



EFFECT OF WARM WATER FOOT BATH THERAPY ON QUALITY OF SLEEP AMONG ELDERLY PEOPLE LITERATURE REVIEW

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ABSTRACT A Researcher aim to evaluate the sleep quality in old age people who are staying in selected old age home and to measure the fruitfulness of warm water foot bath therapy in increasing level of sleep in old age people. It was concluded through this literature review that warm water foot bath therapy is very helpful in increasing level of sleep and sleep quality among elderly people.

KEYWORDS : warm water foot bath therapy, quality of sleep, elderly people.

INTRODUCTION:

To every human being sleep is the primary need ; it is a biological process for all people. A sleep is considered as a state of unconsciousness. A sleep has come to be considered as an altered state of consciousness in which the individuals reaction and perception to the environment are suppressed.¹

Warm water foot bath provides a better sleep, because foot bath therapy relaxes the body and mind. This therapy works by increasing the body temperature and it starts to drop slowly. This therapy can promote to the sleep indirectly and Gradual drop of body temperature makes drowsy to everyone and therefore everyone feel more sleep. This warm footbath therapy is also providing blood from the head to lower parts of body, it leads to decrease brain activity and mimics the pre-sleep state.²

Sleep disturbance is reported to be a significant problem for patients across older age people A warm-water footbath remedy is a regional and moist warmth application. It is a non invasive and convenient method to use it at home. That resulting assist provisional help that a warm-water footbath therapy reduce the tiredness and in ability to sleeping difficulty of elderly people. It is a non pharmaceutical therapy to support people become tiredness and sleep disorder.

The reviewed literature was collected through divers database includes CINHALL, MEDLINE (Medical Literature Analysis & Retrieval System Online), Pub Med, Science Direct, Springer Link, Pro Quest & Google scholar.

MATERIAL METHODS:

The studies which are conducted mainly based on evaluate the effect of warm water foot bath therapy on sleep quality among elderly people residing in selected old age home.

Findings: This Study shows that warm water foot bath therapy was useful intervention for better quality of sleep in elderly people.

1. Allehe Seyyedrasooli and Hossein Kalantr were conducted a A Blinded Randomized Clinical Trial a experimental study on to assess the Effect of Footbath therapy on Sleep Quality of the Elderly in Tabriz Iran (2013) . Aim of the study that to evaluate footbath therapy on sleep quality in old age people .46 old men selected for the study. use the PSQI before and after the intervention that warm water foot bath therapy by individual review of the old age people . Data was analysis by SPSS software . Mean age standard deviation of participants were 67.26(4.05) . Comparison of alternate in sleep first-rate score the old men confirmed the sleep length and total sleep nice has extended in the experimental group.³
2. Kim HJ , Lee Y were managed the quasi experimental study on The measure of footbath on sleep in the older humans in nursing domestic in Republic of Korea. (2016). in this find out about 30 samples have been requited from a nursing home. Data gathered through sleep pattern and sleep disturbance behaviors have been in contrast based on crew , the usage of actigraphy and a sleep sickness inventory. The result shows that 30 min warm water foot bathing remedy intervention with water temperature at 40^oc had been wonderful and two improving sleep pleasant in two older people⁴
3. Arshpreet Kaur, C. Naveen Kumar was conducted A pre-experimental study to Evaluate the effect of Warm Water Foot Bath on sleep quality among Hospitalized Patients in vallah, Amritsar(2017). In this study Groningen sleep quality scale (GSQS) have assessed 60 females patients with disturb sleep during hospitalization. By using convenient sampling technique. The effects published that 38 (63.3%) of sufferers had poor sleep quality exceptional and 22 (36.7%) had fair sleep quality satisfactory in pre test a look at and 12 (20.0%) of sufferers had poor quality of sleep., 30 (50.0%) had fair quality of sleep and 18 (30.0%) had good quality of sleep In post-test. On sixth day the pre-test Mean \pm SD used to be 9.15 \pm 2.291 and post-test Mean \pm SD was 6.78 \pm 2.768. An Improvement of sleep was once statistically tested through paired-'t' test cost (6.552) and the result was determined to be full-size at 'p' cost <0.01 level.⁵
4. Leila Valizadeh , Alehe was conducted a Controlled Clinical Trial on Comparing the Effects of Reflexology and Footbath on Sleep Quality in the Elderly in Tabriz, IR Iran(2015). In this study 69 participants were selected in that 23 for control group , 23 for footbath and 23 for reflexology group. Data collection tool was a two-part questionnaire that the 1st part included demographic and social information of the elderly, and the second part included the standard PSQI that measures the quality of sleep and sleep patterns of the elderly. The results showed that the PSQI scores after intervention compared to before it in the reflexology and foot bath groups were statistically significant (P = 0.01 , P = 0.001); however, in the control group did not show a statistically significant difference (P = 0.14). In addition, the total score changes among the three groups were statistically significant (P = 0.01) . The two interventions had the same impact on the quality of sleep.⁶
5. S. Jose Amala Anilda, P.Thenmozhi were managed a experimental study on Effectiveness of Hot Water Foot Bath on Level of Fatigue among Elderly Patient in Chennai-105 (2013). In this study 30 elderly patients with fatigue were selected by simple random sampling and were assigned to two groups, namely, control and experimental groups. The tool used for the study was demographic variable and numerical fatigue assessment scale to collect the data. Data were analyzed by using descriptive and inferential statistics. The pre-test mean value of experimental group was 7.3 with 1.1 SD and the post-test mean value was 4.1 with 1.4 S.D. The paired-t test reveals that there is effectiveness of hot water footbath on reducing the level of fatigue among elderly patients at the level of P<0.05.⁷
6. Mr. Suneesh, Mr. Jeenath were conducted an experimental study to Assess the Effectiveness of Warm Foot Bath on Sleep Onset Time among Cancer Patients with Insomnia in Nath Lal Parekh Cancer Hospital at Rajkot (2017) . in this study 30 sample are

