Health Behavior Models and Theories:

Sleep Deprivation in College Students

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Introduction

A brief walk around campus undoubtedly displays students taking naps, a normal part of life, but one that becomes a replacement for sleeping for many. Oftentimes, college students share an all too common experience and norm in the United States, sleep deprivation. Sleep deprivation is defined as not getting enough sleep (National Institutes of Health, 2017). Because the recommended amount of sleep is 7-9 hours for adults, sleep deprivation is anything less than 7 hours (Watson et al., 2015). Sleep deprivation is significant to public health because it causes many to lose functionality such as getting into accidents or making mistakes on the job. It is also linked to other health problems such as diabetes, heart disease, mental illnesses, and high blood pressure. For example, because heart disease is the leading cause of death in the United States, addressing risky behaviors such as sleep deprivation is important to improving public health. Creating awareness between the increased risks of health issues and sleep deprivation could reduce healthcare costs as well as increase productive life years. It has become a social norm to not sleep the recommended hours in order to increase work productivity. Thus sleep deprivation has affected vulnerable populations of people trying to advance financially, educationally, or in the workplace.

In terms of this course, sleep deprivation is a relevant topic because college students choose this negative health behavior to compensate for procrastination habits, catch up on studying, or they simply lack time. The increasing costs of an education have forced many students to find part-time or full-time jobs leaving them with less time than if they did not have to work at all. There is also the expectation for students of networking through extracurricular activities or associations. Working while in school or trying to be involved on campus reduce the time left to study and work on assignments.

This paper will focus on the impact of sleep deprivation for college students physiologically and academically. Original thoughts of the author regarding the utility and application of the Health Belief Model were that perceived susceptibility, perceived barriers, and perceived benefits, and self-efficacy

would be main components in studying sleep deprivation. These would be useful in applying by increasing perceived susceptibility, self-efficacy, and perceived benefits while decreasing perceived barriers. Secondly, the author thought that the Theory of Planned Behavior would serve beneficial with the application of all its constructs. This theory could be used to change social norms regarding the benefits of sleep deprivation as well as cognitive thoughts regarding sleep. This paper will discuss how sleep deprivation affects college students and the determinants involved, the Health Belief Model and the Theory of Planned Behavior, applications of these theories, and recommendations for further study.

Background

Sleep deprivation effects may include depression, anxiety, weight gain, health conditions, accidents, and impaired cognitive functions (Watson et. al., 2015). College students may have a harder time in completing or doing well in their classes if they are sleep deprived. An example of a cognitive function that becomes impaired with sleep deprivation is being able to memorize class material for tests. Another example is having difficulty concentrating in class because of drowsiness. This would in turn impact college students' performance in school. According to Kelly, Kelly, and Clanton (2001), college students who slept less reported lower GPA's than those who slept an average of 7-8 hours, and those who slept more than 9 hours. Students who are sleep deprived would be expected to have lower GPA's because of impaired cognitive functions. Thacher (2008) tested the effects of all-nighters, a whole night without sleep. In this study 120 college students at a public university were evaluated. Students who engaged in all-nighters had lower GPA's and were at a higher risk of depression. Academics would be affected by not sleeping for an entire night because the body would be in a state of stress. All-nighters are the extreme form of sleep deprivation for college students but also common during midterms, finals, and big projects.

Risks for other risky health behaviors increased with sleep deprivation. Because college students often fall in the age range of 18-24, they are already at a higher risk of being involved in a car accident.

Sleep deprivation increases this risk. Taylor, D.J. & Bramoweth, A.D. (2010) found that in a study of 1,000 college students, 160 reported falling asleep while driving because of sleepiness. This is dangerous both for college students and the safety of the public. found that students who reported lower scores on a sleep index were less likely to engage in risky health behaviors. Lower scores meant that the students were sleeping well. Higher scores meant problems sleeping or sleeping less. College students with high scores were more likely to smoke, drink, be aggressive, and have suicidal thoughts (Vail-Smith, K., Felts, W. M., & Becker, C., 2009). This would affect college students both academically and physiologically. Negative health behaviors can cause students to jeopardize their schoolwork by skipping class or being unmotivated to do schoolwork. For example, if a student was drinking frequently and was hungover they would most likely skip class. Suicidal thoughts are linked to being depressed which can cause students to lack the motivation to focus on school.

