Supporting Adequate Sleep in Patients Hospitalized with Psychiatric Illness Through a Nurse-Driven Protocol

Mary Perez

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"Supporting Adequate Sleep in Patients Hospitalized with Psychiatric Illness"

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Supporting Adequate Sleep in Patients Hospitalized with Psychiatric Illness

Through a Nurse-Driven Protocol

by

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Abstract

Sleep is growing in recognition for its part in overall health. Sleep is essential to optimal functioning in all people. Its link to psychiatric illness makes it especially important to those in recovery. As we learn more about sleep and its effects, it is important for nurses and nurse leaders to become more acquainted with how sleep affects health and what can be done to initiate good sleep. Since sleep is complex and supporting sleep must be individualized to each person, having a good understanding of both subjects is necessary. Sleep hygiene is a set of environmental and behavioral interventions that are low in cost and easy to put in place. Many people who have been hospitalized have experienced interrupted sleep. This project consists of a quantitative study researching the effects of a nursing-driven sleep protocol on quality and length of sleep in hospitalized psychiatric patients. The study reveals the importance of a team approach to change, documentation consistent with workflow, and maintaining the art of psychiatric nursing.

Key words: sleep recommendations for healthy adults; sleep, wellbeing; sleep; hospital sleep intervention; mental illness, sleep; nursing education, sleep; sleep, suicide need; sleep, bipolar need; sleep, psychosis need; sleep hygiene
Dedication

I come from a long line of nurses, to whom I dedicate this work. My grandmother assisted the “Horse and Buggy Doctor” in performing a surgery on someone’s kitchen table. My Aunt Mary was a Lieutenant Colonel in the United States Air Force while serving as an operating room nurse; she flew air evac in Vietnam. My mother was a diploma nurse and talks about sitting for a week to take boards. As a young girl, I helped her with ironing and starching white clothing, polishing white shoes, and ironing her cap. She was an oncology nurse and nurse leader for much of her career. I was always touched by the way she talked about her patients when she came home. My niece will be taking her boards on July 27, 2020, and my older daughter is completing her nursing prerequisites. I guess you could say nursing is in my blood. Dad, thank you for showing me what it takes to get a doctoral degree.
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I offer a special thanks to Dr. Ann Taylor-Trujillo, my Committee Member. She has been my mentor and cheerleader, helping me believe in myself under some of the most difficult circumstances, but she has also been so much more. She brings an integrity to nursing leadership that is unparalleled. I am truly grateful for having her guidance and feel fortunate to call her my friend.

There are certainly more people who have helped me along this journey than I could ever repay. Especially I want to thank my husband and best friend, Larry; my daughter Lauren, for her help with the patient sleep education handout; Lyndsey, my cleaning partner, for peeling me off the ceiling when some technology issue occurred that I was sure would result in my failure; our children and grandchildren; and my dear friends and classmates who have supported my efforts and encouraged me at low points during this program. I am profoundly grateful to you all.
<table>
<thead>
<tr>
<th>Chapter Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHAPTER 1: INTRODUCTION AND BACKGROUND</strong></td>
<td>1</td>
</tr>
<tr>
<td>Problem Statement</td>
<td>3</td>
</tr>
<tr>
<td>PICOT Question</td>
<td>4</td>
</tr>
<tr>
<td>Objectives and Aims</td>
<td>4</td>
</tr>
<tr>
<td>Scope of Study</td>
<td>5</td>
</tr>
<tr>
<td><strong>CHAPTER 2: REVIEW OF LITERATURE</strong></td>
<td>6</td>
</tr>
<tr>
<td>Prevalence of Sleep Disturbance</td>
<td></td>
</tr>
<tr>
<td>Effects of Sleep Deprivation</td>
<td></td>
</tr>
<tr>
<td>Sleep Problems and Mental Illness</td>
<td>9</td>
</tr>
<tr>
<td>Sleep Improvement Measures</td>
<td>12</td>
</tr>
<tr>
<td>Summary</td>
<td>13</td>
</tr>
<tr>
<td><strong>CHAPTER 3: THEORETICAL MODEL AND METHODOLOGY</strong></td>
<td>14</td>
</tr>
<tr>
<td>Theoretical Model</td>
<td>14</td>
</tr>
<tr>
<td>Methodology</td>
<td>14</td>
</tr>
<tr>
<td>Project and Study Design</td>
<td>5</td>
</tr>
<tr>
<td>Setting and Resources</td>
<td>8</td>
</tr>
<tr>
<td>Study Population</td>
<td>20</td>
</tr>
<tr>
<td>Process and Data Collection</td>
<td>20</td>
</tr>
<tr>
<td>Tool</td>
<td>1</td>
</tr>
</tbody>
</table>
List of Tables

Table 1. Demographics of Study Sample .................................................................

266

Table 2. Comparison of Pre- and Post-Intervention Study Outcomes .........................

277
List of Figures

Figure 1. Ishikawa diagram of barriers to supporting sleep...............................................17

Figure 2. PDSA Cycle One summary..................................................................................23

Figure 3. PDSA Cycle Two summary..................................................................................24
List of Abbreviations

CDC...............Centers for Disease Control and Prevention
PDSA...............Plan-Do-Study-Act Model for Improvement
RCSQ...............Richards–Campbell Sleep Questionnaire
CHAPTER 1: INTRODUCTION AND BACKGROUND

Sleep serves as a biological restorative for humans. It is a complex phenomenon that promotes well-being. Sleep helps with learning, decision making, emotions, cognitive functioning, and optimum immune, metabolic, and cardiac function. It has always been linked to good physical, emotional, and social health and recovery (Walker, 2017). The Centers for Disease Control and Prevention (CDC) recommend that adults sleep seven hours or more per night; individuals who sleep less are more susceptible to cancer, coronary disease, diabetes, and poor cognitive function, all of which can lead to increased mortality (Liu et al., 2016).

In a 2014 survey by Liu et al. (2016) of 444,306 adults in the United States, 65.2% of respondents reported a healthy sleep duration of around seven hours per night. Adults who are over 65, females, Anglos, working-class individuals, college graduates, and married people self-reported the overall highest incidence of healthy sleep. According to this study, an estimated 83.6 million American adults sleep less than the recommended seven hours. Kanagasabai and Chaput’s (2017) study of sleep duration and related cardiometabolic risk for adults confirmed that the lowest risk scores are associated with seven hours of sleep, after adjusting for age, gender, ethnicity, education, income, alcohol use, and smoking status. Petrov and her colleagues (2015) ascertained that improved sleep was strongly linked to decreases in pain sensitivity, and disrupted sleep related to increased sensitivity to unpleasant stimulus, as reported by patients with osteoarthritis of the knee. They also found that pain, while not the initial cause of insomnia, may contribute to further sleep disruption. In this same study, Petrov
et al. found that improving sleep by using cognitive behavioral interventions for insomnia served to reduce pain sensitivity.

