

# The Effect of Flower Arrangement on the Emotions of Psychology Teachers

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**Keywords:** horticultural therapy; flower arrangement; psychology teachers; emotions.

**Abstract:** In order to study the influence of flower arrangement on the emotions of psychology teachers, this experiment used the State-Trait Anxiety Inventory (STAI) and the Profile of Mood States (POMS) as psychological indicators to test the mental states of 48 subjects before and after the activity. There were 192 questionnaires collected. The results showed that the levels of psychology teachers' state anxiety, negative emotions and total mood disorder decreased after the activity of flower arrangement, while the levels of positive emotions increased. The decline degrees of negative emotions were ranked as following: confusion and bewilderment > fatigue and idleness > depression and disappointment > tension and anxiety > anger and hostility > state anxiety. Among them, the degree of confusion and bewilderment decreased by 100%; the degree of fatigue and idleness decreased by 75.99%. There were highly significant differences. The degree of depression and disappointment decreased by 70.27%; there was a significant difference. The research shows that flower arranging activities can greatly alleviate the emotional pressures of psychology teachers.

## 1. Introduction

Since our country entered the aging society, the burden on adults began to increase. Psychology teachers, as a special group of adults, draw the attention of the public, but the society cannot fully understand and support them. These teachers are lonely in school and have complex tasks. A large number of professional psychological barriers exist in the work of psychology teachers.<sup>[1][2]</sup> Paying attention to their negative emotions and alleviating them can help to ensure the mental health of psychology teachers, so that they can better solve patients' psychological problems.

Horticultural therapy can promote normal endocrine circulation, increase immunity and relieve stress by building the interactive relationship between human beings and plants and mobilizing human senses. In emotional healing, horticultural therapy uses natural methods to regulate and control, which can effectively alleviate the stigma of objects; it is conducive to the recovery of people's positive emotions, and is suitable for different populations.<sup>[3][4][5]</sup> Studies have shown that horticultural therapy can alleviate the psychopathological symptoms of psychiatric patients to a certain extent,<sup>[6]</sup> effectively alleviate the depression and anxiety of middle-aged women and enhance their self-identity,<sup>[7]</sup> improve the level of pressure resistance and physical function of the elderly,<sup>[8]</sup> and alleviate the depression, stress and anxiety of veterans.<sup>[9]</sup> However, its impacts on the group of psychology teachers have not been reported.

The flower arrangement is a kind of horticultural operation in horticultural therapy. It is easy to carry out, and can effectively endow participants with physical and mental vitality as well as emotional transformation. Therefore, this study explored the influence of flower arrangement activities on the emotions of psychology teachers, which can provide scientific basis for the alleviating of their emotional problems, and provide data for the empirical research on the influence of horticultural therapy on adults' emotions.

## 2. Research Objects and Research Methods

### 2.1 Research objects and basic information of the experiment

The experiment was conducted in Shude Middle School of Chengdu on October 23, 2018. The objects were 48 volunteers of psychology teachers, aged between 22 and 52, with an average age of

32.

## 2.2 Measurement of experimental indicators

### 2.2.1 The State-Trait Anxiety Inventory Scale

In this study, the State-Trait Anxiety Inventory Scale (STAI-S) of the State-Trait Anxiety Inventory (STAI) was used to assess participants' feelings "at present". It contained 10 items of positive and negative emotions. Each item was divided into four grades from "none" to "very obvious", and was scored through the four-point scoring method. 10 items were scored in reverse. The high score means the object was in an obviously anxious state.

### 2.2.2 The Profile of Mood States: Anxiety

In this experiment, the simplified POMS scale was used; it was formed after deleting item sets from the original scale of Profile of Mood States (POMS).<sup>[10]</sup> The Profile of Mood States included five negative emotional components of "tension-anxiety", "anger-hostility", "fatigue-idleness", "depression-disappointment" and "confusion-bewilderment", as well as one positive emotional component of "energy-activity". Each component had its corresponding item set. Each item was divided into five grades from "almost no" to "very serious". The score corresponded to the emotional level of objects. Finally, the Total Mood Disorder value (TMD) was calculated based on the sum of five negative emotional components minus the positive emotional component.

## 2.3 Experiment procedure

(1) After the subjects arrived at the place and rested for 5 minutes, they were required to fill in the STAI-S and POMS questionnaires, and wrote down their personal information about such as gender, age, educational background and occupation. The objects kept the information.

