

ORIGINAL ARTICLE

Effect of positive emotions training on prevention of depression and anxiety: A study among senior high school students in Aceh, Indonesia

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Abstract. *Background and aim:* The high incidence of depression and anxiety, specifically among adolescents, needs special attention. These conditions, along with subclinical symptoms, are the leading causes of disability among this age group, which can impact their subsequent development process. Concerning these conditions, depression will also trigger suicidal thoughts among adolescents. Therefore, this study aimed to test the effectiveness of Positive Emotions Training (PoET) intervention in preventing depression and anxiety among adolescents in Aceh Besar, Indonesia. *Study design and methods:* This study involved two groups, namely the intervention and the control groups, and the resulting variable is a decrease in depression and anxiety scale. A total of 120 respondents from two Senior High Schools in Aceh Besar District were selected as a sample, including 68 respondents in the intervention group and 52 in the control group. Depression data was collected using Kovacs's Children's Depression Inventory (CDI), while anxiety data was measured using the Beck Anxiety Inventory (BAI). *Results:* The results of statistical tests using the Mann-Whitney Test showed that there was an effect of PoET intervention on levels of depression (p-value: 0.021) and anxiety (p-value: 0.001) in students. *Conclusions:* Based on these findings, it is recommended that health practitioners, specifically community health nurses and family health nurses, implement PoET intervention as a process to reduce levels of depression and anxiety among Senior High School students (www.actabiomedica.it)

Key words: positive, emotion, depression, anxiety, adolescents

Introduction

Mental health is a critical component of overall well-being. However, the global prevalence of mental health disorders remains high, contributing significantly to the burden of morbidity and mortality worldwide (1). According to the World Health Organization (WHO), the lifetime prevalence of mental disorders ranges from 18.1 to 36.1%, and the two most common mental health problems are depression

and anxiety (2), which places a heavy burden on individuals and society (3). According to an investigation published in 2019 by the Global Burden of Disease Study, depressive disorders represent the highest disorder burden among mental disorders. Furthermore, the World Health Organization (WHO) 2020 reported that more than 264 million people worldwide suffer from depression, and approximately 850,000 deaths are caused by depression every year (2). In addition, COVID-19 also has an impact on

depression and anxiety globally. Mental health problems often emerge during adolescence (4) and there is increasing concern, specifically in developing countries. It is estimated that 10-20% of children and adolescents are affected by mental health problems worldwide (5). The two most common psychological problems having a negative effect on adolescents are depression and anxiety (Lema-Gómez et al., 2021), and it is estimated that one out of four adolescents experiences depression (7). This problem also occurs frequently in Indonesia, where approximately 6% of the population aged 15 years and over report symptoms of depression or anxiety (8). The high incidence of depression and anxiety, specifically among adolescents, requires special attention because these conditions and their subclinical symptoms are the main cause of disability among adolescents (9). These conditions can also have a negative effect on their subsequent development process and cause major losses in their social relationships and physical well-being (10, 7, 11, 6). Various factors, such as rapid growth and development both physically and psychologically, can cause adolescents to be at risk of experiencing depression and anxiety. Many of these changes occur simultaneously, including puberty and the transition to high school. During this transitional period, individuals may experience a range of psychological stressors that can undermine long-term mental health (12, 7). In addition, adolescence is a period of increased stress sensitivity, which triggers the emergence of mental health problems, such as fatigue, depression, anxiety, and externalizing problems (13, 11). Other factors include the lack of involvement in learning and recreational activities, as well as a lack of knowledge about mental health (9, 1). Additionally, the use of the Internet and electronic games can also trigger mental disorders among adolescents (14). Adolescents are at an elevated risk of depression and anxiety, underscoring the necessity for effective health promotion strategies and preventative measures. Early adolescence offers great opportunities for mental health promotion and prevention of mental health problems. Therefore, promoting adolescents' mental health is very important to increase self-efficacy and overcome stress and cognitive biases. Efforts to increase knowledge about factors associated with

