The Scent of Lavender having an Effect on Mood

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Abstract

Aromatherapy such as the use of Lavender essential oils has for many years been alleged to have both therapeutic and curative properties with the most common one being inducing relaxation and calmness to individuals subjected to stress. For this reason, the following study aims to find out whether there is any association between lavender essential oils and level of stress. Twenty students from the university were randomly selected to take part in the study. Ten were the intervention group (watched anxiety induced video in the presence of a lavender scented candle) and the remaining ten were the placebo group (watched anxiety induced video in the presence of an unscented candle). The 10 participants who were subjected to a scented candle had a change of *(M = 0.6, SD = 1.8)*. The other 10 participants subjected to a non-scented candle recorded a slight change of *(M = 1.1, 1.7)*.n The P-value was 0.539. The level of significance was 0.5. These results shows that there no significance between inhalation of lavender and reduction of stress in the intervention group.

Introduction

Health problems ranging from anxiety to poor sleep can significantly be managed through aromatherapy. Aromatherapy is the kind of treatment where plant extracts, referred to as essential oils, are either breathed through the nose or applied on the skin. The most commonly used essential oil is lavender (Sayorwan, 2012). Lavender has for many years been alleged to have both therapeutic and curative properties with the most common one being inducing relaxation (Perry, 2012). Koulivand, Khaleghi Ghadiri, and Gorji (2013) report growing evidence that lavender oil may be an effective treatment for neurological disorders. Additionally, lavender essential oil has been used as a sedative, mood stabilizer, and an anxiolytic drug (Sasannejad, Saeedi, Shoeibi, Gorji, Abbasi, & Foroughipour, 2012).

In a placebo-controlled clinical trial, Sasannejad et al. (2012) aimed to determine how effective lavender essential oil inhalation is in treating migraines. The researcher concluded that inhalation of lavender essential oil can be considered to be an effective and safe treatment modality in managing migraine headaches. According to Perry, Terry, Watson, and Ernst (2012), lavender is mostly recommended for anxiety/stress relief and is said to have anxiolytic effects. Aromatherapy such as the use of lavender essential oil activates smell receptors in an individual's nose, which in turn send messages to the brain through the nervous system. Once in the brain, the oils might activate certain areas, especially the ones that play a role in an individual's emotional experience (Perry et al., 2012). Also, they might trigger the release of serotonin which is a feel-good chemical (Perry et al., 2012).

In addition to stabilizing mood, lavender has also been shown to ease stress, depression, and anxiety, boosting the feeling of relaxation, and improving sleep. Hirokawa, Nishimoto, and Taniguchi (2012) conducted a single-blind randomized study on the effectiveness of lavender

aroma on the quality of sleep among Japanese students. They found out that exposure to lavender aroma at night-time relieves sleepiness at awakening.

In light of the ample evidence that lavender produces a positive effect in a number of different outcomes, our study will examine whether or not the scent of lavender will improve an individual's mood while experiencing a stress induced situation. In this study, we will randomly assign participants to watch an anxiety-inducing video while in the vicinity of a lavender-scented candle or an un-scented candle. We hypothesize that the participants who watch the anxiety inducing video while in proximity to a lavender-scented candle will have less or no signs of stress compared to those who watched the anxiety inducing video while in proximity to an unscented candle.

Methods

Participants

Twenty students from the university were randomly selected and the study took place outside the university's library. The participants were selected randomly as they walked out of the library. Both male and female students were included and the female participants were 11 and male participants 9. The age of the participants was between 19 and 24 years.

Design

The study design considered in this project is 'between-subjects' or 'between-groups'. In this design, different people test each condition, so that each person is only exposed to a single user interface. In our case, 10 participants watched the video with lavender scented candle and 10 others watched the video with unscented candle. The groups used were independent.

Materials

A set of 5 questions were used to gauge to gauge the severity of stress. The 5 questions were presented to the participants two times (before the experiment and after the experiment).

Procedure

After selecting the 20 participants, the experiment begun by asking 10 of them to watch a stressful anxiety induced video (https://www.youtube.com/watch?v=xv_79-p6SPM) with a scented lavender candle, and the remaining 10 were asked to watch the same video but this time the candle was unscented. Before watching the video, the participants' level of stress was measured using a set of 5 questions. After watching the video, the participants stress level was also measured using the 5 questions.

Results

Data was collected to see the change in stress in both scented and unscented candle. *SPSS* was used to process the data collected and calculate descriptive statistics using an Independent Samples T-Test.

Table 1 Comparison of the mean difference of stress among the intervention (lavender) and control (placebo) groups. Descriptive Statistics

Group Statistics					
	scent	N	Mean	Std. Deviation	Std. Error Mean
Change in stress levels	Scented	10	.6000	1.83787	.58119
	Unscente	10	1.1000	1.72884	.54671

	d				

Independent samples t-test was used to determine the mean and standard deviation in both intervention (lavender) group and control (placebo) group. The mean for the lavender group was 0.6 (M=0.6) with a corresponding standard deviation of 1.84 (SD=1.84). The mean for the placebo group was 1.1 (M=1.1) and a corresponding standard deviation of 1.73 (SD=1.73).

