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Sleep Hygiene Education

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by

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Abstract

This DNP project was designed to increase awareness of insomnia and sleep hygiene in the target community by providing an in-person educational session on sleep hygiene. The educational session provided information on insomnia, sleep hygiene habits, statistics of those with sleep disorders, and medication use for sleep. The impact of the project implementation was measured using a pre-intervention survey and a post-intervention survey. All survey items had an increase in correct answers post-intervention. In conclusion, the results revealed there was an increase in awareness and knowledge base of insomnia and sleep hygiene after the education was provided.

Keywords: insomnia, sleep hygiene, sleep disorders, obesity

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Introduction

Insomnia is the most prevalent sleep disorder in the general population (Schutte-Rodin et al., 2008). Insomnia is the inability to initiate or maintain sleep, leading to excessive daytime sleepiness (Centers for Disease Control and Prevention (CDC), 2022). Chronic insomnia is defined as insomnia that is present for at least 1 month whereas acute insomnia lasts days to weeks (Schutte-Rodin et al., 2008). Insufficient sleep has been linked to the development of many chronic diseases, including obesity, type 2 diabetes, cardiovascular disease, and depression. In addition, chronic disease has increasingly played a role in premature death for adults (CDC, 2022).

Problem Recognition

An estimated 50-70 million adults in the United States (US) have chronic sleep and wakefulness disorders (Lie et al., 2015). According to the County health rankings data, 36% of adults in the targeted community reported getting fewer than 7 hours of sleep per night, compared to the National average of 35% (County Health Ranking & Roadmap, n.d.). Insomnia is an endemic disease for the American population. Reuben et al. (2023) state “Sleep medication is a common treatment option for insomnia” (p. 1). The 2020 National Health Institute Survey found 8.4% of adults took sleep medication every day or most days over 30 days (Reuben et al., 2023). Of the 8.4% of adults taking sleep medication 5.6% were ages 18-44, 10% were ages 45-65, and 11.9% were over age 65 (Reuben et al., 2023). A National Health Institute Survey found between 2005-2010, 4% of adults aged 20 years and older reported they had taken a sleep aid during a 30-day period (Lie et al., 2015). The number of individuals taking medication for sleep has

doubled from the 2010 survey to the 2020 survey. Sleep deficiency is linked to many chronic health problems, including obesity (CDC, 2022).

Problem Statement

Will providing sleep hygiene education to individuals 18 years and older within a small rural community in western North Carolina increase their knowledge and awareness of insomnia?

Literature Review

Insomnia and Obesity

A study published in the Journal of Sleep Medicine concluded short and long durations of sleep, in addition to symptoms of insomnia, have a correlation to obesity (Cai et al., 2018). A total of 18,823 participants ages 45-78 were included in the study. The reports of individuals with less than 6 hours of sleep a night were 8% and greater than 9 hours of sleep per night were 4%. However, 19% reported symptoms of insomnia, 16% reported being obese with a BMI > 30 and 40% reported having central obesity (Cai et al., 2018).

Tasali et al. (2014) conducted a behavioral intervention with 10 individuals at risk for obesity. This was a home-based intervention with participants who reported an average of 6.5 hours of sleep. The intervention was to extend the sleep duration to 8.5 hours. Sleep was recorded by a wrist device and the participants also rated their sleepiness, desire for certain foods, and vigor (Tasali et al., 2014). Additional sleep of 1.6 hours was correlated with a 14% decrease in overall appetite and a 62% decrease in desire for sweet and salty foods (Tasali et al., 2014). Adequate sleep can be beneficial in managing weight gain as it affects the cravings for certain foods. Loss of sleep alters the

hypothalamus which regulates appetite and energy (Taheri, 2006). Insufficient sleep and circadian misalignment predispose individuals to poor metabolic health and promote weight gain (Chaput et al., 2023).

Sleep Hygiene Education

The American Academy of Sleep Medicine recommends adults should be getting 7 hours of sleep or more per night on a regular basis (Troy, 2021). In a systematic review and meta-analysis, Chung et al. (2018) found there to be significant improvements from pre- to post-treatment using sleep hygiene education. Common topics covered during sleep hygiene education included caffeine intake, tobacco and alcohol use, exercise, stress, noise, sleep timing, and daytime napping (Chung et al., 2018).

