in the recruitment of subjects.

Tools for data collection:

Self-administered questionnaire sheet for data collection composed of three tools;

Tool (I): Socio-demographic data involved:

- Personal data: such as student's age, gender, residence, and birth order.
- Work and leisure habits: such as sport practicing, favorite hobbies, number of friends, etc.
- Family data: such as parent's age, educational level, occupation, etc.
- Socio-economic data: crowding index, family income, home utilities, and media at home.

Tool (II): Teneesee Self-concept Scale (TSCS) consists of 100 statements assessing physical self, social self, family self, moral self, and personal self. **Scoring:** In this scale, subject has to respond in a five point

scale 1 (completely false), 2 (mostly false), 3 (partly false and partly true), 4 (mostly true) and 5 (completely true). Reverse scoring was used for negatively stated items, so that a higher score indicates higher level of self-concept. A score of 60% or higher was considered as high while a lower score was considered low.

Tool (III): Social Problem Solving Inventory-Revised (SPSI-R) is a 52 items of Likert-type. It is consisted of the following five major subscales. These subscales are positive problem orientation, negative problem orientation, rational problem solving, impulsive\ careless problem solving, and avoidance problem solving. Rational problem solving subscales are categorized into Problem Definition and Formulation, Generation of Alternative Solutions, Decision Making, and Solution Implementation and Verification.

Scoring: The responses are on a 5-point scale from 1 (Not at all true of me) to 5 (Extremely true of me). Reverse scoring was used for negatively stated items, so that a higher score indicates better social problem solving ability. A score of 60% or higher was considered as high while a lower score was considered low.

Content validity and reliability

The tools were revised by a panel of five experts in community health nursing, psychiatric, and educational psychology departments in Faculty of Education who conducted face and content validity of all the items of this part. All recommended modifications were performed. SPSI-R was translated into Arabic using the translate-back-translate technique to ensure their original validity. Internal consistency of the tools was assessed

by calculating Cronbach alpha coefficients. Their reliability proved to be satisfactory as shown by the values of Cronbach alpha coefficient in the following: **TSCS: 0.702 & SPSI-R: 0.799**

Fieldwork

The fieldwork extended from the beginning of October 2015 to the end of April 2016. The study was executed through successive phases of assessment, planning, implementation, and evaluation.

Assessment phase: Once permission was granted to proceed with the study, the researcher met with the directors of the selected two schools, explained to them the study aim and procedures, as well as the data collection forms. They were asked to seek the permission of the parents of the students in the selected classes to participate in the study. Once parents' oral consents were secured, the researcher went to schools, introduced herself to students in classrooms, and explained to them the purpose and nature of the study and the data collection forms. They were asked to fill in the questionnaire sheets under guidance of the researcher who stayed in the classroom to answer any queries. The time consumed for answering the study scales ranged from 40-50 minutes. Based on this phase, the participants, who had low self-concept scores, were selected for the program. This phase lasted for 2 months (October to November 2015).

Planning phase: Based on the results obtained from the data analysis of the assessment phase, and in view of the pertinent literature, the researcher designed the training program sessions contents according to the students' needs and the study aim.

Implementation phase: The program was implemented in the form of nine sessions for small groups (10-12) of students in the two schools. This phase lasted for 10 weeks. The length of each session was variable according to students' responses and active participation, as well as the time available, and the content of each session. However, to ensure exposure of all students to the same learning experience, all students received the same content using the same teaching methods, media, discussions, and same activities.

The introductory session was used to present the aim and general objectives of the program, and set rules for leading the sessions. Then, each session started by a summary about what was given through the previous session and the objectives of the new one, taking into consideration the use of simple language to suit the level of understanding of the students. Also, each session ended by giving home work that ensure application of each session content in the participants' daily life. Motivation and reinforcement techniques as praise and recognition during the session were used to enhance active participation and foster learning. The sessions were aided by using pictures, exercises as well the program booklet.

The evaluation of the effectiveness of the training program was done immediately after its implementation by comparing the change in adolescents' social problem solving and self-concept scores through applying the same tool of the pre-test.

