



A Study To Assess The Effectiveness Of Foot Reflexology On Quality Of Sleep Among Elderly At Selected Old Age Home, Dehradun

Ms. Lufina

Nursing tutor (Medical Surgical Nursing) Narayan Swami College of Nursing, RBBSU Dehradun

B.Sc. Nursing (students)Narayan Swami College of Nursing, Ras Bihari Bose Subharti University, Dehradun Uttarakhand, India

Perna Kumari, Shrishti Rawat, Shivani Aswal, Pooja, Reeta Rawat, Kavita, Mohd Sahil

Abstract-Background: Aging is a biological process and experienced by mankind in all times. It refers to a sequence of changes across a life span of an individual. Sleep is a state of reduced mental and physical activity in which consciousness is altered and sensory activity is inhibited to certain extent. Reflexology is one of the emerging techniques to reduce the stress. It mainly focuses on application of pressure on the certain points at specific places like fingers, toes on foot etc. it promotes relaxation in the body. Methodology: Quantitative approach with a pre-experimental design was used by using PSQI Scale. Settings and Design: A pre- experimental design was adopted to fulfill the purpose of the study. The study was conducted at a selected Old Age Home in Dehradun. Results: Data was analyzed with both descriptive and inferential statistical methods. Paired 't' Test was used to analyses the effectiveness of intervention and Independent "t" test was Used to know the effectiveness of experimental group between pre-test and post-test. After giving foot reflexology, in experimental group there was an improvement in Quality of sleep among elderly people. The pre-test mean and standard deviation values are 7.13 and 1.682 respectively. The post-test mean and standard deviation values are 4.43 and 1.566 respectively; mean difference between pre-test and post-test is 2.7; Paired 't' test value of group is 9.297 and two-tailed 'p' value is less than 0.05 which is Highly significant at $p < 0.05$. Hence, it indicates that there is improvement in sleep Quality after giving foot reflexology among elderly people.

Conclusions: Based on the study findings foot reflexology among elderly provide the statistical Evidence which indicates that foot reflexology can improve the quality of sleep and reduce the sleep disturbance.

Key words: Quality of sleep, foot reflexology, Elderly people

I. Introduction

Age is just a number according to a saying. Indeed age is just a number; but as we age, our body weakens, and our strength deteriorates. Aging is a natural phenomenon with opportunities and challenges. Aging is a universal phenomenon, which is experienced by every human being across various cultures. **The Economic Times (2023)**

Problems of the ageing are mostly not due to age but largely due to psycho social environment, diminishing supports and changes in life situations. That is why most seniors easily get tired and are very susceptible to various kinds of ailments. Old age is usually discussed in connection with the different types of problems encountered by the aged and the welfare measures associated with providing them a better quality of sleep. **World Health Organization (2022)**

There are various problems due to physiological, psychological and psycho social decline in tissue and cell functions and significant increase in the risk of various aging related diseases, including neurodegenerative disease, cardiovascular disease, metabolic disease, musculoskeletal disease, and immune system disease. **GuoJ; Huang X; Dou L; Yan et.al (2022)**

As people age, they tend to have a harder time falling asleep and more trouble staying asleep. Older people spend more time in the lighter stages of sleep than in deep sleep. Prevalence of sleep disorders is higher among older adults. For older adults, prolonged stress can come from chronic illness, disability, or the loss of a spouse.

According to JCSM Journal of clinical sleep medicine “study of 6,800 older adults (age 65 years or older) observed an incidence rate for insomnia symptoms of 5% per year, with a yearly incidence of 7.97% at 1-year follow-up. Approximately 50% of the patients with symptoms of insomnia will have a remission during the follow-up period, with higher remission rates among older males relative to females.

Patel D,

Steinberg J, Patel P (2018)

As many as 50% of older adults complain about difficulty initiating or maintaining sleep. Prevalence of insomnia is higher in older individuals than in the younger population. The overall prevalence of insomnia symptoms ranges from 30% to 48% in the elderly, whereas the prevalence of insomnia disorder ranges from 12% to 20%. **Patel D, Steinberg J, Patel P (2018)**

Considering reflexology may be beneficial in helping you relax and reduce stress, it's no surprise that somesay it may help promote a more restful night's sleep.