The Centers for Disease Control and Prevention [CDC] (2014), has determined that 32% of those aged 18-24 sleep less than the recommended minimum of 7 hours. Sleep deprivation was associated with having other unhealthy behaviors or health problems such as obesity, smoking, and living a sedentary lifestyle. When applying these statistics to college students, it can be seen that non-whites have higher rates of sleep deprivation. A large majority of college students are affected by sleep deprivation even if they are outside the age range of 18-24. At least 30% of all adults report being sleep deprived in the United States. The negative health problems that were more prevalent in those who were sleep deprived affect college students because it was shown that those with a college education were more likely to be sleep deprived people.

Determinants of health for sleep deprivation include eating habits, physical activity, and age (Hitze et al., 2009). As children aged, their reported sleep decreased. Those that reported more negative eating behaviors also reported less sleep. A lack of physical activity, or sedentary lifestyle, was also a predictor of a shorter length of sleep reported. This correlates with the statistics of the CDC where there

was an inverse relationship between sleep deprivation and age. Unhealthy behaviors and lifestyle choices were also shown by the CDC to be linked to sleep deprivation. One explanation for less physical activity in people reporting sleep deprivation was that as children age they are less likely to be involved in sports. High school is the last time that some people are involved in structured physical activities. In college, it is easy to discard proper nutrition and exercise because of time and costs. As people age, more responsibilities are placed on them and may explain why college students sleep less. Added responsibilities take time to fulfill causing some students to reduce sleep to compensate.

Theories and Models

The Health Belief Model aims to explain the why's and the predictability of people's behaviors by applying different constructs. These constructs include perceived severity, perceived susceptibility, perceived threat, perceived barriers, perceived benefits, self-efficacy, and cues to action (Edberg, 2015). Sleep deprivation is a negative health behavior which could be reduced by applying all constructs of the Health Belief Model. The perceived severity of sleep deprivation for college students is low given the amount of students who partake in the behavior. Students may be unaware of the negative links to sleep deprivation. Perceived susceptibility for college students is often low because they are young and do not find chronic diseases to be something affecting people their age. A perceived threat would be created for college students if awareness increased over negative choices that can lead to less sleep. A perceived barrier to engaging in more sleep could be less time to study, work, or socialize if sleep needs were met for college students. The perceived benefits of sleep deprivation involve having more time to do other things and it is wrongly linked to success by some people. This perceived benefit would be taken down by all the negative links to sleep deprivation such as lower GPA's, impaired cognitive functions, and chronic diseases. If students are unaware of negative consequences of sleep deprivation they lack the self-efficacy to avoid it. Lastly, the cue to action for a change in increasing sleep time could be tiredness or a person.

The Theory of Planned Behavior aims to address people's intention of engaging in a behavior. The constructs of the Theory of Planned Behavior are attitudes, behavioral intention, subjective norms, social norms, perceived power, and perceived behavioral control (Edberg, 2015). To apply the Theory of Planned Behavior to sleep deprivation as a health behavior would mean trying to get college students to avoid partaking in sleep deprivation. Attitudes about sleep deprivation could be changed from being positive to negative. Behavioral intention would be the students wanting to manage their time differently to prevent sleep deprivation. Subjective norms include other college students who also engage in sleep deprivation. Social norms in the United States have created a positive illusion of what one can achieve with less sleep. Perceived power over sleep deprivation includes the outside forces that could stop or help someone from engaging in less sleep. An example of perceived power for college students is having money since this could motivate or stop someone from engaging in sleep deprivation as a result of working. Perceived behavioral control can be applied to sleep deprivation because if a college student perceives that it is out of their control to sleep more, they are less likely to attempt it.

