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Sleep Among Young Adults Living in Rural Poverty

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Walden University

College of Social and Behavioral Sciences

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Susan Barber Skinner

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2017

Abstract

Sleep Among Young Adults Living in Rural Poverty

by

Susan Barber Skinner

MA, Union Institute and University, 2008

BS, St. John Fisher College, 1980

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

February 2017

Abstract

Lack of restorative sleep is implicated in threats to public health and safety as well as negative individual health outcomes, which are more pronounced among those living in rural poverty. This study addressed the need for an approach to these problems that is sensitive to culture and community. The purpose of this phenomenological study was to explore the lived experience of sleep among young adults living in rural poverty to inform development of strategies to improve sleep behavior in this population. Research questions explored the lived experience of sleep, constructs of the theory of planned behavior which was used as a framework for the study, and the larger cultural context of sleep. This study used semistructured interviews with a purposeful sample (n = 12) of young adults aged 18-24 years living in 5 counties in northernmost New York State. Thematic analysis was used to code data and identify themes. Key themes included the presence of a persistent struggle to balance sleep with preferred activities and a belief that the body controlled sleep behavior. Participants identified family and employers as influencing their sleep behavior and reported an overall lack of agency regarding sleep behavior. Participant comments included cautious intentions about sleep coupled with reluctance to exert themselves to engage in intended sleep behavior. Findings may contribute to positive social change by amplifying the voices of participants as consumers of services in a manner that informs the development of education and treatment strategies.

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Dedication

This dissertation is dedicated to my parents, Francis and Mildred Barber, who supported my love of learning in every way possible.

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I would like to express my appreciation for the assistance and support of Dr. John Astin, my dissertation chair, Dr. Silvia Bigatti, my committee member, and Dr. Georita Frierson, who completed the University Research Review. I am also grateful for the support of Greg Murphy, my Academic Advisor.

Librarians provided significant support to the recruitment of participants for this study, from allowing me to post flyers on their bulletin boards to directing me to community gathering spots, I am most appreciative of their efforts.

Every individual interviewed exerted some effort to be involved in this study from making that first call to rearranging their schedule to obtain transportation to the interview site; I am grateful for their effort and humbled by their willingness to share their experiences.

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Chapter 1: Introduction to the Study

Introduction

Sleep has been studied for centuries by a variety of disciplines. Today, sleep issues including quality, quantity, and daytime sleepiness, are the focus of what the Centers for Disease Control and Prevention (CDC; 2014b) have labeled a "public health epidemic." Nearly one-third of Americans report sleeping 6 or less hours, well below the recommended number of hours of sleep for every age category, resulting in personal and public health consequences including increased prevalence of chronic diseases (e.g. cardiovascular disease), in which inadequate sleep is implicated, to public safety issues such as drowsy driving (Liu et al., 2013; National Sleep Foundation, 2016; Wells & Vaughn, 2012).

Poverty and characteristics of rural life influence sleep behavior exacerbating the consequences of sleep issues (Chang et al., 2012; Liu et al., 2013). One in six Americans, or 60 million people, live in areas defined as rural, and 16.2% of the rural population lives at or below the federal threshold for poverty (U.S. Bureau of the Census, 2010; U.S. Department of Agriculture, 2015). This segment of the population is the target of substantial research findings detailing specific problems arising from living in rural poverty as well as the need for an approach to these problems that is sensitive to culture and community (Bischoff et al., 2014; Canto, Brown & Deller, 2014). Limited research exists on specific approaches to the treatment of sleep among those living in rural poverty despite reports of insomnia by 38% of those living in rural areas and by 24% of those

whose incomes are at 100% of federal poverty guidelines (CDC, 2014a; Kocoglu, Akin, Cingil, & Sari, 2013).

Knutson (2013) urged that additional research move beyond sleep as a biological function and recommended exploration of how cultural perspectives vary regarding sleep to identify novel targets for interventions to improve sleep. The study utilized qualitative methodology to focus on the lived experience of sleep among young adults aged 18-24 who were not currently enrolled in a secondary education program and who came from five New York State counties that are defined as rural and where persistent poverty is reported.

This chapter provides information on the phenomenon of sleep, the problem on which the study focused, the purpose of the study, selected methodology, limitations of the study, and its potential for social change.