- selected and data was collected through general sleep disturbance scale. Data were analyzed by using descriptive and inferential statistical methods. ANOVA test was used to assess the effectiveness of warm foot bath on sleep onset time among cancer patients with insomnia. The obtained value was 81.5 that was very highly significant at P level >0.001 . The findings of the study reveals that warm foot bath helps in improving sleep onset time.⁸
7. Yann-Fen Chao, Kwo-Chen Lee, Xue-Ping Chen, Fuei-Fen Fang were conducted a experimental study on The Effects of Warm-Water Footbath on Relieving Fatigue and Insomnia of the Gynecologic Cancer Patients on Chemotherapy in Taiwan (2010). In total, 50 women enrolled in the study. Sleep quality was evaluated by the Verran and Snyder Halpern (VSH) sleep scale. Data were processed by SPSS 13.0. The Result were 25 and 18 part the comparison and experimental groups, respectively, who completed Participants in the experimental group reported a significant reduction in improvement in sleep quality from the second intervention of chemotherapy continued to improve during the study period.⁹
 8. Crystal Jayllene A. Ong, Edward Jerard M. Opiña, Antoinette R. Orallo, Niña Teollie C. Ortega, Rona Joan Kea G. Ortega, JN Junille Paat, and Florence C. Navidad were conducted an experimental study on effectiveness of Footbath therapy in Improving Sleep Quality Among Filipino Elderly in Filipino (2018). This study use the Purposive sampling technique and select 20 female Filipino elderly participants aged 65 - 86 years old from a home-for-the-aged institution. Data was collected by Pittsburgh Sleep Quality Index (PSQI). ANOVA is used to determine the relationship of foot bath to the sleep quality and vital signs of elderly. There is a significant difference present in result that sleep quality among the participants as indicated by a t-value of 5.850 and a p-value of 0.000. This means that the foot bath is an effective session in promoting sleep quality among the old age people.¹⁰
 9. Mehdi Naseri, Farahani were conducted a comparative study on measure the Effectiveness of Foot Reflexology Massage and warm water Foot Bath on the Sleep Quality among Patients with Acute Coronary Syndrome in Tehran, Iran(2016). In this study total 105 patient selected among available hospitals and divided 3 group (foot reflexology massage, foot bath, and control). Data was collected by Verran and Snyder-Halpern (VSH) subjective sleep quality questionnaire. SPSS version 21 used for data analysis by descriptive and inferential statistics. No significant statistical difference among the 3 groups regarding sleep disturbance and supplementary sleep after interventions ($P > 0.05$), but there was a significant statistical difference between the groups and at different time regarding the effectiveness after intervention ($P < 0.05$). The obtained results indicated that each of the interventions alone can result in improvement of sleep quality, but there was no significant statistical difference among them.¹¹
 10. Hassan, Mohammad Ali, were conducted a Review study to evaluate The Influence of Passive Body Heating on Quality of Sleep in Sari, Iran(2016). After searching in available databases with proper keywords in both Persian and English language and with no time limits, 114 articles were collected. Of these, 31 were selected as the most relevant and were reviewed. Results is Based on the previous researches, the warm footbath was selected for implementation of passive body heating which was the most common and safest method. In some studies, the warm footbath also improved mental sleep and polysomnography findings.¹²
 11. Weerakorn, Howteerakul, Nawarat and Tantrakul were conducted A cross-sectional study on Sleep quality and associated factors among the elderly living in rural Chiang Rai, in northern Thailand(2018). In this study 266 randomly selected elderly people in a sub-district in rural Chiang Rai Province, northern Thailand. The participants were interviewed using the Thai version of the Pittsburgh Sleep Quality Index (PSQI). Data were analyzed using SPSS version 18.0. result of this study Roughly 44.0% of the participants had poor sleep quality (PSQI score, >5), 9.4% used sleep medication, 27.1% had poor family relationships, and 12.0% had mild depression. Multiple logistic regression analysis indicated that being female (odds ratio [OR], 1.74; 95% confidence interval [CI], 1.10 to 3.02), a higher education level (OR, 3.03; 95% CI, 1.34 to 6.86 for primary school; OR, 2.48; 95% CI, 1.31 to 5.44 for higher than primary school), mild depression (OR, 2.65; 95% CI, 1.11 to 6.36), and poor family relationships (OR, 3.65; 95% CI, 1.98 to 6.75) were significantly associated with poor sleep quality. The prevalence of poor sleep quality among the elderly was moderately high.¹³
