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### The Impact of Sleep Deprivation on Patients' Pain Level, Mood, and Overall Hospital Satisfaction

Ryan Gengler

Fort Hays State University, [genglerryan@gmail.com](mailto:genglerryan@gmail.com)

Christine Hober

Fort Hays State University, [clhober@fhsu.edu](mailto:clhober@fhsu.edu)

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# The Impact of Sleep Deprivation on Patients' Pain Level, Mood, and Overall Hospital Satisfaction



Riley Blagg FHNS, Ryan Gengler FHNS  
Fort Hays State University, Department of Nursing

## Abstract

**Objective:** To identify the relationship between sleep deprivation and patient's pain level, mood, and satisfaction of hospital stay.

**Design:** Quasi-Experimental, Descriptive

**Setting:** Hays Medical Center Acute Care Unit

**Participants:** Patients admitted to the Acute Care Unit of Hays Medical Center

**Results/Conclusion:** Pending results and data collection

## Introduction

Sleep is essential to human's survival (Strollo, 2012). Studies show that consistently getting eight hours of uninterrupted sleep each night benefits mental and physical health and consequently results in improved survival rates (Strollo, 2012). Although science shows sleep is vital to human health, it is frequently undervalued in the hospital setting due to interruptions like blood draws, frequent assessments, artificial light, noise from other patients, and the beeping of machines. Sleep deprivation (SDe) can cause impaired healing processes (Pilkington, 2013), increased risks for cancer, metabolic syndrome, cardiovascular disease, and it has been shown to have negative effects on pain perception (Schrimpf, 2015) and mood (Busch, 2011). All these factors contribute to poor patient satisfaction within health care settings stressing the importance of quality sleep. This study will identify the relationship between improved sleep quality and its effects on patient's pain level, mood, and satisfaction of their hospital stay on day one, three, and the day of discharge.

## Purpose

The purpose of this study is to determine if improved sleep quality in acute care patients promotes decreased pain level, enhanced mood, and enhanced satisfaction of hospital stay.

## Key Terms

**Acute care patients:** People seeking medical attention concerned with short-term immediate care such as serious illnesses or traumatic injuries.

**Sleep deprivation (SDe):** a reduced ability to achieve nocturnal sleep, with increased wakefulness and altered sleep architecture resulting in a decrease in non-rapid eye movement and short-wave sleep (Pilkington, 2013).



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## Framework

The theoretical framework for this study is based on Grace Joanne Kreulen's Nursing Intervention Outcomes Model which states that nursing interventions have a direct correlation with patient outcomes (Kreulen, 1994). This study will be using this framework to examine the correlation of nursing interventions that limit sleep disturbances and the effect it has on the outcomes of pain, mood, and satisfaction of hospital stay. This will be achieved by decreasing environmental factors that inhibit sleep in order to improve patient outcomes in the acute care setting.

## Methodology

**Research Design:** Quasi-Experimental, Descriptive

**Statistical Method:** Independent T-test

**Independent Variable:** Three or less interruptions in a patient's sleep during an eight-hour period.

**Dependent Variable:** The patient's pain level, mood, and satisfaction of hospital stay on day one, day three, and the day of discharge.

**Interventions:** Nurses will work with other healthcare personnel to limit night-time interruptions of patient's sleep by decreasing noise, light, and grouping together patient cares. These interventions are expected to reduce sleep disturbance, which will allow us to examine the effects improved sleep has on the patients' pain level, mood, and satisfaction of hospital stay. These results will be recorded on day one, day three, and the day of discharge.

## Proposed Research Question

Decreasing environmental factors that disrupt sleep in acute care patients, resulting in less than 3 events where the patient's sleep is interrupted in an eight-hour period, is expected to result in decreased pain level, improved mood, and increased satisfaction of hospital stay.



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## Literature Sources

Three studies within our literature review have described connections between sleep quality and patient outcomes. According to Schrimpf, et al. (2015), SDe has been shown to have a negative effect on patients' pain perception. Another source found that SDe also has a negative effect on patients' mood (Busch, 2011). Finally, research done by Yilmaz et al. (2012) shows that SDe has a negative effect on patient satisfaction within the hospital setting. Furthermore, research done by Strollo, et al. (2012) concluded that "habitually shorter or longer sleep duration is associated with greater mortality" and "Sleep deprivation contributes to a number of molecular, immune, and neural changes that play a role in disease development". This source concludes that sleep is essential to human health and that lack of sleep can result in negative outcomes.

## Sample

Acute care patients at Hays Medical Center in rural western, Kansas.