(2) The flower arrangement activity was carried out under the instruction and guidance of Juan Du, a teacher of Sichuan Agricultural University.

(3) After 5 minutes' rest, the subjects filled in the questionnaires again.

## 2.4 Data analysis

The original data were counted and mapped by Excel 2010, and then tabulated by Word 2010; the significance t test of samples was tested by SPSS 22.0.

## 3. Results and Analysis

### 3.1 The effect of flower arrangement on anxiety

As shown in Table 1, the average scores of STAI-S before and after the activity of flower arrangement were 31.939 and 25.122 respectively; the degree of anxiety decreased by 21.34%. The results of t-test ( $p < 0.01$ ) showed that there were significant differences in STAI-S scores before and after the activity, which indicated that the flower arrangement could effectively reduce the anxiety of subjects.

Table 1. STAI-S Scores Before and After the Activity

item	time	mean	standard deviation	p-value
STAI-S	before	31.939	7.049	0.000**
	after	25.122	5.808	0.000**

(Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ )

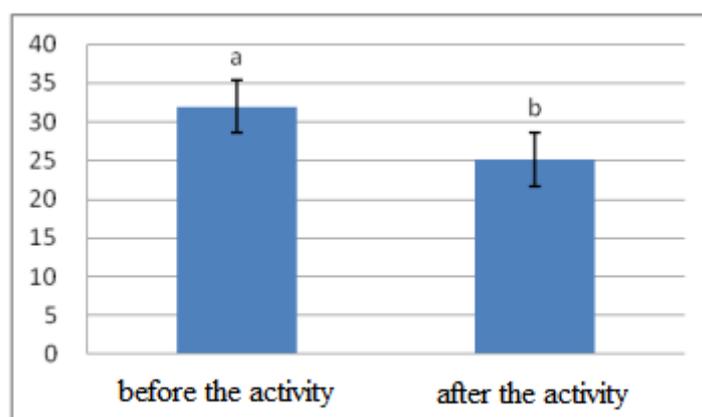


Figure 1. STAI-S Scores Before and After the Activity

### 3.2 The effect of flower arrangement on mental states

The scores of POMS scale before and after the activity of flower arrangement were shown in Table 2. Among them, the degree of tension-anxiety decreased by 64.43%, but the t-test result was  $p > 0.05$ . The difference was not significant. It showed that although the flower arrangement could eliminate the tension-anxiety of some objects, the overall effect was not obvious. The degree of anger-hostility decreased by 59.04%, but the t-test result was  $p > 0.05$ , showing no significant difference. It indicated that the flower arrangement could alleviate the anger and hostility of some objects, but the overall effect was not obvious. The degree of fatigue-idleness decreased 75.99%. According to the result of t-test ( $p < 0.01$ ), there were significant differences in the scores of fatigue-idleness state before and after the activity, indicating that the flower arrangement can effectively reduce the fatigue-idleness of objects. The degree of depression-disappointment decreased by 70.27%, and the result of t-test was  $p < 0.05$ . It showed that there were significant differences in depression-disappointment scores before and after the activity, indicating that the flower arrangement can effectively inhibit the depression and disappointment moods of objects. The degree of confusion-bewilderment decreased 100%. According to the t test result  $p < 0.01$ , there were significant differences in the scores of confusion-bewilderment before and after the activity, indicating that the flower arrangement can effectively eliminate the confusion and bewilderment of objects. The energy-activity level increased 35.37%. According to t-test results  $p < 0.01$ , there were significant differences in energy-activity status scores before and after the activity, which indicated that the flower arrangement could effectively restore the energy and vitality of objects. The total emotional disorder degree decreased 104.87%. According to t-test results  $p < 0.01$ , there were significant differences in total emotional disorder values before and after the activity. The flower arrangement can effectively reduce the total emotional disorder of objects.

Table 2. POMS Scores Before and After the Activity

item	time	mean	standard deviation	p-value
Tension-Anxiety (T-A)	before	0.298	0.587	0.121
	after	0.106	0.598	
Anger-Hostility (A-H)	before	0.830	2.325	0.195
	after	0.340	1.089	
Fatigue-Idleness (F-I)	before	3.723	4.357	0.000**
	after	0.894	1.747	
Depression- Disappointment (D-D)	before	0.787	1.587	0.039*
	after	0.234	0.865	
Confusion- Bewilderment (C-B)	before	0.234	0.560	0.005**
	after	0.000	0.000	
Vigor (V)	before	13.957	5.626	0.000**
	after	18.894	5.337	
Total Mood Disorder (TMD)	before	-8.298	11.157	0.000**
	after	-17.000	6.511	

(Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ )

As Figure 2 shows, generally speaking, the levels of negative moods decreased after the activity, while the level of positive mood increased. The subjects' final total mood disorder level declined after the flower arrangement. This shows that flower arranging activities can bring subjects good moods.

