

# Research Paper

## Effectiveness of Flourishing Training on Depression and Anxiety of Female Gifted Students



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**Citation** Abbasian F, Pakdaman M, Kareshky H. Effectiveness of Flourishing Training on Depression and Anxiety of Female Gifted Students. *Journal of Research & Health*. 2022; 12(2):113-120. <http://dx.doi.org/10.32598/JRH.12.2.1893.1>

 <http://dx.doi.org/10.32598/JRH.12.2.1893.1>



### Article info:

Received: 19 Apr 2021

Accepted: 02 Oct 2021

Publish: 01 Mar 2022

### Keywords:

Positive psychology,  
Depression, Anxiety

## ABSTRACT

**Background:** This study aims to examine the effectiveness of flourishing training based on positive psychology on the anxiety and depression of female gifted students.

**Methods:** This is a quasi-experimental study using a pre-test/post-test design a control group. Participants were 50 female gifted students in Torbat-e Heydariyeh, Iran. They were randomly divided into two groups of training (n=25) and control (n=25). For the training group, flourishing training was presented at 14 sessions of 60 minutes, while the control group did not receive any education. The 21-item Depression, Anxiety, and Stress Scale was used for collecting data. Data were analyzed in SPSS software v 26 using ANCOVA.

**Results:** The results showed that the effect of flourishing training on anxiety ( $F=206.1, P<0.001$ ) and depression ( $F=42.96, P<0.001$ ) was significant. Flourishing training reduced anxiety and depression in the training group compared to the control group.

**Conclusion:** Flourishing training based on positive psychology can be effective in reducing anxiety and depression in female gifted students.

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## 1. Introduction

Experiencing such negative emotions as depression, anxiety, stress, anger, resentment, hate, etc. has always created some problems for people. These negative emotions are the risk factors for diseases and associated mortality [1]. Compared to healthy people, those with depression have poor physical, social, and occupational performance. The extent to which depression affects their quality of life depends on the severity of their depression [2]. Depression has some symptoms such as the feeling of sadness, reduced mobility, loss of interest and energy, social withdrawal, sleep and eating disorders, negative and pessimistic thoughts about the future, and suicide attempts [3]. Depression, anxiety, and interpersonal problems have a severe negative impact on family functioning [4], and are associated with problems such as drug and alcohol abuse, increased physical problems, and increased risk of suicide [5]. Depression is the most common type of mood disorder [6] and, if left untreated, can lead to physical and emotional disabilities, premature death, and family problems [7]. Preschool depression is not a transient developmental phenomenon. Depression in childhood predicts severe depressive illness in adulthood, and if not receive intervention, the future adverse feelings are inevitable [8]. Anxiety is a mental health problem that is common among students. It is an unpleasant state of worry and fear about the future that is often accompanied by physiological symptoms [9]. It is a part of human life and is normally ubiquitous, thus it can be regarded as a compromised response before it becomes morbid anxiety [10]. In students, high anxiety can cause fear, threaten their mental and physical health, and affect their academic performance.

Due to the high prevalence of depression and anxiety, especially among school students [11], different methods have been proposed or used to treat or reduce these problems. In a study on the effectiveness of flourishing education on Positive Emotions, Engagement, Relationships, Meaning, And Achievement (PERMA) of young and elite researchers, findings showed that the education program significantly increased the PERMA [11]. In another study, findings showed that positive psychology education was able to improve the self-efficacy and psychological hardiness of female students [12]. On the effectiveness of flourishing education in reducing psychological disorders in high school students, a study showed that the education could reduce depression, anxiety, and stress of students [13]. In examining the relationship of emotion regulation strategies and positive and negative emotions with psychological well-being in

medical students, the results showed that reappraisal and positive emotions positively and suppression and negative emotions negatively associated with psychological well-being of the students [14].