## Ethical Considerations

Seeking IRB full review from Fort Hays State University, the Fort Hays Nursing Department, and Hays Medical Center.

## Data Collection

N= 100

n= 50 acute care patients that experience less than three disturbances of sleep in an eight-hour period.

n= 50 acute care patients that experience more than three disturbances of sleep in an eight-hour period.

100 patients will provide written consent to join the study. 50 of these patients will be chosen to receive intervention intended to promote results of less than three disturbances in sleep. These patients will then receive a survey containing self-report measures that ensure data collection on pain level, mood, and satisfaction of hospital stay. Another 50 patients will receive no intervention to improve sleep and are therefore expected to experience more than three disturbances in sleep. These patients will receive an identical survey obtaining data on pain level, mood, and satisfaction of hospital stay.



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## Results/Findings

### Projected Data Analysis Method

According to Busch(2011), Pilkington(2013), and Yilmaz(2012), SDe has a negative effect on patient's pain level, mood, and satisfaction of hospital stay. Based on these findings, the utilization of an independent T-test will provide data to analyze patients' pain level, mood, and satisfaction of hospital stay in those who experienced improved sleep quality vs those who experienced SDe.

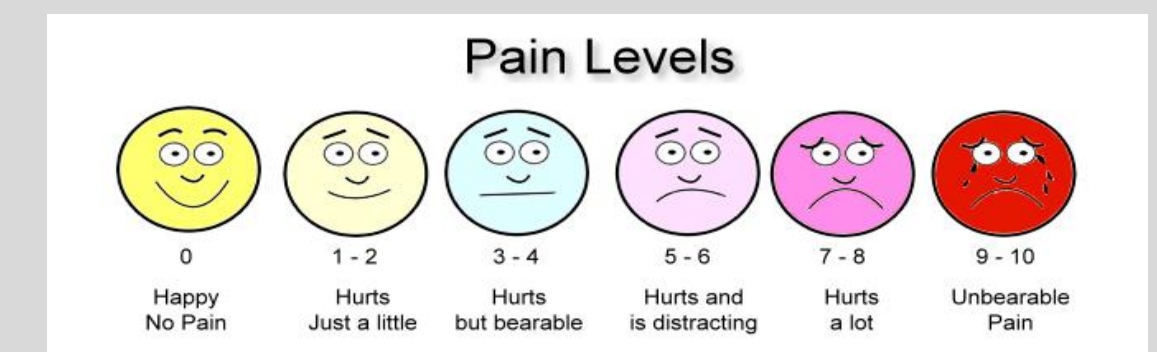
### Literature Findings

According to Yilmaz, et al.,(2012) studies done in Turkey show that sleep quality plays a key role in patient satisfaction. The literature found that hospital settings decrease the amount of quality sleep, directly affecting overall patient outcomes. A second source, Pilkington, et al.,(2013) stated that pain and sleep deprivation is a self-perpetuating cycle. Pain can cause SDe and SDe can increase the sensation and prevalence of pain. A third source, Busch et al.,(2011) found that mood disturbances after SDe were characterized by increases in fatigue and decreases in vigor, as well as by increases in negative qualities such as tension, depression, anger, and confusion. This source also found that pain perception displayed a significant increase in subjects after just one night of SDe. These statements show a direct relationship between SDe and the mood/pain perception of patients. Combining the information from each of these sources shows the importance of quality sleep in the hospital setting and the negative effect that can result if the need for sleep is not met.

## Discussion

### Implications For Nursing

If promoting the amount of patient sleep is found to influence patient outcomes, such as decreasing pain, enhancing mood, and enhancing the overall hospital satisfaction, hospitals can implement protocols to limit sleep disturbances and therefore improve patient outcomes. This action will require nurses to schedule nighttime duties in coordination with other members of the health care system. Nurses will also need to place more emphasis on limiting environmental noise and light. In doing this nurses will ensure that patients receive less than three sleep disturbances therefore increasing the quality of sleep. An increase in quality of sleep is then expected to show decreases in patient's pain level, enhancement of mood, and an increase in their satisfaction of hospital stay. Implementing these protocols will change the way nurses approach nighttime care and will therefore place more emphasis on patient sleep quality.



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## Conclusion

Pending the results in data collection. The study anticipates that limiting the amount of night disturbance will positively affect patient outcomes. Other research has found that sleep deprivation has a direct correlation on patient outcomes such as pain, mood, and satisfaction of overall hospital stay. This creates a high level of confidence that limiting sleep disturbances to under three events will positively affect these patient variables.

In future research, it is recommended to conduct this study at a new facility to increase the validity of the study and its results.

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