Among healthy diet and exercise, there are recommended habits for sleep hygiene from the Center for Disease Control. Sleep hygiene recommendations include being consistent with bedtimes and wake times, ensuring the bedroom is dark, quiet, and at a comfortable temperature, getting regular daily exercise, avoiding electronic devices, and avoiding large meals, caffeine, and alcohol before bed (CDC, 2022). Scammell et al. (2022) recommend avoiding arousing activities at bedtime. There should be a “wind down” routine 30 minutes before bedtime and there should be no computers, televisions, smartphones, or tablets in the bedroom (Scammell et al., 2022). Meditation, music, or reading can be incorporated into the wind-down routine. If an individual is having trouble falling asleep after 20 minutes, then it is advised they get up and listen to music or read with a dim light but crucial to avoid light from television or phones (Scammell et al., 2022). According to the Sleep Foundation, healthy sleep hygiene consists of making the environment conducive to sleep and forming habits to support healthy sleep (Suni &

Suni, 2023). Sleep hygiene education includes maintaining a sleep and wake time, keeping your sleep space dedicated for sex and sleep, avoiding consumption of caffeine, alcohol, or nicotine near bedtime, blocking out light, avoiding blue light from electronic devices, and avoiding large meals close to bedtime (Suni & Suni., 2023). Habits that can help create a supportive sleep space include creating a simple nighttime routine, participating in yoga or meditation, breathing, keeping the lights low if needed, and avoiding tossing and turning once lying down. Key factors for sleep are sunlight exposure morning and evening to support the circadian rhythm and physical activity (Suni & Suni, 2023).

Needs Assessment

Target Population

The target population consisted of adults living in a small rural community in Western North Carolina. Individuals have to be 18 years and older to participate. Participants were a random sample from the community.

Resources

Available resources for this project include a local business within the community. The location has a conference room for the educational session to be held. The necessary equipment to show the PowerPoint presentation to participants is available.

Expected and Desired Outcomes

The expected outcome of this project was for participants to have increased knowledge and awareness of sleep hygiene. The desired outcome was for participants to

utilize the information obtained from the educational session and apply the information obtained to their own lives to improve their sleep hygiene.

Team Selection

The DNP project team consisted of the DNP project leader, DNP project chair, and DNP practice partner. The DNP Leader was a Doctor of Nursing Practice student. The DNP project chair is a doctoral-prepared Nurse Practitioner and Professor. The practice partner was a health coach and owner of a local business within the target community.

Scope of the Project

This project was an educational opportunity for individuals in the rural community. The participants were given education on how to recognize signs of insomnia and improve sleep hygiene. The goal was to increase awareness and knowledge about sleep hygiene and insomnia within the target community.

Objectives

Project Objectives

The objectives for this DNP project were:

- Participants will have increased awareness of insomnia.
- Participants will have increased knowledge of sleep hygiene.

Theoretical Framework Nursing Theory

Jean Watson's Theory of Caring focuses on the patient's own healing process and their personal environment (Zaccagnini & Pechacek 2021). The Theory of Caring is based on the 10 caritas. The 10 caring factors include the:

1. practice of loving-kindness,

2. being authentically present,
3. cultivation of spiritual practices,
4. developing a helping-trusting relationship,
5. supporting the expression of feelings,
6. creative use of self in the caring process,
7. engaging in teaching- learning from another's perspective,
8. creating a healing environment,
9. helping with basic needs with caring consciousness, and
10. opening to spiritual and existential dimensions; the soul cares for self and others (Zaccagnini & Pechacek 2021).

This theory is a foundation for this project as it focuses on health promotion and holistic approaches to improving an individual's health.

It is imperative for healthcare providers to build a trusting relationship with their patients. Watson's theory of caring emphasizes the relationship between the patient and the caregiver, highlighting the personal healing process for each patient. When a provider is caring for a patient, it is important he or she provides the patient with the tools and education available to better help themselves. Each patient's healing journey can be affected by their environmental factors and the sleep environment can affect the quality of sleep someone is getting. Sleep hygiene education can provide the patient with recommendations to improve their sleep quality, leading to better overall health.

The transpersonal caring relationship, the caring moment, and the caring-healing modalities were applied during the sleep hygiene educational session to achieve a healing environment, a transpersonal teaching-learning environment, and help with the basic

needs of caring consciousness. The educational session allowed individuals to learn about sleep hygiene and increase awareness of insomnia. The participants were able to identify habits that may be contributing to insomnia and interrupting their quality of sleep. This project was formulated around Watson's theory.