Background on Sleep

Literature on sleep behavior spans many generations and reaches back to the thoughts of ancient philosophers who considered sleep as a state between being and not being (Sprague, 1977). Primitive sleep research dates back to the work of Piéron (1913) but it was the work of Aserinsky and Kleitman (1953), who used electroencephalograms to measure eye motility, that demonstrated sleep was not an inactive state. Building on this work, researchers found that human sleep involves both rapid eye movement (REM) and nonREM (NREM) stages that cyclically alternate while an individual is asleep (Carskadon & Dement, 2011). REM and NREM sleep stages were observed using positron emission tomography (PET), leading to findings that implicated sleep in

metabolism and other activities at the cellular level, thus advancing research on sleep and a wide range of health issues including obesity, diabetes, cardiovascular disease, and depression (Chang, et al., 2012; Krueger, Frank, Wisor, & Roy, 2016). Sleep is important to neurophysiological and psychosocial development, yet awareness of specifics is limited and some 10-45% of prepubescent children do not regularly engage in sufficient sleep to meet developmental benchmarks (Blunden, Chapman, & Rigney, 2011).

The measurement of sleep and research on the physiology of sleep have given rise to the field of sleep medicine wherein sleep disorders have been identified, diagnostic criteria defined, and treatments recommended that may involve medication, therapy, or improved sleep hygiene practice (American Academy of Sleep Medicine, 2014). Of the seven major categories of sleep disorders, insomnia is the most common; patients with insomnia are more vulnerable to diabetes, cardiovascular disease, and hypertension (Bailes et al., 2015). Controversy persists as to the extent of sleep disturbance that warrants clinical attention and how such disturbances should be measured, for example, self-report versus actigraphy. Both income level and geography may influence the prevalence of insomnia, which is reported by 38% of those living in rural areas and by 24% of those whose incomes are at or below 100% of federal poverty guidelines (CDC, 2014a; Kocoglu et al., 2013).

Sleep research is not limited to clinical level sleep disorders; substantial research and public discourse is focused on the adverse personal and public health consequences of inadequate sleep quantity and quality. Nearly one-third of Americans report sleeping 6 or less hours, well below the recommended number of hours of sleep in every age

category, and sleep quantity has diminished for several generations (National Sleep Foundation, 2016; Whinnery, Jackson, Rattanaumpawan, & Grandner, 2014). Increased prevalence of various health challenges such as diabetes, cardiovascular disease, and obesity is associated with insufficient sleep. Additional consequences include altered daytime performance, increased risk for accidental injury, reduced educational achievement, and major threats to public safety (Hale, 2014; Wells & Vaughn, 2012).

Hale and Hale (2010) argued that supporting behavioral change to increase restorative sleep involves addressing not only individual behaviors but also studying social factors that impact sleep behavior, including the degree of autonomy, or individual control, persons have over their lives. Among socioeconomically disadvantaged individuals, the role of autonomy in the decision to sleep was identified as more significant than in decisions involving other health behaviors such as tobacco use or obesity because sleep is not chosen in a manner similar to the choice to smoke or eat unwisely (Hale & Hale, 2010). Research focused on the social determinants of health found that sociodemographic characteristics such as education, marital status, employment, and social connections are positively associated with good health as well as sleep quantity and quality; low levels of education, being unmarried, unemployment, and social disengagement are associated with restricted autonomy and poor sleep quality and quantity (Hale & Hale, 2010, Krueger & Friedman, 2009). These quantitative studies provide substantial data about specific variables influenced by sleep behavior.

A gap in the literature exists regarding sleep behavior among young adults living in rural poverty, the complex factors that influence the decision to sleep, and the ability to

engage in restorative sleep. Additional research is needed to increase understanding of how an individual's lived experience of sleep is altered in the context of these sociodemographic factors. This study addressed this gap and the specific problem of the need for information about the lived experience of sleep among young adults that is attained by exploring the experience beyond the limitations imposed by use of traditional sleep medicine instruments.

