

# The Impact of Aromatherapy in Psychiatry – An Investigation on Natural Neroli Oil as Depressant Towards Senior Citizen

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## Abstract

*An investigation has been made on evaluating the effectiveness of aromatherapy on depression among senior citizens residing in selected old age homes. Pre experimental one group pre-test and post-test design were used for this study. The data collections were carried out over a period of 30 days. About 40 senior citizen subjects were selected through the convenience sampling technique. In the pre-test, the Geriatric depression scale was used for assessing the level of depression among senior citizens. Aromatherapy was given by means of applying 5 drops of Neroli oil with 10ml of coconut oil at the forehead of all the subjects once a day for 15 days. After completion of the intervention, the posttest has been conducted among subjects. Descriptive and inferential statistics were used to analyze the findings of the study. It has been observed that a significant difference ( $P<0.01$ ) in the mean score level of depression among senior citizens exist. The mean score was pretest 19.7 [ $\pm 4.22$ ] and post test 15.95 [ $\pm 4.74$ ]. There was a significant association ( $P<0.05$ ) was found between the depression score and selected demographic variables like gender, education, previous occupation, chronic health problems, marital status, support system. Henceforth, it has been claimed that aromatherapy helps to reduce the level of depression among senior citizens.*

## Keywords

*Depression, Aromatherapy, Neroli oil, Geriatric depression scale.*

## 1. Introduction

Depression is a common psychiatric disorder. The general symptoms of depression can be feelings of sadness, loneliness, irritability, worthlessness, hopelessness, agitation and guilt that may be accompanied with other physical indications. On average, about 12% of patients have major depression. The degrees of suffering and disability associated with depression are the most important parameters that determine the chronic medical conditions. Earlier identification and proper treatment can significantly decrease negative impact of depression in most of the patients. The modern-day approach on stress treatment

drastically changes based on impacts and consequences. Generally, allopathic treatment includes pharmacological therapeutic strategies. However, the psychotherapeutic modalities include other high impact methods like music therapy, re-motivational therapy, recreational therapy and aromatherapy.

Aromatherapy is effective in dealing with stress, depression and its related disorders. Depression is an umbrella term that encompassing a spectrum of problems and symptoms, which could lead to illness that is more serious. Though aromatherapy cannot fix the root of the problem, it has an uplifting effect on the mind and emotions [4]. Aromatherapy brings therapeutic benefits from aroma of essential oils that are extracted from a range of natural sources like lemon, orange, rose, jasmine and other natural fragrance which are widely used around the world to help people to overcome a number of ailments like headache, body pain, stress, depression, and many encounter in their daily lives [5]. This kind of aroma-based oils in psychiatric therapy simply brings fruitful effects on physical, mental, emotional and psychological soundness upon elders. In addition, aromatherapy can help one in a gentle way to reduce stress, to improve alertness and to attain relaxation, even to get deep sleep. Especially, the fragrance of neroli oil, which is derived from the flower of bitter oranges, can act as a stress reducing and mood-stabilizing agent. It assists in retrieving and releasing the repressed emotions that comes from nervous and emotional exhaustion to get escape from emotional pain and sufferings [6]. Hence, the present work will be focused on the investigation of the impact of aromatherapy on depression psychiatry by employing the flavor of neroli essential oil as a natural fragrance. The senior citizen subjects were selected from an old age home, which is located in Coimbatore at Tamil Nadu, India.

## 2. Physio-Chemical properties, medicinal values and uses of neroli oil

Neroli is an essential oil, which can be extracted from the fragrant flowers of the bitter, sour or Seville orange tree, also known as *Citrus aurantium bigaradia*. This essential oil is derived by the steam distillation of flowers from the Seville or bigarade orange. Initially the fresh essence is yellowish in colour but turns to reddish-brown if it is exposed to light and air, which makes it unsuitable for the use in therapy. The fragrance is delightful, very sweet and orangey, with a bitter undertone. All the by-products of distillation could be used in pharmaceutical preparation of other products. Neroli is an essential oil contains following chemical constituents such as acetic esters, dipentene,  $\alpha$ -terpineol,  $\beta$ -ocimene, farnesol, geraniol, indol, jasmone, l-camphene, (X- and B-pinene, nerol, and nerolidol, plus traces of benzoic acid and a few hydrocarbons [7]. Several selected physico-chemical properties of neroli oil are listed here in Table 1.

**Table 1.** Physico-chemical properties of neroli oil

| Properties               | Specifications                               |
|--------------------------|--|
| Appearance               | Yellow liquid.                               |
| Odour                    | Characteristic exotic citrus-y floral odour. |
| Specific Gravity at 25°C | 0.875 -0.880 (0.877)                         |
| Optical Rotation         | +2.5-11.5° (+3.40)                           |
| Refractive Index at 25°C | 1.4730-1.4780 (1.4750)                       |
| Solubility               | 1:9 in 50% Ethyl Alcohol                     |
| Flash Point              | 49°C   |
| Storage                  | Stored in cool dry place                     |

The application aspects of neroli oil are divergent in scenario. It could be used to cure the mental illness, external physical beautification and making of cookery items. In addition to that, it is used in treating cramps, spasmodic coughs, neuralgia, diarrhea, kidney and urinary tract infections, cold, headache, hysteria, dermatological issues and also even in ayurveda based aromatherapy [5].