Sleep is gaining global attention in the public health arena for its effects on overall health. Sleep problems may be acute or chronic, and even if they occur at sub-clinical levels, they may impair daily functions such as cognition, drive, and emotions. Such problems can take the form of prolonged sleep latency, excessive wake after sleep onset, short total sleep time, low sleep efficiency, or poor sleep quality based on assessment (Irish, Kline, Gunn, Buysse, & Hall, 2015).

Sleep is a complex and multifaceted function, and significant individual variance exists in causal factors associated with dysfunction. As a result, sleep hygiene, a group of behavioral and environmental recommendations, focuses on overall sleep health as opposed to sleep disorders. While some research empirically supports the use of various sleep hygiene techniques to enhance sleep quality, more specific guidelines around interventions require research to establish their validity and overall effectiveness (Irish et al., 2015).

Beyond the recommended seven hours of sleep for good health, sleep should be of good quality so that it occurs during regular sleep and wake intervals, without delayed onset, and with few disruptions during the sleep interval (Watson et al., 2015). Numerous health problems can occur when a person sleeps less than seven hours regularly, including increased risk of death. Sleeping more than nine hours may be appropriate for young adults or people recovering from sleep deprivation or illness, but sleeping over nine hours or under seven hours may require further assessment by a primary care provider (Watson et al., 2015).
Two-thirds of people throughout all developed nations suffer from less than eight hours of sleep (Walker, 2017). Clinically, insomnia is more than simply being unable to sleep. Sleep deprivation is the most common sleep complaint and is often referred to as insomnia. People who are sleep deprived are able to sleep but may not have adequate time to sleep. Insomnia is one of approximately one hundred different sleep disorders. Walker (2017) defines it as a condition in which the individual has trouble with falling asleep, staying asleep (as in frequent awakenings), or does not feel rejuvenated following sleep, all of which result in difficulty with daily functioning. Primary insomnia does not occur because of other medical or psychiatric conditions; however, it may serve to exacerbate such conditions.

**Problem Statement**

Hospitalized patients experience sleep problems, including poor quality and shortened duration (Dobing, Frolova, McAlister, & Ringrose, 2016). The literature indicates that uncomfortable treatments affecting the physical and psychological well-being of patients also affect their ability to sleep. Psychiatric illness and related trouble that occurs with circadian rhythms play a dual role, both causing and resulting in worse sleep for patients. In the past, mental illness was believed to affect a person’s ability to sleep; however, current research indicates there is a bidirectional relationship between sleep and mental illness (Krystal, 2012). Sleep duration and quality are both markers of psychiatric illness, as well as indicators of recovery in hospitalized psychiatric patients (Pyrke et al., 2017).
**PICOT Question**

Using a retrospective medical record review for hospitalized psychiatric patients, how does a patient’s perceived quality of sleep change 2 months after a nurse-driven sleep enhancement program?

**Objectives and Aims**

The objective of this study was to evaluate the impact of nursing leadership in assessing and revising the bedside nurse’s role in enhancing sleep quality for hospitalized patients with psychiatric illness, which is identified as a gap across training for nurses, unit protocols, and current nursing literature (Pyrke et al., 2017). This project explored factors that affect nurses’ ability to support improved quality of sleep on a psychiatric unit and sought to propose recommendations and leadership practices as needed to overcome deficits identified in sleep-promoting behaviors and environmental factors.

This study aimed to assist nurses in making adjustments based on pre- and post-implementation sleep quality assessment, as well as hard wire the process for the future.

This project sought to answer the question: is there a nurse-driven sleep hygiene protocol that improves quality of sleep for hospitalized psychiatric patients by providing education and options for supporting sleep?

Potential complications for the nursing leader in the management of sleep interventions are: developing effective screening for the complex issue of sleep disturbance (currently done via the Richards-Campbell Sleep Questionnaire [RCSQ]); manipulation of unit environmental factors, which is also multifaceted and complex; unit policies, routines, and culture regarding sleep hygiene measures; and nursing attitudes
toward sleep endorsement as a priority. These factors all play a part in predicting the success of sleep interventions for patients (Huang, Liao, Chang, & Lai, 2018).

The project aimed to examine the self-reported quality of sleep in hospitalized psychiatric patients 18 years and older on their third night of sleep. An RCSQ (Appendix A) was given to patients admitted to the participating organization to measure their perceived quality of sleep on the third night and prior to the implementation of the sleep hygiene program and an associated sleep hygiene group. The sleep hygiene group was based on recommendations from the current literature and the National Sleep Foundation. The staff established sleep education for patients, as well as recommendations to include sleep hygiene offerings. All patients received the RCSQ on their third night of sleep after admission. A retroactive review of patients was conducted prior to implementing the sleep interventions for one month. An additional review of data followed the execution of the sleep support initiatives to determine the efficacy of the intervention for hospitalized psychiatric patients.

**Scope of the Study**

The goal of this project is to examine self-reported quality of sleep in hospitalized adult psychiatric patients 18 and over on their third night of sleep after admission. Inclusion criteria indicate patients admitted with the psychiatric conditions: bipolar disorder, major depressive disorder, schizophrenia and related disorders, psychotic disorders, and major neurocognitive disorders with behavioral disturbance. Exclusion criteria indicate patients on Clinical Institute for Withdrawal Assessment for Alcohol protocol, Clinical Opiate Withdrawal Scale, positive for amphetamine or methamphetamine upon admission to the emergency room, and duplicate patients.
CHAPTER 2: REVIEW OF LITERATURE

Prevalence of Sleep Disturbance

A review of the literature related to sleep disturbance among healthy individuals in the United States indicates that the use of social media by young adults within 30 minutes before going to bed has been linked to sleep disturbance (Levenson, Shensa, Sidani, Colditz, & Primack, 2017). The literature also indicates being Black or experiencing increased emotional anguish are predictors of a shorter sleep duration over those reporting less emotional distress. Social determinants of health may be linked to shorter sleep duration (Seixas et al., 2017). The Morbidity and Mortality Weekly Report presented a study conducted by the CDC on employed adults between 2013 and 2014 using the Behavioral Risk Factor Surveillance System. They found, after controlling for age, race, and marital status, that 22 occupational groups in 29 states identified five professions or job positions with short sleep duration: production, healthcare support, healthcare practitioners and technical staff, food preparation and serving-related staff, and protective service staff. Likely, many of these are shift workers and may experience circadian rhythm disturbance and associated sleep disturbance (Shockey & Wheaton, 2017).

An individual’s partiality for performing certain activities at certain times during the day is known as circadian typology. Circadian typology is believed to be linked to a person’s functioning during health and illness and may be referred to as their morningness or eveningness. Evening types are more likely to develop sleep problems (Jeon, Bang, Park, Kim, & Yoon, 2017). Hospital routines are extremely disruptive to the evening type of individuals because of early morning routines and wake-up times.
Patients often find it difficult to fall asleep and are awakened multiple times, with no thought for their comfort or ability to return to sleep.