Problem Statement

Societal factors such as around the clock, seven days a week access to technology looms large in what the CDC (2014b) have termed a public health epidemic that includes not only sleep disorders specifically but also a general lack of restorative sleep. Problematic sleep issues are compounded by factors associated with socioeconomic status as well as characteristics of living in rural areas. Such factors include low health literacy, lack of personal and community resources, and a paucity of qualified specialists (Chang et al., 2012; Liu et al., 2013; Wells and Vaughn, 2012). Findings from research on the sleep behavior of high risk groups such as college students, cancer patients, and homeless drug addicts has informed the development of programs for these populations. Recommendations made by the authors of each study have pointed to the value of gaining detailed knowledge of the sleep experiences of the population of focus to enhance tailoring interventions to that population (Knowlden, Sharma, & Bernard, 2012; Moore, Schmiege, & Matthews, 2015; Nettleton, Neale, & Stevenson, 2012).

The $32.4 billion sleep industry offers medication, devices, and consultants to the public to aid in the quest for sleep; the National Institutes of Health (2016) will disburse

$313 million for sleep research in 2015, a portion of which promotes the development of sleep education programs (Mackey, 2012). Studies of such programs designed for young adults living in rural poverty are scarce in the literature; however, early childhood or young family programs offered some insight into the problems inherent in improving sleep behavior in the population of focus for the study.

Although research specific to rural populations is limited, early childhood or family sleep education programs hold promise for improving children's sleep, with associated benefits observed in cognition and development. A study of low-income children who participated in the Sweet Dreamzzz Early Childhood Education Program™ found sleep duration improved by 30 minutes, a gain that was sustained through the 30-day retest (Wilson, Miller, Bonuck, Lumeng, & Chervin, 2014). Parental knowledge, attitudes, self-efficacy, and beliefs (KASB), the primary outcome measures in the study, were improved among participating parents; however, the gains were not sustained, suggesting the need for additional research in this area. This research points to the need to understand influencers of parental KASB to improve the efficacy of programs to help low-income families at risk for sleep problems.

Educational programs for young children and families are effective in increasing participant knowledge about sleep; however, the anticipated impact of the new information on sleep behaviors such as decreased sleepiness, improved sleep duration, or adoption of sleep hygiene strategies is inconsistently observed (Blunden et al., 2011). Asserting that the increased, consistent use of educational and behavioral theory might lead to the improvement of education programs, Blunden et al., (2011) recommended the

use of the theory of planned behavior (TPB) to focus research on variables determined to be significant in changing health behaviors. The success of public education programs, interventions, and treatment modalities is dependent upon targeting specific behaviors relevant to the identified population and presenting the information at the right time and in an appropriate setting (Basner, Spaeth, & Dinges, 2014).

Purpose of the Study

The purpose of this qualitative phenomenological study was to explore and gather rich descriptions of the lived experience of sleep among young adults living in rural poverty to inform development of relevant and effective prevention and intervention strategies to improve sleep behavior in this population. The need for the study is evident in the plethora of health and behavioral issues associated with compromised sleep behavior and research findings that emphasize the need to understand factors that influence the choices involved in sleep if strategies to improve individual sleep behavior is to be effective (Hale & Hale, 2010).

Research Questions

The research questions driving the development of this study and corresponding interview protocol were:

RQ1: What is the lived experience of sleep among young adults living in rural poverty?

RQ2: What do young adults living in rural poverty believe about sleep?

RQ3: How do subjective norms influence sleep behavior among young adults living in rural poverty? Subquestion: What sources of external input are most influential?

RQ4: How do young adults living in rural poverty perceive their ability to control their sleep behavior?

RQ5: What are the intentions of young adults living in rural poverty about sleep? Subquestion: How does this influence sleep quantity and quality?

RQ6: How are personal experiences with sleep linked to a larger cultural context?

The interview protocol (Appendix B) contained three sections: (a) questions designed to elicit and explore the participant's experience as a personal narrative, which pertained to RQ1; (b) questions using the constructs of the TPB as a framework, which pertained to RQ2, RQ3, and RQ4; and (c) questions to explore the context in which the participant made choices regarding sleep behavior, which pertained to RQ5.

Theoretical Framework

TPB, which is commonly used in sleep research, provided a theoretical framework for this study; the use of TPB may ease access to the qualitative data by those involved in the development of education programs, interventions, and treatment of sleep disorders (Kor & Mullan, 2011). TPB employs four constructs to predict and explain individual behavior: beliefs, subjective norms, perceived behavioral control, and intention (Ajzen, 1991). The role of beliefs in the theory includes beliefs about the behavior as well as potential consequences of engaging (or not) in the behavior. Individual beliefs are particularly important to the study of sleep as beliefs are implicated in insomnia, the most

common sleep disorder in the general population and among those living in rural areas (Eidelman et al., 2016; Kocoglu et al., 2013). Subjective norms are based on external input provided by important referents in an individual's life that may be mediated by the individual's desire to maintain a connection to that person (Ajzen, 1991).