“Because reflexology is moving energy and improving overall circulation, it's easy to have a restful night's sleep after a treatment,” explains Martinez. Other version of foot massage is called reflexology. Reflexology is non diagnostic therapy. Reflexology sessions are usually 30-60 minutes in length and practitioners work mainly on the soles of the feet using their thumb and forefinger to apply pressure. **Quinn, D. (2023)**

Reflexology improves the psychological well-being in the selected group of elderly. It helps to improve the physical aspects, and emotional aspects of the aged individual. Reflexology is one of the emerging techniques to reduce the stress. It mainly focuses on application of pressure on the certain points at specific places like fingers, toes, on foot, etc. It promotes relaxation in the body. Reflexology can promote better blood circulation. **Teagarden, karen**

The foot reflexology is based on the principle that the foot is like a chart of the body: divided into ten reflex zones, it is a mirror image of the body. Each reflex zone corresponds to a part of the body. Specific manipulation and pressure of reflex points reduces and eliminates blockages in the corresponding glands organs, and therefore restores a healthy balance. **Marlatt, (2011)**

Objectives

- To assess the pretest and post – test quality of sleep among elderly people
- To assess effectiveness of foot reflexology on the quality of sleep among elderly.
- To find out the association between pretest quality of sleep with their selected demographic and clinical variables among elderly.

Assumptions

- The therapeutic use of foot reflexology can improve sleep quality
- Elderly people might not fully understand the advantages of foot reflexology on quality of sleep
- Elderly people might not have previous knowledge regarding foot reflexology.

Hypothesis

H1- There will be an improvement in quality of sleep after foot reflexology.

H2- There will be significant association of pretest quality of sleep among elderly with their selected demographic and clinical variables.

II. RESEARCH METHODOLOGY

Part I- Demographic data and clinical variable- This part consists of Age, Gender, Marital status, Educational Level, Any comorbidity, Measures adopted to get good sleep, Previous knowledge regarding foot reflexology

Part II- This part consists of using PSQI Scale via Pen and Paper Personal Interview to evaluate the quality of sleep before and after the intervention

Data Collection Procedure- A quasi-experimental design was adopted to fulfill the purpose of the study. The study was conducted at a selected Old Age Home in Dehradun. A total of 60 participants were enrolled by convenient sampling technique aged above 60 and fulfilled the selection criteria. Data was collected with the help of the PSQI Scale via Pen and Paper Personal Interview to evaluate the quality of sleep followed by a foot reflexology for 20 days with a duration of 15–20 minutes once a day. A total score of 5 or less indicates good sleep quality

Ethical Consideration- Prior to the data collection the investigators had taken written permission from Principal, Narayan Swami College of Nursing, RBBSU, Dehradun. Written and verbal consent was taken from the participants. Before data collection and confidentiality was ensured under all circumstances.

III. ANALYSIS AND INTERPRETATION

The data interpretation was done and arranged in following section:

Section A- Description of the sample characteristics

Section B- Assessment of pretest and post-test quality of sleep among elderly in experiment group

Section C- Effectiveness of foot reflexology on quality of sleep among elderly people.

Section D- Find out the association between pretest effectiveness score on quality of sleep among elderly people with their selected demographic and clinical variables.

SECTION A

DESCRIPTION OF THE SELECTED BASELINE DATA OF THE STUDY

Table No. 1 Frequency and percentage distribution of elderly people demographic characteristics

| S. NO. | Socio-Demographic data | Frequency | Percentage(%) |
|--------|---|-----------|---------------|
| 1. | Age (in years) | | |
| | a) 60-70 | 6 | 10% |
| | b) 71-80 | 35 | 58% |
| | c) 81-90 | 15 | 25% |
| | d) 90 above | 4 | 6.6% |
| 2. | Gender | | |
| | a) Male | 0 | 0% |
| | b) Female | 60 | 100% |
| 3. | Marital status | | |
| | a) Married | 8 | 13.3% |
| | b) Unmarried | 15 | 25% |
| | c) Widow/Widower | 27 | 45% |
| | d) Divorced | 10 | 16.6% |
| 4. | Education level | | |
| | a) No formal education | 14 | 23.3% |
| | b) Primary education | 20 | 33.3% |
| | c) Secondary education | 9 | 15% |
| | d) Higher secondary education | 7 | 11.6% |
| | e) Above (Graduation & post-Graduation) | 10 | 16.6% |

Table 1: shows the demographic information In group: percentage wise distribution of subjects in relation to their age group depicts that highest percentage of the elderly people 58 %(35) between 71-80 years of age group.