Increased sleep disturbance also occurs in adults over 55, many of whom report a few nights of interrupted sleep each week. Over-the-counter sleep medication is used monthly by over 2 million adults greater than 60 years of age in the United States, and 35% of them take the medication more than 20 days in a month (Leggett, Pepin, Sonnega, & Assari, 2016). Poor mental, physical health and other adverse events are associated with increased use of prescribed sleep medication; having more education and drinking less alcohol are associated with beginning over-the-counter use. These medications are used in spite of problematic side effects, such as dependence, increased fall risk, and cognitive impairment (Leggett et al., 2016).

**Effects of Sleep Deprivation**

In his article *The Sleep-Deprived Human Brain*, Walker (2017) described neuroimaging studies on patients with sleep deprivation or protracted intervals of wakefulness. Walker found changes in memory and effects on learning and emotions, both negative and positive. Because sleep is so complex, we cannot simply look at the benefits of sleep and reverse them to understand ramifications of sleep deprivation. It is also important to consider conditions that may contribute to or potentially result from interrupted sleep. The neural changes found in Walker’s studies provide a link between sleep deprivation and psychiatric or neurological pathophysiology.

Certain neural components have been shown to be either positively or negatively affected by sleep or disruption of sleep, causing increased or decreased activity or connectivity among neural networks. Krause et al. (2017) found a relationship between
sleep deprivation and “attention, working memory, positive reward-related affect, negative affect and hippocampus-dependent memory” (p. 405). Their study revealed that attention is affected in a dose-dependent manner by both serious sleep deprivation and prolonged sleep limitation. Working memory or the ability to hold and process information was also found to be impaired by lack of sleep, due to decreased activity of the dorsolateral prefrontal cortex.

The sleep-deprived participants in Krause et al.’s (2017) study demonstrated a wide array of emotions, as well as emotional hypersensitivity. Participants who were sleep deprived for one night demonstrated a 60% increase in amygdala reactivity when shown negative images like weapons, spiders, and poisonous snakes. The same hyper-reactivity was found in participants whose sleep was restricted; whether in the research setting or in the home, more irritability was assessed in both. Sleep-deprived individuals were shown to have more difficulty with differentiating the importance of emotional stimuli, as sleep deprivation weakens the ability of the individual to correctly distinguish associative versus menacing facial signals, therefore stimulating an erroneous impression of risk. Another risk Krause et al. found with sleep deprivation is the blunting of affect in some individuals, which may lead to the perception from others that the individual lacks empathy in some situations. This may be significant in working with a sleep-deprived mentally ill population on an inpatient psychiatric unit. Often patients are housed in dormitory-style living situations with multiple people in a single room. Safety concerns may arise if patients misinterpret the actions of their peers. Unit routines, individual patient differences, and 15-minute checks for safety often serve as a disruptive influence.
Sleep Problems and Mental Illness

Current research suggests sleep and psychiatric disorders have a two-way relationship and that treatment of sleep disorders can affect treatment outcomes for the mentally ill. Sleep difficulties (falling asleep, staying asleep, or sleeping too much) occur in a high number of patients with mood disorders, anxiety disorders, post-traumatic stress disorder, and bipolar disorder. Patients with psychosis or schizophrenia also experience latency, disrupted sleep, and diminished sleep. Psychotic relapse is correlated with severe sleep disturbance in people with schizophrenia (Krystal, 2012). This is particularly important for inpatient psychiatric care teams to understand because the majority of hospitalized patients bear a diagnosis of schizophrenia.

Sleep researchers have found that problems with sleep are likely at the core of dementia and neurocognitive disorders. Fultz et al. (2019) discovered something captivating happens during the deep sleep phase, or non-REM sleep, that is known as the washing machine effect. During deep sleep, they observed, all the neurons in the brain begin working in sync, an effect that doesn't occur at any other time in our lives. Neurons turn on and off, similar to tiny light bulbs, and when they all turn off at once, suddenly the brain needs less oxygen, in the same way turning off all the lights at once cuts electricity consumption. Because the brain needs less oxygen, it therefore needs less blood, so blood flow to the brain slows for the moment that all the neurons are off. The lack of blood allows for cerebrospinal fluid to flow in. The cerebrospinal fluid flows out again, taking with it toxins such as beta amyloids that naturally accumulate in the brain and can lead to diseases like dementia. Our deep sleep is filled with these "slow waves" of cerebrospinal fluid flowing in and out of the brain and removing toxins each time, like
a washing machine taking away dirt from clothing. A lack of sufficient non-REM slow-wave sleep is believed to increase the development of amyloid plaques, and thus the relationship between dementia and sleep, in which lack of sleep leads to dementia and dementia leads to poor sleep and worsening symptoms (Mander, Winer, Jagust, & Walker, 2016).

Sleep quality and quantity has an important connection to relationships, quality of life, and psychosocial functioning (Barker, Ireland, Chu, & Ireland, 2016). Sleep difficulties add to the risk of alcohol use and subsequent abuse. Poor sleep may have a causal relationship with aggression, impulsivity and irritability; additional research is needed in this area. Providing patients with targeted interventions can serve to improve overall mental health and well-being and self-efficacy, and sleep can decrease psychiatric symptoms in patients (Krystal, 2012). Sleep loss and the relationship to dopamine appears to play an important role in alcoholism, addiction, and obesity. Individuals who have reported sleep problems are more likely to experience relapse than those without sleep loss. Changes in leptin (a hormone that decreases appetite) and ghrelin (a hormone that increases appetite) may lead to weight gain and higher caloric intake (Krause et al., 2017). Patients with schizophrenia who are taking atypical antipsychotics have an increase in these hormone levels; prolonged exposure causes further problems.

Psychiatric illness (bipolar, major depression, and schizophrenia) is associated with sleep disorders, and insomnia is one of the prodromal symptoms related to the decompensation and relapses of these illnesses (Krystal, 2012).

People with bipolar disorder experience alterations in circadian rhythms that may lead to changes in normal sleep patterns and episodes of mania (Geoffroy, Etain, Franchi,
Bellivier, & Ritter, 2015). A pathological activation of the amygdala that occurs in sleep-deprived patients, according to Krause et al. (2017), can also occur in bipolar patients (Gruber et al., 2009). In bipolar mania, the decreased need for sleep is not the same as insomnia; manic patients experience problems trying to sleep when the amount of sleep they need to feel restored is far less. Conversely, in the context of depression, patients often complain of increased need for sleep and daytime sleepiness (Krystal, 2012).

Among people with serious mental illness, those with bipolar disorder are at the highest risk for suicide. Older patients with bipolar illness may be medication-noncompliant and experience exacerbated dissatisfaction with life as a result of poor sleep. This may be compounded by alcohol or drug use. A study of such patients 50–91 years of age identified disturbance of sleep and cognitive function as predictors of suicidal intention (O'Rourke, Heisel, Canham, & Sixsmith, 2017). Sleep disturbance in these populations is known to increase their risk factors. Additionally, patients with chronic mental illness are more likely to have increased comorbid medical conditions that lead to death, and these become more troublesome over time. Having an illness that causes psychosis may further complicate treatment. Sleep disorders and substance abuse linked to these conditions also serve to exacerbate symptoms.