Perceived behavioral control involves an individual's perceptions regarding control over an identified behavior (Ajzen, 2011). Perceptions about control over a behavior may include challenges encountered in prior experience with the behavior, for example, access to necessary resources or the potential of the available resources to support engaging in the behavior. An individual's perceived ability to engage in the behavior includes not only having knowledge about the behavior but also possessing relevant skills. Intention, the quantity and quality of effort an individual may be willing to exert to engage in a behavior, may be influenced significantly by perceived behavioral control. Each of these constructs are examined in Chapter 2 as part of the theoretical framework and more specifically in regard to sleep behavior.

The use of TPB in qualitative research involves the possibility that additional variables may be presented by participants during the interview process (Ajzen, 1991). Azjen (2011) opined that the TPB may be used to consider the influence of other potentially predictive factors, for example, willingness to engage in that behavior. Ajzen's suggestion that it is appropriate to consider other factors when using the TPB framework supports the exploration of the influence of factors such as autonomy, socioeconomic, and environmental factors on the phenomenon of sleep in the target population.

Nature of the Study

The nature of this study was qualitative. Phenomenology is the preferred qualitative method for the study of the phenomenon of sleep given its focus on experiences rather than a checklist of symptoms or attributes. Phenomenological research explores the entire experience to include beliefs and behaviors as well as biographical details and perceptions (Gallagher, 2012). A social justice lens informed design of this study. Social justice research can increase awareness of an issue in a marginalized group that may also be underrepresented in the literature, allowing exploration of issues involved in the phenomenon while listening to the voices of coresearchers (Fassinger & Morrow, 2013).

A purposeful sample was drawn from young adults (aged 18-24 years) living in rural Clinton, Essex, Franklin, Herkimer, and St. Lawrence counties in New York state, who were not currently enrolled in a secondary education program and whose incomes were below the supplemental poverty measure (SPM). Semistructured interviews were conducted using open-ended questions to elicit thick, rich descriptions of participants lived experiences with sleep. Thematic analysis was carried out to actively identify themes found in the body of data obtained from participants which was further analyzed from a contextualist stance that allowed me to explore not only participant experiences but also how a broad range of factors, for example, rurality and poverty, shaped their experiences (Braun & Clarke, 2006).

Definition of Terms

Key terms in the study were defined as follows:

Sleep: An essential component of the human experience mentioned in songs, poems, social media, and scholarly research for generations. Researchers agree that sleep is crucial to survival and effective brain function, yet no clear consensus exists as to that function, with findings in various studies identifying the influence of sleep on immune function, storage of brain energy, performance, connectivity, and glymphatic activity (Krueger et al., 2016; Underwood, 2013). Further consideration of the function of sleep, its architecture, and the consequences of disordered or inadequate sleep is presented in Chapter 2.

Sleep hygiene: A series of recommendations to improve sleep behavior including avoiding caffeine, creating an environment conducive to sleep (e.g., free of noise, cool temperature) and adhering to a consistent sleep schedule (Irish, Kline, Gunn, Buysse, & Hall, 2015).

Rural: The administrative concept, which defines rural areas along jurisdictional boundaries, was used in the study as recommended by the Economic Research Service of the United States Department of Agriculture (Cromartie & Bucholtz, 2013). In New York State, county-level economic definitions (nonmetro areas) are commonly used for this purpose.

Poverty: For the purposes of this study, individuals will be determined to be eligible for the study based on the supplemental poverty measure, (SPM) which defines the poverty threshold based on the mean expenditures for food, clothing, shelter, and utilities with geographic and resource adjustments; the 2015 threshold for a family of four using the SPM is $25,460 (Short, 2015). Individuals were asked to describe their

household income when engaged in the phone screening process and were determined to be eligible for the study using SPM criteria.

Assumptions

I assumed that all participants had experience with sleep and that they were willing and able to honestly describe their experiences. In addition, I assumed that purposeful sampling would favorably leverage the quality of data leading to enhanced confidence in the findings of the study.

