

The effect of sleep hygiene and relaxation Benson on improving the quality of sleep among health failure patients: A literature review

Musaddad Kamal^{1*}, Tuti Herawati²

1. Magister student of Faculty of Nursing, Universitas Indonesia, Depok 16424, Indonesia
 2. Department of Medical-Surgical Nursing, Faculty of Nursing, Universitas Indonesia, Depok 16424, Indonesia
- * Correspondence: akifanailabarnas@gmail.com

Abstract

Heart failure becomes a global cardiovascular problem with high mortality and disability. Sleep disturbance is a common problem in heart failure patients. Sleep disorders that occur in patients with heart failure will cause increased levels of urine catecholamine, plasma leptin, and inflammatory markers. Several databases such as ELSEVIER, PROQUEST, EBSCO, google scholar and PUBMED were used to extract the relevant articles. The search keywords used including "heart failure", "sleep disorders", "non-pharmacological therapy", "nursing intervention", and "sleep quality". The results showed sleep hygiene and Benson relaxation could improve the quality of sleep among heart failure patients. This review found evidence that sleep hygiene and Benson relaxation improved health outcomes among heart failure patients. The findings suggest this strategy can be a useful direction for improving heart failure care

Keywords: Benson relaxation, heart failure, sleep disorders, sleep hygiene.

1. Background

Nowadays, heart failure has become a global cardiovascular disorder problem with high mortality and disability (1). About 26 million people live with chronic heart failure worldwide, and the prevalence rate is estimated to increase every year (2,3). Based on data from the Health Research and Development Unit, the prevalence of heart failure in Indonesia is 0.3% or estimated at 530,068 people (4).

The impact of heart failure in patients is related to the signs and symptoms caused by the disease. Specific symptoms that can be found in patients with heart failure are shifting cardiac apex, increased jugular venous pressure, S3, hepatojugular reflux, shortness of breath, orthopnea, reduced activity tolerance, fatigue and swelling in the ankles (2,5). Other symptoms often found in heart failure patients are sleep disorders with a prevalence of around 81% (6).

Sleep disturbance is a common problem in heart failure patients (6-8). Sleep problems that are often complained of in heart failure patients are disorders of sleep initiation, disturbances in maintaining sleep and excessive daytime sleepiness (7). This

can make chronic insomnia condition that can cause cognitive dysfunction, daytime fatigue, and loss of energy (9).

Sleep disorders in patients with heart failure can be overcome by pharmacological methods, non-pharmacological or a combination of both (10). The study of management of sleep disorders in heart failure patients still has not found results as expected. Also, clinical trials of pharmacological treatments for insomnia in patients with heart failure have not provided clear results (11). Also, sleeping pills can also increase the risk of cardiovascular disorders in heart failure patients (12). For non-pharmacological management, the effect of using aromatherapy to help overcome sleep disorders is still questionable (13). Also, progressive muscle relaxation measures are considered to increase the heart burden in heart failure patients (14).

2. Objective

The study aimed to analyze the effect of sleep hygiene and relaxation Benson on improving the quality of sleep among heart failure patients

3. Method

The research method is a literature review. To collect data, the authors used several databases included ELSEVIER, PROQUEST, EBSCO, PUBMED, google scholar and remote lib us. The author also uses several search keywords namely "heart failure", "sleep disorders", "non-pharmacological therapy", "nursing intervention", and "sleep quality" by using boolean "AND" and "OR". The inclusion criteria including 1) the article discusses about sleep hygiene and relaxation Benson on improving the quality of sleep among heart failure patients; and 2) English-language articles. Also, the search is limited to articles containing full text from January 2008 to September 2018.

4. Results

4.1 Nursing intervention of sleep disorders in heart failure patients

Disorders of sleep patterns are one of the nursing diagnoses in patients with sleep disorders (23). Nursing interventions that nurses can do to overcome the problem of sleeping habits in patients are to create a comfortable environment; explain the importance of adequate sleep in patients; set a comfortable position, apply relaxation techniques; monitor the time to eat and drink before going to bed, and collaborate with a doctor to give sleeping pills if needed (24).

