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## RESEARCH ARTICLE

# EFFECT OF CHAMOMILE OIL ON STRESS, ANXIETY AND QUALITY OF SLEEP AMONG ELDERLY IN SELECTED OLD AGE HOME AT PUDUCHERRY

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Chamomile oil, Stress,  
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### ABSTRACT

**Background:** Ageing of population is increasing dramatically around the world. Ageing is a gradual process of growing old and it is a global phenomenon. Ageing of people is highly affected due to downward trends in mortality and fertility. Homes for the aged are ideal for elderly who are alone and they face many health problems and loneliness. Stress and anxiety because of functional dependency is common among elderly people and many would need assistance in their activities of daily living. In senior citizens stress can lead to relief activities such as excessive drinking, drug use, overeating which in turn leads to risk for heart problems. Anxiety is usually common in older adults, affecting 10-20% of the older population and it is often undiagnosed. For a number of reasons elderly people with anxiety disorders often go untreated. Due to stress and anxiety the elderly may not have a good quality of sleep. Therefore Chamomile oil aromatherapy is given to elderly at old age home to reduce the levels of stress and anxiety and improve the quality of sleep.

#### Objectives

- To assess the level of Stress, Anxiety and Quality of Sleep among Elderly in selected old age home
- To evaluate the effectiveness of Chamomile oil Stress, Anxiety and Quality of Sleep among Elderly
- To associate the level of Stress, Anxiety and Quality of Sleep with selected socio demographic variables

**Materials and methods:** Quasi-experimental research design with one group pre-test and post-test was adopted and 60 elderly people with moderate stress and anxiety and poor quality of sleep were selected by purposive sampling technique. The data was collected using Cohen Perceived Stress Scale, Hamilton Anxiety Rating Scale and Pittsburgh Sleep Quality Index and analyzed in terms of both descriptive and inferential statistics.

**Result and discussion:** The study result show that the pretest mean values of stress, anxiety and quality of sleep were 23.27, 18.95 and 10.35 and standard deviation were 2.69, 2.47 and 1.7 respectively. The post-test mean values of stress, anxiety and quality of sleep were 7.13, 8.22 and 5.55 and standard deviation were 4.99, 3.42 and 0.75 respectively. The obtained *p* value of stress, anxiety and quality of sleep is highly statistically significant at  $p < 0.0001$  indicating differences in pretest and post-test values.

**Conclusion:** Thus this study concludes that Chamomile oil is effective in reducing the stress and anxiety and also improving the quality of sleep among elderly living in old age home.

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## INTRODUCTION

A longer life will bring more opportunities with it, additional years in a person's life provide more chances for new activities and to pursue the long neglected passion.

Elderly people also give their part of contribution to their families and communities. Stress and anxiety because of functional dependency is common among elderly people and many would need assistance in their activities of daily living. An old age home is usually the place for those old people who have no one to look after them or those who have been thrown

out of their homes by their children; the place is like home where the elderly get all the facilities for a routine living like food, clothing and shelter. Daily requirements of shelter and food is the only solace is that they are getting and not the bonds of love from the family. In elderly people due to deteriorated function of suprachiasmatic nucleus there is a disruption in the circadian rhythm which directly influence the tired and alert feeling of elderly. Hormonal changes such as melatonin and cortisol play a major role in quality of sleep in elderly. Daytime nap, waking up in night, chronic illness, shifting sleep schedule serve as common reasons for poor quality of sleep in elderly.

## NEED FOR THE STUDY

In United States 6.2% of elderly population have anxiety and 9.2% have stress related disorders including poor quality of sleep. National Council on aging states that 3-14% of elderly meet the diagnostic criteria for stress and anxiety and 27% of elderly who receive care from aging service care provider have the symptoms of anxiety and it significantly impacts their functioning. The Established population for Epidemiologic Studies of the Elderly states that 43% of the elderly has difficulty in sleep onset. National Sleep Foundation projects that 40 – 70 % of elderly have chronic sleep problem. Agewell Foundation in India claims that 70.2% of elderly are suffering from sleepless nights, nightmares and insomnia due to poor quality of sleep. According to the study results 82.4% of older population are complaining of health anxiety due to rising COVID 19 cases. It also states that 50% of elderly have reached for psychological counselling services out of anxiety, stress, sense of loneliness, depression and poor sleep. A pre-experimental study conducted in old age home at Puducherry projects that 51.7% of elderly had mild stress and 46.7% had moderate stress. The study also revealed that 55% of elderly had mild anxiety and 6.7% had moderate anxiety. Article published in Times of India states that 21% of elderly aged 60 and above suffer from sleep problem in Puducherry.