In working with psychiatric patients on an inpatient unit, the connection between sleep and aggression is important to nurse leaders, as it relates to patient safety. Kamphuis, Meerlo, Koolhaas, and Lancel (2012) stated, “Clinical observations suggest that sleep problems may be a causal factor in the development of reactive aggression and violence” (p. 327). Their review of literature revealed that correlational studies support a relationship between poor sleep and aggression, irritability, and hostility. Barker et al.
(2016) suggested that self-reported quality and quantity of sleep relate to aggression, motivation, and hostility in male prisoners. They found that poor sleep is not necessarily associated with implicit aggression but is associated with reduced pro-social attributes.

**Sleep Improvement Measures**

Targeted interventions that provide patients with alternatives that fit their desires serve to improve self-efficacy and, if maintained, could improve overall health and reduce healthcare costs, both in terms of outcomes and quality of life (Golden, 2016). Sleep disorders are prevalent and are linked to large numbers of health conditions. Therapies for sleep quality enhancement historically included either over-the-counter options or prescription medications that cause unpleasant side effects, including daytime sleepiness, confusion, and habitual use. It is unclear whether such medications produce truly restorative sleep.

Inhaled aromatherapy is an economical nursing intervention with fewer side effects and is more effective than massage aromatherapy. It is easy to use and has been proven effective with a 95% confidence interval for relaxing patients and inducing sleep (Hwang & Shin, 2015). Lavender has therapeutic uses in humans for a number of neurological disorders, including as an “anxiolytic, mood stabilizer, sedative, analgesic, and anticonvulsive, as well as [having] neuroprotective properties” (Koulivand, Ghadiri, & Gorji, 2013, p. 1). Koulivand et al.’s study revealed lavender and sleep hygiene together as an intervention demonstrated superior results for sleep quality when compared to sleep hygiene alone.
Summary

Growing evidence supports sleep as essential to optimum biopsychosocial functioning. Sleep disturbance is strongly correlated with mental illness, and poor sleep quality is related to increased relapse and worsening of psychiatric symptoms. Given current research on the links among psychiatric symptoms, overall health conditions, and restorative sleep, it seems more important than ever that we develop educational initiatives to assist healthcare team members to not only help their patients, but also to help themselves through the implementation of sleep enhancement practices. The proposed interventions are economical and effective for people with limited resources.
CHAPTER 3: THEORETICAL MODEL AND METHODOLOGY

Theoretical Model

Nursing administrators are tasked with heading transformational change that makes care delivery increasingly efficient and reasonably priced. Hospitals must remain continually fluid to adapt to changes in healthcare reimbursement and legislation. Currently, healthcare leaders are tasked with improving effectiveness, safety, and productivity, along with patient outcomes, while decreasing costs and reducing readmission rates.

Heading this type of complex conversion requires a scientific iterative process for making changes, as well as a means to determine whether a change is an improvement. The Plan-Do-Study-Act Model for Improvement (PDSA; Appendix B) is a commonly used metatheory that provides a means of achieving fundamental knowledge to obtain measured transformation, as well as the data needed for maintaining that change (Christoff, 2018). The PDSA model is currently accepted for use in the organization where this improvement project was conducted. It is also an integral part of the Institute for Healthcare Improvement’s Model for Improvement (“Science of Improvement,” 2019).

Methodology

The RCSQ is a non-proprietary, six-question, self-assessment survey. The original instrument measures current sleep quality from 1 to 10 on a visual analog scale for five items: sleep depth, sleep latency, awakenings, returning to sleep, and sleep quality. The total score is then averaged; a score of 100 indicates very good sleep, while lower scores indicate poorer sleep. The final question measures noise or nuisance that disturbs sleep
and is measured in the same manner as preceding questions, with a total of 100 indicating little noise and lower scores indicating more noise. In this study, the RCSQ was given to patients on their third night of admission to allow for potential decrease in acuity, adjustment to a foreign environment, and potential for middle-of-the-night admissions. The RCSQ is a validated tool with inter-rater reliability. It has been shown to help in determining patients’ sleep quality while in the hospital (Faraklas et al., 2013).

Data for this study were collected through a process of retrospective review through an investigator known as an honest broker. Data were used to study quality and duration of sleep pre- and post-intervention for patients admitted to an acute inpatient psychiatric facility. The study was designed to achieve a medium effect and is analyzed using an Independent Samples $t$-test and Cohen’s $d$ test to determine effect size.

Independent $t$-tests are used to compare groups when the members of one group cannot be part of the other group. A significant difference in the means of each group suggests the groups are more dissimilar, while a smaller deviation in the means of each group suggests the groups are more alike. The three measures (hours of sleep, RCSQ Noise Score, and RCSQ Total Score) revealed no significant difference. Cohen’s $d$ measures effect size by dividing the means of two groups by the standard deviation of the data. Cohen’s $d$ has an outcome of 0.8 for large effect size, 0.5 for medium effect size and 0.2 for small effect size (Kim & Mallory, 2014).

**Project and Study Design**

Upon beginning a transformation like this, the nursing leader must have the awareness that change can be difficult and requires a clearly outlined plan that includes the ability to motivate others and challenge the status quo. In this case Kotter’s 8 step
change model was used to guide the changes. Kotter points out the importance the leader have the ability to make adjustments along the way and maintain a feeling of connection to the initiative as time passes (Kotter, n.d.). The goal of this type of training is to create a sense of urgency, form a coalition, create a vision, and remove obstacles at the outset.

Physicians, nurses, nurse leaders, and mental health technicians were queried to identify current unit practices and infrastructure that would either support or interrupt the team’s ability to enhance quality sleep in their organization’s patients. Stakeholders comprised of nurses, mental health technicians, community support workers and therapists, and later patients were provided with education through interactive training sessions (three on each unit on day shift and three on each unit on night shift). Each session was designed to cover the same objectives and was facilitated by the author. Topics covered included sleep-related problems, sleep disorders and mental illness, benefits of sleep, and contributions of sleep to relapse or exacerbation of psychiatric symptoms. Problems with timing of sleep and quality and quantity of sleep were also discussed. Stakeholders were provided an overview of the stages of sleep and the benefits of good sleep or consequences of poor sleep, including emotional, somatic, and cognitive responses within each stage. A discussion of sleep-related chronic health conditions, as well as sleep-related mental health conditions, took place in each session.

