

The Effectiveness of Psycho-educational Program on Emotional Regulation and Problem-Solving among Preparatory School Students

Sabah M Ebrahim*, Safaa Ibrahim Shattla

Psychiatric & Mental Health Nursing, Faculty of Nursing, Menoufia University, Egypt
*Corresponding author: dr.sabah20@gmail.com

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Abstract “Improving emotional regulation and problem-solving in youth are very important to decrease the risk of substance abuse, violence, and decreased health costs”. The aim of the study was to evaluate the effectiveness of the psycho-educational program on emotional regulation and problem-solving among preparatory school students. A quasi-experimental research one group pre-test and post-test design was used to achieve the aim of the study. This study was carried out at two preparatory schools, one at Quasna and one at Ebnhas, Menoufia Governorate, Egypt. A purposive sample of 130 students was selected from the above-mentioned settings. Three tools were used to collect the data of the study 1) A constructed interview questionnaire to assess socio-demographic characteristics of the students and their parents 2) Emotional regulation strategies questionnaire 3) Problem-solving scale. The main findings of this study revealed that there was a statistically significant increase in the mean values of all subscales and total score of emotional regulation strategies and problem-solving post-program than pre-program in the studied participants at p-value (0.001). There was a significant positive correlation between the percent increase in emotional regulation strategies and percent increase in problem-solving in the studied participants ($r=0.48$; $p<0.001$). It was concluded that the psycho-educational program had a great effect in improving emotional regulation strategies and problem-solving skills among the students. Recommendation: Generalize the application of the psycho-educational program to all preparatory schools to improve their emotional regulation and problem-solving skills.

Keywords: emotional regulation, problem-solving, preparatory school students

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1. Introduction

Adolescent period has many bio-psycho-social changes; early adolescents had penetrating emotions, limited abilities in the processing and regulating emotions, which may increase the risk for mental health problems when facing stressful situations such as anxiety and depressive disorders [1,2,3]. Emotion regulation is defined as a group of processes people use to change the emotional experiences or modify the intensity. Effective emotion regulation involves “initiating, maintaining and modifying the occurrence, intensity or duration of feelings” [4]. According to the model of emotion regulation, there are multiple ways a person can regulate their emotional experience; antecedent-focused strategies used to regulate emotions before the activation of a full emotional response.” This category includes situation selection, situation modification, attention deployment, and cognitive change, while response-focused strategies include response modulation which typically refers to efforts to suppress the expression or experience of emotion” [5].

Response-focused-strategies are generally less effective than antecedent-focused strategies [6].

Suppression, rumination, worry, and avoidance have been considered maladaptive strategies but reappraisal, acceptance and problem-solving have been deemed adaptive strategy which negatively correlated with psychopathology [7]. Emotional regulation and home environments had significant impacts on the problem-solving ability of adolescents [8]. Problem-solving ability plays an important role in the academic achievement of students and adjustment in the class as well as at home [9]. Problem-solving is the ability to think creatively to find the best solution to resolve any problems. The steps of problem-solving involves identifying the problem, defining and understanding the problem, forming a strategy to finding a solution, organizing information, allocating resources, monitoring progress, then evaluating the outcome of the progress or look for new strategies [10].

Adolescent mental health nurses should focus their work in supporting the optimal development of youth as well as the coordination and delivery of mental health care to adolescents and their families, teaching specific

techniques to reduce stress, using evidence-based techniques and self-management [11,12]. Increasing the use of adaptive emotion regulation strategies, for preventing the onset of adolescent aggressive behavior and psychopathology, should be used [13]. Interventions are designed to help adolescents increase their awareness of environmental demands, their personal values and to be able to live with challenging thoughts and feelings while taking steps to achieve necessary and desired life goals [14]. Helping them to improve their ability to cope with the controversial and problematic situations will improve their self-perception and matures [15].

1.1. Significance of the Study

Emotional and behavioral problems among adolescents are common problems in developing and developed countries with a great impact on their health and wellbeing. In Egypt, emotional problems were the most prevalent problems (19%) followed by conduct problems, hyperactive problems and lastly peer-relations [16]. Difficulties in emotion regulation can cause serious psychological problems for the person experiencing them. These problems may vary from anxiety, depression, and alcohol use disorder [17]. These problems often result in other consequences include aggression towards oneself [18] serious eating disorders, non-suicidal self-injury [19]. Those who engage in suicidal behavior have chronic, intense, negative affect and difficulties in managing these emotions and, therefore, can be characterized by maladaptive emotion regulation [20].