Non-pharmacologically, Kwekkeboom & Bratzke recommend relaxation techniques as effective techniques for managing sleep problems in heart failure patients (25). Previous studies also showed that sleep disorders could also be overcome by psychological and behavioral interventions such as relaxation exercises and behavioral interventions in the form of stimulus control therapy, sleep restriction therapy and sleep hygiene education (9, 26-27). Sleep hygiene is one of the behavioral therapies, in the way of guidelines for practices that patients can do to improve sleep quality (28).

4.1.1 Sleep hygiene

Sleep hygiene provides a guide that aims to provide knowledge to patients about what should be done and should be avoided to improve sleep quality. Sleep hygiene consists of 1) preparing a comfortable sleeping environment, such as using a comfortable bed and adequate lighting, and using clean and dry sheets, 2) setting the

time to wake up at the same time every day, 3) sleeping at the time the same every day, 4) doing activities such as praying before going to bed to help improve comfort before going to sleep, 5) choosing a comfortable sleeping position, in patients with heart failure it is recommended to select the right or left angled position or semirecumbent with 45 degrees 6) Keep the temperature in the bedroom comfortable, and 7) keep the room calm (29-30).

While the things that must be avoided are: 1, avoid sleeping during the day with a long time because sleeping more than 30-45 minutes during the day will reduce sleep time at night and make it difficult to fall asleep at night, 2. avoid activities such as watching television, eating or other things that can interfere with sleep, 3. avoiding consuming caffeine drinks at night (coffee, tea, chocolate, etc.), drinking alcohol, and smoking before going to bed (nicotine is a stimulant that can make wakefulness), 4. avoid excessive drinking before going to bed so as not to wake up to go to the bathroom.

Many studies on the effects of sleep hygiene in heart failure patients have been carried out. In the study, it was explained that heart failure patients should get sleep hygiene, increase leisure time, improve self-management, and promote emotional conditions to enhance the quality of sleep (6). The benefits of sleep hygiene are that patients can regulate sleep, reduce sleep disturbances experienced previously and can improve the quality of sleep (26). Research on sleep hygiene has been conducted Martinez (34) in fibromyalgia patients who experience sleep disorders. The results showed that sleep hygiene was able to improve the patient's sleep quality. Similar studies in other patients were also carried out by Soleimani in renal failure patients undergoing hemodialysis and having sleep disorders (35). The study stated that sleep hygiene was able to reduce poor sleep quality from 84.7% to 64.5%.

4.1.2 Relaxation Benson

In addition to the behavioral approach, relaxation techniques are a psychological approach to dealing with sleep disorders in heart failure patients (25). One of them is the Benson relaxation technique. The Benson relaxation technique can be done for 15 to 20 minutes, starting with taking a sleeping or sitting position that feels most comfortable and closes your eyes. During the intervention, respondents were asked to block disturbing thoughts and to choose soothing words/phrases, which were always reminders of calm like the words of Allah "according to belief and begin breathing deeply regularly.

The patient must breathe through the nose and exhale through the mouth, and repeat the soothing words. Patients are asked to relax all their muscles, starting from the legs, then the upper body and head until all the muscles relax. Patients can stop the procedure whenever they want or feel uncomfortable. Furthermore, patients are asked to open their eyes and remain in a state of rest until they reach the desired relaxation (14,31).

The research was conducted by Seifi (14) explained that the Benson relaxation technique could also be done in patients with heart failure, where this technique has no muscle tension and does not increase respiration rate, pulse, and blood pressure. In addition, research conducted by Rambod (36) showed that Benson relaxation technique could affect global sleep quality averages, decreased sleep latency from 44.88% to 32% , reduced sleep disorders from 8.61% to 5.53%, decreased daytime dysfunction from 1.30% to 0,79%, and used of sleeping pills from 0.95% to 0.52%. Other literature explains that Benson has the desired effect on the sleep quality of patients with chronic

heart disease so that it can be used as a complementary therapy to improve sleep quality in patients (37).