Scope and Delimitations

This study addressed a gap in the literature involving the lived experience of sleep among young adults living in rural poverty. The methodology and research design were chosen, in part, because of increased interest in the use of qualitative methods in healthcare and the emerging interest in patient-centered treatment (Morse, 2012; Leventhal, et al., 2011). Additional motivation for the selection of the focus of the study was provided by a joint statement of the Sleep Research Society and American Academy of Sleep Medicine calling for additional investigation of vulnerability and adverse consequences of sleep issues specific to a wide range of factors including age, geographic attributes, and socioeconomic status (Zee et al, 2014).

The importance of sleep in a range of health outcomes that are further complicated by rural poverty prompted my interest in focusing on this population and the constructs of the TPB to elicit data that might inform the development of programs and materials that would support improved sleep and reduced adverse health outcomes in the population. The potential for transferability of study findings is enhanced by use of TPB,

a theoretical framework commonly used in sleep research. An audit trail (see Appendix D) was maintained throughout the study to facilitate replication by other researchers who are best able to ascertain whether findings from this study will apply to their population(s) or are relevant to their research interests.

Limitations

I worked toward dependability by making the research process accessible to other researchers through consistent documentation of the process, the recording of interviews, and an audit trail (Elo et al., 2014). The sample size was relatively small despite working the interview process to saturation. The sample had multiple specifiers that limited the way it was likely to be representative of the various populations from which it was drawn, therefore it is not likely to represent all young adults, or all young adults living in rural areas.

Significance

Contributions to theory and practice may be made by this qualitative inquiry into the lived experience of sleep in the population of focus. Research suggests the importance of providing programs and treatment tailored to the intended audience or patient. At present there is a gap in the literature examining the sleep behavior and experiences of young adults living in rural poverty (Basner et al., 2014). Expanded understanding of the values and beliefs of patients can enhance the ability of health care and service providers to assist these individuals with their own health as well as that of their children.

This study has the potential to positively influence participants who may not have had previous opportunities to share their experiences. In addition, the process may allow

participants to indirectly communicate with service providers who may be unaware of how their efforts conflict with strongly held values and beliefs. A similar opportunity is created for service and health care providers who come to be involved in patients' lives with limited information about the patients' experiences and how their beliefs impact their interest in or ability to comply with recommendations that could improve their health. Given their very brief exposure to their patients, providers can benefit from research information read outside the healthcare encounter that involves those whose background is similar to that of their patients.

Implications for Social Change

Social change can be realized through increased awareness of the sleep experiences of various populations, particularly those whose voices are not frequently heard. Qualitative research provides a vehicle for helping such individuals to find their voices for listening to these voices. Listening is necessary to translate what is learned by their experiences into meaningful assistance and support to address challenges to individual and public health.

Summary

In this chapter, background information and issues in the field of sleep research were presented along with the study's purpose and the theoretical framework used in this qualitative, phenomenological research. Key terms were identified and assumptions made were stated. The scope and delimitations of this study were presented as were its limitations.

Chapter 2 provides a review of the literature on the phenomenon of sleep, the function of sleep, sleep disorders, and the consequences of insufficient sleep. Constructs of the TPB are presented in general and in specific regard to sleep behavior. The research methodology and rationale for its selection are introduced and supported using references from literature on sleep behavior. Chapter 3 includes the research methodology and details of the research design including the interview protocol. Chapter 4 includes details on implementation of the study and the results. Chapter 5 includes findings, conclusions, recommendations for further study and implications of the study.

Chapter 2: Literature Review

Introduction

This study focused on the lived experience of sleep among young adults living in rural poverty in New York State. The American Psychological Association (2008), in making recommendations on the implementation of multicultural guidelines, indicated that awareness of culture is essential to comprehending behavior and urged that research incorporate consideration of culture and context. This study explored the experience of sleep in the context of the culture of rural poverty. The study of sleep in this context is important because of the sizeable population living in this culture and the potential magnitude of the consequences of sleep issues in this population.