There are currently little interventions designed to specifically address emotion dysregulation in early adolescence [21]. In particular, during early and mid-adolescence (11-15 years) making interventions at this age important and timely. Supporting self-regulation development in youth is an investment in society, as stronger self-regulation predicts higher income, better financial planning, fewer risk behaviors like substance use and violence, and decreased health costs [22]. So the aim of this study is to evaluate the effectiveness of the psycho-educational program on emotional regulation, and problem-solving among preparatory school students.

2. Methods

2.1. The Aim of the Study was to:

Evaluate the effectiveness of the psycho-educational program on emotional regulation, and problem-solving among preparatory school students.

2.2. Research Hypotheses

Students who participate in the psycho-educational program will have a higher mean score on emotional regulation and problem-solving post program than before.

2.3. Research Design

Quasi-experiment one group pre-test and post-test design was used to achieve the aim of the study.

2.4. Research Setting

A multistage random selection of one educational directorate out of eight educational directorates in Menoufia Governorate was done through simple random selection from the papers in the bowl. The selected directorate was Quasna which has forty villages affiliated to it. The researchers randomly selected one village namely Ebnahs. This study was conducted at two preparatory schools (one from Quasna and one from Ebnahs), Menoufia Governorate, Egypt, the researchers randomly selected one school from Quasna named Bhagat Youssef for girls from four preparatory schools. Likewise, in Ebnahs there was one mixed preparatory school named Alshigh Abed-Elhalem Badr. Then the researchers selected randomly two classes from each selected school (one from first and one from second grade), each class consisted of about 40 students. The grade three was excluded from the study because most of them were absent.

2.5. Subjects

Purposive sample of 130 students out of 160 were selected from the selected schools based on inclusion and exclusion criteria, both gender, age range from 11- 15 years old, first and second grade, accept to participate in the study, attend all sessions and free from history of any chronic or terminal physical illness or injury and a history of any psychological illness which may have a negative effect on emotional regulation and problem-solving abilities that could affect the results of the study. A pilot study was done on 16 students (8 from each school) and excluded from the study and fourteen students were absent and not attend all sessions.

2.6. Tools of Data Collection

Three tools were used to achieve the aim of the study:

Tool 1: A constructed interview questionnaire: This questionnaire developed by the researchers based on the scientific reviewing literature consists of two parts: -first part was designed to assess socio demographic characteristics of the students as:- age, gender, birth order, academic year, residence. The second part was designed to assess socio-demographic characteristics of the family as family statues, father's job, mother's job, family income, parents' characteristic, and quality of parent relationship, the difference in relation with siblings, history of any chronic physical illness and history of any psychological illness.

Tool 2: Emotional regulation strategies questionnaire: This tool adopted by Salloum [21] it was Arabic valid and reliable scale to assess emotional regulation strategies. It consisted of 28 statements divided into eight strategies; reappraisal (four statements 7,15,23,27), acceptance (three statements 1,9,17), rumination (four statements 2,10,18,25), catastrophizing strategies (three statements 4,12, 20), positive refocusing (three statements 3,11,19), distraction (four statements 6, 14, 22, 26), social sharing (three statements, 5,13,21) and suppression (four statements 8, 16, 24, 28). Responses were measured on four points ranged from (one to four) 1= never apply, 2=apply slightly,

3= apply moderately, 4= apply to a large degree .The score of the strategy that contained three statements ranged from 3-12 , the score of the strategy that contained four statements ranged from 4-16 and the total score of the tool 112 .

Tool (3): problem-solving scale adopted by Salloum [23]. It was Arabic valid and reliable scale to assess problem-solving skills. It consisted of 36 items divided into five dimensions; general orientation (1,5,9,14,17,22,27,32), define the problem (2,6,10,18,23,28,33), generating alternatives (3,7,11,15,24,19,29,34) and decision-making (4,12,20,25,30,35) and evaluation (8,13,16,21,26,31,36). Responses were measured on four points ranged from (one to four) 1= never apply, 2=apply slightly, 3= apply moderately, 4= apply to a large degree, the score was reversed to the negative items (7,8,11,12,14,15,17,20,22,23,26,27,31,32,33,34,36). The total score of the scale ranged from (36-144).

2.7. Procedure of Data Collection

Administrative approval: An official permission to conduct the study was obtained from the Ministry of Education

The validity of the tools: the tools were tested for its face and content validity by a panel of five experts specialized in the field of psychiatric and community health nursing to ascertain relevance and completeness.

Reliability of the tools was tested by Salloum [23] using Cronbach's alpha coefficients and the values were (0.863, 0.935) for tool two and tool three respectively.