Table 2 Change of stress levels (calmness) using Levene's Test for Equality of Variances and t-test for Equality of Means.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Change in stress levels	Equal variances assumed	.002	.968	-.627	18	.539	-.50000	.79791	-2.17635	1.17635
	Equal			-	17.	.539	-	.7979	-	1.176

	variances not assumed			.627	933		.50000	1	2.176	80

Two-Tailed test with 18 degrees of freedom and 95% confidence interval gave a P-value of 0.539.

From the results, the 10 participants who were subjected to a scented candle had a change of *(M = 0.60, SD = 1.83)*. The other 10 participants subjected to a non-scented candle recorded a slight change of *(M = 1.1, 1.7)*. Based on the data we can conclude that our results are not significant. *t (18)=-.63, p=.539*. We can conclude that lavender had no significant effect on stress levels.

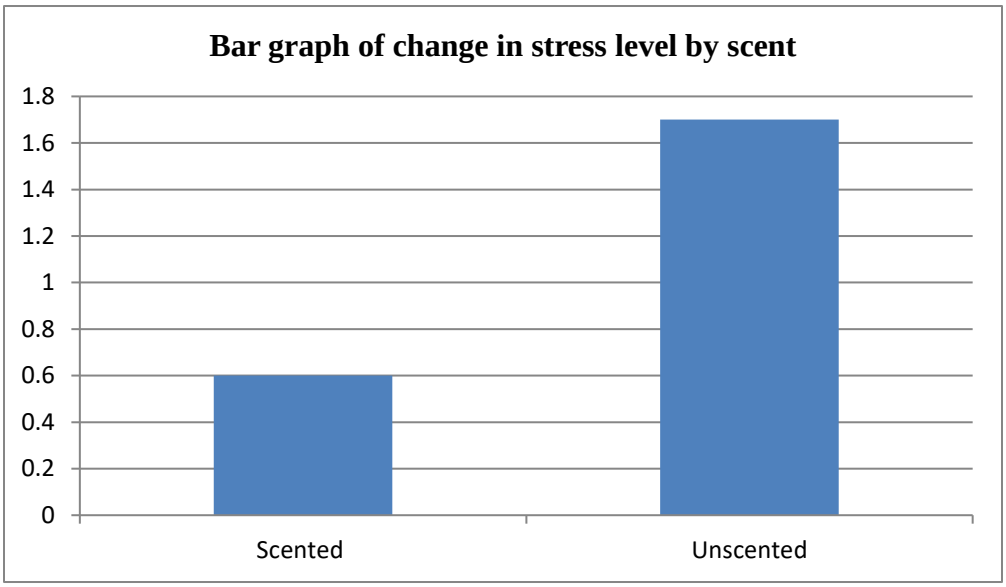

Figure 1: This graph shows the changes in stress when ten participants were subjected to a lavender scented candle and the remaining half subjected to unscented candle.

Discussion

Our results showed no significance between inhalation of lavender and reduction of anxiety in the lavender scented group. The results did not support our hypothesis that inhalation of lavender scented candle would reduce the level of anxiety, relative to a group that did not smell lavender.

Our hypothesis was derived from several past studies [Muzzarelli et al. 2006; Graham et al. 2003; Seifi et al. 2014] that found lavender to have a stress reducing effect. Therefore, our results are contrary to the widely researched and supported argument that lavender scent reduces stress.

One possible interpretation of our findings is that smelling a lavender scented candle does not actually have any stress reducing effects. While some researchers have found a significant stress-reducing effect of lavender, others have not. For example, there have been a series of studies that have been conducted aiming to decrease anxiety among patients using aromatherapy that have reported no significance. In accordance with our results, Seifi et al. (2014) conducted a double-blinded randomized controlled trial to determine the effect of lavender essential oil on anxiety level in patients undergoing coronary artery bypass graft surgery. The researchers concluded that lavender essential oil has no significant effect on anxiety in patients after coronary artery bypass surgery, with a p value of 0.64. Muzzarelli et al. (2006) showed that inhalation of aromatherapy using lavender essential oil had no significant effect on anxiety. Also, Graham et al. (2003) reported that inhalation aromatherapy had no effect on anxiety reduction in patients who underwent radiotherapy. Furthermore, in their findings, the level of anxiety in the lavender scented group was less than that of the unscented group. The results of the above studies can be linked to a number of factors. For instance, during the study, participants were not aware that they were smelling lavender. This means that they could not be influenced by the expectancy results.

Even though our results were not statistically significant, however, we did find that the mean change in stress levels was non-significantly lower in the lavender scented group compared to the unscented group. This difference was in the predicted direction. This supports another

possible interpretation of our results: perhaps there *really is* a stress-reducing effect of lavender, but our study was not able to detect it. There are number of reasons why our study could have missed the effect. First, the sample size (10 people per candle) could have been too large for the candle. Secondly, the lavender scent was not strong enough. To obtain accurate results in future, the sample size should be maintained at an appropriate number depending on the experiment at hand. The scent should be strong enough. Having one candle per person is likely to give better results.

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