Pilot study

A pilot study was carried out on a sample of 20 adolescents to test the clarity of the instructions, the format, comprehension of the items, and to

estimate the exact time required for filling the questionnaire sheet. The necessary modifications were done based on the analysis of the pilot study to develop the final format. The participants involved in the pilot study were not included in the main study sample.

Administrative and ethical considerations:

Official permissions were obtained from the pertinent authorities. The study protocol was approved by the research committee at the Faculty of Nursing, Zagazig University. Informed consents were obtained from the parents through the directors of the selected schools. These included the aim and objectives of the study, as well as its procedures. It also clarified the rights to refuse or withdraw, as well as the confidentiality and anonymity of the collected information. Also participants were assured that any obtained information will be used for the research purpose only.

Statistical analysis

Data entry and statistical analysis were done using SPSS 20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the scales through their internal consistency. Quantitative continuous data were compared using paired t-test for dependent samples.

Qualitative categorical variables were compared using chi-square test. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to identify the

independent predictors of self-concept and problem solving scores, multiple linear regression analysis was used, and analysis of variance for the full regression models was done. Statistical significance was considered at p -value <0.05 .

RESULTS

Figure (1) demonstrates that 41.4% of the adolescents in the total study sample had low self-concept scores.

Table (1) reveals that the highest self-concept scores were that related to personal self (77.9 %), followed by social self (66.3%), and family self (56.9%). On the other hand, the lowest self-concept scores were those of physical self (42.5%), and moral self (5.1%).

Table (2) shows that the mean age of the intervention sample was 15.2 ± 0.5 years, with 80% of them were females. Whereas 97.8 % were from urban areas. Regarding birth order, 77.8% of the intervention sample had middle or last birth order ranks. As it is obvious, only 4.4 % of adolescents were working and 51.1 % of them had hobbies.

Table (3) displays, a statistically significant difference in total social problem solving scores of the participants after the intervention ($t=3.50$, $P=0.001$).

Table (4) reveals that there was improvement in adolescents' total self-concept scores after the intervention, but the differences did not reach statistically significant level, $p=0.22$.

Table (5) points to a statistically significant positive correlations between social problem solving scores

and self-concept scores of the intervention sample ($r=0.405$).

Table (6) indicates that intervention, age, crowding index, family income, and no. of home media were statistically significant independent positive predictors of social problem solving scores after the intervention. The model explains 20% of social problem solving scores as shown by the value of r -square. Other adolescents' characteristics have no influence on the social problem-solving scores.

Table (7) reveals that mother working was the only statistically significant independent negative predictor of self-concept score. Conversely, having hobbies, and social problem solving scores were positive predictors. The model explains 38% of self-concept score as shown by the value of r -square.

DISCUSSION

The current study result revealed that slightly more than two fifths of the adolescents in the total study sample had low self-concept scores. This might be related to the stress of academic achievement among secondary school students. Moreover, parents and other members of the family place high value on success in secondary school and the competition can often be tough. Consequently, adolescent who become overwhelmed with stress may feel hopeless and powerless, leading to a feeling of low self-confidence and self-esteem. Conversely, a study conducted in Portugal by *Ferreira et al.*⁽¹⁶⁾ revealed that 45.3% of adolescents in secondary education had high self-concept. Additionally, this finding is in congruence with the result of a study carried out to assess the self-concept of adolescents in India, which reported

that 27.5 % of adolescents had high overall self-concept⁽⁷⁾. Similar findings have been found by Indian studies of Khirade⁽²⁰⁾ and Gupta and Thapliyal⁽²¹⁾. These discrepancies among studies may be attributed to cultural differences among communities regarding this age group.

According to the present study results, the highest self-concept scores was that of personal self. This might be attributed to that personal self-concept reflects the person's adequacy and self-definition apart from his/her physical attributes and relationships with others. Similarly, Bharathi and Sreedevi⁽⁷⁾ in India found that higher percentage of adolescents (85%) had high personal self-concept. On the other hand, the lowest self-concept scores was that of moral self. This finding is expected as moral self-concept reflects person's satisfaction with their own behavior which contrasting the nature of the adolescents who often have the sense of inability to control his/her own impulses and behavior. On the contrary to the above mentioned findings, *Khirade*⁽²⁰⁾ in an Indian study found that there was no significant difference between the physical, social, temperamental, educational, moral and Intellectual self-concept among the adolescent students.