 12. Abdul Rashid, Eng Keat Ong were conducted a cross sectional study on Sleep quality among residents of an old folk's home in Malaysia (2012). In this study was conducted among consenting residents of a 200-bed non-governmental charity old folks home. The sleep quality of the respondents was measured using the Pittsburgh Sleep Quality Index (PSQI). Quality of life (WHOQOL-BREF), their attitude to ageing (AAQ), Barthel index (Activities of Daily Living) and body mass index were also measured. Data was analysed using PASW. The PSQI score ranged from 0 to 16 with a mean score of 7.1 (SD 3.4) and 76.8% (116) had scores ≥ 5 . The differences in the mean score for chronic illness ($t = 0.14/P = 0.04$), the people that could be counted on for help ($t = 4.09/P = 0.02$) and the feasibility of getting practical help from fellow residents ($t = 4.41/P = 0.01$) were statistically significant. There was a negative correlation between the PSQI score and the WHOQOL-BREF score (-0.318/0.00) and AAQ score (-0.332/0.00).¹⁴
 13. Sobha George, George Paul were conducted A study based on community that cross sectional study on Study on sleep quality and associated psychosocial factors among elderly in a rural population of Kerala (2018). In this study total select 170 people who were 60 years or above, selected by simple random sampling, after getting consent. The study tools used were Pittsburgh sleep quality index (PSQI), General anxiety disorder 7 item (GAD-7) scale, geriatric depression score (GDS 5 items) and a self designed general sociodemographic questionnaire. Data was tabulated using MS Excel and analyzed using SPSS V20. Result of the sleep quality according to global PSQI was good for 27.6%, while it was poor for 72.4% of respondents. The mean GPSQI of the study was 8.04 \pm 4.59. Absence of toilet inside home ($p=0.036$), current health problems ($p=0.003$), multiple (>3) health problems ($p=0.006$), regular use of current medications ($p=0.033$) had a significant association with poor sleep quality. Association between general anxiety disorder and GPSQI was significant with poor sleep quality among those with severe anxiety ($p=0.017$). Association between GDS-5 score and GPSQI showed a significant association between symptoms suggestive of depression and poor sleep quality ($p=0.014$).¹⁵
 14. Gülseren Dağlar, Selma Sabancıoğulları, Siikram Pınar, Sultan Kav were conducted a Descriptive and cross-sectional study on Sleep quality in the elderly either living at home or in a nursing home in Sivas, Turkey (2012). This study was carried out with 112 individuals; 52 were living in a nursing home and 60 at home. Data were collected from the personal information form and Pittsburgh Sleep Quality Index (PSQI). SPSS (SPSS, Version 14.0 for Windows 2000) was used for data entry and analysis. There is no any statistically significant difference between the mean scores and sleep qualities in that both groups ($p > 0.05$). Quality of sleep in an individuals in that both groups was not significantly affected by individual variables such as age, gender, education, income, having children, and having a physical illness ($p > 0.05$). Both groups are individually reported their sleep as an inadequate had sleep problems, and other people those who reported their sleep was affected for various reasons and who judge their health as bad had significantly poor quality sleep ($p < 0.05$).¹⁶
 15. Samaneh Aliabadi, Mohammad Miri, Mitra Moodi, and Roghayeh Mohammadi were conducted A Descriptive-Analytical Study on Sleep Quality and Its Contributing Factors Among Elderly People in Birjand, Iran(2017). In this study total samples are 284 elderly people aged sixty or more. Data collection tool were demographic questionnaire and the eighteen- items Pittsburgh sleep quality index. The collected data were entered in to SPSS software (v.16.0). The result was mostly female (59.3%) and aged 68.93 \pm 8.44 on average. Around 69% of them had good sleep quality. The majority of them had mild problems in subjective sleep quality(66.2%), sleep latency(40.5%), and sleep disturbances(64.8%). No problem in sleep duration (58.1%) and sleep efficiency (64.2%), no day time dysfunction (75.5%), and most of them did not use sleeping medications (739.3%). sleep quality had significant relationships with gender ($p=0.03$), pain ($p=0.007$), exposure to environmental stimuli ($p<0.001$), regular physical activity ($p=0.008$), and menopause- related problems($p=0.03$).¹⁷
 16. Anna Zisberg, Tamar Shochat were conducted a experimental study on Contribution of Routine to Sleep Quality in Community Elderly(2010). In this study 96 Israeli Russian-speaking elderly living in a retirement community (mean age 75 \pm 13.88, 72% women, 82% living alone) participated. Routines were assessed with the Scale of Older Adults Routine (SOAR) by a trained

