

# Evaluation of Operating Efficiency of Dental Practitioner with Variation in Fragrances in the Dental Clinic.

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**Abstract:**

The ambience of the dental clinic plays an important role in the comfort level of a patient. Along with this, it is also imperative that the atmosphere of a dental clinic play an important role in enhancing the comfort level of the dentist. There are many fragrances of room fresheners available in the market to enhance the atmosphere of the dental clinic. In this study, floral fragrance and zesty fragrance are compared to determine the efficiency of the dental practitioner. Study on this aspect could bring about a drastic change in the field of dentistry.

This study focuses to determine the satisfactory fragrance convenient for clinical works pertaining to dental practitioners, as there very few studies conducted on the evaluation of the efficiency of dental practitioners.

**Keywords :** floral fragrance, zesty fragrance, dental practitioner, dental clinics.

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## INTRODUCTION

Fear of dentists and dentistry is a common and potentially distressing problem, both for the public and for dental practitioners[1]. Dental anxiety has been defined as an “abnormal fear or dread of visiting the dentist for preventive care or therapy and unwarranted anxiety over dental procedures” and can have physiological, cognitive and behavioural consequences.[2] The intensity of dental anxiety varies from nervousness to dental phobia.[3] Those patients with dental anxiety will have a sense of discomfort during the time for their appointments whereas dental phobia is an even more intense fear where they are either terrified or panicked [4]. It is considered to be the main barrier to successful completion of the treatment. Dental anxiety and phobia is caused due to many different reasons; two of the most significant ones are pain and embarrassment. [5]

Managing dental anxiety has been one of the most difficult tasks for dental practitioners.[6] There are many forms of management of anxious patients such as their treatment under conscious sedation or under general anaesthesia. Though these are some forms of management of anxious patients, it will not be feasible to treat most of the patients.[7]

A more reasonable and realistic approach is to improve the ambience of the dental office. The atmosphere of a dental clinic reflects its dentists’ attitude towards patients. A dental clinic’s atmosphere is important, because it can affect the experience of the patients which is directly related to the fear factor. It’s essential for any clinic to provide the most comfortable environment for the patients, to ease patient’s anxiety or stress towards dental procedures.

Comfortable furniture and soothing music are ideal for the clinic. Complicated furniture and loud music should be avoided, because these can make patients even more nervous. Some dental clinics also have reception areas that are equipped with TVs. It can be helpful at keeping people, especially children, entertained while waiting for their turn.[8]

Most importantly, the dental clinics should be as hygienic and clean as possible. The clinic’s reception area should be just as clean as the consultation and treatment areas.

The efficiency of dentists’ work also has a direct influence on the patients comfort and satisfaction. The dentists’ frame of mind also impacts the speed of treatment procedures completed. Though much of it depends on the skill of the practitioner, it has not been certain if the ambience of the dental office plays a role in enhancing the efficiency of the practitioner.

Fragrance of the environment also is a part of the ambience of the dental office as it enhances the mood of a clinical set up. It can be done with the use of commercial air fresheners or scented candles. Aromatherapy soothes and relaxes both the patient and the practitioner.

A number of studies have found an association between dental fear and both visiting patterns and disease experience. For example, Schuller et al. [9] found that individuals with high fear visited the dentist less often and had more decayed and more missing teeth. Similarly, Thom- son et al. [10] found associations between dental fear and less frequent dental visiting, increased visiting for a problem and increased social and functional impairment. Similar findings have been reported in other research [11,12].

There are many studies that have been performed to assess the dental anxiety in patients and various forms of management; whereas there have not been any study determining whether the ambience of the dental office influences the efficiency of the dentists work. Hence this study aims to determine whether improving the atmosphere of the dental office by means of fragrances (aroma therapy) has any positive effects on the efficiency of the dental practitioner.

## MATERIALS AND METHODS :

This study was conducted in one of the clinics in Saveetha Dental College, Chennai. The fragrance used in this study were Airwick- Lavender and Airwick- Citrus flavour. The room air fresheners were placed in such a

way that made sure that the fragrance spreads evenly. The dispensers used were automatic dispensers that the fragrance was released for every 10th, 32nd and 48th minute once it's switched on. In the first week, there were no fragrance used and it was taken as a control week. The parameter observed was the number of procedures done per day in that week. The lavender fragrance was used in the following week and the same parameter was evaluated. In the third week, no fragrance was used. This was to ensure an adequate wash out period prior to changing the fragrance of the room air freshener. In the fourth week, citrus fragrance was used. Around twenty dental operators were involved in the study working in that clinic. The data was obtained by giving the students a data sheet to fill out how many procedures were performed each day by each dental operator. This study was mainly focused on how many procedures were done in those four weeks. The study was conducted during working hours 8am – 3pm and the data was collected from the students at the end of each day for.