Positive psychology enables students to thrive on psychological stress. It emphasizes the positive aspects and how to increase them instead of emphasizing the psychopathological aspects [15]. It is the scientific study of optimal human functioning that aims to discover and promote the factors that allow people to thrive and flourish [16]. In fact, positive psychology is regarded as the science of happiness and human flourishing [17]. Martin Seligman, father of positive psychology, suggests that positive psychology is the psychology of 21st century. According to him, this science focuses on humans' abilities such as happy life, enjoyment, problem-solving, and optimism instead of paying attention to humans' disabilities and weaknesses. Positive psychology focuses on how human life flourishes and how humans discover their abilities [16]. According to the results of a study, the use of positive psychology education can lead to increased psychological well-being and reduced stress and depression, and can support those who are prone to morbid experience, stress, and depression; therefore, they are less likely to feel stressed and depressed [18].

"To flourish" is defined by the Concise Oxford Dictionary (1964) as to grow vigorously, thrive and prosper, be successful and developed. Flourishing refers to living with more physical health, more creativity at work, more peace of mind, and success which are achieved following the PERMA [19]. Flourishing is a state of optimal mental health. Based on this definition, flourished people act good, in addition to feeling good. They regularly experience positive emotions, excel in their daily lives, and constructively contribute to their surrounding environments [20]. The flourishing hypothesis emphasizes that a person's life should be optimal and that s/he has experienced opportunities for personal growth, fertility, and resilience [21]. Flourishing, metaphorically, can be related to the blooming of flowers. This phenomenon expresses fulfillment of an organism's inherent nature, cultivating self wellbeing and that of others in an ecological or social system. The colloquial use of the term "flourishing" tends to center on ideas of realizing one's potential (spiritually, developmentally, economically, etc.), succeeding, achieving, or making some significant contributions to society. More recently, there has been a shift of focus from collective to individual flourishing, and from studying flourishing philosophically to empirically [22]. Flourishing in schools exists at different levels. Students may be considered to be flourished when they are happy,

have good social relationships, achieve their goals with competence and confidence, and make valued contributions to others [23]. Students in a classroom feel valued and respected for what they do and the lessons they learn when they experience positive emotions. In Iran, most studies have focused on Ryff's or Keyes's wellbeing approaches [24] and fewer study has focused on newer theories of positive psychology that include patterns of human flourishing.

Concerning gifted students, no study was found in Iran on using an intervention based on flourishing for treating their stress, depression and anxiety. Due to this existing gap, this study aims to assess the effectiveness of education based on flourishing in reducing the psychological distress of gifted students in Iran. This research tries to answer the question of whether positive psychology education, by flourishing training, reduce the anxiety and depression of gifted students.

## 2. Methods

This is a quasi-experimental study using a pre-test/post-test design and a control group. The study population consists of all secondary students in gifted girls' schools (Tizhooshan schools) in Torbat-e Heydarieh, Iran. By using a purposive sampling method, 50 female students were selected who had a high score on the 21-item Depression, Anxiety, and Stress Scale (DASS-21) and were randomly divided into two groups of training (n=25) and control (n=25). The research was conducted after obtaining informed consent from participants, ensuring them of the confidentiality of their information and being free to leave the study at any time.

To collect information, the DASS-21 was used which is a self-report tool for measuring symptoms of depression, anxiety, and stress in the past week. Each subscale of the DASS-21 has 7 items scored from 0 (did not apply to me at all) to 3 (applied to me very much) [25]. Items 17, 16, 13 and 10, 5, 3 measure depression; items 20, 19, 15, 9, 7, 4, 2 assess anxiety, and items 14, 12, 11, 8, 6, 1 measure stress. Antony et al. confirmed its three-factor structure [26]. The validity and reliability of its Persian version were examined by Samani and Jokar. They reported the test-retest reliability of depression, anxiety, and stress subscales as 0.81, 0.74 and 0.78, respectively [27]. They used confirmatory factor analysis by the principal components analysis to examine the validity of this scale and reported a KMO value of 0.9012, a chi-square value of 3092.93 using Bartlett's test of sphericity, and  $P < 0.0001$ . Based on the factor analysis applied with Varimax rotation on the items of the questionnaire and based on

the slope of the Scree Plot, three factors of depression, anxiety, and stress were extracted for the Persian version, which is in agreement with the main version

The training group received education at 14 sessions, each for 60 minutes (two sessions per week), while no education was presented to the control group. To observe ethics, the control group received the education after the end of the study. To prevent the transfer of educational materials to the control group, during training, the experimental group was managed not to transfer the educational materials to the control group, during training. The protocol of group training for flourishing is presented in Table 1. It should be noted that due to the outbreak of COVID-19, a part of the training was presented online using Adobe Connect software. The protocol was developed by the researcher (PhD student in educational psychology and the official advisor of the education department in gifted students' schools), and its validity was assessed based on the opinions of experts.