Both theories are involved in predicting why people engage in certain behavior. Trying to explain why people engage in a certain health behavior is the aim of both the Theory of Planned Behavior and Health Belief Model. Perceived severity, perceived susceptibility, perceived threat, and perceived benefits all involve using the individual's thought processes to see how they feel about a certain health behavior in relation to their own health. A similar construct in the Theory of Planned Behavior are attitudes and behavioral intention. In attitudes and behavioral intention how a person feels about the health behavior as well as what motivates them to engage in it are involved. This could also be said for the Health Belief Model because perceived threats or benefits would be what motivates someone to engage in a health behavior. Perceived barriers from the Health belief Model are similar to perceived power in the Theory of Planned Behavior because it involves what makes it harder or easier to engage in that health behavior. The difference here would be that the Theory of Planned Behavior also aims to address what would make

engaging in the behavior easier for someone versus only examining perceived barriers as the Health Belief Model does. Self-efficacy in the Health Belief Model is a similar construct to the Theory of Planned Behavior's construct of perceived behavioral control because they address how the person perceives how easy or hard it would be to engage in the behavior. This perception would be influenced by the knowledge about the behavior. Cues to action from the Health Belief Model are factors that urge an individual to want to engage in a behavior. This can be similar to the Theory of Planned Behavior constructs of social and subjective norms because it addresses influences on engaging in a health behavior.

Application of Health Belief Model

The Health Belief Model was applied in a study of college students who worked part-time to try to measure and predict sleep behavior. The study found that perceived severity, perceived barriers, cues to action, and self-efficacy were main predictors of engaging in sleep deprivation (Knowlden, 2014). The constructs of the Health belief Model were measured by asking questions that could measure each. Perceived susceptibility was measured by asking the likelihood of developing a disease, falling asleep while driving, and gaining weight while driving when unable to sleep 7-8 hours on a scale from 1-5 where 1 was no effect and 5 was a major effect. To measure perceived severity it was asked how likely the individual would be to maintain health, control appetite, or stay alert with this same scale. Perceived benefits was measured by asking how beneficial sleeping 7-8 hours was to quality of life, work productivity, and energy. The scale ranged from not beneficial to very beneficial. Perceived barriers were measured by asking the likelihood of not being able to sleep the recommended hours because of different circumstances such as work and time. Cues to action were measured by asking how likely the participants were to sleep 7-8 hours because of feelings of tiredness or of being done with other responsibilities. Lastly, self-efficacy was measured asking confidence in being able to sleep 7-8 hours because of the

environment, relaxation, and sleep consistency. The study was able to predict that factors where more value was placed were more likely to predict sleep behaviors.

Application of Theory of Planned Behavior

Knowlden also conducted a study to predict and measure sleep behavior using the Theory of Planned Behavior constructs as measurement. The study was similar to the Health Belief Model study in that questions associated with each construct were asked with a scale.Perceived behavioral control was measured by asking questions that involved feelings of confidence over engaging in sleeping the recommended length. Subjective norm was assessed by asking if the college students felt that those around them such as friends or relatives would want them to sleep 7-8 hours. Attitudes were measured by asking feelings about sleeping 7-8 hours in regards to social life and in general. Behavioral intention was measured using phrases that suggested an intent to sleep 7-8 hours. In applying the Theory of Planned Behavior perceived behavioral control, subjective norms, and attitude would lead to the behavioral intent and then the desired behavior of getting students to sleep 7-8 hours. The study found that students with higher behavioral intentions and perceived behavioral control were more likely to sleep the recommended time. Attitude and subjective norms did not have an effect on sleep deprivation (Knowlden, 2012).

Conclusion & Recommendations for further study

In conclusion, sleep deprivation is becoming more common in college students than in the past with students reporting less sleep. This paper discussed the implications of sleep deprivation on college students physiologically and academically as well as possible causes. The Health Belief Model and Theory of Planned Behavior were discussed comparatively and an application of each was presented. Further study should be conducted on the links between obesity and lack of sleep (Hitze et. al., 2009), effective interventions on sleep patterns (Taylor, D.J. & Bramoweth, A.D., 2010), and the relationship between the effect of risky health behaviors on sleep (Vail-Smith, K.et. al., 2009). Other studies should also focus on recruiting minorities and males since a majority of the students were white females.

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