Ethical consideration: the informed written consent from students was obtained after complete description of the aim, nature and confidentiality of the study. The students have the right to refuse to participate and withdraw from the research at any time.

A pilot study: A pilot study was conducted on 10% of the sample (16 students) in order to test the clarity of the tools and excluded from the main study sample.

Collection of data: the data was collected from the beginning of March to the end of April (2018). An interview was carried out by the researchers for all students to orient them about the benefits of the psycho-educational program and they filled the three tools of the study (pre-test). It took about 60 to 90 minutes for each class. The researchers started to divide the students into four groups based on the grade and the school. Each group was given eight sessions (two groups per day, two days per week).The psycho-educational program was given during March and the students were applied it during April then the researchers were collected the post-test using the tools of the study.

The psycho-educational program:

The general aim of the program was to improve the emotional regulation and problem-solving skills among the studied participants. It achieved through several teaching methods such as brainstorming, lecture, discussion, role play, modeling, problem-solving and using media like video, pictures and computer programs. At the end of each session summary, feedback and time was allotted for asking any questions and explaining homework assignments for the next session.

The sessions of the psycho-educational program:

Session one: This session was carried out by the researchers for orienting the students about the benefits of the psycho-educational program, collecting baseline socio-demographic data and given pre-test questionnaires.

Session two and three: These sessions aimed to help the students identify their emotions, and the feelings of others through providing the students with information about emotional regulation; definition, how to deal with emotions efficiently, identify the causes of emotions, avoiding or changing the causes of emotions, how to deal with emotions that can't be avoided.

Session four and five: These sessions aimed to help the students gain emotional regulation skills to monitor the intensity of their emotions through the application of (deep breathing, counting, exert pressure exercises, relaxations, have a sense of humor, physical exercise, good listening and changing the environment).

Session six and seven: These sessions aimed to help the students develop realistic assessments of their abilities to control aspects in their lives by demonstrating techniques of emotional regulation skills and the methods of preventing and controlling anger and apply emotional regulation in several life day situations, through role-play and modeling, Also aimed to help the students differentiate between the adaptive and maladaptive emotional regulation strategies.

Session eight and nine: These sessions aimed to help the students apply the problem-solving strategies then analyze the relationship between the re-evaluation strategies and problem-solving. This session includes the problem-solving steps as identifying the problem, defining and understanding the problem, forming a strategy to finding a solution, organizing information, allocating resources, monitoring progress, then evaluating the outcome of the progress or look for new strategies. At the end of this session, the researcher provided examples of how to apply problem-solving steps to certain problems and re-evaluation to various common problems.

Session ten: This session aimed to evaluate the program through given the post-test questionnaires after one month from the last session

2.8. Statistical Analysis

The collected data were organized, tabulated and statistically analyzed using SPSS version 22. Data were presented using descriptive statistics in the form of frequencies and percentages, mean (\bar{x}) and standard deviation. Pearson's correlation coefficient measures how variables or rank orders are related, paired t-test and ANOVA test were used to test the significance. Level of significance was set as highly significant level as P value < 0.001 and significant level as P-value <0.05 while P value of >0.05 indicated non-significant.

3. Results

Table 1: Reveals that the studied participants are in the age group (12-15) years, 55.4% are female, 56.2% from the first academic year, the highest frequency (77%) their

parents' lives together, 91.5% of the fathers and 53.8% of the mothers are worked, 55.4% of the participants are middle birth order, 76.2 % of the participants have good relation with their parents and 74.6% reports that the relation of parents with their sibling are different.

Figure 1: Reveals that the most common strategy used by the students to regulate their emotions in a daily life before the program is suppression followed by distraction, reappraisal, rumination, catastrophizing, acceptance while refocusing and social sharing are the lowest strategies used before the program but after exposure to the program the most common strategy used by the students is reappraisal then distraction, rumination, social sharing while suppression is the lowest strategy with a significant increase in the mean values of all subscales and total score of emotional regulation strategies after exposure to the-program than before. The highest percent of the increase is in refocusing then social sharing and rumination.

Figure 2: Illustrated that there is a significant increase in the mean values of all subscales and total score of problem-solving post-program than pre-program in the studied participants. The highest percent of the increase is

in an evaluation followed by generating alternatives and in general orientation. This means that the studied participants who trained on problem-solving skills were able to mention the cause of the problem, define the problem, discuss alternative solutions and make a decision toward the solution and evaluate the solution.

