



## Original Article

## Study of the Effect of Using Purposeful Activity (Gardening) on Depression of Female Resident in Golestan Dormitory of Ahvaz Jundishapur University of Medical Sciences

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### ABSTRACT

**Background:** Students encounter many stressful factors during their educational time. Stress can result in different physical and mental disorders such as depression. One intervention is using purposeful activity of gardening. The goal of this research is to investigate the effect of using purposeful activity (gardening) on depression of female resident in Golestan dormitory of Ahvaz Jundishapur University of Medical Sciences. This study was an experimental field research with pre and post tests in case controlled groups in the year of 2012-2013. Fifty depressed female students of Golestan dormitory in Ahvaz Jundishapur University of Medical Sciences participated in the study. Students were randomly allocated to case and controlled groups. Both groups were taken Beck Depression Inventory. Then gardening sessions (seed and small tree planting) were carried on in dormitory yard for 3 days a week for two months. Each session took approximately one hour. Both groups were assessed with the same questionnaire again after intervention.

**Results:** The results showed a significant recovery after intervention in case group based on the depression scores ( $P=0.0001$ ).

**Conclusion:** According to this study, it seems that using purposeful activity of gardening has positive effects on decreasing depression in depressed female students.

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### Introduction

The prevalence of depression in Iran is estimated to be 7.7% in the population aged 15 years and above [1]. It is shown that the prevalence of depression is significantly higher among university students. Ershadikia and colleagues conducted a study at Sabzevar University of Medical Sciences and showed that 43% of the students were suffering from various degrees of depression (29.3%

mild depression, 7.8% moderate depression and 6.5% severe depression) [2]. Some studies have also shown that the prevalence of depression among girls is more than boys [3, 4]. College students are an important part of the society and therefore, paying attention to their physical, mental, and social health is very important [5]. Efforts have been made to provide sound mental status among this population.

Students encounter different stress factors such as being away from home and family, entering to new environment, curriculum issues, competition with other students, exams, financial problems, unclear future

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work, inability to make decisions and the high academic workload [5]. There is also evidence that stress can lead students to physical and mental illnesses, adaptation dysfunctions, and the low quality of life [6, 7].

One of the nature-based interventions is targeted-gardening activity that is traditionally used for the physical and mental disorders, but there are insufficient scientific studies on its usage within mental health care areas [8].

Wilcock has argued that a fundamental change in human occupation came into existence from 12000 years ago after the plants cultivated by man. There has been some evidence that, for example, in 1881, the Scotland Committee emphasized on the usefulness of agriculture in mentally ill patients. Nowadays, enough evidence exists to show the gardening's usability and effectiveness on various mental illnesses such as schizophrenia, anxiety, mood disorders, dementia, Huntington, cancer and neurological disorders such as stroke [9]. Sempik's study also demonstrates that gardening can increase an individual's physical welfare and psychological well-being [10]. Occupational therapy is one of the rehabilitation sciences in which gardening has been considered as an easily available tool to improve different aspects of mental health [11].

To the best of our knowledge the influence of gardening purposeful activity on depression has not been examined among Iranian students living in dormitories. Therefore, the current study was conducted to determine the effectiveness of gardening purposeful activity on depression observed within students living in the medical dormitory at Ahvaz Jundishapur University of Medical Sciences.

## Methods

This study was an experimental research based on pre-post test with control group and conducted in Golestan-girl dormitory located at Ahvaz University of medical sciences in 2012-13. The study population consisted of a total 1,200 female students living in three dormitories who studied at different faculties including rehabilitation, Pharmaceutical, Health, Medicine, Dentistry, paramedical, Nursing and Midwifery. Among all students in three dormitories, 400 members were selected through two-stage cluster sampling method. Afterwards, 400 Beck Depression Inventory questionnaires were randomly distributed between residents at rooms, and one hour after the distribution, the questionnaires collected, evaluated and were scored. Among 400 patients, 138 had mild to severe depression. Those with mild-depression were eliminated. The main inclusion criteria considered as moderate, severe or very severe depression with no visible physical symptoms too. Therefore, 54 cases were graded from moderate, severe to very severe depression. Prior to the study, participants were asked to read and sign the Informed consent form. Four subjects opt out from the study. Finally, the rest 50 cases were randomly divided into two 25 person experimental and control groups.

The test group was trained to perform targeted-gardening-activity, such as seeding and planting trees,

for three one-hour sessions per week for two months. Horticultural therapy intervention program was as following: plowing land, planting, picking up and harvesting the farming land dedicated to the study was divided equally among the 25 test subjects. In the first three sessions, subjects were trained by professional gardeners to perform the tasks correctly. In the fourth session, they prepared the land as well as the seed and then shrub planted in their respective sectors. Subsequently during the remaining 2 months, they watered and took care of the land. At the end of the period, they finally harvested the seeds. These procedures were observed by one of the researchers over 2 months. After this period both test and control groups were reassessed with the Beck Depression Inventory.

To assess depression degree, Beck Depression Inventory was used, a self-report indicator to measure depressive symptoms of clinical and non-clinical different populations. The Iranian-Beck Depression Inventory is a 21-point self-report measure of depressive with four-degree grades from zero (no depression or mild depression) to 3 (severe depression). Next, the total score is calculated by adding the scores obtained (from 0 to 63): the higher scores, the more the depression level. The validity and reliability of this questionnaire has been assessed appropriately by Rajabi [12].