- interviewer at 3 time points 2 Functional status was assessed with the Lawton Instrumental Activities of Daily Living (IADL). Result of this study Mean sleep efficiency was 78%, functional status was fairly good (mean IADL 45 of 50 [SD = 6.12]). Regression analyses indicated that increased stability in daily routine, as measured by the SOAR for the entire sample, predicted shorter sleep latency, higher sleep efficiency and improved sleep quality, beyond functional status, co morbidities, and age. Similar associations were found for the subsample using the SRM.¹⁸
17. Carla R. Schubert, Karen J. Cruickshanks, were conducted a Epidemiology of deafness Study is a population-based study on Prevalence of Sleep Problems and Quality of Life in an Older Population in Beaver Dam, Wisconsin.(2002). In this study total 2800 adult participants aged 53-97 years . no intervention given . Participants were asked to what extent they experienced difficulty getting to sleep, waking up at night and having a hard time getting back to sleep, and waking up repeatedly during the night for any reason. A response of "often" or "almost always" was coded as positive for an insomnia trait. The SF-36 was administered to assess mental and physical function. Twenty-six percent of the population reported one insomnia trait, 13% reported two, and 10% reported three. All eight domains and the Mental and Physical Component Summary scores of the SF-36 decreased significantly (F-test for linear trend statistically significant at $p < 0.0001$) as the number of reported insomnia traits increased. These results indicate that symptoms of insomnia are common among older adults and are associated with a decrease in health related quality of life.¹⁹
 18. Hatice Tel was conducted a study on Sleep quality and quality of life among the old age people in Turkey(2012). This study sample consisted of 187 elderly people. Data were collected with a personal information form, Pittsburgh Sleep Quality Index and Turkish Version of WHOQOL-BREF-quality of life scale. It was found out that sleep quality of the elderly people was poor. It was noted that there was a close correlation between age and sleep quality and quality of life of the elderly people, and sleep quality and quality of life decreased as the age of the elderly people increased. It was explored that there was a significant difference between gender, marital status, educational status, the person with whom the elderly people lived, presence of a physical disease, diagnosis of a disease and sleep quality and quality of life ($p < 0.05$).²⁰
 19. Mr. Vineeth Joseph, Mrs. Jasmine Joseph were managed a Quantitative study on Effectiveness of aromatherapy and pleasant of sleep among elderly inmates of selected historical age home in Kerala (2015). 60 inmates from selected historic age home have been assessed for customary pattern of sleep. Among them who have been having pretty and insufficient sleep had been selected for the study. Aromatherapy used to be administered for 5 consecutive days. The lavender necessary oil was dropped on a cotton ball and kept below the pillow in the course of the night. The first-rate of sleep was assessed earlier than aromatherapy, as nicely as on the 3rd and 6th day using Modified Pittsburg Sleep Quality Index (PSQI). The statistics was analyzed the use of both descriptive and inferential statistics. Result is The mean pre-test PSQI score (11.9) was significantly higher than the post test score (4.875). The computed 't' value (10.184) is greater than the table value ($t_{39} = 3.551, p < 0.001$). It indicated that there was a significant increase in the quality of sleep after aromatherapy. There was no significant association found between quality of sleep and selected demographic variables.²¹
 20. Seyed Reza Hosseini , Payam Saadat were conducted a cross-sectional study on The Prevalence of Self-Reported Sleep Problems and Some Factors Affecting It Among the Elderly in Amirkola (2017). A total of 1616 people, who were 60 years old or more, were entered into the study .Data including age, sex, level of education, life status, occupation, smoking, physical activity, self-reported chronic diseases, depressive symptoms by Geriatric depression scale (GDS), cognitive status by mini-mental state examination (MMSE), history of medication, and questions regarding sleep problems were collected by interviewing with older people or their close relatives. Data were analyzed by SPSS18 using the Chi-square test, t-test, and logistic regression. The overall prevalence of sleep disorders in this study was 354 (24.8%). Gender, drug use, marital status, chronic pain, depression, urinary incontinence, education level, metabolic syndrome, occupation, MMSE, hypnotics, and diabetes were associated with the prevalence of sleep disorders. According to the logistic regression analyses, 12-month back pain (OR = 1.64, P = 0.003), hypnotic drugs (OR = 1.5, P = 0.03), depression (OR = 1.66, P = 0.001), age range of 75 to 79 years old (OR = 0.58, P = 0.01), accompanying chronic disease (OR = 1.15, P < 0.001), and MMSE (OR = 1.59, P = 0.003) had a significant role in sleep problems.²²
 21. Claudia Lysia, Maria Ceolim were conducted a Descriptive, cross-sectional study on Sleep quality of elders living in long-term care institutions in Brazil (2010). Subjects were 38 cognitively preserved elders living in these institutions for at least a year. Data collection was performed using the following instruments: Identification Form, Katz Index and Pittsburgh Sleep Quality Index (PSQI). Data analysis by descriptive statistics . Results showed that 81.6% of the studied elders reported their sleep quality was good or very good. Nevertheless, there was an elevated frequency of sleep related problems such as: getting up to go to the bathroom (63.2%); getting up in the middle of the night or very early in the morning (50%); feeling too hot (23.7%); feeling pain (21.1%). These findings show an evident contradiction between elders' perception of their sleep quality and the actual elevated number of identified sleep problems.²³