The properties of neroli oil are many such as soporific, antispasmodic, tranquillizing, antitoxic, and mild hypnotic. It has been one of the favorite essential oils for the physician and aroma therapist, because of its wonderful perfume, and its therapeutic properties, particularly those which treat the nervous system of the subject. Anxiety and nervous depression can be vanished virtually and instantaneously by the use of a little amount of neroli oil. It is recommended to add 3 drops of the oil with 10 to 15 ml soya or almond oil. Once it is applied gently with clockwise massage on to the solar plexus, nape of the neck and temples, breathe deeply and relax for 10 minutes can result in decrease in depression. There is a great feeling of peace, and the nervous tension drastically become lower. This calming and relaxing effect can be valuable during the period of pregnancy of a woman. Even it can be added in the labour bed water bath during labour time of a woman, which can reduce the anxiety, and muscular stiffness leads to less strain at that time. The new baby could safely be bathed in water containing 4 drops of the oil. However, physician's direction is always recommended for the utilization of oil with relevant to the situations.

For insomniacs, the neroli oil can give a mild hypnotic effect, which can induce sleep, and act as better natural tranquillizer. The insomniac subject can add few drops of this oil into a warm bath just before going to bed, which could give good results. It is suggested to make a tisane from the dried orange blossom known as bigaradier to drink before the sleep, which can induce the deep sleep and this pinch of drink can stimulate the digestion. Even a simple small-scale orange tree in a pot near to bed can bring slight hypnotic effect.

The role of neroli oil in the enhancement of external physical beautification is appreciated. In early eighteenth century, the Hungary water, bergamot oil and neroli oil altogether have been used as first *eau de cologne*. Neroli can be useful in acne conditioning. When equal quantities of neroli, lavender and clove oil mixed, the resulted mixture can act as a skin conditioner. About 3 drops of this mixture could be added to a kettleful of hand hot water in a bowl, then cover the head with a towel and lean over the bowl so that the aromatic vapors can reach the skin consequently gives health and good skin tone. Even Orange-flower water can improve skin tone.

The role of neroli oil is important in the manufacture of edible cookeries. Bitter oranges are the ones that should be used in cookery since it is healthy, nutritious and natural. Sevilles are the oranges for marmalade making, and their juice and peel is used in Sauce Bigarade. This is a classic French haute cuisine that accompanied with duck. The peel of bitter oranges are particularly aromatic in nature, so it is used in making candied, syrups and even dried products; the dried form is included in bouquet garnis in France to make beef and veal stews, and some other fish dishes. Peel and oil from bitter oranges are used in the making of orange liqueurs such as Curacao, Grand Marnier and Cointreau. Henceforth, the role of neroli oil, which has been derived from orange peel, has versatile application in food, and aromatherapy [8].

### 3. Objectives and Hypothesis

The present work includes the following objectives such as, to assess the level of depression among senior citizens before and after aromatherapy, to evaluate the effectiveness of aromatherapy on level of depression among senior citizens, and to associate the post-test level of depression among senior citizens with their selected demographic variables.

The hypothesis can be given by,

- H<sub>1</sub>:** There will be a significant difference in the level of depression among senior citizens before and after aromatherapy at  $p < 0.05$  level of significance.
- H<sub>0</sub>:** There will be a significant association between the post test scores of level of depression among senior citizens and their selected demographic variables at  $p < 0.05$  level of significance.

## 4. Operational definitions, Assumptions, Delimitations

### 4.1. Operational definitions

The amalgamation of several terms can simplify the interpretation and improves the comprehension level on the course of research. Those terms are namely, effectiveness, aromatherapy, depression and senior citizens (elders). Their respective descriptions are given as follows,

**Effectiveness:** It refers to statistically significant change in the level of depression among senior citizens after aromatherapy.

**Aromatherapy:** In this study, it refers to the application of neroli oil 5 drops with 10ml of coconut oil at the fore head of the senior citizens, once in a day for about 15 days. It has been done after the introductory preparation of the state of subjects [9].

**Depression:** It refers to the mood change in which senior citizens are sad, worried, loss of interest in life, feels helpless, hopeless and worthless as measured by geriatric depression scale.

**Senior citizens:** People at the age group of 65 and above, both male and female who are residing in selected old age home.

### 4.2. Assumptions

There are several assumptions and psychiatric intuitions have been considered before conducting the investigation. Those are listed as follows,

- ✓ Level of depression may differ in between male and female.
- ✓ Majority of the senior citizens staying at old age home may have different level of depression.
- ✓ Aromatherapy may bring change in the level of depression among oldage people.

### 4.3. Delimitation

The boundary of the examination has been fixed in terms of the nature of sample, nature of location of the sample and sample size. The study is limited to the senior citizens who are staying in the specified old age home. This investigation is limited to the age group of 65 years and above. The sample size consists of 40 senior citizens residing in that specified location.