poor mental health as well as factors that improve mental well-being, can provide a basis for designing specific strategies and interventions that can prevent poor mental health and ensure targeted support is available for students at high risk (15). Another factor contributing to depression and anxiety among adolescents is the social-ecological factor. Previous studies found that socio-demographic, relationship, and academic factors correlated to anxiety among adolescents (16). Then COVID-19 also has an impact on mental health problems, including depression and anxiety (17, 18). The increasing of depression and anxiety also experienced by Indonesian adolescents during COVID-19 (19). One important effort to prevent depression and anxiety is to increase the ability to manage emotions and focus on positive emotions, known as Positive Emotions Training (PoET). PoET intervention is one of the first holistic training programs that includes 11 positive psychology constructs, namely happiness, hope, optimism, humor, self-efficacy, gratitude, flow (accepting every process of life), meaningfulness, forgiveness, spirituality, and resilience (2). Positive emotions play a significant role in preventing mental health disorders, particularly depression and anxiety. They enhance cognitive flexibility and contribute to the development of enduring personal resources. Consequently, fostering positive emotions is essential for promoting adaptive behaviors, cognitive resilience, and overall mental well-being, especially among adolescents (2). This study is needed as an effort to promote adolescents' mental health, specifically to prevent depression and anxiety. These results will also contribute to increasing student learning motivation which will help in improving the quality of human resources in the future. Previous studies showed a high level of psychological problems in adolescents, specifically depression and anxiety, but currently, there is still limited investigation on interventions to prevent and treat anxiety, specifically in Indonesia. Previous investigation was mostly carried out in Western countries where the results were difficult to apply in Indonesia, especially in Aceh because it has different characteristics and cultural backgrounds. This study is needed for the prevention and treatment of depression and anxiety among adolescents, specifically in Aceh, Indonesia.

Participants and Methods

This quantitative study uses a pre-post control group design with an intervention and a control group. A total of 120 respondents from two Senior High Schools in Aceh Besar District, Indonesia, were selected as a sample, 68 respondents in the intervention group and 52 respondents in the control group. The inclusion criteria of intervention and control group included age (10 to 19 years old), being able to communicate in Indonesian language and additional criteria for respondents in intervention group were willing to participate in the study intervention. During the data collection, the researcher assured the anonymity of all participants data. The data can only be accessed by the researchers and the all the data related to personal identity of all respondents will not be published. The researchers also respected to respondents autonomy, they can withdraw from the study at any time. The outcome variable is the reduction in depression and anxiety scales, measured by comparing pre-test and post-test results in the control and intervention groups (20). The pre-test was carried out 1 week before the PoET intervention was given and the post-test was carried out 1 week after the PoET intervention was given. The instrument used consists of a depression and an anxiety questionnaire. The depression questionnaire uses the Children's Depression Inventory (CDI) and the anxiety questionnaire uses the Beck Anxiety Inventory (BAI)(21). The activities in this study started by conducting a pre-test on the control and intervention groups. Furthermore, PoET intervention was only given to the intervention group, while the control group did not receive any intervention. The intervention consists of 6 sessions related to depression, anxiety, and the PoET method which includes happiness, hope, optimism, humor, self-efficacy, gratitude, flow, meaningfulness, forgiveness, spirituality, and resilience (2). Specifically, the intervention sessions include 6 phases, namely session 1 includes health education about depression, session 2 includes health education about anxiety, session 3 includes health education about happiness, hope, and optimism, session 4 includes health education

about humor, self-efficacy, and gratitude, session 5 includes health education about flow, meaningfulness and forgiveness and session 6 includes health education about spirituality and resilience. In this study, the intervention was conducted by study team including the authors which have expertise areas on family health nursing, and psychiatric and mental health nursing. The intervention was delivered by the study team outside of class hours, comprising one session per week with each session lasting between 40 and 60 minutes. Following six sessions, a one-week follow-up was conducted to monitor the implementation of the PoET intervention. Subsequently, a post-test was administered to both the intervention and control groups to assess differences in depression and anxiety scores. The duration of the intervention aligns with that of previous investigations (22, 23) which stated that short-term intervention activities can last between 2-6 months. Intervention media include videos, booklets, and leaflets about depression, anxiety, and positive emotions (happiness, hope, optimism, humor, self-efficacy, gratitude, flow, meaningfulness, forgiveness, spirituality, and resilience). The data was analyzed using descriptive and inferential statistics. Descriptive statistics use frequency, percentage, mean, and standard deviation, while inferential statistics use the Mann-Whitney test to assess the difference in mean scores between the intervention and the control groups.

Results

Characteristics of respondents

In this study, respondents consisted of two groups including the intervention group with 68 respondents and the control group with 52 respondents. The characteristics of respondents for each group can be seen in Table 1 below.

Table 1 shows that the majority of respondents in the intervention group were female, while in the control group, there were the same number of males and females (50%). Furthermore, the majority of parents' education levels in the intervention and control group

Table 1. Characteristics of Respondents

<i>Characteristics</i>	Intervention group (n=68)		Control group (n=52)	
	f	Percentage	f	Percentage
Gender				
Male	33	48,5	26	50,0
Female	35	51,5	26	50,0
Parents Education				
Elementary School	47	69,1	36	69,2
Junior High School	15	22,1	11	21,2
Bachelor Degree	6	8,8	5	9,6
Type of Family				
Extended Family	14	20,6	8	15,4
Nuclear Family	54	79,4	44	84,6

Table 2. Descriptive analysis of depression and anxiety in the intervention group and control group at pre-test and post-test

Variable	Intervention group		Control group	
	Mean	SD	Mean	SD
Depression				
pre-test	15,57	5,14	13,67	5,53
post-test	9,87	3,05	11,31	3,68
Anxiety				
Pre-test	33,24	12,30	33,35	13,22
Post-test	25,82	9,28	33,17	13,20

were an elementary school with a percentage of 69.1% and 69.2%, respectively. Based on family type, the majority of respondents in the intervention and control group were nuclear families (79.4% and 84.6%).