The current study proved the first hypothesis that after the implementation of the intervention, social problem solving ability of the adolescents was improved. These findings are in agreement with the previous research studies which emphasized on the importance of social problem solving training on improving mental health and psychological adjustment in adolescents (*Chinaveh*²², *Ogoemeka*²³, and *Parto and Besharat*²⁴). On the

same line, Bandy and Moore⁽²⁵⁾ reported that social problem solving program led to significant increases in problem-solving skills (such as alternative solution generation and consequential thinking).

Concerning the improvement in social problem solving ability of the studied adolescents, the intervention has been shown to be successful in improving adolescents' negative problem orientation that was significantly decreased after the intervention, indicating improvement. This is in agreement with *Chinaveh*⁽²⁶⁾ who found evidence that problem solving training increase positive problem-solving attitudes.

The present study result demonstrated a statistically significant decrease in avoidance problem solving in post than in pre-intervention. This finding might be explained by that, individuals who perceive themselves as competent in problem solving are more capable of facing the problem to which they are exposed rather than avoiding them. This finding is in the same line with, *Erozkan*⁽²⁷⁾ in Iran who emphasized that the adolescents' belief in their ability to effectively deal with problems and harness control over the problem's resolution may be as important as its use. When adolescents have confidence in their ability to solve problems they are more likely to view problems as challenges to be tackled than as stressors to be avoided. On the contrary, *Abu-Ghazal and Falwah*⁽²⁸⁾ in a study aimed at investigating the most frequently used social problem solving style among adolescent students in Jordan, found that significant differences were found on avoidant problem solving style on the students.

The implementation of the intervention proved to be an independent positive predictor of the adolescents' self-concept scores, which indicated the success of the program in enhancing the adolescent's self-concept. This finding supported the current study second hypothesis. These findings are consistent with previous studies which showed that teaching social problem solving skills has a significant and positive impact on self-esteem of the students (Hosseininasab²⁹, Karamipour³⁰, and Davoodi and Askari³¹). Likewise, *D'Zurilla and Nezu* (32) demonstrated that variables that might social problem solving training outcomes include positive affectivity, optimism, hope, self-efficacy, and self-esteem

In the same vein, a study carried out by *VeisiKahre et al.* (33) in Iran to identify the effectiveness of problem-solving skills and to enhance secondary students' academic self-concept. This study concluded that the problem-solving training causes increased self-concept academic students. Also, in agreement with the aforementioned study result, in India Anuradha (6) demonstrated that improvement of life skills among adolescents helps not only to play a matured adult role but also to boost their self-concept.

A statistically significant positive correlation between the scores social problem solving and self-concept at the pre and post intervention phases was confirmed in the present study. This finding is consistent with Koruklu (34) who concluded that self-esteem were found to be significantly and positively correlated to social problem-solving among Turkish youth. Additionally, Research studies showed that positive

correlation existed between life skills and self-concept of adolescents (35)(6).

The multivariate analysis results of the present study identified age as a statistically significant positive predictor of adolescents' social problem solving scores, i.e. older adolescents have better social problem solving ability. This finding might be attributed to the known fact that the higher the age, the better the cognitive abilities are. In disagreement with this finding, the Turkish study of Yiğiter (36) found that there was not a statistically significant relationship between age and problem solving skill.

According to the present study, crowding index, income, and number of home media are statistically significant independent positive predictors of social problem solving scores of the adolescents. This reflected that most of the families had generally acceptable socio-demographic conditions as noticed from the crowding index, mostly less than two persons per room, and the income being sufficient and saving in the majority. In agreement with this, Yiğiter (36) revealed that family income has been found to be a significant indicator of problem-solving skills of the adolescents.

The current study identified that having hobbies, mostly arts was an independent positive predictor of the adolescents' score of self-concept. This finding is conceivable since hobbies are quite important in the mental and psychological development of the adolescents. In agreement with this, Walsh (37) stated that a hobby that the adolescent enjoys and is good at can have a powerful effect on his/her

self-image. Moreover, Kiritsis ⁽³⁸⁾, in a study titled as "self-concept and family: a study on Greek secondary school students", revealed that hobbies such as sports not only teach adolescents how to work diligently to reach goals but simultaneously provide a sense of identity and belonging to a team, where an individual, by his/her potential and self-worth, contributes to the accomplishment of a common goal.