## 5. Conceptual Frame Work

Conceptual framework is based on interrelated concepts that are assembled together in the same rational scheme by virtue of their relevance to a common theme. The development of conceptual framework is a fundamental process required before conducting actual research, because it guides each stage of the process.

The conceptual framework selected for this study was based on “Kings Theory of Goal Attainment Model” proposed by Imogene King [10] the flowchart of the model has been shown in Figure. 1. The concepts of theory are perception, judgment, action and reaction, interaction and transaction. Perception refers to each person’s representation of reality. Perceptions are related to experiences, concept of self, socio- economic group and educational background. In this study, the investigator perceives the senior citizens age, gender, religion, type of family, education, previous occupation, marital status, chronic health problems, leisure time activity, duration of stay in old age home, number of children and support system.

Judgment or decision-making is a dynamic and systematic process by which goal directed choice of perceived attention, which is made and acted upon by individuals or groups to answer a question and to attain a goal. In the present picture, the investigator applies Geriatric Depression Scale to assess the level of depression among senior citizens. Reaction meant to be the outcome of the action and is classified as mild, moderate and severe depression.

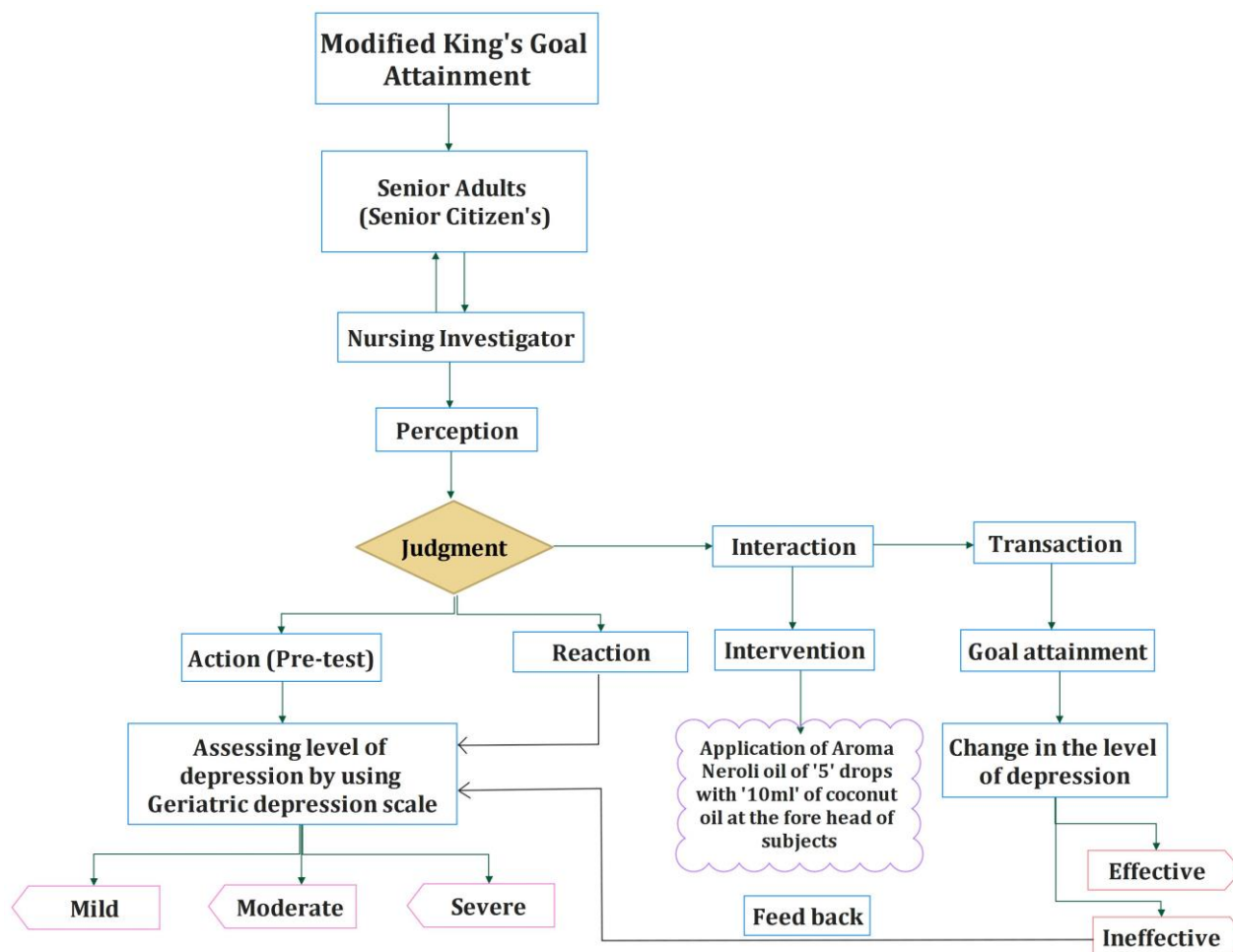


Figure 1. Conceptual framework based on modified King's goal attainment.