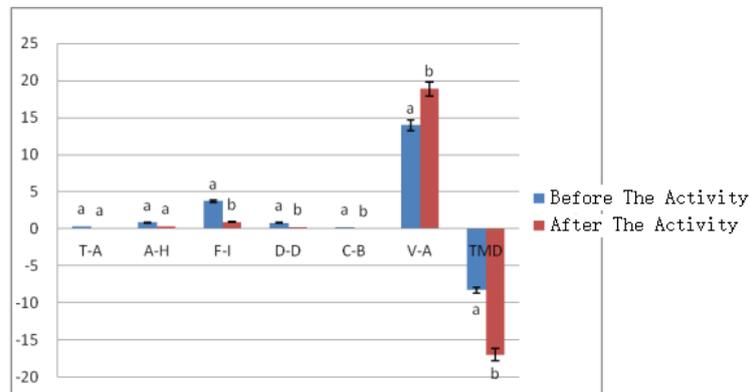


Figure 2. POMS Scores Before and After the Activity

#### 4. Discussion

In this experiment, the emotional states of psychology teachers before and after the activity of flower arrangement were analyzed by State-Trait Anxiety Inventory Scale and the Profile of Mood States. The results showed that the total emotional disorder value of subjects decreased by 104.87% after the activity of flower arrangement; the degree of confusion-bewilderment decreased by 100%; the degree of fatigue-idleness decreased by 75.99%; the degree of state anxiety decreased by 21.34%. The overall downward trends were extremely significant. The degree of depression-disappointment decreased by 70.27%; the overall downward trend was significant. The tension-anxiety decreased by 64.43%; anger-hostility decreased by 59.04%. The overall downward trend was not significant. The energy-activity increased by 35.37%, and the overall upward trend was very significant. The order of declining degrees of negative emotions was: confusion-bewilderment > fatigue-idleness > depression-disappointment > tension-anxiety > anger-hostility > state anxiety, which is consistent with Kyunghye's conclusion that horticultural therapy can reduce negative emotions such as anxiety and depression.<sup>[11]</sup>

In the study of five senses, Park and other scholars found that even the simple observation of leaves can reduce the concentration of oxyhemoglobin in the prefrontal cortex of the observer, leading to physiological and psychological relaxation.<sup>[12]</sup> Hong Zhou found that watching green plants can make people calm.<sup>[13]</sup> Fa-hong Li and colleagues also found that ornamental flowers can alleviate tension.<sup>[14]</sup> Johnson revealed that smelling aromatic plants can alleviate anxiety and depression;<sup>[15]</sup> LEE and others discovered that touching plants in horticultural activities could bring pleasure.<sup>[16]</sup> Therefore, Choo and other scholars believed that gardening activities involving minor physical exercises were good ways to relieve depression and anxiety.<sup>[17]</sup> In this study, the activity of flower arrangement had a significant effect on relieving subjects' confusion, fatigue and anxiety. It was conducive to the energy recovery, and significantly reduced the levels of depression. This finding is similar to the conclusions of previous studies. One possible reason is that, the process of flower arrangement can simultaneously mobilize participants' senses of vision, smell and touch. It promotes the participant to perceive the plants and begin the artistic creation process. In this way, negative emotions can be eliminated and the objects can become more enthusiastic towards life.

#### 5. Conclusion

To sum up, the activity of flower arrangement can effectively alleviate psychology teachers' anxiety, and bring them with better moods and emotional states. Especially, they can greatly

alleviate depression, anxiety, fatigue and confusion, and produce very significant effects on the energy recovery. However, this study still has some limitations. Firstly, different individuals have different senses of participation in the activity as well as different understandings on the scale description, which will cause evaluation errors to some extent. Secondly, most teachers in this experiment are female and the number of male samples is small, which is not conducive to the study of gender differences in the emotional impact of flower arrangement on psychology teachers. It should be considered in the follow-up study to supplement the sample number of male subjects.

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