



A Primary Study of the Effectiveness of Aromatherapy and The Presence of the Natural Plant of Lavender (*Lavandula Angustifolia*) on Psychological Distress

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ABSTRACT

The psychological distress consists of anxiety, depression and stress; and sometimes the individuals may suffer the psychological distress without experiencing a particular clinical disorder. It is known in the studies that the aroma of lavender (*Lavandula Angustifolia*) can be used to calm the individuals at home and this research is aimed at studying the effectiveness of aromatherapy as well as the presence of the natural plant on the psychological distress. *Methodology:* The fresh lavender was harvested from the training center of Agriculture Jihad in Semnan University of Applied Science and Technology and the essential oil was extracted by Clevenger apparatus. The natural plant cuttings of lavender were also planted in the pots.

After completing the initial questionnaires, the patients were divided into two groups:

The first group were treated after training by the aromatherapy method, and each of the patients in the second group were given a lavender pot after they were taught maintenance the plants.

During the therapy period, the questionnaires of the next stages were completed by the patients.

Measurement Tools: The base lines of individuals' mental situations were measured using DASS-21 questionnaire designed by Lovibond in 1995. *Data analysis:* In this study, the research findings were analyzed using SPSS-21 software and related T-test. *Conclusion:* In this study, it was shown that both aromatherapy and the presence of the natural plant reduce the psychological distress level.

Keywords: Presence of the natural Plant, Aromatherapy, Lavender, Psychological Distress.

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INTRODUCTION

Over the past centuries, the man has always used the herbs as medicine. Thousands of plant species grow on the earth that more than 95% of them have not been studied as drugs yet.

According to the statistics of the World Health Organization (WHO), about 80 percent of the world's population also uses the herbs as the medicine now. Sale of herbal medicines in the United States has been increased wonderfully in recent years (Graudsc, 1997).

Aromatherapy is the use of aromatic oils, extracted from the plants and the flowers to cure the various diseases. The oils can be used by inhalation, bath and /or a massage. The most widely usage of aromatherapy is through massage (Babashahi et al. 2012).

The various usages of aromatherapy has been presented so far, for example it has been used in the different fields such as health during pregnancy, pain relief, reducing the complications of chemotherapy, hair and skin hygiene, healing the wounds, controlling the epileptic seizures, reducing the breathing difficulties, decreasing the anxiety and depression (Bahreini et al. 2011).

Lavender with the scientific name of *Lavandula Angustifolia* is from the plant family of Labiateae; it is like the bush and thick, has multiple rectangular stems with bilateral and narrow leaves and is covered with white cottony fluffs and has a cluster of

purple flowers. From the chemical composition aspect, it has the essential oil (over 3%) which contains more than 40 compounds and the most important ones include: linalyl acetate (30 to 60 percent), cineole (10%), linalool, nerol and so on. From the viewpoint of the ancient medicine, lavender has a warm and dry temperament and is used as a carminative, curing the muscle spasms, anti-depressants, strengthening the stomach and relieving the nerves and so on (Mir Jalili et al. 2012).

Among the available effective materials in the composition of this plant, linalool and Linalyl acetate can be named; linalool acts as a sedative by affecting gamma-aminobutyric acid receptors in the central nervous system (Perry et al. 2012).

Lavender is a plant that its anti-anxiety and sedative effects on the different populations have been studied widely (Afshar et al. 2010) (Toda and Morimoto, 2008).

Lavender has the several effects including anti-anxiety, sedative, analgesic and antihistaminic; and helps to cure the sleep disorders. The depression is one of the main factors that reduce the treatment acceptance. When the depressed patients do not participate in the treatment, their medical problems are increased; their health is endangered and eventually causes to die prematurely (Price and Price 2007).

Anxiety is a comprehensive, unpleasant and ambiguous worry which often has the symptoms such as headache, sweating, palpitation, impatience, feeling of tightness in the chest and the slight pain in the stomach (Henderson et al. 2004).

In comparison with other therapies of the complementary medicine in relation to the anxiety in recent years, one of the

treatments which has been grown dramatically in most countries is aromatherapy. This is the second therapy of the complementary medicine and is used in the clinical medicine extensively (Babashahi et al. 2010).

It is believed that the smell of aroma activates the olfactory nerve cells and leads to stimulate the limbic system. Depending on the type of the aroma, the nerve cells release different neurotransmitters; these neurotransmitters include enkephalin, endorphin, noradrenaline and serotonin. On the one hand, considering the relationship between the sense of smell with the soul and the human emotions, the aromas can affect on the souls and bodies; in fact, the odors are able to change the feelings of the humans (Kyle, 2006). Aromatherapy is used in many countries such as Switzerland, Germany, England, Canada and America. And at the present time, an extensive investigation is conducted in the field of aromatherapy and the usage of the plant essential oils worldwide. It is known that the vegetable oils affect through the skin or the olfactory system (Muzzarelli et al. 2006).

The heart rate is affected by the stress and one of aromatherapy effects is on the heart rate (Hongratanaworakit, 2004).

The inhalation of the aroma causes to shift the autonomic balance to the parasympathetic preference and subsequently leads to calm the individual (Peng and Koo, 2009).