Interaction or implementation is a process of perception and is communicated between person and environment and between person and person represented by verbal and non-verbal behaviors that are goal directed. Initial preparation of subjects took about 7 days and aromatherapy has been given for about 15 days. Finally, the results were observed, inferred and interpreted by 8 days. After the initial preparation, the investigator provided interventional aroma therapy by applying 5 drops of neroli oil and 10 ml of coconut oil at the forehead of the senior citizens from 7am to 10 am for about 15 days. After the application of neroli oil subjects have been observed on daily basis, when the aroma oil fragrance smelled by patient, whose depression can slightly feel better mind with fresh feel. When it was continued for 15 days, patient becomes happy, their level of depression decreased. The total course includes the investigation and evaluation of the level of depression among senior citizens after aromatherapy by using Geriatric Depression Scale.

### 5.1. Mechanisms and side effects

It is precious oil, because it takes a veritable boatload of these petals to make just tiny vial of the essence. (Literally, 100 pounds of blossoms will generate just one pound of the required oil.)The key word of neroli itself indicates confidence. When neroli

oil is smelled, it creates or transports olfactory ecstasy by stimulating olfactory nerve, that will leads to reduce the depression. Neroli oil not only smells exquisite, but it can also relax and calm the nervous system [11].

As per literature survey, no side effects have been reported until now, if it is properly used under the directions of physician. Neroli oil is non-toxic, non-sensitizing, non-irritant and non-phototoxic yet it must be used sparingly when a sharp clear head is needed, as it can be very relaxing.

## 6. Research Methodology

### 6.1 Research approach and design

An evaluative approach has been employed in this study. Pre experimental one group pre-test and post-test design was used. The incorporated parameters can be  $O_1$ , X and  $O_2$  and their respective representations can be as follows,  $O_1$ -Pre assessment on the level of depression among senior citizens. X - Aroma therapy.  $O_2$  - Post assessment on the level of depression among Senior citizens. The schematic representation of research methodology has been given in Figure. 2.

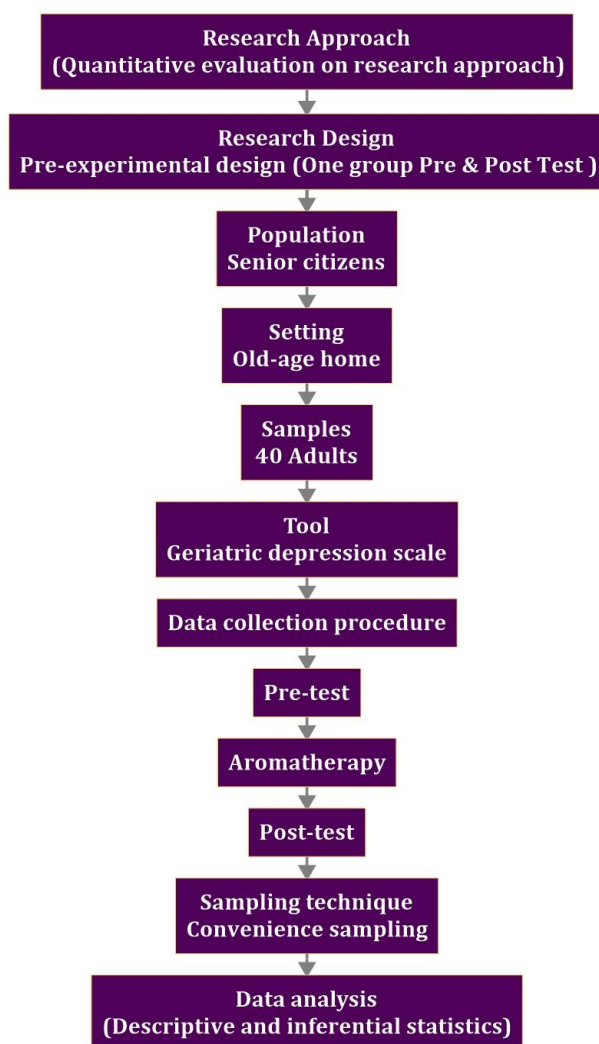


Figure 2. Schematic representation of research methodology

## 6.2 Variables and samples setting

There are two different variables are accounted in the present context namely dependent and independent variables. The independent variable includes aromatherapy whereas depression represents dependent variable. The study was conducted in Ram Aravindhar old age home, Vadavelli, Coimbatore. The global positioning system (GPS) coordinates of the sample location can be 11.0168 of latitude and 76.9558 of longitude. The old age home consists of 55 elderly people. All the samples have been provided with basic facilities like water, food, sanitation, electricity and leisure time enjoyment like watching T.V, reading books, chatting with friends and so on. They can meet visitors at daytime. Convenience sampling technique was used for this study.

## 6.3. Criteria for selection of samples

The inclusion and exclusion criteria of sample selection procedure consist of following norms.

### Inclusion criteria:

1. Senior citizens who are at the age of 65 years and above.
2. Senior citizens who speak either Tamil or English.
3. Senior citizens who have depression.
4. Both genders.

### Exclusion criteria:

1. Senior citizens with sensory deficits especially Anosmia.
2. Senior citizens who have mental illness except depression.