## STATEMENT OF THE PROBLEM

Effect of Chamomile Oil on Stress, Anxiety and Quality of Sleep among Elderly in Selected Old Age Home at Puducherry.

## OBJECTIVES

- To assess the level of Stress, Anxiety and Quality of Sleep among Elderly in selected old age home
- To evaluate the effectiveness of Chamomile oil Stress, Anxiety and Quality of Sleep among Elderly
- To associate the level of Stress, Anxiety and Quality of Sleep with selected socio demographic variables

## Hypothesis

- H<sub>1</sub>- There will be a difference in the level of stress, anxiety and quality of sleep before and after the use of chamomile oil among elderly.
- H<sub>2</sub>- Association exists between the level of stress, anxiety and quality of sleep among elderly with selected socio demographic variables

## MATERIALS AND METHODS

**Research approach:** Quantitative research

**Research design:** This study design is quasi experimental study with one group pretest and posttest design.

Group 1	O <sub>1</sub>	X <sub>1</sub>	O <sub>2</sub>
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**Group 1** – Quasi experimental- one group pre-& post-assessment.

**O<sub>1</sub>**– pre-test assessment of stress, anxiety and quality of sleep among elderly

**X<sub>1</sub>** – administration of chamomile oil through inhalation

**O<sub>2</sub>** – post-test assessment of stress, anxiety and quality of sleep among elderly

## Independent variable

- Chamomile oil

## Dependent variables

- Stress, Anxiety and Quality of Sleep

**Setting of the study:** Setting is the physical location and condition in which data collection takes place in a study. The study was conducted at Selected old age home - Hospice Convent Home for the Aged, Puducherry.

**Population:** Population for this study consists of elderly aged 60 years and above.

**Sample:** Sample comprises of elderly people of age 60 and above residing at selected old age home - Hospice Convent Home for the Aged, at Puducherry fulfilling the inclusion criteria and are willing to participate in the study.

**Sampling technique:** Elderly were taken using Purposive sampling technique.

**Sample size:** The sample size for this study is 60. (Through universal sampling)

## CRITERIA FOR SAMPLE SELECTION

### Inclusion criteria

- Elderly of both sex who are 60 years and above.
- Elderly those who are willing to participate in the study.
- Elderly with moderate stress and anxiety.
- Elderly with poor sleep quality.

### Exclusion criteria

- Elderly those who have physical illness like respiratory distress and allergic problems.
- Elderly with known case of dementia, mental disorders, chronic pain.
- Elderly on antipsychotics and sedatives.
- Elderly those who are having severe stress and anxiety.

**Method of data collection:** The study was conducted from 12/04/2021 to 11/05/2021. The permission was obtained from concerned higher authority. The purpose of interview was

explained to the elderly with the help of information sheet. During the interview, the investigator explained the ethical issues related to the study to the patients. After explaining the procedure to the elderly, the investigator obtained an informed consent from each elderly regarding their willingness to participate in the study. A separate place was selected for interview and subjects were made comfortable and relaxed. The data collection was carried out in three phases.

**Phase 1:** Through interview method pre test level of Stress, Anxiety and Quality of Sleep was assessed using Cohen Perceived Stress Scale, Hamilton Anxiety Rating Scale, Pittsburgh sleep quality index. Socio demographic variables were also collected.

**Phase 2:** Chamomile oil was given through inhalation (deep breathing) to the elderly before bed time everyday for a duration of 10 minutes for 3 weeks.

**Phase 3:** Post test level of Stress, Anxiety and Quality of Sleep was assessed using Cohen Perceived Stress Scale, Hamilton Anxiety Rating Scale, Pittsburgh sleep quality index after 3 weeks of Chamomile oil inhalation through deep breathing.

**Data analysis**

Data obtained were analyzed in view of objectives of the study using descriptive and inferential statistics. The plan of data analysis were as follows, Frequency and percentage are used to assess the level of stress and anxiety and quality of sleep.

- Wilcoxon Signed Rank test to evaluate the effect of chamomile oil on stress, anxiety and quality of sleep among elderly.
- Mann-Whitney test to associate the level of stress and anxiety and quality of sleep with the selected demographic variables.