Percentage wise distribution of subjects in relation to their gender 100 %(60) are female. Percentage wise distribution of subjects in relation to their marital status 45%(27)subjects are widow. Percentage wise distribution of subjects in relation to their education level 33.3 %(20) are subjects have done primary education.

Table no. 2 Frequency and percentage distribution of elderly people clinical characteristics

| S.NO. | Clinical Data | Frequency | Percentage (%) |
|-------|--|-----------|----------------|
| 1. | Any comorbidity | | |
| | a) Yes | 28 | 46.6% |
| | b) No | 32 | 53.3% |
| | c) If yes, specify | | |
| 2. | If yes, specify | | |
| | a) No | 32 | 53.3% |
| | b) Diabetes mellitus | 9 | 15% |
| | c) Back pain | 8 | 13.3% |
| | d) Constipation | 5 | 8.3% |
| | e) Headache | 6 | 10% |
| 3. | Measure adopted to get good sleep | | |
| | a) Yes | 15 | 25% |
| | b) No | 45 | 75% |
| | c) If yes, specify | | |
| 4. | If yes, specify | | |
| | a) No | 45 | 78.3% |
| | b) Spiritual reading | 4 | 6.6% |
| | c) Meditation | 6 | 10% |
| | d) Listening music | 5 | 8.3% |
| 5. | Previous knowledge Regarding foot reflexology | | |
| | a) Yes | 12 | 20% |
| | b) No | 48 | 80% |
| | c) If yes, specify | | |
| 6. | If yes, specify | | |
| | a) No | 48 | 80% |
| | b) Television | 5 | 8.3% |
| | c) Other(Friends) | 7 | 11.6% |

Table 2: shows the clinical information of subjects In group: Percentage wise distribution of subjects in relation with their comorbidity of the elderly people 32(53.3%) were not comorbidity Percentage wise distribution of subjects in relation with their sleep most of the elderly people 45(75%) had not adopted any measures to get good sleep Percentage wise distribution of subjects in relation with their

sleep most of the elderly people 45(78.3%) do not take any measures to reduce the sleep disturbance Percentage wise distribution of subjects in relation with their previous knowledge regarding foot reflexology most of the elderly people 48(80%) had no previous knowledgeregarding foot reflexology.

SECTION B:

ASSESSMENT OF PRETEST AND POST-TEST QUALITY OF SLEEP AMONG ELDERLY IN EXPERIMENT GROUP

Table no. 3: Assessment of the pre test quality of sleep among elderly in experimental group.

n=60

| Category score | Pretest | |
|--------------------|---------|-----|
| | f | % |
| Poor sleep quality | 54 | 90% |
| Good sleep quality | 6 | 10% |

****f=frequency & %= percentage**

Table 3 shows that experimental group among sample 60, 54 (90%) had poor sleep quality and 6(10%) had goodsleep quality.

Table No.4 : Frequency and percentage distribution of post test quality of sleep among elderly in experiment group.

| Category score | Posttest | |
|--------------------|-----------|-----|
| | frequency | % |
| Poor sleep quality | 6 | 10% |
| Good sleep quality | 54 | 90% |

Table 4 shows that experimental group among sample 60, 54(90%) had good sleep quality and 6 (10%) had poorsleep quality.

SECTION C:

EFFECTIVENESS OF FOOT REFLEXOLOGY ON SLEEP QUALITY AMONG ELDERLY PEOPLE IN THE EXPERIMENTAL GROUP.

Table No. 5: Effectiveness of foot reflexology on sleep quality among elderly people in the experimental group.

| | | PSQI scale score | | | | Mean difference | Standard error mean | Paired t Test | | | |
|-------|---|------------------|------|-----------|------|-----------------|---------------------|---------------|-----------|---------|--------|
| | | Pre-test | | Post-test | | | | df | 't' value | P-value | Result |
| Group | N | Mean | SD | Mean | SD | 2.7 | .290 | | | | |
| | | 60 | 7.13 | 1.682 | 4.43 | | | 1.566 | | | |

P<0.05****significance)

Table 5 reveals that experimental group pre test mean and standard deviation value are 7.13 and 1.682 respectively. The post test mean and standard deviation value are 4.43 and 1.566 respectively mean difference between pre-test and post-test is 2.7; paired 't' test value of experimental group is 9.297 and two-tailed 'p' value is less than 0.05 which is highly significant at P<0.05. Hence it indicates that there is improvement in sleep after foot reflexology therapy among elderly.