The inhalation of the plant essential oils reduces physiological stress and the serum cortisol level as well as the blood pressure. (Hwang, 2006). Lavender reduces the secretion of cortisol from the adrenal gland, reducing the sympathetic activity and increasing the parasympathetic activity leads to calm. Lavender inhibits the release of acetylcholine and Linalyl acetate can relax the vascular smooth muscles (Peng and Koo, 2009) (Hongratanaworakit, 2004). In addition, lavender contains ester which has a calming effect on the nervous system (Lytle, 2014).

Moreover, Lee et al. studied the aromatherapy effect of lavender inhalation on the rate of the insomnia and the depression of the female students in 2006. The result showed that the aromatherapy caused to reduce the rate of insomnia in the students significantly (Lee and Lee, 2006). Some researchers have used aromatherapy to reduce the anxiety (Rho Khan et al. 2005) (Davic et al. 2005), also another study indicated lavender oil inhalation can reduce the rate of state anxiety during labor until 60 minutes after inhaling. (Tafazoli M et al 2010)

An study from Takahashi and co-workers found that lavender essential oil inhalation exerted anxiolytic-like effect in the elevated plus-maze mice. (Takahashi et al, 2012)

Also in a recent review paper, it is expressed that the clinical efficacy of standardized essential oils (such as Lavandula Angustifolia), in treating anxiety disorders strongly suggests that these natural products are an important candidate source for new anxiolytic drugs. (de Sousa et al, 2015) and another review paper has concluded that aromatherapy provides a potentially effective treatment for a range of psychiatric disorders. (Perry and Perry, 2006)

In the present research, the effect of the natural plant presence alongside the aromatherapy was examined for the patients suffering the mental distress. Meanwhile, the therapeutic effect of the natural plant presence has not been studied so far.

RESEARCH METHOD

At first, the fresh plant of lavender was harvested in the training center of Agriculture Jihad in Semnan University of Applied Science and Technology in autumn 2015, it was put in the shade for 8 days to dry out completely and then the leaves were separated from the stems perfectly. The essential oil of 650 g of the plant was extracted by the distillation method with distilled

water using Clevenger apparatus in the training center laboratory of Semnan Agriculture Jihad. The extraction of the essential oil lasted 3 hours. The essential oil of the plant evaporated due to the volatility alongside the water vapor and was collected in Clevenger collector tube. Regarding that the essential oil density is less than the water density, thus the extracted essential oil was placed on the aqueous phase and separated by the discharge valve easily. Since the essential oils are sensitive to light, oxygen and temperature and their compounds are changed in such conditions, the extracted essential oil was transferred into a closed glass container immediately and was kept in a dark cool place.

The cuttings of the natural plant of lavender were supplied from the training center of Semnan Agricultural Jihad and were planted in the pots. The base lines of the individuals' mental positions were measured using DASS-21 test. Each of DASS-21 subscales consists of 7 questions and each final score is obtained by the total scores of the related questions (Table 1). Every question is scored from zero (it does not apply to me at all) to 3 (it applies to me completely). Because this questionnaire is the summarized form of the original scale (42 questions), the final score of each subscale must be doubled.

The patients were divided into two groups of 3. Each individual in the first group learned that he/she pours a drop of the essential oil on the tissue and attaches to the collar every other day (3 times a week) for four weeks and breathes normally for 20 minutes. Each individual in the second group was given a pot of lavender and the patients were asked to pay attention to the pots 2 to 3 times a day somehow they take care of the pots, collect the yellow leaves around them and the aim is to pay attention to the plant completely.

The patients completed DASS-21 questionnaire post-training and pre-treatment perfectly. After starting the treatment, the patients of both groups were visited once every two weeks and their situations were reported. After finishing the treatment period, the patients completed the questionnaires again.

RESULTS

The data obtained from the questionnaires was analyzed using SPSS-21 analytical software and dependent comparison T-test was used for this purpose. The results are stated in the following table respectively.

sign	T	Sig
Depression	5.06	0.007*
Anxiety	3.49	0.025**
Stress	3.83	0.019**

* Significant at 0.01 level

** Significant at 0.05 level

Comparing the individuals' the scores of the psychological distress before and after implementing the protocol.

Sign	Highest Score	Lowest Score
Depression	12.38	3.61
Post-Treatment Depression	8.48	1.13
Anxiety	11.47	7.32
Post-Treatment Anxiety	6.45	0.74
Stress	13.02	4.97
Post-Treatment Stress	8.62	1.38

DISCUSSION AND CONCLUSION

The results indicate that both aromatherapy and the presence of the natural plant can significantly reduce the level of psychological distress. The obtained results confirm the initial

hypothesis of this research. This outcome is along with the obtained results in previous researches explaining that aromatherapy can bring the calmness.

In this study for the first time it was found that the presence of the natural plant can significantly reduce the level of psychological distress. Finally, regarding the previous data and data obtained from the research it is suggested that aromatherapy and the presence of the natural plant will be used as a method for the calmness and or a complementary therapeutic method along with the psychological treatments and the pharmacotherapy of the disorders with the psychological distress.

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