## 6.4. Description of the Tool

### 6.4.1. Demographic profile

A structured interview schedule was used to assess the demographic profile age, gender, religion, type of family, education, previous occupation, marital status, chronic health problems, leisure time activity, duration of stay in old age home, number of children and support system of senior citizens with depression.

### 6.4.2. Geriatric depression scale

Geriatric depression scale was used to measure depression among senior citizens. Brink et al., developed the Geriatric depression scale [12]. It is a 30 item questioner, which is useful to measure senior citizens depression level. Each item of the geriatric depression scale was answered either 'yes' or 'no'. There were 20 items which indicated depression when answered 'yes' will be given one score and 10 items which indicated depression when answered 'no' will be given another score. The tool was developed in English, translated into Tamil, and once again translated into English. The total 30 score was interpreted as shown in Table2.

**Table 2.** Geriatric Depression Scale with score ratings.

| S. No | Rating | Inference           |
|-------|--------|---------------------|
| 01.   | 0-9    | No depression       |
| 02.   | 10-16  | Mild depression     |
| 03.   | 17-23  | Moderate depression |
| 04.   | 24-30  | Severe depression   |

### 6.4.3. Validity reliability and pilot study

Suggestions from them were incorporated and finally the tool has been validated. To ensure the reliability of the tool, it has been administered for six senior citizens with depression. Reliability of the tool was established by using Test-retest method and the reliability has been found to be  $r = 0.93$  [13]. Hence, it was concluded that the tool was reliable. In order to find out feasibility and practicability, a pilot study was conducted at another place in Kallimanthayam, Dindugal, Tamil Nadu, India, for a period of 1 week among 6 senior citizens with depression. The GIS position of sample location can be 77.98029 of longitude and 10.36731 of latitude. The study was found to be feasible and successful.

### 6.5. Strategy on data collection and arrangement

The accumulation of data and their arrangement is crucial in the present study since, the whole work is based on questionnaires and answer. The statistical interpretations can be done only against the derived data from the subjects that are arranged sequentially and logically. Since it is closely associated with private information of the subjects, ethical issues are also considered.

#### 6.5.1. Ethical consideration

After getting the written permission from the authority of sample location, the purpose and nature of the study have been explained to each subject and obtained the oral consent. Subjects were also informed that after diagnosis of depression they can go for anti- depressant medication treatment from the psychiatrist. It was promised to them that the confidentiality and anonymity of the study was maintained throughout the study. The main study was conducted for about 30 days at the sample location. The data collection procedure and its manipulation technique have been discussed here under in their respective heads.

#### 6.5.2. Data collection procedure

After the brief introduction of the investigator to the senior citizens, a good rapport was developed with the subjects. Senior citizens were assessed for level of Depression by Geriatric depression scale. The initial observation indicated that all the 40 subjects were found to have depression and all of them were fulfilled the inclusion criteria. They were explained that data collected will be confidential. During the first week, assessment of level of depression among senior citizens has been carried out. After completion of aroma therapy on every day the progress has been carefully monitored and the level of depression among senior citizens was assessed by Geriatric depression scale.

#### 6.5.3. Technique of data analysis:

The descriptive statistical analysis was used for categorizing the data. An inferential statistics paired 't' test was used to determine the effectiveness of aroma therapy and Chi- square test was used to associate post- test level of depression among senior citizens with their selected demographic variables [14].

## 7. Analysis and interpretation

All the data were analyzed, interpreted and presented using the following sections namely 'A', 'B', and 'C'. These classified interpretations can help one to understand how the initial objectives have been achieved.

Section A:

The samples were distributed according to demographic variables.

Section B:



Distribution of samples according to the level of depression before and after aromatherapy.

Comparison of mean standard deviation and mean difference in the level of depression before and after aromatherapy.

Section C:

Interpreting the results based on association between the post-test level of depression and demographic variables.

Section-A has been explained against the collected data which was given in Table 3. The inference shows that the majority of subjects were between the age of 76-85 years, 70% of them were female, 82.5% of the subjects belongs to Hindu religion, 65% of subjects belongs to nuclear family, 55% of them were married, 52.5% of them were un employed, 50% of them having other chronic health problems, 80% of them watch television. Regarding duration of stay in old age home 80% were staying between 1-3 years in number of 55% of them were having two and more children and 97.5% of them were supported by the family.