DISCUSSION :

In this review of literatures 21 reviews has taken by various studies on sleep quality in elder people , warm water foot bath therapy. Studies reveal that sleep quality improved by various therapies and treatments.

CONCLUSION:

Researcher assessed that warm water foot bath therapy is so much effective to improve the sleep quality among elderly people .

REFERENCES

1. Koziar, B., Erb, G., Berman, A., & Burke, K. (2007). Fundamentals of nursing: Concepts, Process, and Practice. Dorling Kindersly, South Asia.
2. Wickman.G. (2014).How Hot Water Can Help You To Sleep?. Retrieved from website: <http://www.healthguidance.org/entry/15672/1/How-Hot-Water-Can-Help-You-to-Sleep.html>
3. Allehe Seyyedrasooli, Leila Valizadeh, Vahid Zamanzadeh, Khadijeh Nasiri, and Hossein Kalantri ; The Effect of Footbath on Sleep Quality of the Elderly: A Blinded Randomized Clinical Trial; J Caring Sci. 2013 Dec; 2(4): 305–311. Published online 2013 Nov 30. doi: 10.5681/jcs.2013.036 Available from : [https:// www.ncbi.nlm.nih.gov/pmc/articles/PMC4134151/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4134151/)
4. Kim HJ , Lee Y , Sohng KY ; The effects of footbath on sleep among the older adults in nursing home: A quasi-experimental study; Complement Ther Med. 2016 Jun;26:40-6. doi: 10.1016/j.ctim.2016.02.005. Epub 2016 Feb 15. Available from : [https:// www.ncbi.nlm.nih.gov/pubmed/27261980](https://www.ncbi.nlm.nih.gov/pubmed/27261980)
5. Kaur A, Kumar CN. Effectiveness of warm water foot bath on quality of sleep among hospitalized patients. Int J Health Sci Res. 2017; 7(10):172-175. Available from : http://www.ijhsr.org/IJHSR_Vol_7_Issue_10_Oct2017/25.pdf
6. Valizadeh L, Seyyedrasooli A, Zamanazadeh V, Nasiri K. Comparing the Effects of Reexology and Footbath on Sleep Quality in the Elderly: A Controlled Clinical Trial, Iran Red Crescent Med J. 2015 ; 17(11):e59539. doi: 10.5812/ircmj.20111 available from : (<http://dx.doi.org/10.5812/ircmj.20111>),<http://ircmj.com/en/articles/59539.html>
7. S. Jose Amala Anilda, P.Thenmozhi ; Effectiveness of Hot Water Foot Bath on Level of Fatigue among Elderly Patient ; International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438 available from : <https://www.ijser.net/archive/v4i8/SUB157241.pdf>
8. Mr. Suneesh P.M, Ms. Kavitha Thangavel, Mr. Jeenath Justin Doss K ; A Study to Assess the Effectiveness of Warm Foot Bath on Sleep Onset Time among Cancer Patients with Insomnia ; Asian J. Nursing Edu. and Research 7(2): April- June 2017; available from <http://ajner.com/ShowPDF.Paper.aspx>