Figure 3: There is a significant positive correlation between emotional regulation strategies and problem-solving in the studied participants ($r=0.48$; $p<0.001$).

Table 2: There is a highly significant relationship between emotional regulation and both of, quality of parent's relationship, parents' characteristics, mother and fathers' job, family status, the difference in relation with sibling and childbirth order, as well as a negative significant correlation between age and emotional regulation strategies.

Table 3: There is a highly significant relationship between problem-solving and both of; quality of parent's relationship, parents' characteristics, mother's job, difference in relation with sibling, number of sibling, student's sex, academic year and residence as well as negative significant correlation between age and problem-solving.

Table 1. Socio-demographic Characteristics of The Studied Participants

Socio-demographic characteristics	The frequency (n=130)	Percent (%)
Age (years):		
Mean± SD	13.16±1.04	
Range	12-15	
Sex:		
Males	58	44.6
Females	72	55.4
Residence:		
Rural	67	51.5
Urban	63	48.5
Academic year		
1 st	73	56.2
2 nd	57	43.8
Family statues		
Parent together	101	77.7
One of the parent is dead	21	16.2
Divorced	8	6.2
Father job		
Worked	119	91.5
Not worked	11	8.5
Mother job		
Worked	70	53.8
Not worked	60	46.2
Family income		
Enough	77	59.2
Not enough	53	40.8
Birth order		
- 1 st	49	37.7
-2 nd	53	40.8
-3 rd	19	14.6
More than 3 rd	9	6.9
Number of siblings		
No	11	8.3
1	74	56.9
2	41	31.5
>2	4	3.1
Quality of parent relationship		
Good	99	76.2
Lack of understanding	31	23.8
Difference in relation with siblings		
No	33	25.4
Yes	97	74.6

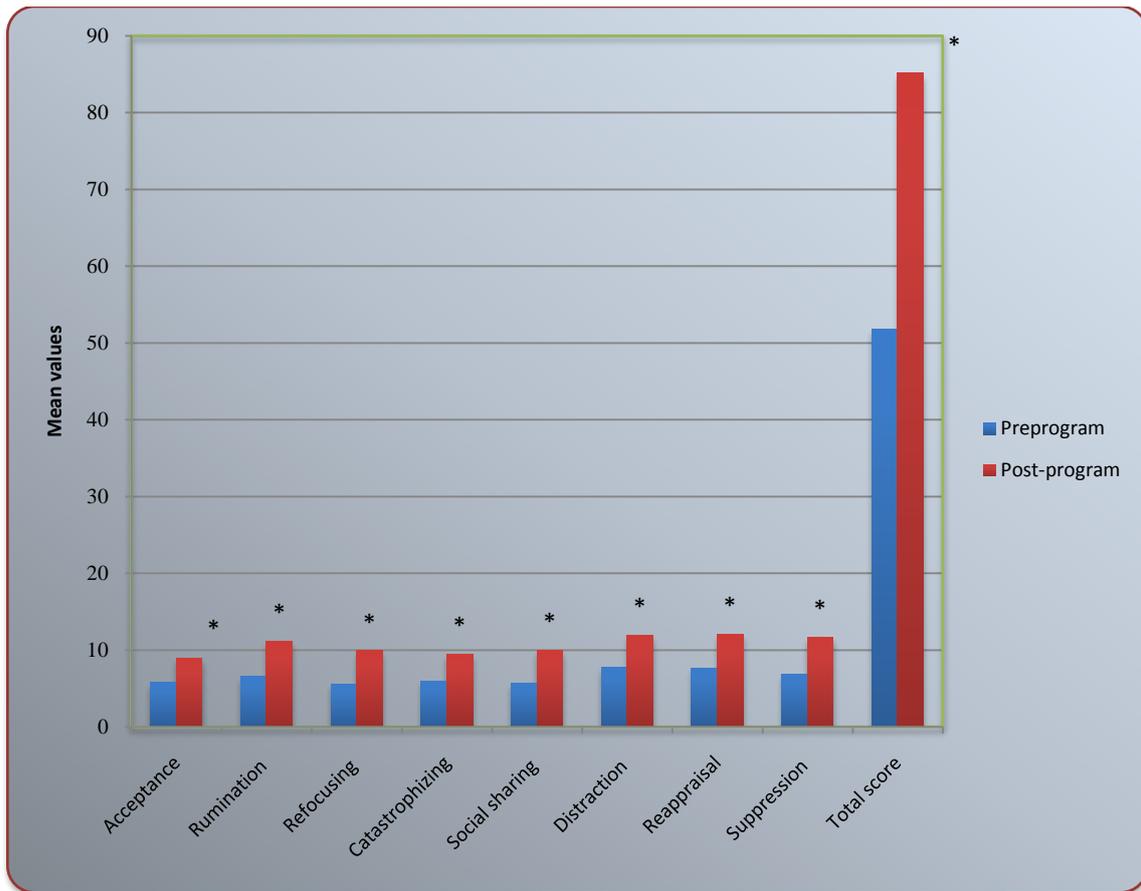


Figure 1. Emotional Regulation Strategies of The Studied Participants Before and After The Psycho-educational Program (* p<0.001)