Hence, hypothesis H1 is accepted.

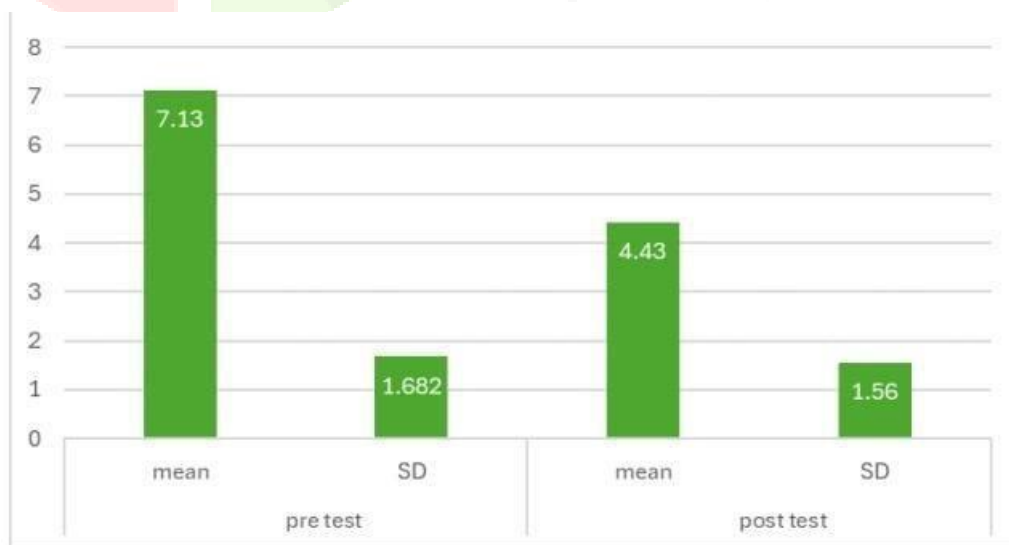


figure 5.1 diagram showing the mean and s.d. of pre - test and post test level of scores regarding foot reflexology on quality of sleep among elderly

SECTION D:

ASSOCIATION BETWEEN QUALITY OF SLEEP AND DEMOGRAPHIC VARIABLES AND CLINICAL VARIABLES IN EXPERIMENTAL GROUP.

Association between score with their selected demographic variables and clinical variables in experimental group

(1) Association between pretest quality of sleep scores with selected demographic and clinical variables in both experimental groups.

Table 6: Association between pre test quality of sleep score with selected demographic variable in experimental groups.

| Demographic variables | | | | | | Association with pre-experiment | | | | |
|-----------------------|----------------------------------|--------------------|------|-------------------|------|---------------------------------|----------|----|-----------|-----------|
| Demographic variables | Options | POOR SLEEP QUALITY | | GOODSLEEP QUALITY | | Chi Squa-re value | p- value | df | “t” Value | Sig an |
| | | Frequency | % | Frequency | % | | | | | |
| Age | 60-70years | 3 | 5 | 3 | 5 | .966 | .809 | 3 | 7.82 | No sig an |
| | 71-80years | 25 | 41.6 | 10 | 16.6 | | | | | |
| | 81-90years | 10 | 16.6 | 5 | 8.3 | | | | | |
| | >90years | 2 | 3.3 | 2 | 3.3 | | | | | |
| Gender | Male | 0 | 0 | 0 | 0 | N.A | | | | |
| | Female | 55 | 91.6 | 5 | 5.3 | | | | | |
| Marital Status | Married | 4 | 6.6 | 4 | 6.6 | 3.990 | .263 | 3 | 7.82 | No sig an |
| | Unmarried | 13 | 21.6 | 2 | 3.3 | | | | | |
| | Widow/Widower | 26 | 43.3 | 1 | 1.6 | | | | | |
| | Divorced | 8 | 13.3 | 2 | 3.3 | | | | | |
| Education level | No formal education | 12 | 20 | 2 | 3.3 | 4.716 | .318 | 4 | | No sig an |
| | Primary education | 15 | 25 | 5 | 8.3 | | | | | |
| | Secondary education | 6 | 10 | 3 | 5 | | | | | |
| | Higher secondary education | 5 | 8.3 | 2 | 3.3 | | | | | |
| | Above graduation/post-graduation | 6 | 10 | 4 | 6.6 | | | | | |