9. Huei-Lin Yang, Xue-Ping Chen, Kwo-Chen Lee Fuei-Fen Fang, Yann-Fen Chao; The Effects of Warm-Water Footbath Relieving Fatigue and Insomnia of the Gynecologic Cancer Patients on Chemotherapy ; available from : https://www.academia.edu/34097574/The_Effects_of_Warm-Water_Footbath_on_Relieving_Fatigue_and_Insomnia_of_the_Gynecologic_Cancer_Patients_on_Chemotherapy
10. Crystal Jayllene A. Ong, Edward Jerard M. Opiña, Antoinette R. Orallo, Niña Teollie C. Ortega, Rona Joan Kea G. Ortega, JN Junille Paat, and Florence C. Navidad ; Effects of Footbath in Improving Sleep Quality Among Filipino Elderly; Journal of Social Health, February 2018 .Article available from : <http://socialhealthjournal.org/wp-content/uploads/2018/02/Ong-et-al.-pp.23-39.pdf>
11. Naseri M, Rahmani A, Nerir B, Salari M, Moshkani Farahani M. Effect of Foot Reexology Massage and Foot Bath on the Sleep Quality of Patients with Acute Coronary Syndrome: A Comparative Study, Crit Care Nurs J. 2016 ; 9(4):e10294. doi: 10.17795/ccn-10294 (<http://dx.doi.org/10.17795/ccn-10294>). Available from : <http://jccnursing.com/en/articles/10294.html>
12. Talebi H, Heydari-Gorji MA, Hadinejad Z. The Impact of Passive Body Heating on Quality of Sleep: A Review Study. J Sleep Sci 2016; 1(4): 176-81. ; available from : <https://pdfs.semanticscholar.org/031f/c224da89e79fe43eb3ff51a8c69846900cb.pdf>
13. Weerakorn Thichumpal, Nopporn Howteerakul, Nawarat Suwannapong, and Visasiri Tantrakul ; Sleep quality and associated factors among the elderly living in rural Chiang Rai, northern Thailand ; Epidemiol Health. 2018; 40: e2018018. Published online 2018 May 14. doi: 10.4178/epih.e2018018 ; available from : [https:// www.ncbi.nlm.nih.gov/pmc/articles/PMC6060346/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6060346/)
14. Abdul Rashid, Eng Keat Ong, and Eleanor Shu Yi Wong ; Sleep quality among residents of an old folk's home in Malaysia ; Iran J Nurs Midwifery Res. 2012 Nov-Dec; 17(7): 512–519. Available from : <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3730455/>
15. Sobha George, George Paul, Nimitha Paul ; Study on sleep quality and associated psychosocial factors among elderly in a rural population of Kerala ; International Journal of Community Medicine and Public Health George S et al. Int J Community Med Public Health. 2018 Feb;5(2):526-531 <http://www.ijcmph.com> ; available from : <https://www.ijcmph.com/index.php/ijcmph/article/view/2475/1753>