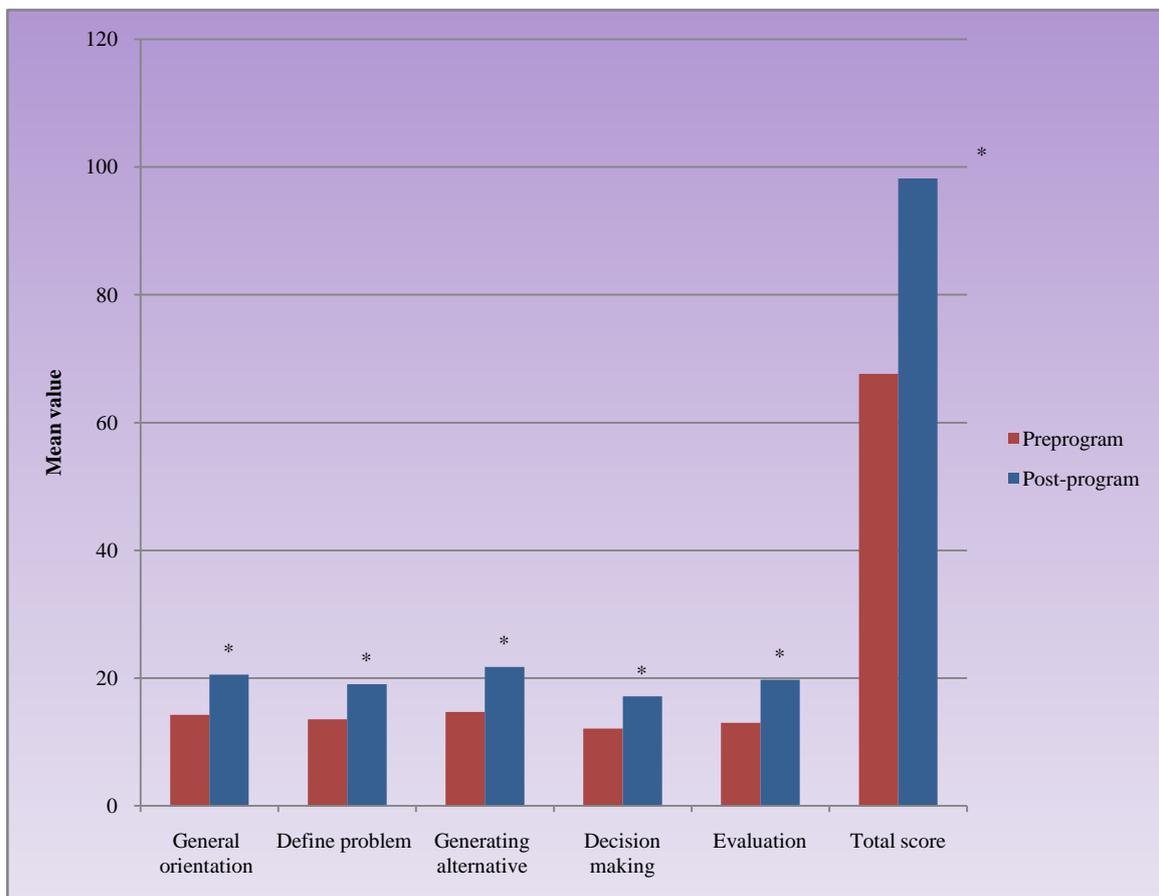


Figure 2. Problem-Solving of The Studied Participants Before and After The Psycho-educational Program (* p<0.001)