**Table 3.** Distribution of samples according to their demographic Variables (n = 40).

| S. No                 | Demographic variables  | F    | %                | S. No                    | Demographic variables          | F    | %    |
|-----------------------|------------------------|------|------------------|--------------------------|--------------------------------|------|------|
| 1                     | <b>Age(Years)</b>      |      |                  | 7                        | <b>Previous occupation</b>     |      |      |
|                       | a. 65-75 years         | 16   | 40               |                          | a. Unemployed                  | 21   | 52.5 |
|                       | b. 76-85 years         | 17   | 42.5             |                          | b. Daily wages                 | 13   | 32.5 |
| c. 86 above           | 7                      | 17.5 | c. Professional  |                          | 3                              | 7.5  |      |
| 2                     | <b>Gender</b>          |      |                  | d. Business man          | 3                              | 7.5  |      |
|                       | a. Male                | 12   | 30               | 8                        | <b>Chronic health problems</b> |      |      |
| b. Female             | 28                     | 70   | a. Hyper tension |                          | 5                              | 12.5 |      |
| 3                     | <b>Religion</b>        |      |                  |                          | b. Skin                        | 1    | 2.5  |
|                       | a. Hindu               | 33   | 82.5             |                          | c. Diabetes                    | 3    | 7.5  |
|                       | b. Muslim              | 4    | 10               |                          | d. Any other                   | 20   | 50   |
|                       | c. Christian           | 3    | 7.5              | e. No problem            | 11                             | 27.5 |      |
| 4                     | <b>Type of family</b>  |      |                  | 9                        | <b>Leisure time activity</b>   |      |      |
|                       | a. Nuclear             | 26   | 65               |                          | a. Reading                     | 4    | 10   |
|                       | b. Joint               | 14   | 35               |                          | b. Watching T.V                | 32   | 80   |
| 5                     | <b>Marital status</b>  |      |                  |                          | c. Chatting with friends       | 4    | 10   |
|                       | a. Single              | 09   | 22.5             | d. Any other             | 0                              | 0    |      |
|                       | b. Married             | 22   | 55               | 10                       | <b>Stay in old age home</b>    |      |      |
|                       | c. Unmarried           | 3    | 7.5              |                          | a. Below 1 year                | 3    | 7.5  |
|                       | d. Widow               | 6    | 15               |                          | b. 1-3 years                   | 32   | 80   |
| e. Divorced           | 0                      | 0    | c. 4-5 years     |                          | 0                              | 0    |      |
| 6                     | <b>Education</b>       |      |                  | d. Above 5 years         | 5                              | 12.5 |      |
|                       | a. No formal education | 19   | 47.5             | 11                       | <b>Number of children</b>      |      |      |
|                       | b. Primary             | 07   | 17.5             |                          | a. No children                 | 4    | 10   |
|                       | c. Secondary           | 10   | 25               |                          | b. One                         | 14   | 35   |
|                       | d. Higher secondary    | 4    | 10               | c. Two and above         | 22                             | 55   |      |
| e. Graduate and above | 0                      | 0    | 12               | <b>Support system</b>    |                                |      |      |
|                       |                        |      |                  | a. Family                | 39                             | 97.5 |      |
|                       |                        |      |                  | b. Friends               | 0                              | 0    |      |
|                       |                        |      |                  | c. Health care personnel | 0                              | 0    |      |
|                       |                        |      | d. No one        | 1                        | 2.5                            |      |      |

The distribution of samples according to the level of depression both before and after aromatherapy has been discussed under section-B as a first context. It is clear from figure.3 that, the majority of subjects 15 (37.5%) have moderate depression, 15 (37.5%) have mild depression and 10 (25%) had severe depression. Where as in the post-test, majority of the subjects 21(52.5%) had mild depression, 13 (32.5%) had moderate depression, 2(5%) had severe depression and 4 (10%) of them had no depression. About 20% subjects have been cured from severe depression after the aromatherapy. This indicates that there was a marked difference between the pre-test scores and post-test scores in the level of depression.

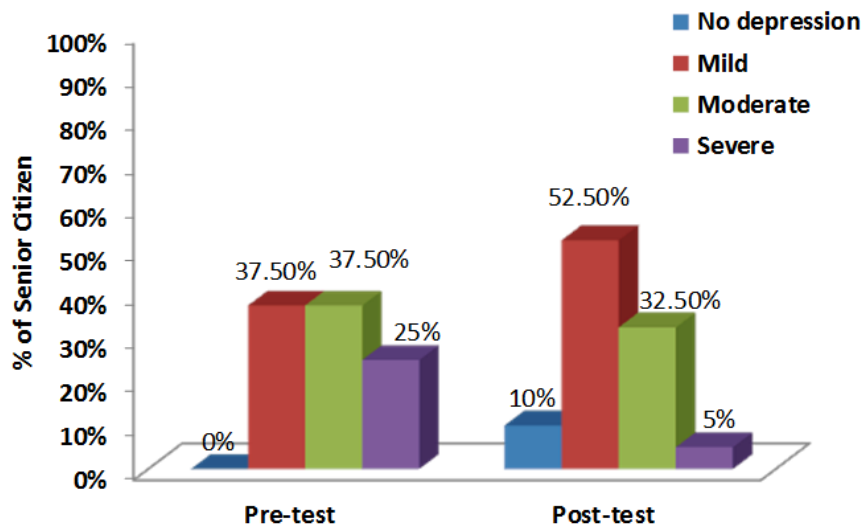


Figure 3. The distribution of samples according to the level of depression before and after aromatherapy.