Working Plan

Cost/Benefit Analysis

There were minimal resources needed to implement this community project. A local property was used for the presentation at no cost. Paper and ink were used for the educational session surveys costing $15. Social media was utilized for advertising at no cost. Refreshments were provided for participants which were $30. The overall costs for the project implementation were minimal, totaling $35. Untreated insomnia is estimated to cost as much as $100 billion per year, with a majority of costs being indirect (American Journal of Managed Care, 2020). These indirect costs include inpatient admissions, emergency department visits, days hospitalized, and outpatient provider visits (American Journal of Managed Care, 2020). By increasing awareness of insomnia and sleep hygiene, individuals can help decrease their risk of obesity and hospital visits related to comorbidities. leading to a decrease in comorbidities requiring hospital visits.

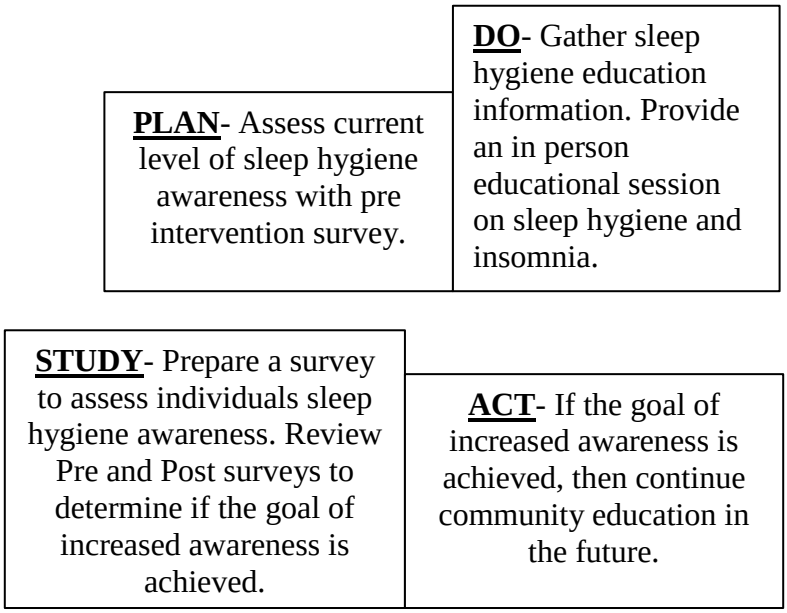
Evaluation Plan

A PDSA model (Figure 1) was used in the evaluation of the project. PDSA is an abbreviation for the Plan, Do, Study, Act Model. The Planning component consisted of an in-person educational session at a local business within the target community on sleep hygiene and insomnia. The Do component of the chart consisted of individuals participating in an educational presentation and completing a pre-intervention survey.

The Study component consisted of the participants completing a post-intervention survey to compare to the initial survey to assess the impact of education. The Act component consists of continuation of the community education due to the results showing there was increased awareness of sleep hygiene. To sustain this project future educational sessions, need to be offered in the target community to reach a larger population regarding sleep hygiene.

Figure 1

PDSA Model



Project Implementation

Threats and Barriers

With all projects, there are threats and barriers to be considered. In this project since it was completed within the community, finding a location was a threat in the beginning. A church was initially approved for this project. However, the location was later changed due to the project leader wanting a natural environment for the participants

during the presentation. This was a barrier to the project because the facility had to be changed and approved. A local property known for its beautiful nature and healing aspects was used to implement the project. A barrier to the project was the small number of participants. While the results showed increased awareness of insomnia and sleep hygiene, it would have had increased reliability with a larger population.

Monitoring of Implementation

The project leader was in communication with the practice partner and project chair leading up to project implementation. Advertising was done within the community and on the project leaders' personal social media. The surveys were created by the project leader and approval was received for implementation. The one-time educational session was implemented, and all participants were engaged. During implementation, participants were asked to participate in the project by completing a pre- and post-intervention survey, developed by the project leader.

The surveys were developed by the project leader and utilized to determine if participants had increased awareness and knowledge after the educational session.