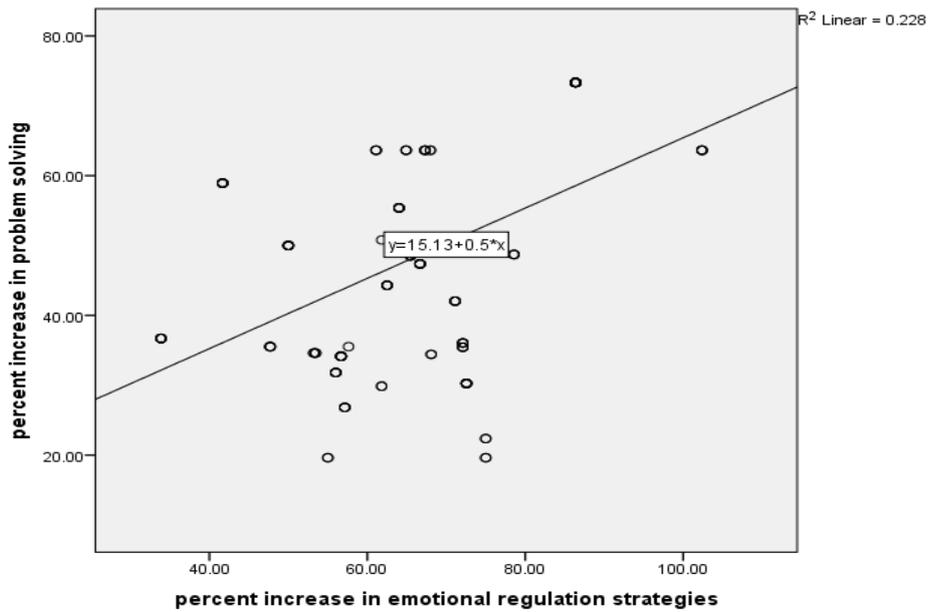


Figure 3. Correlation Between Percent Increase in Emotional Regulation Strategies and Percent Increase in Problem-Solving in The Studied Participants

Table 2. Relationship Between Percent Increase in Emotional Regulation Strategies and Socio-demographic Characteristics of The Studied Participants

Socio-demographic characteristics	Percent increase in emotional regulation strategies in students (n=130) No (%)	Test of significance	p-value
Age (years):		r= -0.23	0.009
Sex:			
Males	62.49±15.92	t=2.49	0.014
Females	68.92±13.61		
Residence:			
Rural	66.31±12.69	t=0.20	0.839
Urban	65.77±17.18		
Academic year			
1 st	68.09±17.36	t=1.78	0.078
2 nd	63.43±10.81		
Family number:		r=-0.04	0.686
Family statues			
Parent together	68.49±13.46	F=10.19	<0.001
One of the parent is dead	53.41±18.36		
divorced	68.38±2.33		
Father job			
Worked	68.63±12.82	t=7.83	<0.001
Not worked	38.12±4.07		
Mother job			
Worked	63.30±15.40	t=2.30	0.023
Not worked	69.26±13.92		
Family income			
Enough	65.84±15.22	t=0.19	0.850
Not enough	66.35±14.75		
Birth order			
1 st	70.65±17.32	F=2.10	0.012
2 nd	63.87±12.11		
3 rd	58.74±14.51		
More than 3rd	69.27±9.52		
Number of siblings			
No	69.99±4.21	F=1.18	0.319
1	65.73±15.67		
2	67.07±15.84		
>2	53.34±0.13		
Parents characteristic			
Nervous	78.34±14.53	F=38.07	<0.001
Good	55.84±12.76		
Strong personality	65.55±7.66		
Quality of parent relationship			
Good	62.93±14.22	t=4.56	<0.001
Lack of understanding	76.01±13.02		
Difference in relation with siblings			
No	75.53±12.75	t=4.52	<0.001
Yes	62.82±14.34		

r: Pearson' correlation, F: ANOVA test.

Table 3. Relationship between percent increase in problem-solving and socio-demographic characteristics of the studied participants

Socio-demographic characteristics	Percent increase in problem-solving in students (n=130) No (%)	Test of significance	p-value
Age (years):		r= -0.46	<0.001
Sex:			
Males	51.93±14.78	t=2.36	0.020
Females	45.46±16.08		
Residence:			
Rural	45.48±16.56	t=2.16	0.032
Urban	51.39±14.63		
Academic year			
1 st	54.04±16.43	t=5.08	<0.001
2 nd	41.06±11.44		
Family number:		r= 0.06	0.537
Family statuses			
Parent together	47.37±15.94	F=0.91	0.405
One of the parent is dead	51.27±15.52		
Divorced	53.06±14.59		
Father job			
Worked	48.30±16.16	t=0.11	0.916
Not worked	48.83±11.60		
Mother job			
Worked	45.37±15.63	t=2.37	0.019
Not worked	51.82±15.37		
Family income			
Enough	48.72±16.75	t=0.33	0.745
Not enough	47.80±14.41		
Birth order			
1 st	49.57±16.75	F=2.10	0.103
2 nd	47.76±15.94		
3 rd	52.19±13.34		
More than 3 rd	37.00±9.55		
Number of siblings			
No	39.60±10.72	F=4.23	0.007
1	52.01±14.81		
2	45.42±17.35		
>2	34.62±0.00		
Parents characteristic			
Nervous	65.58±11.43	F=77.32	<0.001
Good	42.97±11.81		
Strong personality	38.30±8.52		
Quality of parent relationship			
Good	42.97±12.45	t=8.74	<0.001
Lack of understanding	65.52±12.85		
Difference in relation with siblings			
No	63.64±14.54	t=7.79	<0.001
Yes	43.14±12.52		