The collected data were analyzed in SPSS software v. 26 using descriptive and inferential statistics. By descriptive statistics, the main data were described using Mean $\pm$ SD minimum and maximum values (Table 2). Inferential statistics used for testing the effectiveness of flourishing training on anxiety and depression included the analysis of covariance (ANCOVA), and the significance level was set at 0.05.

## 3. Results

According to the results from comparing the means, in the training group, the mean of anxiety was 13.36 in the pre-test phase and 7.36 in the post-test phase, indicating a large decrease by 6 points. In the control group, the mean of anxiety was 13.44 in the pre-test phase and 12.96 in the post-test phase, indicating a slight decrease by 0.48. Furthermore, in the training group, the mean of depression was 16.64 in the pre-test phase and 9.56 in the post-test phase, indicating a large decrease by 7.08 points. In the control group, the mean of depression was 15.68 in the pre-test phase and 13.60 in the post-test phase, indicating a slight decrease by 2.08.

In conducting ANCOVA, pre-test scores were used as covariate to control the differences that already exist between groups. This makes ANCOVA very useful in situations where we have very small samples and the effect size is small or medium [28]. ANCOVA test has several assumptions, which were tested. Kolmogorov-Smirnov and Shapiro-Wilk statistical tests were used to determine the normality of data distribution whose re-

**Table 1.** Protocol of flourishing training

Sessions	Name	Contents
1	Resilience, rational approach and ABC model	A Very Bad Day (story), definition of resilience, components of resilience, main characteristics of a resilient person, recommendations for resilience, introduction of ABC model, components of ABC model, true story, application, and message of ABC model
2	Thinking traps and how to overcome them	No Contact (story), thinking traps, costs of thinking traps, how to overcome thinking traps, getting rid of thinking traps, a few examples of thinking traps, ways to challenge thinking traps
3	Personality qualities and PERMA (1)	Humor, Draft (story), Aren't You Bored Yet (story), laugh and the world laughs with you (four important signs), measuring humor, small steps big changes.
4	Personality qualities and PERMA (2)	Perseverance, telling "Endangered Plants" story, what is perseverance? why persevere? what factors change our perseverance? four important reasons (Strengths and weaknesses), measuring perseverance, introducing "my unfinished business" book, Success: more seven steps, small steps big changes.
5	Personality qualities and PERMA (3)	Vitality Run! As Far as You Can (story), Delicious (story), definition of vitality, benefits of vitality, what factors affect our lives? (strengths and weaknesses), measuring vitality, breaking bad habits, small steps big changes, five building blocks that enable flourishing (PERMA).
6	Positive emotions and its role in life (1)	Love More (story), What is emotion? types of emotion, reasons for recognizing emotion, positive emotions, positive functions of emotion, impact of emotion on life, Love Grandmother (story), factors that change love (strengths and weaknesses), measuring love, small steps big changes.
7	Positive emotions and its role in life (2)	Appreciation, Exchanging Email (Story), Rain (Story), true meaning, gratitude (to God) for (receiving) the bounty will increase your bounty (seven important reasons), measuring appreciation, gratitude bank, small steps big changes
8	Positive emotions and its role in life (3)	Hope, Memories of the Future (Story), components of real hope, important reasons for the impact of hope on the quality of life, factors affecting hope (strengths and weaknesses), measuring hope, small steps big changes
9	Engagement and how to increase it	The story of a Simple Event, definition, creating engagement, signs of engagement, relationship of engagement experience with skill level and challenge difficulty
10	Relationships and its importance in life	A Common Product (story), the Liar Mirror (story), philosophy teamwork, benefits of teamwork, assessment of teamwork, How you behave in a group? facts about teamwork, small steps big changes.
11 & 12	Meaning and its importance in life	Grandfather (story), Straight and Crooked thinking (story), definition of meaning, how to deal with emotions, the root of emotions, the reason for different reactions to a same thing, reasons for spiritual life, measuring spirituality, small steps big changes.
13	Achievement and its importance in life	Where There's a Will, There's a Way (story), definition, criteria of achievement, different dimensions of achievement, achievement from the perspective of the Holy Quran
14	Summary, post-test assessments	Conclusion and summarization