Description of depression and anxiety among the intervention group and control group in pre-test and post-test

The results of the descriptive analysis of depression and anxiety in the intervention and control group in the pre-test and post-test can be seen in Table 2 below.

Table 2 shows that there was a decrease in depression and anxiety in the intervention group at the post-test. The results of the analysis showed that there was a significant decrease in the mean value in the

intervention group at the time of the post-test. These results indicate that PoET intervention can reduce depression and anxiety among Senior High School students and adolescents.

Comparison of depression and anxiety in the intervention group and the control group

The Mann-Whitney test was used to compare depression and anxiety in the intervention and the control group in the pre-test and post-test. Detailed analysis results can be seen in Table 3.

Table 3 shows a comparative analysis of the mean rank of depression in the intervention and the control group; the post-test p-value was 0,021. These results show that there is a difference in depression between the PoET intervention group compared to the control

Table 3. Comparison of depression and anxiety in the intervention group and the control group

Variable	Intervention group		Control group		Mann-Whitney U Test	P-value
	Mean Rank	Sum of Ranks	Mean Rank	Sum of Ranks		
Depression						
Pre-test	57,62	3918,00	64,27	3342,00	1572,000	0,146
Post-test	62,50	4250,00	57,88	3010,00	1632.000	0,021*
Anxiety						
Pre-test	61,28	4167,00	59,48	3093,00	1715.000	0,759
Post-test	68,82	4680,00	49,62	2580,00	1202.000	0,001*

group. This proves that PoET intervention can reduce depression among respondents. The results of the analysis comparing the mean rank of anxiety in the PoET intervention group with the control group showed that the post-test p-value was 0,001. These results show that there is a difference in anxiety in the PoET intervention group compared to the control group in the post-test, meaning that POET intervention can reduce anxiety among respondents.

Conclusion

In conclusion, this study shows that PoET intervention can help reduce depression and anxiety in adolescents. This intervention is an effort to prevent depression and anxiety by increasing adolescents' ability to manage emotions and focus more on positive emotions, known as POET. Subsequently, PoET intervention is a holistic training program that includes 11 positive psychology constructs, namely happiness, hope, optimism, humor, self-efficacy, gratitude, flow (accepting every process of life), meaningfulness, forgiveness, spirituality, and resilience (2). The PoET intervention plays a critical role in preventing depression and anxiety among adolescents. It fosters cognitive flexibility and enhances enduring capacities. These findings align with previous research demonstrating that positive emotions significantly contribute to improved cognitive functioning and overall mental health and well-being in this population (2). Positive emotions have been shown to enhance an individual's ability to cope with stress, thereby increasing resilience in the face

of both current and future challenges. The experience of positive emotions broadens cognitive processes, encouraging individuals to think more freely, thoughtfully, and creatively. This cognitive expansion allows for a broader perspective and a greater capacity to identify effective coping strategies. Conversely, negative emotions are typically associated with maladaptive coping strategies. Thus, positive emotions promote adaptive coping while mitigating maladaptive responses, ultimately contributing to increased individual resilience (24). According to WHO, adolescents' mental health is a state of well-being that enables the young generation to learn and obtain education, have a positive sense of identity, be able to manage thoughts and emotions, have a fulfilling social life, and participate fully in society. Mental health is not only freedom from mental disorders or defects but also the dynamic ability to find the balance between all aspects of life. Currently, there are mental health problems in society, specifically among adolescents (4). Health workers are expected to focus more on efforts to promote mental health in adolescents. One intervention that can be provided is by providing PoET intervention to enable an increase in positive emotions in adolescents such as optimism, gratitude, and also resilience in facing various challenges in life. Moreover, PoET intervention also helps adolescents reduce various negative emotions such as anger, hopelessness, and feelings of helplessness. However, this study may have limitations related to participants' characteristics including parents educational background as most of the parents' education were elementary school, then the type of family can also could contributed to the study

finding which most of participants in this study came from nuclear family. Therefore, this study may not be generalized to adolescents who have different characteristics from the study.

Ethic Approval: Ethical Clearance Committee of the Faculty of Nursing, Universitas Syiah Kuala, Aceh, Indonesia, approval number 113001100624 on July 3, 2024.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

Authors Contribution: FF initiated and conducted the research. SRJ contributed to conducting the study and performed revisions of the manuscript. Additionally, AA, NN, and SA provided oversight on the research design, supervised intervention implementation, and contributed to manuscript revisions. All authors reviewed and approved the manuscript.

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