5. Discussion

The mechanisms underlying sleep disorders or insomnia in patients with heart failure are caused by nocturnal symptoms that cause sleep disorders, such as coughing, orthopnea, paroxysmal nocturnal dyspnea, and nocturia (15). In addition, the results of the study show that there are behavioral factors that cause sleep disturbances in heart failure patients that are associated with increased bedtime even though they are still awake (16,17), perception of insufficient sleep, frequent naps (17,18), and television use that can help them sleep (19, 20).

Sleep is a basic human need; which is a universal biological process that is common to everyone (32). Sleep disorders can cause increased compensation in the duration and intensity of subsequent sleep (33). Sawatari explained that sleep disorders in heart failure patients must get proper care to improve having a good quality of life in patients (21). Sleep disorders in patients with heart failure will cause increased levels of urinary catecholamine, plasma leptin, and inflammatory markers. These changes are related to the development of hypertension, activation of the sympathetic nervous system, and blunting of chemoreflex, which will increase the heart burden, cause a poor prognosis, cause depression and make a lower quality of life (21).

The results of other studies about the effects of sleep disorders revealed that the long-term cumulative effects of sleep disorders had been linked to various diseases of health conditions namely an increased risk of hypertension, diabetes, obesity, depression, heart attack, and stroke (22). Heart failure patients who experience sleep disorders will experience insomnia which contributes significantly to fatigue and reduced quality of life (15).

Sleep hygiene can reduce sleep disorder in heart failure patients. It was explained that heart failure patients should get sleep hygiene, increase leisure time, improve self-management, and promote emotional conditions to enhance the quality of sleep (6). Benson relaxation techniques can also be done in patients with heart failure, where this technique does not have muscle tension and does not increase breathing rate, pulse rate, and blood pressure. The literature explains that Benson has the desired effect on the sleep quality of patients with chronic heart disease so that it can be used as a complementary therapy to improve sleep quality in patients (37).

Management of sleep disorders that occur in patients with heart failure should get serious attention and be carried out in a comprehensive and multidisciplinary manner. Nurses, as one of the health professionals, have an essential role in this matter. This is because the scope of nursing is fulfilling basic human needs, namely sleeping one of them.

6. Conclusion

Management of sleep disorders that occur in patients with heart failure should get serious attention and be carried out in a comprehensive and multidisciplinary manner. Nurses, as one of the health professionals, have an essential role in this matter. Psychological and behavioral interventions can also overcome sleep disorders. Sleep hygiene and Benson relaxation is an intervention that has the potential to improve sleep quality in heart failure patients.

7. Recommendation

Nurses are expected to be able to provide interventions for sleep hygiene and Benson relaxation in heart failure patients with complaints of sleep disorders.