The present study results also revealed that working mothers were identified as a significant independent negative predictor of adolescents' self-concept scores. This finding might be explained by that the mother's employment outside of the home is somehow related to detrimental effects in their adolescents' physical, social, psychological and academic development or results in maladjusted development. On contrary of the aforementioned study result, Igbo et al. ⁽¹⁰⁾ in Nigeria, found that the mother occupation had no significant influence on the students' self-concept. However, *Juyal and Sharma* ⁽³⁹⁾ study in India, found that adolescents of

employed mothers showed more positive total self-concept as compare to adolescents of housewives mothers. This discrepancy might be attributed to cultural differences in type of work, number of hours mothers spent away from home in different countries.

CONCLUSION

The study concluded that implementation of the training program was shown to be effective in ameliorating adolescents' social problem solving ability which in turn is a positive predictor of their self-concept.

RECOMMENDATIONS

The study recommends that the developed program should be implemented on a wider scale in the study settings and in similar ones to confirm its positive effects and to reach more generalizable findings. Future researches should continue to strive to understand the effect of various factors on self-concept to assist in building more effective and more tailored interventions for adolescents.

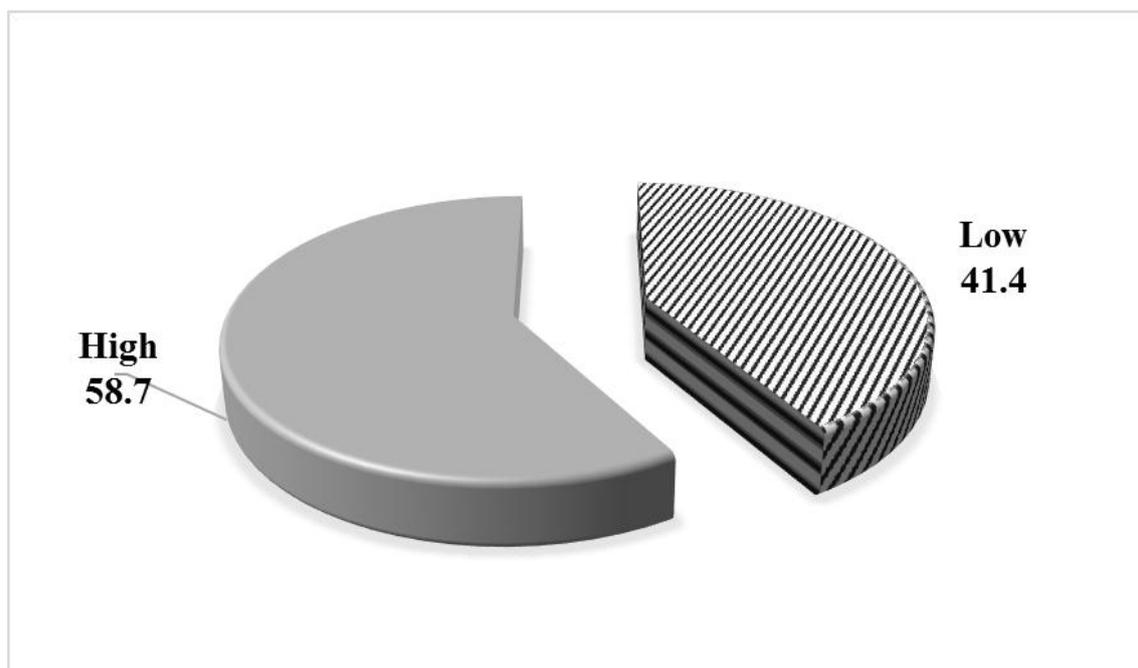


Figure (1): Total Self-concept scores among the adolescents in the total study sample (n=181).

Table (1): Self-concept of adolescents in the total study sample (n=181)

High:	Frequency	Percent
Physical self	77	42.5
Social self	120	66.3
Moral self	91	50.3
Personal self	141	77.9
Family self	103	56.9

Table (2): Socio-demographic characteristics of adolescents in the intervention sample (n=45).