**Table 2.** Descriptive statistics of the study variables before and after training

Variables	Groups	Mean±SD	Min	Max	
Anxiety	Training	Pre-test	13.36±4.35	8	20
		Post-test	7.36±4.03	2	14
	Control	Pre-test	13.44±4.10	6	20
		Post-test	12.96±3.92	6	20
Depression	Training	Pre-test	16.64±5.06	10	26
		Post-test	9.56±4.78	2	18
	Control	Pre-test	15.68±4.15	6	22
		Post-test	13.60±4.55	6	20



**Table 3.** Results of Kolmogorov-Smirnov and Shapiro-Wilk tests to assess the normality of data distribution

Variables	Groups	Kolmogorov-Smirnov			Shapiro-Wilk			
		Statistic	df	Sig.	Statistic	df	Sig.	
Anxiety	Training	Pre-test	0.140	25	0.200	0.897	25	0.016
		Post-test	0.184	25	0.029	0.892	25	0.013
	Control	Pre-test	0.174	25	0.050	0.935	25	0.114
		Post-test	0.125	25	0.200	0.952	25	0.274
Depression	Training	Pre-test	0.105	25	0.200	0.936	25	0.117
		Post-test	0.108	25	0.200	0.956	25	0.340
	Control	Pre-test	0.152	25	0.140	0.956	25	0.347
		Post-test	0.141	25	0.200	0.931	25	0.093

**Table 4.** Testing the interaction between dependent variable and covariate to determine the homogeneity of regression slopes

Interaction	F	Sig.
Between group and pre-test anxiety	3.02	0.094
Between group and pre-test depression	0.560	0.750



sults are presented in [Table 3](#). Although both tests can be used effectively, Stevens (2002) recommends the use of Shapiro-Wilk test because it is stronger in detecting the deviation from normality [28].

According to the results, the assumption of normal distribution was rejected since the level of significance for all variables was greater than 0.05 and, therefore, we can use the parametric test of ANCOVA.

Another assumption is the existence of a relationship between independent and dependent variables for each group. This condition is represented by the homogeneity of regression slopes for each group. Unequal regression slopes indicate that there is an interaction between dependent variable and covariate ( $P < 0.05$ ), and therefore parametric test cannot be used [29]. [Table 4](#) presents the results.

According to the results, the significance level was greater than 0.05 ( $P > 0.05$ ), indicating that the interac-

**Table 5.** Results of ANCOVA to evaluate the effectiveness of flourishing training on anxiety and depression

Sources	df	Sum of Squares	Mean Square	F	Sig.	Partial Eta Squared
Group - anxiety	1	382.12	382.12	206.71	<0.001	0.815
Error	47	86.88	1.85			
Total	50	6312.00				
Group - depression	1	290.45	290.45	42.97	<0.001	0.478
Error	47	317.70	6.76			
Total	50	7953.00				



tion effect of the variables is rejected and as a result the regression slopes are homogeneous.

Pearson correlation test was used to examine the correlation between pre-test and post-test scores of anxiety and depression whose results showed a significant correlation between them categorized by groups ( $P < 0.05$ ). The coefficient was positive ranging from 0.73 for depression in the control group to 0.95 for anxiety in the training group. Levene's test was used to test the equality of variances. Rejection of the null hypothesis ( $P < 0.05$ ) indicates the inequality of variances [29]. According to the results, the significance level obtained for all variables was more than 0.05 ( $P > 0.05$ ), indicating the equality of variances, which confirms the third assumption.