The problem of inadequate information about sleep behavior in this population and the context in which the decision to sleep is made were explored using qualitative phenomenological methodology. Sleep issues are associated with increased risk of injury, alcohol use, and negative perceptions of personal health, each of which is thought to be more prevalent among young adults (Wells & Vaughn, 2012). Among young adults living in rural areas, these issues are often further exacerbated by socioeconomic status and the challenges of rural life, for example, low health literacy, insufficient resources, and the need to travel long distances to see service providers (Chang et al., 2012; Liu et al., 2013; Wells and Vaughn, 2012). Any or all of these factors, such as the impact of low health literacy on the ability to understand the importance of sleep, the inability to establish sleep hygiene routines due to insufficient resources, or lack of transportation to obtain the services of a sleep specialist, may leave individuals living in rural areas more

vulnerable than their urban counterparts to sleep issues. This chapter includes discussion of the cultural, economic, and biomedical aspects of sleep, including the increased focus on sleep as a critical factor in individual and public health. Sleep behavior is the subject of research in other high risk groups such as college students and cancer patients; however, it has not been studied specific to the target population in this study. This is important given the prevalence of sleep problems in this population, the health problems exacerbated by insufficient sleep quantity and poor sleep quality, and because research findings indicate increased treatment efficacy when patient-centered strategies are employed (Knowlden et al., 2012; Leventhal et al., 2011; Moore et al., 2015). The purpose of this qualitative phenomenological study was to explore and gather rich descriptions of the lived experience of sleep among young adults living in rural poverty to inform development of relevant and effective prevention and intervention strategies to improve sleep behavior in this population.

TPB is discussed in this chapter as a framework for the study, and literature demonstrating the utility of this theory in the study of sleep will be presented. The literature reviewed examines various aspects of the phenomenon of sleep including the emergence of the study of sleep, the purposes of sleep, and problems with sleep. The context of the experience of sleep in the target population, for example, rural life and poverty, will also be discussed. Finally, the importance of the use of qualitative methodology with this population and in health research is presented.

Literature Search Strategy

Multiple internet search engines were employed for this literature review, including the Google search engine, Google Scholar, and Google Books. PsycArticles, PsycInfo, PsycBooks, were searched as well as multidisciplinary databases such as Academic Search Complete, ProQuest, and Science Direct. The holdings of the New York Heritage Digital Collection were also examined to explore the roots of knowledge and beliefs regarding sleep in past generations of the population of focus. Additional searches were conducted on the websites of federal and state agencies such as the U.S. Census Bureau and New York State Office of Rural Affairs, as well as the websites of relevant professional organizations such as the American Academy of Sleep Medicine. Search criteria included terms such as *sleep, sleep behavior, sleep hygiene, sleep history, rural, rural healthcare, poverty, persistent poverty,* and *social justice*. Keywords in the searches conducted included: *sleep, sleep disorders, sleep disturbance, sleep hygiene, insomnia, beliefs, subjective norms, perceived behavioral control, self-efficacy, rural, poverty, rural poverty, autonomy, rural health care, poverty, persistent poverty, social justice, health literacy, the theory of planned behavior,* and *the theory of reasoned action*.

The initial search focused on articles written within the past five years; however, resources documenting the emergence of contemporary understanding of sleep were included beyond this chronological boundary. A preliminary search to consider the emergence to prominence of sleep behavior was conducted without restricting date of publication. This led to two observations that influenced the range of publication dates for journal articles used in this literature review. The first observation was that of a

change in the Behavioral Risk Factor Surveillance System (BRFSS) by the CDC in 2007 that expanded data gathering on sleep behavior (CDC, 2011). The second observation focused on research indicating the impact of the recession on rural poverty including escalation of negative health outcomes associated with stress and sleep. These observations justified conducting searches using the period from 2007 to 2016 with weighted consideration given to research conducted in or after 2011 and research now considered seminal in the field.

Theoretical Foundation

Cognition models examining actions that are precursors to a health-related behavior or predictive of engaging in that behavior are appropriate for use in examining sleep behavior. TPB was employed as a framework for the exploration of sleep behavior among young adults living in rural poverty (Ajzen, 1991). Rooted in research conducted in the 1950s that focused on predicting behavior, the TPB emerged from the theory of reasoned action (TRA), which assumed that human behavior is rational in that individuals use information available to them regarding behavior in a systematic manner, including the various implications of their choices (Ajzen & Fishbein, 1980). TRA theory assumes most behaviors to be controlled by volition and determined by intention; intention is influenced by personal factors or beliefs and social influences, labeled subjective norms by Ajzen and Fishbein (1980).