#### RESULTS:

A double blinded study was conducted in which the operator and patients were blinded. Lavender fragrance was set up followed by a wash out period in which no fragrance was set up and citrus fragrance was set up during the last week. The study was conducted among the patients attending the OP department of Clinic 2 of Saveetha dental college. The dispenser was switched on everyday half an hour before the patients and the operators arrived. Since it was an automated dispenser, the problem of controlling over the dispensers was avoided.

From *Table no.1* below we can see that the week with lavender fragrance the mean value of the procedures done was noted to be 4.30( $\pm$ 3.342) and the during the week with

citrus fragrance the mean value was noted to be 3.80 ( $\pm$ 5.197) and during the wash out week the mean value was noted to be 2.80( $\pm$ 1.908). From this we can see that procedures done during the week with lavender fragrance was high compared to the citrus and washout week.

#### One way ANOVA

One-way ANOVA is statistical technique specially designed to test whether the means of more than two quantitative populations are equal.

A one-way between subjects ANOVA was conducted to compare the procedure done for the patient between different fragrances; Lavender, citrus and control. From the *Table no.2* above we can observe that There is a no significant difference between the fragrance at the  $p < .05$  level in the procedure done for the patient. [ $F(2, 57) = 0.837$   $p = 0.438$ ].

So, these fragrances are not significant when viewed statistically but shows higher mean value. There are many studies which showed that lavender is significantly essential for the patients but there are very few studies that talk about dental operators.

#### DISCUSSION :

In the recent years, there has been an increased interest toward the essential oils, these are secondary metabolites produced by various medicinal plants and possess antibacterial, antifungal, and antioxidant properties.[13-15] The diffuser emits a fine mist of essential oil particles into the air along with negative ions, like the ocean. Diffusing essential oils increases the oxygen level in the air along with reducing bacteria, mold and fungus, these oils have antimicrobial and antiviral properties.[16]

**Table No.1**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Lavender	20	4.30	3.342	.747	2.74	5.86	0	12
Citrus	20	3.80	5.197	1.162	1.37	6.23	0	16
Control	20	2.80	1.908	.427	1.91	3.69	0	7
Total	60	3.63	3.723	.481	2.67	4.60	0	16

Comparing three fragrance with procedure done were more satisfied in lavender (Mean=4.30) and less satisfied in citrus and control (Mean 3.80 and 2.80).

**Table No.2 (ANOVA)**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	23.333	2	11.667	.837	.438
Within Groups	794.600	57	13.940		
Total	817.933	59			

A study was done using orange and lavender oils at the University Clinic of Neurology, Medical University of Vienna, Austria.[17] They tested the effects of inhaling essential oils while waiting for a dental procedure. The goal of the study was to examine the impact of the essential oils of orange and lavender on anxiety, mood, alertness and calmness in dental patients. This study revealed that the ambient odours of orange and lavender reduced anxiety and improved mood in patients waiting for dental treatment.

A number of studies have been conducted on the effects of fragrances on the fear and anxiety levels of the patients who undergo dental treatments or the patients awaiting for a dental treatment in the dental office,[18] but there are very few studies done on how fragrances affect the dental operator's efficacy. This study was focused on how efficiently the dental operators were able to do the dental procedures on patients.

A number of factors could've have influenced the result of this study such as the experience of the dental operator and the number of patients visiting the dental office. The dental operators experience can be directly associated with the number of patients treated or procedures performed per day. To avoid any such influences, the dental operators involved in this study were all the final year students of the dental school having gained equal hours of clinical training.

The number of patients walking in to the dental office could've also influenced the results of the study. This was avoided by ensuring sequential distribution of the new walk-in patients to each of the dental operator irrespective of their chief complaints. The timing of the dental unit was also kept same everyday that is from 8am - 3pm.

The total number of procedures performed in a day could've have been influenced by the complexity of any dental procedure that could've taken more time compared to the other regular procedures. This could've reduced the total procedure count performed for the given day. In this study, the walk in patients were sequentially allotted to the 20 dental operators thereby minimising the chances of a single dental operator getting to treat more number of time taking complex procedures.

The mechanism of action of essential oils is unknown in inducing emotional changes.[19] For example, Lavender has been documented to act post synoptically, and it modulates the activity of cyclic adenosine monophosphate (cAMP).[20] A reduction in cAMP activity is associated with sedation. Linalool, one of the main ingredients of essential Lavender oil, lowered physiological arousal level by means of autonomic deactivation without affecting mood ratings.[21] Neuroimaging studies have shown that olfactory processing is directly linked to the limbic system including the amygdale and that emotional changes are induced by means of olfactory stimulation.[22]

#### CONCLUSION :

The results of this study show that, the lavender fragrance has increased the efficiency of the dental operators than the citrus fragrance and during the control week. This provides evidence favouring the use of Lavender fragrance in dental clinics. Further future studies

should be conducted in a large scale on how fragrances affect the dental operators efficiency as there are studies done how it affects the patients but not about the dental practitioners.

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