Table 6 : showing association between pre test quality of sleep score are selected demographic variables in experimental group. The chi square value is not applicable for Gender because of constant variable .There is no significance association between the pre test quality of sleep scores and other demographic variables (Age , Marital status and Education status). The calculated chi square values were less than the value at the 0.05 level significance.

Hence, H₂ is rejected.

Table 7 : Association of pre test quality of sleep scores with selected clinical variables in experimental group

| CLINICAL VARIABLES | | | | | | ASSOCIATION WITH EXPERIMENTAL | | | | |
|--|-------------------|--------------------|------|--------------------|-----|-------------------------------|---------|----|-----------|------------------|
| Clinical Variables | Options | POOR SLEEP QUALITY | | GOOD SLEEP QUALITY | | Chi Square test | P-value | df | “t” value | s |
| | | Frequency | % | frequency | % | | | | | |
| Any morbidity | Yes | 28 | 46 | 0 | 0 | 4.773 | .029 | 1 | 3.84 | s |
| | No | 27 | 45 | 5 | 8.3 | | | | | |
| | If yes, specify | | | | | | | | | |
| If yes, specify | No | 27 | 45 | 5 | 8.3 | 1.864 | .761 | 4 | 9.49 | N s i a |
| | Diabetes Mellitus | 9 | 15 | 0 | 0 | | | | | |
| | Back pain | 8 | 13.3 | 1 | 1.6 | | | | | |
| | Constipation | 5 | 8.3 | 0 | 0 | | | | | |
| | Headache | 5 | 8.3 | 1 | 1.6 | | | | | |
| Measure adopted to get good sleep | Yes | 10 | 16.6 | 5 | 8.3 | .073 | .787 | 1 | 3.84 | N s i |
| | No | 40 | 66.6 | 5 | 8.3 | | | | | |
| | If yes, specify | | | | | | | | | |
| If yes, specify | No | 40 | 70 | 5 | 8.3 | 1.509 | .680 | 3 | | N s i |
| | Spiritual Reading | 3 | 5 | 0 | 0 | | | | | |
| | Meditation | 6 | 10 | 0 | 0 | | | | | |
| | Listening Music | 5 | 8.3 | 0 | 0 | | | | | |
| Previous knowledge regarding reflexology | Yes | 10 | 16.6 | 2 | 3.3 | 1.364 | .243 | 1 | 3.84 | N s i |
| | No | 45 | 75 | 3 | 5 | | | | | |
| | If yes, specify | | | | | | | | | |
| If yes, specify | No | 44 | 73.3 | 4 | 6.6 | .779 | .677 | 2 | | N s i |
| | Television | 5 | 8.3 | 0 | 0 | | | | | |
| | Other(Friends) | 6 | 10 | 1 | 1.6 | | | | | |

Table 7 showing association between pre-test quality of sleep score and selected clinical variable in experimental group. The chi-square value is not applicable for use of any medication for sleep because of constant variable. The chi-square value shows that there is significance association between the score level and clinical variables (any comorbidity). The calculated chi-square values were more than the value at the

0.05 level of significance. There is no significance association between the pre-test quality of sleep score

and other clinical variable (if yes; specify, comorbidity measure adopted to get good sleep, If yes; specify measures, Previous knowledge regarding foot reflexology, If yes; specify source of knowledge). The calculated chi-square values were less than the value at the 0.05 level of significance. Hence, h_2 is rejected.

IV. DISCUSSION

The first objective of the study to assess the pre test and post test quality of sleep Scores among elderly.