Characteristics	Frequency	Percent
Age:		
<16	34	75.6
16+	11	24.4
Range	14.0-16.0	
Mean±SD	15.2±0.5	
Median	15.0	
Gender:		
Male	9	20.0
Female	36	80.0
Residence:		
Rural	1	2.2
Urban	44	97.8
Birth order:		
1-2	10	22.2
3+	35	77.8
Working:		
No	43	95.6
Yes	2	4.4
Have hobbies:		
No	22	48.9
Yes	23	51.1
Hobbies (n=23):		
Sports	15	65.2
Arts	20	87.0
Both	3	13.0

Table (3): Paired pre-post-intervention changes in adolescents' scores of social problem solving

Social problem solving	Mean±SD	Median	Paired t-test	p-value
1. Positive problem orientation	0.6±3.9	0.00	1.04	0.31
2. Negative problem orientation	-2.0±4.9	-1.00	2.72	0.01*
3. Rational Problem Solving:				
a. Problem definition & formulation	0.9±0.4	0.00	1.86	0.07
b. Generation of alternative solutions	0.3±4.1	0.00	0.44	0.66
c. Decision making	1.0±3.8	1.00	1.83	0.07
d. Solution implementation & verification	1.0±4.0	2.00	1.77	0.08
Subtotal	3.3±11.9	2.00	1.85	0.07
4. Impulsive \ Careless problem solving style	-1.4±4.9	-2.0	1.93	0.06
5. Avoidance problem solving style	-2.3±4.7	-3.00	3.21	0.002*
Total	1.0±1.9	0.70	3.50	0.001*

(*) Statistically significant at $p < 0.0$

Table (4): Paired pre-post-intervention changes in adolescents' scores of self-concept

Self-concept	Mean±SD	Median	Paired t-test	p-value
Body self –concept	-0.4±6.4	0.00	0.40	0.69
Social self-concept	-0.4±8.2	-1.00	0.29	0.77
Moral self –concept	1.8±5.8	3.00	2.05	0.046*
Personal self-concept	1.1±8.0	2.00	0.95	0.35
Family self-concept	1.7±7.4	2.00	1.58	0.12
Total self-concept	3.9±20.9	8.00	1.26	0.22

(*) Statistically significant at $p < 0.05$

Table (5): Correlations between adolescents' paired pre-post intervention changes in the scores of social problem solving and self-concept and their characteristics

Items	Spearman's rank correlation coefficient	
	Social problem solving	Self-concept
Social problem solving		.405**
Age	0.21	-0.10
Birth order	-0.04	0.01
No. of friends	0.01	-0.02
Father age	0.06	-0.04
Father education	-0.18	0.13
Mother age	-0.17	-0.08
Mother education	-0.03	0.20
Crowding index	-0.27	-0.19
Income	0.08	-0.16
No. of home media	0.08	0.16

(**) Statistically significant at $p < 0.01$

Table (6): Best fitting multiple linear regression model for the pre-post changes in social problem solving score

Items	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	-11.37	7.610		-1.494	.139	-26.504	3.764
Intervention	.970	.435	.211	2.226	.029	.103	1.836
Age	1.370	.493	.278	2.779	.007	.390	2.351
Crowding index	1.330	.496	.273	2.682	.009	.344	2.316
Income	.694	.360	.197	1.931	.057	.021	1.410
No. of home media	.596	.188	.323	3.165	.002	.222	.971

r-square=0.20

Model ANOVA: F=5.48, p<0.001

Variables entered and excluded: gender, sports, hobbies, parents' education, mother job, living with both parents

Table (7): Best fitting multiple linear regression model for the pre-post changes in self-concept score

Items	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	181.225	18.084		10.021	<0.001	145.276	217.174
Have hobbies	12.210	6.083	.174	2.007	.048	.118	24.302
Mother working	-14.518	6.213	-.201	-2.337	.022	-26.870	-2.166
Social problem solving score	8.826	1.308	.580	6.751	<0.001	6.227	11.426

r-square=0.38

Model ANOVA: F=18.97, p<0.001

Variables entered and excluded: age, gender, sports, parents' education, living with both parents, crowding index, income, home media, intervention

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