TPB was proposed by Ajzen (1991) to address limitations of the TRA regarding behaviors in which volitional control was lacking. TPB asserts that the combined influence of beliefs, subjective norms, and perceived behavioral control mediate

intention, the strongest influence on performing a behavior. As shown in Figure 1, the constructs of beliefs, norms, perceived control will be examined in relation to intention to sleep.

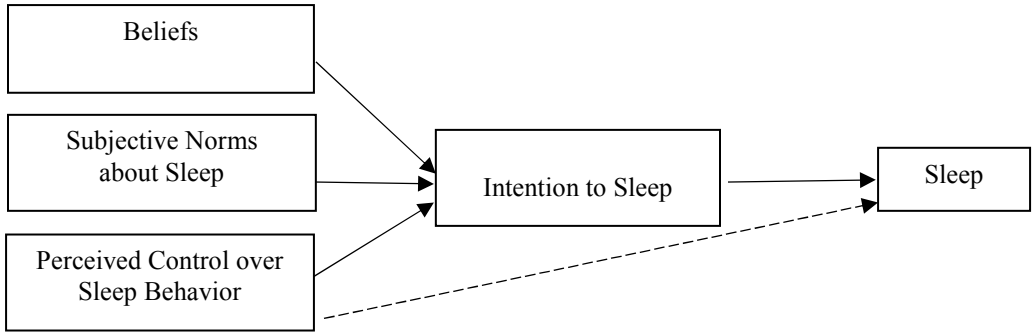

Figure 1. Model of theory of planned behavior applied to sleep behavior.

Beliefs

Beliefs may be focused on the behavior, attributes of performing the behavior, or outcomes associated with that behavior; strong beliefs about valued outcomes that are positive will yield positive beliefs toward the behavior and strong beliefs about negatively valued outcomes will result in the development of negative beliefs toward the behavior (Ajzen, 1991). Behavioral beliefs, to include the likely consequences of a behavior, influence attitudes toward the behavior (Ajzen and Sheikh, 2013). Normative beliefs or beliefs about the expectations and behaviors of others play are influence the development of subjective norms. Beliefs regarding the factors that might facilitate or inhibit adoption of a behavior and the individual's control over these factors give rise to an individual's perceived behavioral control.

Subjective Norms

Subjective norms about health behaviors are determined by normative beliefs that are formed based on external input, such as the approval or disapproval of important referent individuals mediated by the individual's motivation or desire to maintain the connection to the referents (Ajzen, 1991). Those perceiving that a positive opinion is held by referents regarding a health behavior and who are motivated to meet that referent's expectations regarding the behavior will hold a positive subjective norm toward the behavior. In the absence of individual motivation to comply with expectations of important referents a neutral subjective norm may emerge.

Perceived Behavioral Control

Perceived behavioral control involves an individual's perceptions regarding control over an identified behavior including those challenges encountered in prior experience with the target behavior (Ajzen, 2011). Such issues may include access to resources that could facilitate the behavior, the absence of such resources, or the perceived power of these resources to promote or inhibit the behavior. The definition of perceived behavioral control includes the ability of an individual to engage in the behavior, i.e. knowledge of both the behavior and the skills necessary to adopt that behavior.

Ajzen (2011) acknowledged the appropriateness of considering potentially relevant factors identified through research conducted prior to conducting a new study. Voluntarism and autonomy were explored in the study, in addition to TPB constructs. Roberts (2014) defined voluntarism as the individual's capacity to make a free choice

based on that individual's "authentic sense" (p. 705) of the best course of action in the context of personal values and experience. The role of autonomy, or individual control over one's actions, is identified in the literature as more significant in sleep behavior than in other decisions involving health practices, e.g. tobacco use, prompting the need for additional research specific to rural poverty to inform and improve the efficacy of interventions to support improved sleep and associated health outcomes (Calkins, Hearon, Capozzolo, & Otto, 2013; Hale, 2014; Wells & Vaughn, 2012). The role of voluntarism and autonomy in sleep behavior were explored in the context of perceived behavioral control.

Intention

Behavioral intention includes the motivations underlying both the quantity and the quality of exertion an individual is willing to expend to regard to a specific behavior (Ajzen, 1991). Intention can only be exerted toward a behavior when the individual has control of the decision to engage in that behavior; factors not linked to the motivation to engage in a behavior, e.g. money or other resources influence the actual control the individual has over that behavior. These issues may weigh heavily on the decision to sleep.