4. Discussion

Emotion regulation strategies are an effective way to change emotions, feelings, desires, beliefs, practices of the individual, giving order and meaning to daily life. Goldin et al., [24] stated that “an emotion regulation is managing cognition and emotion to enable goal-directed actions such as organizing behavior, controlling impulses, and solving problems constructively”. Students who cannot effectively regulate emotional reactions have difficulty adjusting to schoolwork and social environments and therefore combating with basic classroom routines, procedures, and expectations [25]. So, the present study was conducted to evaluate the effectiveness of the psycho-educational program on emotional regulation and problem-solving among preparatory school students.

Regarding the effect of the psycho-educational program on emotional regulation; the result of the present study revealed that the most common strategy used by the students to regulate their emotions in a daily life before

the program was suppression followed by distraction, reappraisal, rumination, catastrophizing, acceptance while refocusing and social sharing were the lowest strategies used before the program but after exposure to the program the most common strategy used by the students was reappraisal then distraction, rumination, social sharing while suppression was the lowest strategy with significant increase in the mean values of all subscales and total score of emotional regulation strategies after exposure to the program than before. The highest percent of increase was in refocusing then social sharing and rumination. This may be related to the effect of the program sessions which was within the need and interest of the students that helping them to control their emotions, demonstrating adaptive emotional regulation strategies and differentiate between adaptive and maladaptive emotion regulation strategies. This result was identical with the outcomes of Narimani, Ariapouran, Abolghasemi, & Ahadi, [26] and Sheppes et al. [27] they reported that the greatest number of the participants used suppression before conducting

program but after program display reappraisal as a strategy for emotion regulation". Likewise, Westhues, Hanbidge, Gebotys, and Hammond [28] revealed that the children who participated in either a school-based or a community-based prevention program teaching emotion regulations skills demonstrated significant increases on emotion regulation outcomes between pre-test and post-test. Also, Ramaiya [29] showed that the students who participated in a brief emotion regulation intervention improved the total emotional regulation scores and improved their emotional regulation skill in daily living. Moreover, Wyman et al [30] "found that the highest percent of increase were in refocusing (77.78%) followed by social sharing (76.01%) and rumination (70.69%). In the same line, Nesayan, Hosseini & Asadi Gandomani, [31] showed that the level of suppression in students of the experimental group was significantly lower than students in the control group". In contrast Lavanya and Manjula [32] and Karreman and Vingerhoets, [33] they discovered that reappraisal and refocusing were commonly used strategies by the students to reduce externalizing problems.

Regarding the effect of the psycho-educational program on problem-solving; according to the results of this study, there was a significant increase in the mean values of all subscales and total score of the problem-solving post-program than pre-program in the studied participants. This means that the studied participants who trained on problem-solving skills were able to mention the cause of the problem, define problem, discuss alternative solutions and make decision toward solution and evaluate the solution. This may be due the efficacy of the program for improving the students' ability to solve the problems and the effective role of the researchers in using a real life situations and helped students express reactions to problems and develop alternative and more adaptive behaviors by using role-playing, video modeling, skill practice, and reinforcing desired behaviors. The finding of this study supported by Daunic et al [34] "they found that students who were taught the tools for getting along lessons demonstrated improved problem-solving skills, increased executive functioning, and improved anger management. Furthermore, the intervention group who had acquired social problem-solving skills was able to recognize, accept, and solve the existing problems by concentrating on their strengths and weaknesses. Also Cote et.al [35] revealed that" the student participating in the study performed better in identifying problems arising amongst peers, generating problem-solving training". Another study conducted by Kuang- Chao, Szu-Chun and Kuen-Yi, [36] and Arroio [37] "Illustrated that the most significant improvement was students' understanding of the steps problem definition and analysis, selecting the optimum solution, evaluating the results and revising the solution".