Immediately following the training, stakeholders in each session were enlisted in focus groups to uncover what the organization was currently doing to support sleep, what experiences with sleep they would like to share, any interventions stakeholders thought might help sleep promotion, and obstacles they felt would need to be overcome to boost patients’ sleep quality.
To further clarify current practices and necessary skills for sleep enhancement, factors that support or inhibit sleep were identified using an Ishikawa Diagram (Figure 1). Gaps between best practice and current practice were addressed with a nurse-driven protocol, nurse education, and specific interventions for sleep developed by the team. The PDSA process was utilized to conduct this improvement once the gap analysis was completed with identified stakeholders and the aim for the project was clarified further (“Science of Improvement,” 2019).

**Figure 1.** Ishikawa diagram of barriers to supporting sleep in the inpatient psychiatric setting. From “QI Essentials Toolkit,” by the Institute for Healthcare Improvement (n.d.).

The final step was enlisting staff to make recommendations of changes they felt they could make to support sleep on their units. After discussing what people found useful for their own sleep, stakeholders worked collaboratively to develop supportive, evidence-based sleep interventions. Using this information, a sleep group designed by stakeholders provided a sleep “toolbox” that offered patients a variety of sleep options, including: a unit routine, sleep education and the development of a bedtime routine,
chamomile tea, aromatherapy, foods that may promote sleep, ear plugs, white noise machines, breathing exercises, and a relaxation video that encouraged sleep.

The staff agreed that a morning sleep education group following nurses’ assessment of each patient with the RCSQ would help raise personal questions or concerns that patients might have. A handout was designed to help with this education. The sleep relaxation group occurred each night between 8 and 9 pm. One of the unit nurses, together with one of the mental health technicians, conducted both groups. The patients could choose items from the sleep toolbox.

**Setting and Resources**

This project was conducted at a not-for-profit psychiatric center in the U.S. Southwest that houses a total of 50 hospitalized adults age 18 and older. It is one of the largest public university-affiliated hospitals in the state, and it is a safety-net hospital that offers unique services. For example, it is the only facility in a tri-state area offering electroconvulsive therapy. This substantially increases the number of patients coming to the hospital who are dramatically impacted by social and structural determinants of health. Increasing numbers of patient days are occurring in psychiatric hospitals. This hospital had 13,756 patient days in fiscal year 2018, and it is estimated to have 14,491 for fiscal year 2020. Problems exist with restricted resources and provider and nursing shortages. Approximately 35 patients in psychiatric crisis per week are admitted.

Patients at the facility typically suffer from acute psychosis or are suicidal. They often have behaviors that are disruptive to their own sleep and that of others. Hours of sleep are regularly monitored for patients, with the average patient sleeping about five
hours. Outliers include as little as zero to one hour of sleep and as much as 15 hours of sleep.

The building, built in the late 1960s, is entirely of cinderblock construction, making regulation of temperatures within the complex difficult. This type of construction also causes acoustical problems, in which sounds from the nurses’ station are carried throughout the unit. The majority of patient bedrooms house either two or four patients; there are no private rooms with the exception of two on the geriatric unit. The majority of patients are very ill and have little or no support. Patients are all monitored every fifteen minutes for safety around the clock, which involves face-to-face observation and may be disruptive to sleep.

Stakeholders on the units include attending physicians, resident physicians, nursing supervisors, nurses, mental health technicians, milieu therapists, community support workers and certified peer support workers. Physicians currently assess sleep problems in patients who complain of insomnia, exploring latency, quality, and duration of sleep. They also explore patients’ mindsets at the time they are having difficulty with sleep. Patients who complain are typically offered a medication for sleep. Nursing and clinical staff do not have any formalized routine for sleep, other than lights out at ten o’clock. They do not provide any type of formal education about sleep enhancement or sleep wellness. Nurses have no formalized process for assessing or supporting sleep and therefore at times lack the ability to effectively communicate the need for sleep medication to the physician.
Study Population

The patient population is a culturally, racially, and ethnically diverse group of underserved adults from urban and rural areas of the Southwest. Patients are either voluntarily admitted or placed on a commitment order, and this may complicate individuals’ care by interfering with their feeling of safety and engagement. Patients admitted to the facility are considered to have an acute exacerbation of their mental health condition, making their ability to remain safe questionable in light of their potential intent to harm themselves or others. Patients may carry a variety of diagnoses.

Matthias, Salyers, Rollins, and Frankel (2012) found that “patient-centered communication has been linked to patient satisfaction, treatment adherence and outcomes” (p. 305). In this racially and culturally diverse and vulnerable population, shared decision making is an important, ethically essential aspect of patient-centered care. It has received relatively little attention in mental health care, despite studies indicating that consumers want to be involved in decisions. Shared decision making is particularly important in a recovery-oriented system like the one in this study, where consumers are active participants in their treatment and rehabilitation (Matthias et al., 2012). Therefore, the goal of this project is to provide patients with a palette of options for sleep support.

Process and Data Collection

The PDSA Model for Improvement was used to understand the changes that needed to occur, to create and initiate the change, and to assess whether or not the change was an improvement. The model can also assist in making adjustments as needed by implementing multiple PDSA cycles. The elements of the model were:
1) Plan
   • Nursing stakeholders analyze current process, policies, and environment.

2) Do
   • Obtain nurse stakeholder feedback on barriers and facilitators for adequate sleep quality for current patients.

3) Study
   • Nursing stakeholders develop process, policies, and education for sleep and sleep interventions based on best practice.

4) Act
   • Implement changes and collect nursing stakeholder feedback.
   • Administer RCSQ to population as a part of routine clinical nursing practice.
   • Measure RCSQ scores retrospectively prior to practice change.
   • Implement sleep support changes for one month. It was anticipated that patient sleep quality and nursing satisfaction would improve with the addition of a sleep-supportive program.
   • Following change implementation, obtain stakeholder feedback on barriers and facilitators for adequate sleep quality for patients.
   • Measure RCSQ scores after implementing the intervention.

**Tool**

The RCSQ is a sleep quality self-assessment tool that measures the quality of a patient’s previous night’s sleep.
Data Protection Plan

An honest broker was engaged in this study to maintain patient confidentiality. The honest broker was an impartial third party who utilized the author’s parameters to extract and provide de-identified data, making it difficult to determine who the patient participants were. A committee reviewed all requests and provided approval before the information was gathered (“Data Mining,” n.d.). Data was maintained on an Excel spreadsheet on a password-protected share drive to maintain security. The honest broker accessed medical records for demographic data and RCSQ scores. All data will be destroyed 2 years after the completion of this project.

Statistical Analysis

This is a quantitative comparison to evaluate the impact of a nurse-driven sleep support practice change. An interval-level questionnaire—RCSQ with data from one pre- and two post-interventions—was retrospectively reviewed. Mean and standard deviation for interval-level variables (RCSQ scores) were calculated with an Excel spreadsheet, as were frequency and percent for categorical variables (demographics and diagnoses). For the independent samples $t$-test, an online calculator was used to determine Cohen’s $d$ [$\frac{\text{mean of Sample I} - \text{mean of Sample II}}{\text{estimated standard deviation of the data}}$ (Heavey, 2011)]. The a priori statistical power analysis revealed that a sample size of 64 pre- and 64 post-RCSQ scores would be required to produce a medium effect size.