**RESULTS**

**Distribution of demographic variables of elderly with stress, anxiety and quality of sleep:** Amongst them 25(42%) of the elderly were of age 60-70 years, 22 (37%) of age 71-80 and 13 (22%) were of age 81-90 years, 35 (58%) were female and 25 (42%) were male, 31(52%) of the total were Christian, 26 (43%) were Hindu and 3 (5%) were Muslim, 24 (40%) of the elderly were illiterate, 16 (27%) have acquired Primary School education, 12 (20%) have completed High School and 8 (13%) were

Graduates. 48(80%) were married, 8 (13%) were unmarried and 4 (7%) had got divorced, 47(78%) are getting pension and for 13 (22%) the source of income is from their children, 48(80%) came voluntarily to the old age home, 9 (15%) were brought by their children and 3 (5%) were abandoned, 52 (87%) were following non vegetarian diet pattern and 8 (13%) are following vegetarian diet, 33 (55%) are staying for 0-5 years, 24 (40%) are staying for 6-10 years and 3 (5%) are staying for more than 10 years, 43 (72%) are not having any chronic physical illness and 17(28%) elderly are having chronic physical illness as shown in Table 1.

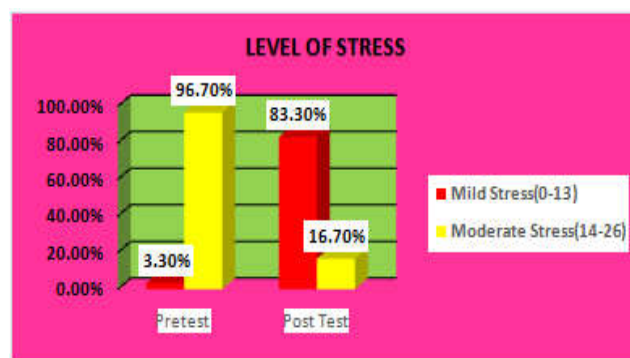


Figure 1. percentage distribution of pre-test and post-test stress among elderly

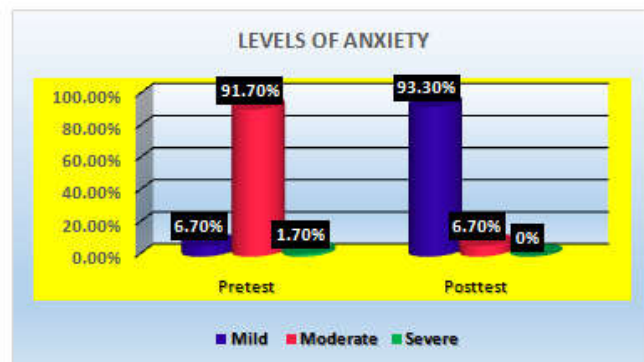


Figure 2. Percentage distribution of pre-test and post-test anxiety among elderly



Figure 3. Percentage distribution of pre-test and post-test quality of sleep among elderly

**Frequency and percentage distribution of pre-test and post-test level of stress, anxiety and quality of sleep among elderly:** Table 2 represents the frequency and percentage distribution of stress, anxiety and quality of sleep among elderly. During pretest 58 (96.7%) of elderly had moderate stress score and 2 (3.3%) had mild stress score. In post-test 50 (83.3%) of elderly had mild stress score and 10 (16.7%) had moderate stress score. In pretest 55 (91.7%) of elderly had moderate anxiety score, 4 (6.7%) had mild score and 1 (1.7%) had severe anxiety score. In post-test 56 (93.3%) of elderly had mild anxiety score and 4 (6.7%) had moderate anxiety score. In pretest 59 (98.3%) of elderly had poor quality of sleep and 1 (1.3%) had good quality of sleep. In post-test 33 (55.0%) of elderly had good quality of sleep and 27 (45.0%) of elderly had poor quality of sleep.

**Effectiveness of chamomile oil on level of stress, anxiety and quality of sleep among elderly:** During pretest mean values of stress, anxiety and quality of sleep calculated by Wilcoxon Signed rank test were 23.27, 18.95 and 10.35

**Table 1. Frequency distribution of demographic variables of elderly with stress, anxiety and quality of sleep**

(N=60)

S.No.	Demographic Variables		No. of Persons (n=60)	Percentage (%)
1	Age	60 - 70 years	25	42%
		71 - 80 years	22	37%
		81 - 90 years	13	22%
2	Gender	Male	25	42%
		Female	35	58%
		Others	0	0%
3	Religion	Hindu	26	43%
		Christian	31	52%
		Muslim	3	5%
4	Educational Status	Others	0	0%
		Illiterate	24	40%
		Primary school	16	27%
5	Marital Status	High school	12	20%
		Graduate	8	13%
		Married	48	80%
6	Source of Income	Unmarried	8	13%
		Divorced	4	7%
		Pension	47	78%
7	Mode of Admission	Children	13	22%
		Voluntary	48	80%
		Brought by children	9	15%
8	Diet	Abandoned	3	5%
		Vegetarian	8	13%
		Non Vegetarian	52	87%
9	Duration of stay at Oldage Home	0-5 years	33	55%
		6-10 years	24	40%
		More than 10 years	3	5%
10	Chronic physical Illness	Yes	17	28%
		No	43	72%