16. Gülseren Dağla, Selma Sabancıoğulları ; Sleep quality in the elderly either living at home or in a nursing home: research paper ; AUSTRALIAN JOURNAL OF ADVANCED NURSING Volume 31 Number 4 ; available from: <http://www.ajan.com.au/Vol31/Issue4/1Kav.pdf>
17. Samaneh Aliabadi, Mitra Moodi, Mohammad Reza Miri, Zoya Tahergorabi, and Roghayeh Mohammadi ; Sleep Quality and Its Contributing Factors Among Elderly People: A Descriptive-Analytical Study ; *ModCareJ*.2017 January;14(1):e64493; available from : <https://pdfs.semanticscholar.org/d0ca/6eaf429527540ee4d7b20e9283540387d433.pdf>
18. Anna Zisberg, Nurit Gur-Yaish, Tamar Shochat Contribution of Routine to Sleep Quality in Community Elderly ; *Sleep*, Volume 33, Issue 4, April 2010, Pages 509-514, <https://doi.org/10.1093/sleep/33.4.509> ; available from : <https://academic.oup.com/sleep/article/33/4/509/2454611>
19. Carla R. Schubert, Karen J. Cruickshanks, Dayna S. Dalton, Barbara E.K. Klein, Ronald Klein, David M. Nondahl; Prevalence of Sleep Problems and Quality of Life ; *Vol. 25, No. 8, 2002* ; available from: <https://watermark.silverchair.com/sleep-25-8-48.pdf>
20. Hatice Tel; Sleep quality and quality of life among the elderly people; *Neurology, Psychiatry and Brain Research* Volume 19, Issue 1, February 2013, Pages 48-52; Available from : <https://www.sciencedirect.com/science/article/pii/S0941950012000917>
21. Mr. Vineeth Joseph 1, Mrs. Jasmine Joseph 2 ; Effectiveness of aromatherapy and quality of sleep ; *Asian J. Nur. Edu. and Research*.2016; 6(4): 511-516. DOI: 10.5958/2349-2996.2016.00096.3; Available from : <http://ajner.com/HTMLPaper.aspx?Journal=Asian%20Journal%20of%20Nursing%20Education%20and%20Research;PID=2016-6-4-18>
22. Hosseini S R, Saadat P, Esmaili M, Bijani A. The Prevalence of Self-Reported Sleep Problems and Some Factors Affecting It Among the Elderly in Amirkola, Shiraz E-Med J. 2018 ; 19(3):e59461. doi: 10.5812/semj.59461 (<http://dx.doi.org/10.5812/semj.59461>). Available from: <http://emedicalj.com/en/articles/59461.html>
23. Claudia Lysia de Oliveira Araújo, Maria Filomena Ceolim; Sleep quality of elders living in long-term care institutions ; Print version ISSN 0080-6234 Rev. esc. enferm. USP vol.44 no.3 São Paulo Sept. 2010 available from: http://www.scielo.br/scielo.php?pid=S008062342010000300010&script=sci_arttext&tlng=en