The results of ANCOVA for anxiety variable showed that  $F = 206.71$  and  $P < 0.001$ . Therefore, the effectiveness of flourishing training on anxiety was significant at a confidence level of 99%. The effect size was 0.815 (Table 5). The results of ANCOVA for depression variable showed that  $F = 42.97$  and  $P < 0.001$ . Therefore, the effectiveness of flourishing training on depression was significant at a confidence level of 99%. The effect size was 0.478 (Table 5).

#### 4. Discussion

Due to the very high prevalence of anxiety and depression among female school students in Iran in recent years, and considering their adverse effects, the current study was conducted to assess the effectiveness of flourishing training in reducing depression and anxiety in female gifted students. The main question of the current study was whether the use of positive psychology (flourishing training) leads to the reduction of depression and anxiety. The flourishing training was presented at 14 sessions. The results showed that the flourishing training reduced depression and anxiety in the training group compared to the control group. The results are consistent with the results of other similar studies. For example, a study showed that positive psychology, while preventing depression in adolescents, can help schools focus on increasing the well-being and flourishing of students [30]. According to Fredrickson et al., negative emotions narrow the momentary thought-action repertoires, and people with more positive emotions had richer thoughts and mental abilities than those with negative experiences [31]. In several studies, the effect of individual positive psychotherapy for depressed patients by conventional therapy along with the use of antidepressants has led to a further reduction in depressive symptoms and increased recovery rate [32]. In a study on the relationship between

altruism, happiness, and health, which are the components of positive psychology, results showed that helping others and feeling that life is purposeful and meaningful play an important role in students' mental and physical health [33]. On the other hand, optimism is essential for the well-being of children and adults. Optimistic people typically have higher ability and self-esteem and fewer symptoms of depression. They are able to focus on success instead of failure and see solve problems. A study showed that a high level of hope is closely related to sense of purposefulness in life [34]. Results of another study on the effect of positive psychology on mental health of school students showed that positive psychology had a positive effect on their wellbeing and creating positive traits [30]. The results of Ong et al. on the effects of experiencing positive emotions, resilience, and successful adaptation to stress [35] are consistent with our results which showed the positive effect of flourishing training (positive psychology) based on Seligman's flourishing components (PERMA) on reducing depression and anxiety in gifted students. In explaining these findings, it can be said that education based on positive psychology and training satisficing versus maximizing, optimism and hope, attention to love and attachment, sense of meaning in life, broadening capabilities to help others and achieve an ideal life is associated with creating positive abilities and emotions. It mitigates psychological damage and promotes happiness by increasing the sense of meaning in life. Therefore, flourishing training is useful in improving the mental health state of depressed, anxious, or stressed female gifted students.

#### 5. Conclusion

The use of flourishing training based on positive psychology can be effective in reducing anxiety and depression of female gifted students.

There were some limitations in this study. For example, there were no male samples. The control group received flourishing training after about two months. Due to limited time, a follow-up was not possible. Furthermore, due to the COVID-19 pandemic, part of the training was conducted online, which did not allow the researcher to use face-to-face teaching, and issues related to the low speed of the Internet or its frequent disconnection disrupted the teaching process.

#### Recommendations

It is recommended that, in future studies, the flourishing training be conducted for students in all grades and schools, and a follow-up phase be used, if possible,

to examine the long-term effect of this education. The educational package designed by the researcher can be provided to the teachers in the form of small booklets so that, after passing in-service training, they become more familiar with positive psychology and teach life skills and use character/virtue workshops to familiarize students with related concepts and be effective in improving their mental state.

## Ethical Considerations

### Compliance with ethical guidelines

This study was approved by the Ethics committee of Islamic Azad University of Gonabad branch (Code: 179/1/24/09)

### Funding

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

### Authors' contributions

Methodology and investigation: All authors; Writing - original draft, Writing - editing & review, and data analysis: Fatemeh Abbasian.

### Conflict of interest

The authors declared no conflict of interest.

### Acknowledgments

The authors would like to thank all students who participated in this research, as well as officials of Gifted Girls' schools in Torbat-e Heydariyeh and parents of students, for their cooperation in conducting this research.

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