Reference

1. Savarese G, Lund LH. Epidemiology Global Public Health Burden of Heart Failure. 2017;7–11.
2. Brake R, Jones ID. Chronic heart failure part 1 : pathophysiology, signs, and symptoms. 2017;(19).
3. Savarese G, Lund LH. Global Public Health Burden of Heart Failure. *Card Fail Rev* [Internet]. 2017 Apr [cited 2018 Oct 27];3(1):7–11. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/28785469>
4. Litbangkes. Info datin: Situasi Kesehatan Jantung. 2014;
5. Ignatavictus DD, Workman ML. Medical-Surgical Nursing Patient-Centered Collaborative Care. 2013.
6. Wang TJ, Lee SC, Tsay SL, Tung HH. Factors influencing heart failure patients' sleep quality. *J Adv Nurs*. 2010;66(8):1730–40.
7. Redeker NS, Jeon S, Muench U, Campbell D, Walsleben J. Insomnia Symptoms and Daytime Function in Stable Heart Failure. 2010;33(9).
8. Associados F, Padr AO, Em DES, Com P, Card N, Factores ACA, et al. in heart failure patients *. 2011;
9. Parati G, Lombardi C, Castagna F, Mattaliano P, Filardi PP, Agostoni P, et al. Heart failure and sleep disorders. *Nat Rev Cardiol* [Internet]. 2016 Jul 12 [cited 2018 Sep 19];13(7):389–403. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27173772>
10. Yousefi S, Taraghi Z, Mousavinasab N. The effect of progressive muscle relaxation (PMR) on sleep quality in patients with chronic heart failure. 2017;8:4–9.
11. Tsuchihashi-Makaya M, Matsuoka S. Insomnia in Heart Failure. *Circ J* [Internet]. 2016 Jun 24 [cited 2018 Nov 20];80(7):1525–6. Available from: https://www.jstage.jst.go.jp/article/circj/80/7/80_CJ-16-0501/_article
12. Masahiko Setoguchi. Sleeping pills increase CV events in heart failure patients [Internet]. 2014 [cited 2018 Nov 20]. Available from: <https://www.escardio.org/The-ESC/Press-Office/Press-releases/Sleeping-pills-increase-CV-events-in-heart-failure-patients>
13. Koulivand PH, Khaleghi Ghadiri M, Gorji A. Lavender, and the nervous system. *Evid Based Complement Alternat Med* [Internet]. 2013 [cited 2018 Nov 20];2013:681304. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23573142>
14. Seifi L, Najafi Ghezeljeh T, Haghani H. Comparison of the Effects of Benson Muscle Relaxation and Nature Sounds on the Fatigue in Patients with Heart Failure: A Randomized Controlled Clinical Trial. *Holist Nurs Pract*. 2018;32(1):27–34.
15. Hayes D, Anstead MI, Ho J, Phillips BA. Insomnia and chronic heart failure. *Heart Fail Rev*. 2009;14(3):171–82.
16. Redeker NS, Stein S. Characteristics of sleep in patients with stable. 2006;(August):252–61.
17. Redeker NS, Knies AK, Hollenbeak C, Klar Yaggi H, Cline J, Andrews L, et al.