The second context of section-B applies statistical methods to interpret the data. It includes the comparison of mean standard deviation and mean difference in the level of depression before and after aromatherapy. The calculated statistical parameters were tabulated in Table 4. It is observed that the mean post-test depression score (15.95 ±4.74) of the subjects was decreased than the mean pretest depressive score (19.7±4.22). The calculated ‘t’ value 21.4 is greater than the table value (2.38) at 0.01 level of significance. Findings from tabulation, suggests that there was an association between depression and demographic variables like gender, marital status, education, previous occupation, chronic health problems and support system. The influence of demographic variables on depression has been illustrated in section-C. The results were summarized in Table 5. This result were supported by World health report and national crime records states that life time risk of developing depression is 10-20% higher in females compared to males.

Table 4. The statistics on pre and post - test result of effectiveness in depression among senior citizens.

| S. No | Variable   | Maximum Score | Pre Test |      | Post Test |      | Mean Difference | ‘t’ Value | df |
|-------|------------|---------------|----------|------|-----------|------|-----------------|-----------|----|
|       |            |               | Mean     | SD   | Mean      | SD   |                 |           |    |
| 1     | Depression | 30            | 19.7     | 4.22 | 15.95     | 4.74 | 3.75            | 21.4*     | 39 |

\* P(<0.01) level of significance

Table 5. Association between Post-test level of depression and demographic variables.

| S. No    | Demographic variables | Level of depression |   |      |      |          |      |        |     | χ <sup>2</sup> |
|----------|-----------------------|---------------------|---|------|------|----------|------|--------|-----|----------------|
|          |                       | No depression       |   | Mild |      | Moderate |      | Severe |     |                |
|          |                       | f                   | % | f    | %    | f        | %    | f      | %   |                |
| 1        | Age(in years)         |                     |   |      |      |          |      |        |     |                |
|          | 65-75 years           | 2                   | 5 | 9    | 22.5 | 5        | 12.5 | 0      | 0   | 10.49          |
|          | 76-85 years           | 2                   | 5 | 8    | 20   | 6        | 15   | 1      | 2.5 |                |
| 86 above | 4                     | 10                  | 4 | 10   | 2    | 5        | 1    | 2.5    |     |                |
| 2        | Gender                |                     |   |      |      |          |      |        |     |                |

|          |                            |   |     |    |      |    |      |   |   |        |
|----------|----------------------------|---|-----|----|------|----|------|---|---|--------|
|          | Male                       | 1 | 2.5 | 3  | 7.5  | 6  | 15   | 2 | 5 | 8.6*   |
|          | Female                     | 3 | 7.5 | 18 | 4.5  | 7  | 17.5 | 0 | 0 |        |
| <b>3</b> | <b>Religion</b>            |   |     |    |      |    |      |   |   |        |
|          | Hindu                      | 3 | 7.5 | 17 | 42.5 | 11 | 27.5 | 2 | 5 |        |
|          | Muslim                     | 0 | 0   | 2  | 5    | 2  | 5    | 0 | 0 | 20.3   |
|          | Christian                  | 1 | 2.5 | 2  | 5    | 0  | 0    | 0 | 0 |        |
| <b>4</b> | <b>Type of family</b>      |   |     |    |      |    |      |   |   |        |
|          | Nuclear                    | 3 | 7.5 | 13 | 32.5 | 8  | 20   | 2 | 5 | 1.4    |
|          | Joint                      | 1 | 2.5 | 8  | 20   | 5  | 12.5 | 0 | 0 |        |
| <b>5</b> | <b>Marital status</b>      |   |     |    |      |    |      |   |   |        |
|          | Single                     | 3 | 7.5 | 15 | 37.5 | 4  | 10   | 0 | 0 |        |
|          | Married                    | 0 | 0   | 3  | 7.5  | 0  | 0    | 0 | 0 |        |
|          | Unmarried                  | 1 | 2.5 | 3  | 7.5  | 5  | 12.5 | 0 | 0 | 24.44* |
|          | Widow                      | 0 | 0   | 0  | 0    | 0  | 0    | 0 | 0 |        |
|          | Divorced                   | 0 | 0   | 0  | 0    | 4  | 10   | 2 | 5 |        |
| <b>6</b> | <b>Education</b>           |   |     |    |      |    |      |   |   |        |
|          | No formal education        | 0 | 0   | 8  | 20   | 9  | 22.5 | 2 | 5 |        |
|          | Primary                    | 0 | 0   | 5  | 12.5 | 2  | 5    | 0 | 0 |        |
|          | Secondary                  | 2 | 5   | 6  | 15   | 2  | 5    | 0 | 0 | 21.05* |
|          | Higher secondary           | 2 | 5   | 2  | 5    | 0  | 0    | 0 | 0 |        |
|          | Graduate and above         | 0 | 0   | 0  | 0    | 0  | 0    | 0 | 0 |        |
| <b>7</b> | <b>Previous occupation</b> |   |     |    |      |    |      |   |   |        |
|          | Unemployed                 | 2 | 5   | 12 | 30   | 7  | 17.5 | 0 | 0 |        |
|          | Daily wages                | 1 | 2.5 | 6  | 15   | 4  | 10   | 2 | 5 | 23.97* |
|          | Professional               | 0 | 0   | 2  | 5    | 1  | 2.5  | 0 | 0 |        |
|          | Business man               | 1 | 2.5 | 1  | 2.5  | 1  | 2.5  | 0 | 0 |        |

Continue...