Project Closure

Upon project closure, participants were given time to ask questions and complete the post-intervention survey. The post-survey consisted of the same five questions as the pre-intervention survey. All 15 participants who participated in the project completed the pre- and post-intervention surveys. This project leader compared the pre- and post-scores of each question to determine if participants had increased knowledge and awareness of insomnia and sleep hygiene.

Interpretation of Data

Quantitative Data

A total of 15 participants attended the educational session. Participants were given five-question pre-intervention and post-intervention surveys. All 15 participants completed the pre-intervention survey and post-intervention survey (Figure 2).

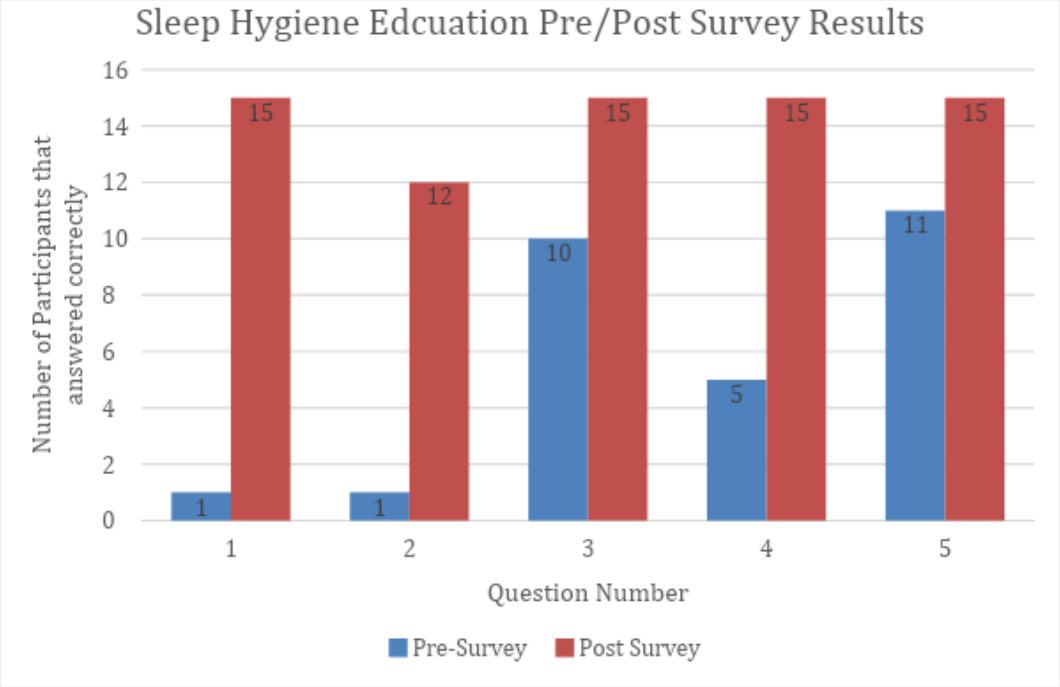
- For question one "What percentage of adults are getting less than seven hours of sleep nightly", one participant answered the question correctly on the pre-survey and all 15 participants answered the question correctly on the post-survey revealing a 94% increase.
- Question two asked participants "What are the symptoms of insomnia." One participant answered it correctly on the pre-survey compared to 12 on the post-survey, revealing a 74% increase.
- Question three was a true/false question asking if "insomnia is often the result of another problem." Ten participants answered it correctly on the pre-survey compared to all 15 who answered it correctly on the post-survey, demonstrating a 34% increase.
- Question four asked, "What is the minimum number of hours an individual should sleep per night." Five participants answered the question correctly on the pre-survey and all 15 participants answered it correctly on the post-survey, revealing a 67% increase.
- The fifth and final question asked, "Which intervention can help an individual get better sleep." Eleven participants answered the pre-survey correctly, compared to

all 15 participants who answered correctly on the post-intervention, demonstrating a 27% increase.

Overall, an increase was noted with each question, showing there was an increase in awareness and knowledge of insomnia and sleep hygiene by the participants.

Figure 2

Pre- and Post-Survey Results



Conclusion

Many individuals suffer from insomnia or lack of sleep. This project noted an increase in the knowledge and awareness of participants after being given educational material on insomnia and sleep hygiene. There is importance in providing education to the community on sleep hygiene as many are not aware of ways to help with their sleep issues. If given the right information, participants can adjust their routines and include daily habits to improve sleep. Future recommendations include educating a larger

population within the community and offering the presentation at various locations around the community.

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