- Cognitive behavioral therapy for insomnia in stable heart failure: Protocol for a randomized controlled trial. *Contemp Clin Trials* [Internet]. 2017;55:16–23. Available from: <http://dx.doi.org/10.1016/j.cct.2017.01.009>
18. Fridlund B. Sleep Difficulties, Daytime Sleepiness, and Health-related Quality of Life in. 2004;19(4):234–42.
 19. Andrews LK, Coviello J, Hurley E, Rose L, Redeker NS. “I’d eat a bucket of nails if you told me it would help me sleep:” Perceptions of insomnia and its treatment in patients with stable heart failure. *Heart Lung J Acute Crit Care*. 2013;42(5):339–45.
 20. Redeker NS, Jeon S, Andrews L, Cline J, Mohsenin V, Jacoby D. Effects of Cognitive Behavioral Therapy for Insomnia on Sleep-Related Cognitions Among Patients With Stable Heart Failure. *Behav Sleep Med*. 2017;2002(August):1–13.
 21. Sawatari H, Nishizaka MK, Miyazono M, Ando S, Inoue S, Takemoto M, et al. Three nights leg thermal therapy could improve sleep quality in patients with chronic heart failure. *Heart Vessels* [Internet]. 2017; Available from <http://link.springer.com/10.1007/s00380-017-1047-7>
 22. Colten HR, Altevogt BM, Research I of M (US) C on SM and. Extent and Health Consequences of Chronic Sleep Loss and Sleep Disorders. 2006 [cited 2018 Oct 30]; Available from: <https://www.ncbi.nlm.nih.gov/books/NBK19961/>
 23. NANDA. Nursing Diagnoses: definitions and classification 2015-2017. tenth edit. Wiley Blackwell; 2014.
 24. Bulechek GM, Butcher HK, Dochterman JM, Wagner C. Nursing Interventions Classification (NIC). 2013. 638 p.
 25. Kwekkeboom KL, Bratzke LC. A Systematic Review of Relaxation, Meditation, and Guided Imagery Strategies for Symptom Management in Heart Failure. 2017;31(5):457–68.
 26. Dyonzak J V. Diagnosis and psychological and behavioral treatment of insomnia. *Disease-a-Month* [Internet]. 2011;57(7):338–44. Available from: <http://dx.doi.org/10.1016/j.disamonth.2011.04.006>
 27. National Sleep Foundation. Depression & Sleep 2 - National Sleep Foundation [Internet]. 2018 [cited 2018 Nov 27]. Available from: <https://www.sleepfoundation.org/sleep-disorders-problems/depression-and-sleep/page/0/1>
 28. Posner D, Gehrman PR. Sleep Hygiene [Internet]. *Behavioral Treatments for Sleep Disorders*. Elsevier Inc.; 2011. 31-43 p. Available from: <http://dx.doi.org/10.1016/B978-0-12-381522-4.00003-1>
 29. Pinna GD, Robbi E, La Rovere MT, Taurino AE, Bruschi C, Guazzotti G, et al. Differential impact of body position on the severity of disordered breathing in heart failure patients with obstructive vs. central sleep apnoea. *Eur J Heart Fail*. 2015;17(12):1302–9.
 30. Basoglu OK, Keskin B, Tasbakan MS, Gurgun C. Effect of semirecumbent sleep position on the severity of obstructive sleep apnea in patients with heart failure. *J Card Fail*. 2015;21(10):842–7.
 31. Rambod M, Pourali-Mohammadi N, Pasyar N, Rafii F, Sharif F. The effect of Benson’s relaxation technique on the quality of sleep of Iranian hemodialysis patients: A randomized trial. *Complement Ther Med* [Internet]. 2013 Dec [cited 2018 Oct 30];21(6):577–84. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24280464>
 32. Audrey Berman & Shirlee Snyder. *Kozier & Erb's Fundamental of Nursing*

- Concepts, Process and Practice. 9th edition. 2012.
33. Dang-Vu TT, Schabus M, Colgan V, Maquet P. Sleep: Implications for Theories of Dreaming and Consciousness [Internet]. *Encyclopedia of Consciousness*. Elsevier; 2017. 357-373 p. Available from: <http://dx.doi.org/10.1016/B978-0-12-809324-5.05972-1>
 34. Martínez MP, Miró E, Sánchez AI, Díaz-Piedra C, Cáliz R, Vlaeyen JWS, et al. Cognitive-behavioral therapy for insomnia and sleep hygiene in fibromyalgia: A randomized controlled trial. *J Behav Med*. 2014;37(4):683–97.
 35. Soleimani F, Motaarefi H, Hasanpour-Dehkordi A. Effect of sleep hygiene education on sleep quality in hemodialysis patients. *J Clin Diagnostic Res*. 2016;10(12): LC01-LC04.
 36. Rambod M, Pourali-Mohammadi N, Pasyar N, Rafii F, Sharif F. The effect of Benson's relaxation technique on the quality of sleep of Iranian hemodialysis patients: A randomized trial. *Complement Ther Med* [Internet]. 2013;21(6):577–84. Available from: <http://dx.doi.org/10.1016/j.ctim.2013.08.009>
 37. Roya A, Mohsen K, Hassan RM, Morteza HS. Effect of the Benson relaxation technique on quality of sleep in patients with chronic heart disease [Internet]. Vol. 21. *JOURNAL OF SABZEVAR UNIVERSITY OF MEDICAL SCIENCES*; 2014 [cited 2018 Oct 10]. p. 492–500. Available from: <https://www.sid.ir/En/Journal/ViewPaper.aspx?ID=407540>