## 8. Conclusion

The conclusion always includes the practical possible ways to implement the research findings. It is crucial in this aromatherapy investigation. The following measures are recommended based on the inference from the previous clinical aroma psychiatric studies [14-19].

### 8.1. Nursing Practice

Aromatherapy can be used in hospitals to relieve pain, improve mood, promote sense of relaxation, and reduce blood pressure. Midwives can use diluted forms of aroma oil for pregnant woman to reduce anxiety and fear. Nursing colleges can teach aroma therapy to students to reduce the stress. Aromatherapy can be used in community people with depression and other problems, procedure can be taught to the family members.

### 8.2. Nursing Education

Aromatherapy can be included in nursing curriculum. Aromatherapy and other alternative therapies can be taught and practiced in different settings by the students.

Continue...

| S. No     | Demographic variables                   | Level of depression |     |      |      |          |      |        |     | $\chi^2$ |
|-----------|---|---------------------|-----|------|------|----------|------|--------|-----|----------|
|           |   | No depression       |     | Mild |      | Moderate |      | Severe |     |          |
|           |   | f                   | %   | f    | %    | f        | %    | f      | %   |          |
| <b>8</b>  | <b>Chronic health problems</b>          |                     |     |      |      |          |      |        |     |          |
|           | Hyper tension                           | 1                   | 2.5 | 0    | 0    | 4        | 10   | 0      | 0   | 55.17*   |
|           | Skin                                    | 0                   | 0   | 0    | 0    | 0        | 0    | 1      | 2.5 |          |
|           | Diabetes                                | 0                   | 0   | 0    | 0    | 2        | 5    | 1      | 2.5 |          |
|           | Any other                               | 2                   | 5   | 15   | 37.5 | 3        | 7.5  | 0      | 0   |          |
|           | No problem                              | 1                   | 2.5 | 6    | 15   | 4        | 10   | 0      | 0   |          |
| <b>9</b>  | <b>Leisure time activity</b>            |                     |     |      |      |          |      |        |     |          |
|           | Reading                                 | 0                   | 0   | 4    | 10   | 0        | 0    | 0      | 0   | 9.93     |
|           | Watching T.V                            | 4                   | 10  | 15   | 37.5 | 11       | 27.5 | 2      | 5   |          |
|           | Chatting with friends                   | 0                   | 0   | 2    | 5    | 2        | 5    | 0      | 0   |          |
|           | Any other                               | 0                   | 0   | 0    | 0    | 0        | 0    | 0      | 0   |          |
| <b>10</b> | <b>Duration of stay in old age home</b> |                     |     |      |      |          |      |        |     |          |
|           | Below 1 year                            | 0                   | 0   | 2    | 5    | 1        | 2.5  | 0      | 0   | 8.18     |
|           | 1-3 years                               | 4                   | 10  | 18   | 45   | 8        | 20   | 2      | 5   |          |
|           | 4-5 years                               | 0                   | 0   | 0    | 0    | 0        | 0    | 0      | 0   |          |
|           | Above 5 years                           | 0                   | 0   | 1    | 2.5  | 4        | 10   | 0      | 0   |          |
| <b>11</b> | <b>Number of children</b>               |                     |     |      |      |          |      |        |     |          |
|           | No children                             | 0                   | 0   | 1    | 2.5  | 2        | 5    | 1      | 2.5 | 6.82     |
|           | One                                     | 2                   | 5   | 8    | 20   | 3        | 7.5  | 1      | 2.5 |          |
|           | Two and above                           | 2                   | 5   | 12   | 30   | 8        | 20   | 0      | 0   |          |
| <b>12</b> | <b>Support system</b>                   |                     |     |      |      |          |      |        |     |          |
|           | Family                                  | 4                   | 10  | 21   | 52.5 | 13       | 32.5 | 1      | 2.5 | 29.07*   |
|           | Friends                                 | 0                   | 0   | 0    | 0    | 0        | 0    | 0      | 0   |          |
|           | Health care personnel                   | 0                   | 0   | 0    | 0    | 0        | 0    | 0      | 0   |          |
|           | No one                                  | 0                   | 0   | 0    | 0    | 0        | 0    | 1      | 2.5 |          |

\* P&lt;0.05 level of significance

### 8.3. Nursing Research

This study provides broad framework on which research can be done. Methodology and literature reviews provide guidelines for the researchers. Research regarding aromatherapy can be done with different health problems like pain, stress, and hypertension.

### 8.4. Nursing Administration

Nurse administrator can insist the staff to practice on aromatherapy. Administrator can have a follow up on the care provided through aromatherapy. Nurse administrator can provide or arrange the materials needed for the procedure. In continuing nursing education, administrator focus studies related to aromatherapy on depression among senior citizens. A similar study can be conducted on different settings. A comparative study can be carried out in community set up and old age homes further. These types of investigations can be done with other ailments like headache, blood pressure, pain to understand the impact of aromatherapy under different platforms and to correlate their effect outcomes.

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