**Table 2. frequency and percentage distribution of stress, anxiety and quality of sleep among elderly**

	Pretest		Post Test	
	Frequency	Percentage	Frequency	Percentage
Level of stress				
Low Stress(0-13)	2	3.3%	50	83.3%
Moderate Stress(14-26)	58	96.7%	10	16.7%
Level of anxiety				
Mild Anxiety ( $\leq 17$ )	4	6.7%	56	93.3%
Moderate Anxiety (18-24)	55	91.7%	4	6.7%
Severe Anxiety (25-56)	1	1.7%	0	0%
Quality of sleep				
Good	1	1.7%	33	55.0%
Poor	59	98.3%	27	45.0%

**Table 3. Mean, standard deviation and p-value of stress, anxiety and quality of sleep**

	Median	Mean	Standard Deviation	Wilcoxon Signed Rank test	p-Value
<b>Stress</b>					
Pretest	24	23.27	2.69	6.724	0.0001*
Posttest	6	7.13	4.99		
<b>Anxiety</b>					
Pretest	19	18.95	2.47	6.746	0.0001*
Posttest	8	8.22	3.42		
<b>Quality of sleep</b>					
Pretest	11	10.35	1.7	6.76	0.0001*
Posttest	5	5.55	0.75		

respectively and standard deviation of stress, anxiety and quality of sleep were 2.69, 2.47 and 1.7 respectively. The post-test mean values of stress, anxiety and quality of sleep calculated by Wilcoxon Signed rank test were 7.13, 8.22 and 5.55 respectively and standard deviation of stress, anxiety and quality of sleep were 4.99, 3.42 and 0.75 respectively. The obtained *p* value of stress, anxiety and quality of sleep is highly statistically significant at  $p < 0.0001$  as shown in table 3. This data concludes that there was significant difference between mean scores of pre-test and post-test level of stress, anxiety and quality of sleep.

## DISCUSSION

**The main objective of this study is to evaluate the effectiveness of chamomile oil on level of stress, anxiety and quality of sleep among elderly:** During pretest mean values of stress, anxiety and quality of sleep calculated by Wilcoxon Signed rank test were 23.27, 18.95 and 10.35 respectively and standard deviation of stress, anxiety and quality of sleep were 2.69, 2.47 and 1.7 respectively. The post-test mean values of stress, anxiety and quality of sleep calculated by Wilcoxon Signed rank test were 7.13, 8.22 and 5.55 respectively and standard deviation of stress, anxiety and quality of sleep were 4.99, 3.42 and 0.75 respectively.

The obtained  $p$  value of stress, anxiety and quality of sleep is highly statistically significant at  $p < 0.0001$  as shown in table 2. This data concludes that there was significant difference between mean scores of pre-test and post-test level of stress, anxiety and quality of sleep. It was interfered that there is significant reduction of stress, anxiety and improvement in quality of sleep among elderly. Hence the stated research hypothesis  $H_1$  was accepted. Thus chamomile oil inhalation through deep breathing is highly effective in reducing stress, anxiety and improving the quality of sleep among elderly. One more objective of the study is to associate the level of stress, anxiety and quality of sleep with selected socio demographic variables. All the demographic variables are non significant with the  $P$  value  $< 0.05$ . No association was found between the levels of stress, anxiety and quality of sleep and the selected demographic variables. Hence the stated research hypothesis  $H_2$  was rejected.

## RECOMMENDATION

Based on the findings, the following recommendations have been made for further study:

- Similar kind of the study can be conducted among a larger population for better generalization.
- Comparative study can be done to assess the effectiveness of chamomile oil and lavender oil on stress, anxiety and quality of sleep for large number of samples.
- A descriptive study can be conducted to assess the knowledge, attitude and practice regarding aromatherapy among staff nurse as one of the method to reduce stress and anxiety and improve quality of sleep.
- Similar studies can be conducted with different target population.
- An explorative study can be conducted to assess the various contributing factors leading to stress, anxiety and poor quality of sleep among elderly.

## CONCLUSION

The above study suggested that chamomile oil was effective in reducing stress, anxiety and improving the quality of sleep among college students and the current study revealed that chamomile oil is highly effective in reducing stress, anxiety and improving the quality of sleep among elderly.

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**Conflict of Interest:** nil

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