Ethics and Human Subjects Protection

Permission to perform this project was granted by the University of New Mexico Health Sciences Institutional Review Board. It was the intention of the author to fully
understand and adhere to ethical practices. This project was conducted using an honest broker and de-identified data.

**Timeline**

Following IRB approval, the following steps ensued:

1) Conducted retrospective review of RCSQ scores for patients admitted to the hospital on the third night after hospital admission in September 2019.

2) Conducted focus groups with nurse stakeholders; reviewed best practice and current unit practice to identify gaps and needed changes to clinical practice.

3) Initiated the first PDSA cycle (Figure 2): nurse participants determined what menu of sleep-supportive interventions to offer and developed sleep education for staff.

<table>
<thead>
<tr>
<th>PDSA Cycle One</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agreed Upon Unit Routines:</strong></td>
</tr>
<tr>
<td>o Complete RCSQ Sleep assessment in AM</td>
</tr>
<tr>
<td>o Maintain consistent sleep and wake times – unit routine with lights out (2030 Geri, 21-2200 Adult)</td>
</tr>
<tr>
<td>o Use flashlights with reduced brightness for rounds</td>
</tr>
<tr>
<td>o TV off by 2230 may do quiet activities like reading, coloring</td>
</tr>
<tr>
<td>o Set limits e.g. no clothes washing</td>
</tr>
<tr>
<td>o Be mindful of making noise – opening doors, talking, etc.</td>
</tr>
<tr>
<td>o Limit moving patients around during the night to accommodate admissions as possible</td>
</tr>
<tr>
<td>o Encourage people to participate in groups</td>
</tr>
<tr>
<td>o Collaborate with people to avoid sleeping all day</td>
</tr>
<tr>
<td>o Cohort patients who are disruptive or up all night when possible</td>
</tr>
<tr>
<td>o Recommendations to avoid caffeine prior to sleep</td>
</tr>
<tr>
<td>o Maintain open dialogue with patients and staff about what works for them</td>
</tr>
<tr>
<td>o Sleep in Lounge for feeling of safety</td>
</tr>
<tr>
<td>o Relaxing music,</td>
</tr>
<tr>
<td>o Yoga or meditation</td>
</tr>
</tbody>
</table>

**Morning group between 0800-0900:**
- o RN and MHT: Provide sleep education and pass out patient handout to each new patient

**Nighttime group between 2000-2100:**
- o RN and MHT: Play sleep DVD and offer various Sleep Toolbox Options

**Sleep Toolbox:**
- o Begin to play DVD with sleep meditation
- o Offer Sleepytime or Sweet Dreams Tea
- o Rice Cake with Cup of Peanut Butter – if no allergies
- o Offer Aromatherapy: ask about allergies doTerra Serenity (contains lavender, Ylang Ylang, Marjoram and Roman chamomile, an evidenced based blend that supports sleep) Provided the patient has no allergy to the above: place a couple of drops on a cotton pad so they may smell it and place it on their pillow
- o Delta Wave Sound machine – Battery limited to 2 per unit, please sign out. Please screen patient and roommates for safety.
- o Ear plugs for bed

*Figure 2. PDSA Cycle One summary*
4) Outlined changes to current practices that would either support or interfere with sleep and determined which changes were possible.

5) Provided staff education regarding changes.

6) Implemented changes in protocol and practice from February to March 2020.

7) Conducted post-implementation follow-up in March and April 2020 by reviewing RCSQ scores of patients on their third night after hospital admission.

8) In a second PDSA cycle, reviewed changes to protocol and practice with nurse participants to determine what change occurred, whether or not the change was an improvement, and what (if any) adjustments were identified to the change process.

---

**PDSA Cycle Two**

<table>
<thead>
<tr>
<th>Agreed Upon Unit Routines:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Complete RCSQ Sleep assessment in AM – Difficulty with entering scores – assign RN Sup to follow up with documentation completion</td>
</tr>
<tr>
<td>- Maintain consistent sleep and wake times – unit routine with lights out (2030 Geri, 21-2200 Adult) – Working well, patients look forward to it</td>
</tr>
<tr>
<td>- Use flashlights with reduced brightness for rounds - Working well</td>
</tr>
<tr>
<td>- TV off by 2230 may do quiet activities like reading, coloring - Working well</td>
</tr>
<tr>
<td>- Set limits e.g. no clothes washing - Working well</td>
</tr>
<tr>
<td>- Be mindful of making noise – opening doors, talking, etc. - Working well</td>
</tr>
<tr>
<td>- Limit moving patients around during the night to accommodate admissions as possible – Sometimes Difficult – very seldom occurs</td>
</tr>
<tr>
<td>- Encourage people to participate in groups - Working well</td>
</tr>
<tr>
<td>- Collaborate with people to avoid sleeping all day. Sometimes Difficult – work with milieu therapist and patient to make behavior plan</td>
</tr>
<tr>
<td>- Cohort patients who are disruptive or up all night when possible - Sometimes Difficult – It seems to work when we invite them into the lounge for Tea.</td>
</tr>
<tr>
<td>- Recommendations to avoid caffeine prior to sleep - Working well</td>
</tr>
<tr>
<td>- Maintain open dialogue with patients and staff about what works for them - Working well</td>
</tr>
<tr>
<td>- Sleep in Lounge for feeling of safety - Working well</td>
</tr>
<tr>
<td>- Relaxing music - Working well, even when people wake up during the night</td>
</tr>
<tr>
<td>- Yoga or meditation - Working well</td>
</tr>
</tbody>
</table>

**Morning group between 0800-0900:**

- RN and MHT: Provide sleep education and pass out patient handout to each new patient – sometimes the group is run by the MHT when the RN does not have time. RN proposed changing the time of deliver and format – team did not agree

**Nighttime group between 2000-2100:**

- RN and MHT: Play sleep DVD and offer various Sleep Toolbox Options - Working well, patients love it – it makes them feel cared about. Works even when people wake up during the night and helps them return to sleep quicker.

**Sleep Toolbox:**

- Begin to play DVD with sleep meditation – working well – please auto order.
- Offer Sleepytime or Sweet Dreams Tea – working well – please auto order.
- Rice Cake with Cup of Peanut Butter – if no allergies – working well – please auto order.
- Offer Aromatherapy: ask about allergies doTerra Serenity (contains lavender, Ylang Ylang, Marjoram and Roman chamomile, an evidenced based blend that supports sleep) Provided the patient has no allergies to the above: place a couple of drops on a cotton pad so they may smell it and place it on their pillow – working well – please auto order.
- Delta Wave Sound machine – Battery limited to 2 per unit, please sign out. Please screen patient and roommates for safety – working well
- Ear plugs for bed – working well – please auto order.
- Add use of radio headphones

---

Figure 3. PDSA Cycle Two summary
9) Completed data analysis in June, 2020; wrote up analysis with policy and practice recommendations.