Findings of the present study also revealed that there was a significant positive correlation between the percent increase in emotional regulation strategies and percent increase in problem-solving in the studied participants ($r=0.48$; $p<0.001$). This can illustrate that emotional regulation training program learn the students to regulate their emotions such as anxiety, anger and depression, so their attention increased and the cognitive abilities

improved, those students can solve problems of everyday living. In other words, emotional regulation skills are expected to improve problem-solving skills and problem-solving skills are expected to improve emotional regulation. This rational was explained by previous researches that confirmed higher self-awareness decreases the level of stress and the chance for depression in individuals with sufficient problem-solving skills [38]. The effects of problem-solving skills on self-awareness [39,40,41], stress management, self-esteem, conflict management" [42,43]. The Findings of the present study also matched with Basaran, Yıldırım and Gokdag [44] "they found positive correlation between emotional regulation and problem-solving". Furthermore, Schmidt, Tinti, Levine and Testa [45] "suggested that the problem-solving skill training program leading to significant improvements in the subscales of emotional regulation". While Salloum [23] "revealed that, there was statistically significant relationship between the total score of the emotional regulation strategies and the total score of problem-solving among the two stages of students .On the other hand, Chinaveh [46] "suggested that self-appraised social problem-solving ability was concerned with the way in which individuals perceive and cope with problems encountered in everyday life".

Concerning to the relationship between percent increase in emotional regulation strategies and socio-demographic characteristics of the studied participants; the result of the current study demonstrated that there was a highly significant relationship between emotional regulation and both of, quality of parent's relationship, parents' characteristics, mother and fathers' job, family status, difference in relation with sibling and child birth order, as well as negative significant correlation between age and emotional regulation strategies. This may be due to known increase in the risk of emotional and behavioral problems in early adolescents due to hormonal changes and conflict between their families and the researchers implemented many techniques to help the students monitor the intensity of their emotions as (deep breathing, counting, exert pressure exercises, relaxations, physical exercise, good listening and changing the environment. In the same line, Mowafy, Ahmed, Halawa and Emad El Din, [16] illustrated that "the total difficulty score was significantly higher among students with separated parents or dead parent compared to students with two-parent families and worked mother". Also Neumann & Koot [47] showed that those who grew up in families suffering from marital or parental depression were more likely to have emotional stress, depression and emotional comprehension difficulties, From the opposite side, Soric, Izabela. Penezic. Zvezdan, Buric, Irena [48] Webb, et al [5] Aldao & et al [7] and Salloum [23] reported that there were no differences in the emotional regulation strategies improvement depending on sex variable. Also the results of Rachel and Gundanna [49] "suggested that there was no difference between boys and girls in emotion regulation" regarding the negative correlation between the emotional regulation and the student's age, Zimmermann, Iwanski [50] reported that "in early childhood, emotions were frequently expressed and external support was sought from a caregiver while in adolescence, there was typically a decreased reliance on parental support and limited efficacy of adaptive internal emotion regulation".

Regarding to the relationship between percent increase in problem-solving and socio-demographic characteristics of the students; the current study revealed that there was a highly significant relationship between problem-solving and both of; quality of parent's relationship, parents' characteristics, mother's job, difference in relation with sibling, number of sibling, students' sex, academic year and residence as well as negative significant correlation between age and problem-solving. This may be due to the age range in the studied subjects were from twelve to fifteen, with increasing age there are many changes can take place; significant psychological and physical development, increasing academic pressure, difficulties in adjustment with their families, peers and teachers. This result was inconsistent with Salloum [23] who showed that there were no statistically significant differences in the total score, general orientation and decision-making dimensions among secondary school students according to the sex variable. Moreover, Girdhar [51] found that no significant difference was found in males and females and urban and rural adolescents on problem-solving ability scores. This difference in the results may related to culture difference or the studied subjects of most of the researches were from secondary and university students and the present study done on the students at preparatory schools.

5. Limitation of the Study

This study was lacked a control group, thus limiting the generalization of the results. The second limitation was the studied participants were from first and second grade only because the third grade most of the days were absent from the school.

6. Conclusion

Implementation of the psycho-educational program had a significant improvement of emotional regulation strategies and problem-solving skills among studied participants. Also there was positive significant correlation between emotional regulation strategies and problem-solving skill

7. Recommendations

It was recommended that; generalize the application of the psycho-educational program to all preparatory schools to improve emotional regulation and problem-solving skills. Provide in-service training programs for the nurses and teachers who are actually working in preparatory schools about the emotional regulation and problem-solving skills.

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