In pre-test, among 60 examples show that, 54 (90%) had unfortunate rest quality and 6(10%) Had great rest quality with pre-test mean and standard deviation esteem are 7.13 and 1.682 separately where as in post-test 54(90%) had great rest quality and 6 (10) Had unfortunate rest quality with post-test mean and standard deviation esteem are 4.43 and 1.566 separately This outcome Comes as per(Malarvizhi and R. (2019))in this review, who expressed that in the exploratory gathering Pretest nature of rest among 30 examples ; 16(53.3%)had unfortunate rest, 10 (33.3%) had Upset rest and 4 (13.3%) had great rest. In post-test among 30 example; 6 (20%) Had unfortunate rest, 7 (23.3%) had upset rest and 17 (56.7%) had great rest. The Pretest mean is 9.6 and the standard deviation was 3.3, the post test mean was 6.13 And the standard deviation was 3.45.

The second objective is to assess the effectiveness of foot reflexology on quality of Sleep among elderly.

The pre-test mean and standard deviation values are 7.13 and 1.682 individually. The Post-test mean and standard deviation values are 4.43 and 1.566 separately; mean Distinction between pre-test and post-test is 2.7; matched 't' test worth of gathering is 9.297 And two-followed 'p' esteem is under 0.05 which is exceptionally huge at $p < 0.05$. Consequently It demonstrates that there is improvement in rest after boiling water foot reflexology among The older.

Hence, hypothesis H_1 is accepted

Third objective is to find out the association between pre-test quality of sleep Scores among elderly with their selected socio demographic variable and clinical Variable.

1. Association Of pre-test quality of sleep scores with selected demographic Variables. The chi square value is not applicable for Gender because of constant variable. There Is no significance association between the pre- test quality of sleep scores and other Demographic variables (Age, Marital status and Education status).The calculated chi Square values were less than the value at the 0.05 level of significance.

2. Association Of pre-test quality of sleep scores with selected clinical variables. The chi- square value is not applicable for use of any medication for sleep because of Constant variable. The chi-square value shows that there is significance association between the score level and clinical variables (if yes specify comorbidity), The Calculated chi-square values were more than the value at the 0.05 level of Significance. There is no significance association between the pre-test quality of sleep Score and other clinical variable (any comorbidity, if yes; specify Comorbidity, measure adopted to get good sleep, If yes; specify measures, Previous Knowledge regarding foot reflexology, If yes; specify source of knowledge). The Calculated chi- square values were less than the value at the 0.05 level of significance.

Hence H_2 is rejected.

V. ACKNOWLEDGEMENT

We express our great indebtedness and heartfelt gratitude to our Research Guide **Ms. Lufina, Nursing Tutor**, Narayan Swami College of Nursing for laying the foundation of scientific research and rendering the needed corrections, suggestions and encouragement in every step of whole process of the study.

REFERENCES

1. Is age just a number? the answer is not so simple, finds new study (2023) The Economic Times. Available at: <https://economictimes.indiatimes.com/magazines/panache/is-age-just-a-number-the-answer-is-not-so-simple-finds-new-study/articleshow/98705798.cms> (Accessed: 13 May 2024).
2. Ageing and health (2022) World Health Organization. Available at: <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health> (Accessed: 13 May 2024).
3. Guo J;Huang X;Dou L;Yan M;Shen T;Tang W;Li J; (2022) Aging and aging-related diseases: From molecular mechanisms to interventions and treatments, Signal transduction and targeted therapy. Available at: <https://pubmed.ncbi.nlm.nih.gov/36522308/> (Accessed: 14 May 2024).
4. Aging and sleep (2023) Sleep Foundation. Available at: <https://www.sleepfoundation.org/aging-and-sleep> (Accessed: 14 May 2024).
5. Patel D, Steinberg J, Patel P (2018) Insomnia in the elderly: A Review | Journal of Clinical Sleep Medicine, JCSM. Available at: <https://jcsm.aasm.org/doi/10.5664/jcsm.7172> (Accessed: 13 May 2024).
6. Quinn, D. (2023) Foot reflexology chart: Points, how-to, benefits, and risks, Health line. Available at: <https://www.healthline.com/health/foot-reflexology-chart> (Accessed: 05 June 2024).
7. Teagarden, karen (no date) How does reflexology work?, Taking Charge of Your Wellbeing. Available at: <https://www.takingcharge.csh.umn.edu/explore-healing-practices/reflexology/how-does-reflexology-work>(Accessed: 05 June 2024).