**Budget**

The facility committed to the project and covered the costs related to the project, donating the time in terms of salary required for focus groups and training. The costs of printed materials and patient-safe pens and pencils were also carried by the organization. No additional costs were incurred. A maximum of 4 hours per nurse participant were estimated to be incurred for identification of gaps, development of education, provision of education, and follow-up group. Leadership time was estimated at 10 hours, included the 4 hours detailed above and 6 hours of research time.
CHAPTER 4: RESULTS AND DISCUSSION

Results

A total of 272 patients qualified for the pre-intervention group, whereas only 111 and 108 qualified in the subsequent groups, creating a large variability across study phases. Patients who met elimination criteria and those with no RCSQ scores were removed from consideration. Patients in the pre-intervention and post-intervention I groups were 58% and 56% male, respectively, while post-intervention group II was only 43% male. Data were obtained from medical record review over three data points, covering a total of 5 months. Time frames were: pre-intervention, 7/1 – 9/30/2019; post-intervention I, 2/24 – 3/24/2020; and post-intervention II, 4/1 – 4/30/2020. Patients aged 30–49 comprised the principal age group across all three phases, and the majority of patients bore a diagnosis of schizophrenia, schizoaffective disorder, or psychotic disorders (F20.0–F29; Tables 1 and 2).

Table 1

Demographics of Study Sample

<table>
<thead>
<tr>
<th></th>
<th>Pre-</th>
<th>Post- I</th>
<th>Post- II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Male</td>
<td>165 (58)</td>
<td>59 (56)</td>
<td>31 (43)</td>
</tr>
<tr>
<td>Female</td>
<td>118 (42)</td>
<td>46 (44)</td>
<td>41 (57)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>82 (29)</td>
<td>32 (30)</td>
<td>12 (17)</td>
</tr>
<tr>
<td>30-49</td>
<td>106 (37)</td>
<td>38 (36)</td>
<td>28 (39)</td>
</tr>
<tr>
<td>50-64</td>
<td>56 (20)</td>
<td>24 (23)</td>
<td>23 (32)</td>
</tr>
<tr>
<td>65+</td>
<td>39 (14)</td>
<td>11 (10)</td>
<td>9 (12)</td>
</tr>
<tr>
<td>Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East</td>
<td>117 (41)</td>
<td>45 (39)</td>
<td>30 (42)</td>
</tr>
<tr>
<td>West</td>
<td>130 (46)</td>
<td>50 (43)</td>
<td>25 (35)</td>
</tr>
<tr>
<td>Geriatrics</td>
<td>52 (18)</td>
<td>20 (17)</td>
<td>17 (23)</td>
</tr>
</tbody>
</table>
Table 1 continued

<table>
<thead>
<tr>
<th>Diagnosis (ICD 10)</th>
<th>Pre- n (% of total diagnoses)</th>
<th>Post- I n (% of total diagnoses)</th>
<th>Post- II n (% of total diagnoses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia, Schizoaffective Disorders, Psychotic Disorders (F20.0-F29)</td>
<td>305 (42)</td>
<td>106 (40)</td>
<td>60 (35)</td>
</tr>
<tr>
<td>Bipolar Disorders (F31.0-F31.9)</td>
<td>128 (18)</td>
<td>50 (19)</td>
<td>36 (21)</td>
</tr>
<tr>
<td>Depressive Disorders (F32.1-F33.9)</td>
<td>213 (29)</td>
<td>90 (34)</td>
<td>41 (24)</td>
</tr>
<tr>
<td>Cognitive Disorders (G31.83-R41.9)</td>
<td>83 (11)</td>
<td>16 (7)</td>
<td>33 (19)</td>
</tr>
</tbody>
</table>

Note: Participants may have more than one diagnosis.
Participants with alcohol or substance use disorders were excluded.

Table 2

Comparison of Pre- and Post-Intervention Study Outcomes

<table>
<thead>
<tr>
<th>Hours of sleep</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time I (pre-intervention)</td>
<td>272</td>
<td>7.79</td>
<td>2.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time II (1–2 months post)</td>
<td>97</td>
<td>7.75</td>
<td>1.85</td>
<td>0.22</td>
<td>0.83</td>
<td>0.03</td>
</tr>
<tr>
<td>Time III (2–3 months post)</td>
<td>68</td>
<td>7.58</td>
<td>2.28</td>
<td>0.72</td>
<td>0.47</td>
<td>0.1</td>
</tr>
<tr>
<td>RCSQ noise score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time I (pre-intervention)</td>
<td>111</td>
<td>70.65</td>
<td>34.29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time II (1–2 months post)</td>
<td>30</td>
<td>72.8</td>
<td>28.44</td>
<td>0.32</td>
<td>0.75</td>
<td>0.07</td>
</tr>
<tr>
<td>Time III (2–3 months post)</td>
<td>20</td>
<td>81.25</td>
<td>20.12</td>
<td>1.34</td>
<td>0.18</td>
<td>0.33</td>
</tr>
<tr>
<td>RCSQ total score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time I (pre-intervention)</td>
<td>108</td>
<td>69.2</td>
<td>27.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time II (1–2 months post)</td>
<td>31</td>
<td>77.16</td>
<td>18.58</td>
<td>1.54</td>
<td>0.13</td>
<td>0.29</td>
</tr>
<tr>
<td>Time III (2–3 months post)</td>
<td>21</td>
<td>75.29</td>
<td>28.41</td>
<td>0.94</td>
<td>0.35</td>
<td>0.22</td>
</tr>
</tbody>
</table>

RCSQ = Richards-Campbell sleep questionnaire
Pre-intervention Time I (7/1 – 9/30/2019)
Post-intervention Time II (2/24 – 3/24/2020)
Post-intervention Time III (4/1 – 4/30/2020)

The total hours of sleep for the patients’ third night was collected in each of the three phases. The n, mean, and standard deviation were calculated on an Excel spreadsheet. An online calculator was used to calculate the unpaired $t$-test, $p$ value, and Cohen’s $d$. When comparing pre-intervention Time I scores for sleep, RCSQ noise, and
RCSQ total to post-intervention Times II and III scores, no $p$ value was less than 0.05, and therefore no statistically significant difference existed. Cohen’s $d$ has an outcome of 0.8 for large effect size, 0.5 for a medium effect size and 0.2 for a small effect size. A small effect size difference was noted between the RCSQ noise score baseline and the RCSQ noise score in Time III. Additionally, a small effect size was noted between the RCSQ total score baseline and the RCSQ total score in Times II and III, as noted by Cohen’s $d$. The a priori power analysis indicated that a sample size of 64 in each group was required to have medium effect size differences. Since this did not happen, it is not surprising the results were not significant. The null hypothesis was not rejected. The RCSQ noise score measured how quiet the unit was, with 80.25 representing an improvement over 71.65 on a scale of 1 to 100 (100 being the quietest). The RCSQ total score also uses a scale of 1 to 100 in measuring 5 items related to quality of sleep (100 being the best sleep). RCSQ total score in time I was improved most at Time II and somewhat less at Time III (Table 2).