## Statistical Analysis

In order to perform the data analysis, computer software SPSS was used. The significance level was set to 0.05. Moreover, the descriptive statistics such as mean, SD, and Levin statistical tests (to ensure compliance with the equal default of variables' variances) as well as covariance analysis of a variable (Ancova) and multivariate (Moncova) were performed.

## Results

The average age of students participated in the present research was  $20.6 \pm 0.9$ . After reviewing and scoring the depression questionnaire gathered through pre and post tests of both groups, the data was statistically analyzed.

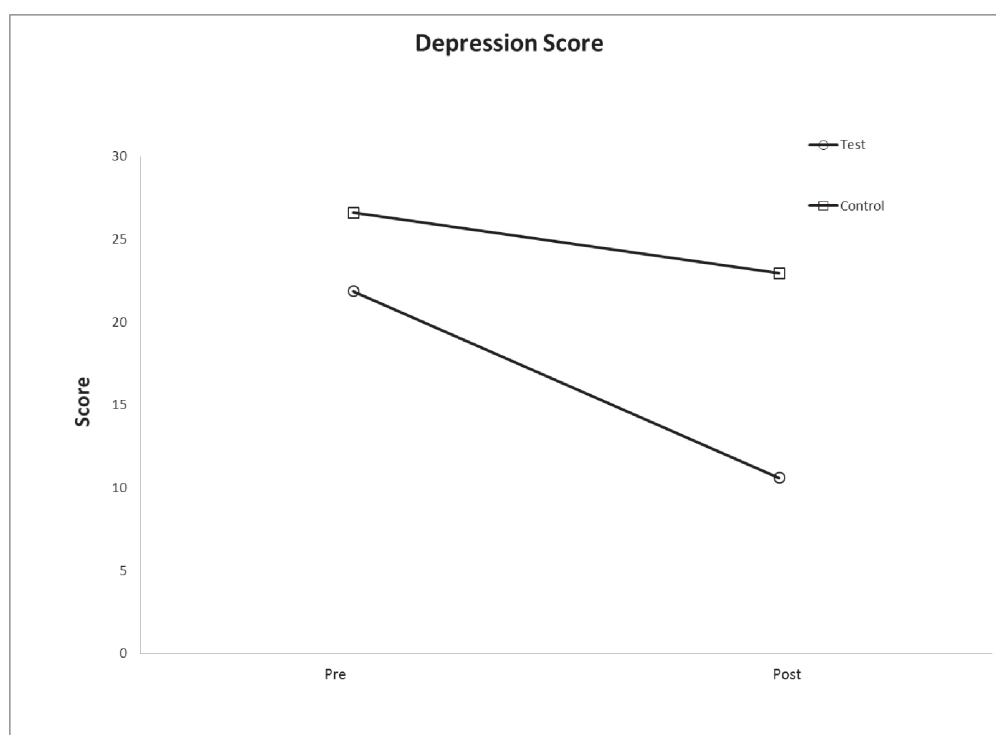
The mean depression scores for experimental group in pre-test and post-test were  $21.85 \pm 8.36$  and  $10.60 \pm 9.80$ . The mean depression scores for the control group were  $26.60 \pm 6.32$  and  $22.95 \pm 2.98$  in the pre-test and post-test examination, respectively (Figure 1).

Statistical analysis showed a significant difference of the post-experiment scores between the test and the control group. ( $P=0.0001$  and  $F=20.21$ ). The statistical power of the test was %99.2.

## Discussion

The results showed that the experimental group's depression has improved after the intervention. Some previous studies have provided enough to show a decrease in depressive symptoms following the use of purposeful gardening activity [13-15].

Son [13] indicated that not only the gardening leads to



**Figure 1:** Depression score of experimental and control groups in pre-test and post-test

reducing symptoms of depression but also it increased self-respect and self-worth [13]. In conclusion, it is suggested that gardening activities promote self-esteem and self-respect. Gonzalez and colleagues noted that depression severity decreased as a result of gardening mainly in clinical depression. These investigators reported a %50 decrease in depression which was preserved even 3 months after the end of the gardening interventions [15]. According to the study, lasting impact of gardening intervention resulted in increasing the value on the therapeutic effect of gardening in medical environments. Clatworthy [14] in his review study suggested that gardening improves depression as well as sleep and physical health. Thus, it seems that gardening activities can have a positive effect on reducing other problems associated with depression such as insomnia and psychosomatic pains.

Wilson' study showed that active gardeners and those worked horticulturally obtained significantly lower depression scores than those never had any gardening activities [16].

Kam and his colleagues have shown that gardening activities intervention on the test group for 10 sessions was related to the patient stated that self-esteem, a sense of unity with nature, enjoying nature, social skills, communication with the rise of social networking and feeling respected were increased while the work-related stress reduced. These patients include those with major depressive and bipolar disorders and schizophrenia spectrum, respectively [17].

The relatively short period of therapeutic intervention was among the limitations of this study due to special circumstances to students. It is recommended that further studies consider mild depression and depression rate were compared among various groups after the intervention.

It is also suggested a similar study in which the lasting effect of the intervention assessed with follow-up after a few months at the end of the intervention.

## Conclusion

The results showed that the use of purposeful gardening activity can have a positive influence on students' depression degree living at dormitory. Hence, it seems that the therapeutic use of the gardening, in addition to its applicability into psychiatric hospitals, care centers and outpatient in particular for patients with psychological disorders can also be used in environmental residences. And it not only can appropriately occupy their leisure time and improve their welfare, also to help effectively reduce the symptoms of mental illness including depression.

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**Conflict of Interest:** None declared.

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