During this time period, a significant change in leadership took place at the facility, including the Chief Nursing Officer, Executive Director, and department directors. The Unit Based Educator who had been working with staff on initial training and implementation of the RCSQ tool also changed jobs, leaving a vacancy in this position as well. In early March 2020, the COVID-19 pandemic came to the Southwest city where this study was conducted, affecting the year-to-date patient days. In May 2020 there were 12,996 patient days, as compared to May 2019, which had 13,284. This was a decrease of 1%, whereas the previous year had seen a 5% increase in patient days. Staff became occupied with infection prevention and surge measures above all else.
The sleep education and group designed by the nursing staff and mental health technicians were broadly accepted. Patients liked the group and requested to have it. One nurse wrote, “Our geriatric patients are really enjoying our new sleep enhancement project. They come out to sit and hear the meditation and music with their tea and just relax. I think it has really helped to improve their sleep habits and teach them new ways to de-stress and get ready for bedtime” (B. Smith, personal communication, March 10, 2020). A nurse on the adult units said, “I’ve found it serves more than one purpose – I use it to help determine thought process; disorganization in particular” (M. Austin, personal communication, March 11, 2020). One of the mental health technicians reported, “I just wanted to point out that the sleep group and chamomile tea is a huge hit and is requested by at least 5 patients a night in the last couple of weeks. Patients feel like we really care” (T. St. Onge, personal communication, April 10, 2020).

**Discussion**

The RCSQ assessments were a newer process prior to the beginning of this study. While steps were taken utilizing Kotter’s Change Process to ensure the success of the study, weaknesses in operational implementation linked to inconsistent RCSQ assessment score documentation made accurate measurement of the sleep support interventions problematic. Nurses identified concerns with a lack of consistency in workflow, as well as documentation in the electronic medical record as a key barrier to implementation.

While the science of nursing would not necessarily encourage the continuation of the sleep support project, the art most certainly would. The team experienced an unanticipated and very exciting outcome. According to anecdotal feedback and the nursing theorist Dr. Jean Watson, this project considered the needs of the whole person,
honoring their unique perception of health and healing. Sleep is the most common reason people (and their significant care givers) seek care. This project provided people with important information and engaged them to make decisions they felt would nurture their well-being (Foss Durant, McDermott, Kinney, & Triner, 2015). Encouraging anecdotal and statistical results suggest that further work with staff to modify procedures for this sleep improvement collaboration are warranted.

**Implications for Evidence-Based Nursing**

Sleep interventions for adult patients typically include treatment for sleep apnea and behavioral treatment such as sleep schedule adjustment and medication. In this study, behavioral sleep education and enhancement suggestions for patients demonstrated a small effect size on patients’ quality of sleep. The education provided for both nursing and unlicensed personnel in this setting established a means for staff to develop education and interventions they felt most sure they could work out. Going forward, it would be useful to address with the group a means of systematically entering RCSQ scores to improve evidence collection.

**Implications for Public Health**

As a costly public health concern, sleep has important implications for overall health and safety. The CDC has acknowledged poor sleep as a public health crisis and recommendations to support improved education concerning sleep as essential to prioritizing the importance of good sleep. It is important to relay the necessity of keeping regular sleep and wake schedules to overcome sleepiness, poor mood, and poor cognitive performance. Offering people who have problems with sleep a means of performing a self-assessment of their sleep quality may help people who suffer with undiagnosed
problems. Education regarding the use of electronic devices effecting circadian rhythms is also important in promoting good sleep. Finally, providing this type of sleep-supportive intervention fits with CDC and Institute of Medicine recommendations for sleep (Barnes & Drake, 2015).

**Strengths and Limitations**

This study shows promise as a preliminary pilot for future studies of this kind. A statistical change of strength occurred in a desirable direction. However, the lack of systematic data entry for the RCSQ by staff created a lack of adequate data to report. Also, the absence of a control group made it difficult to control for a history threat to study validity. Early in the post-intervention data collection (March 6, 2020), the COVID-19 pandemic effected the daily functioning of the inpatient unit, and the nursing staff became focused on making surge plans for anticipated additional patients. The initial effect was a significantly lower population of admitted patients, followed by a continual increase of patients admitted with higher acuity, as demonstrated by increased patient safety reports.

Many factors can affect sleep quality, some of which staff have only limited control over. The configuration of the building, including multiple patients in one room, ambient changes in stress on the unit, and difficulty with cohorting like patients were some of these factors. Since positive but small trends in results were observed in this study, a significant change in the amount and quality of sleep for patients might be observed following a more structural-level intervention.
Suggestions for Future Research

This study could serve as a pilot study for a larger study, which may strengthen and confirm the impact of this sleep intervention on patients’ outcomes. Additionally, it could help to change institutional practices around sleep in hospitals. Many customs in the acute psychiatric inpatient hospital, like vital sign checks every 4 hours or 15-minute checks for safety, disrupt sleep in patients who often already have difficulties sleeping due to unit noise or unfamiliar settings. These disruptions in patients’ sleep are associated with negative outcomes such as delirium. Recent studies indicate about 45% of hospitalized patients are low-risk medically and would likely have greater benefit from the additional sleep rather than from being awakened (Yoder, Yuen, Churpek, Arora, & Edelsen, 2013). Further studies of this nature will assist with changing practice.

Conclusions

Since sleep is complex and supporting sleep is affected by multiple factors, it is difficult to develop a set of interventions that helps all patients. During this intervention, it was determined that patients and families who seek help for sleep problems in relation to psychiatric illness feel that attention to the problem is important to patients’ recovery. Focusing on sleep as it relates to mental illness helps patients recognize their own relapse potential and can also empower them to seek help early.
References


Appendix A
Richards–Campbell Sleep Questionnaire

Richards–Campbell Sleep Questionnaire

The following questions are to describe how you slept last night:

1. My sleep last night was:
   Light sleep 1 2 3 4 5 6 7 8 9 10 Deep sleep

2. Last night, when I first fell asleep, I:
   Just never 1 2 3 4 5 6 7 8 9 10 Fell asleep right away
   could fall asleep

3. Last night, I was:
   Awake all night 1 2 3 4 5 6 7 8 9 10 Never woke up long
   long

4. Last night, when I woke up or if someone woke me up, I:
   Could not 1 2 3 4 5 6 7 8 9 10 Got back to sleep right away
   go back to sleep

5. I would describe my sleep last night as:
   A bad 1 2 3 4 5 6 7 8 9 10 A good night's sleep
   night's sleep

6. Was there anything in particular that bothered me during the night?
Appendix B

Plan-Do-Study-Act (PDSA) Model for Improvement

![Model for Improvement Diagram](image-url)