Rationale for Use of Theory of Planned Behavior

The primary use of TPB is to predict and explain behavior: it was appropriate as a framework for study as it is frequently used in the study of sleep behavior and evaluation of proposed programs and treatments for sleep problems. As one of the purposes of the study is to inform future research and work in the development of strategies to improve

sleep behavior it is appropriate to employ a theory extensively used in studies exploring various health behaviors (Kor & Mullan, 2011). A study of sleep hygiene in 357 undergraduate students found that while intention and perceived behavioral control were significant, past behavior and the ability to self-regulate were the strongest predictors of employing sleep hygiene programs. The importance of beliefs about sleep in the treatment of insomnia was demonstrated in a randomized controlled trial involving 188 participants treated patients with cognitive interventions to change inaccurate beliefs (Eidelman et al., 2016). Researchers conducting a study involving college students operationalized the constructs of the TPB to examine sleep hygiene and the intention to sleep and found the TPB to be effective in predicting sleep behavior (Knowlden et al., 2012). These studies demonstrate the utility of the TPB in studying various aspects of sleep behavior and while they are quantitative and seeking to predict behavior, the work demonstrates the utility of the TPB constructs in exploring a health behavior such as sleep.

The Phenomenon of Sleep

Sleep is an essential component of the human experience in addition to being critical to survival and effective brain function (Underwood, 2013). Contemporary sleep research has its roots in the work of Piéron (1913), who employed the exhaustion of dogs in his work to explain sleep as anticipatory rhythms that associated sleep with darkness and fatigue. Forty years later, Aserinsky and Kleitman (1953) conducted research on rapid eye movement (REM) involving 20 subjects wearing electroencephalogram (EEG) wires who were awakened after eye motility was observed and interviewed as to their

dreams. The authors concluded that the eye movements were associated with cortical activity observed during sleep and identified fours period of eye movement. Dement and Kleitman (1957) conducted further research in this area that led to the creation of classifications for various stages of REM sleep. This work formed the basis for current belief that human sleep involves both rapid eye movement (REM) and non–REM (NREM) sleep; these states alternate in cycles during a period of sleep (Carskadon & Dement, 2011). Low muscle tone and minimal psychological activity are observed during NREM sleep; EEG activity is variably synchronized, showing sleep spindles and slow waves. REM sleep typically includes dreams but EEG activity is not synchronized, and muscles tone is slack. The pattern of mature human sleep begins in NREM stages that grow deeper (N2 and N3) leading to the onset of an initial episode of REM sleep, typically 80 to 100 minutes after the falling asleep and cycling throughout the sleep episode every 90 minutes and lengthening as the individual sleeps. The ability to measure brain activity during sleep refuted years of prior research and commonly held beliefs concerning sleep as an inactive time with minimal benefit to the individual or society and expanded interest in sleep as a topic for research in many fields.

Function of Sleep

Sleep is an essential component of the human experience, considered in poetry, song, popular press, social media, and research in multiple disciplines. Aristotle, in contemplating *katalēpsis*, described sleep as a process through which vapors from hot meals ascended to the brain and upon cooling descended to and paralyzed sensors in the heart; sleep is then a “border-land between living and not living" (Sprague, 1977, p. 230).

The function of sleep may have first been considered in the context of dreams, e.g. the Pharaoh's request that Joseph interpret his dreams (*New International Version*, Genesis 41:15-38). Ancient Greeks and Romans thought dreams to be of divine origin and subjected their dreams to extensive interpretation involving oracles and manuals (Barbera, 2008).

Individual opinion as to the function of sleep varies widely and may be influenced by interest in its biology, its impact on waking activities, or its implication in a range of health outcomes. Sleep is the final frontier of physiological function with no clear consensus as to its function, however, research found sleep to influence multiple areas including immune function, storage of brain energy, performance, connectivity, and glymphatic activity. (Krueger et al., 2016). Some of these possible functions have been identified through of extensive research, others have a basis in popular and scientific thought, such as the idea of resting to promote healing that is now confirmed with evidence of sleep influencing immune response (Besedovsky, Lange, & Born, 2012). Regulation of immune function by sleep is accomplished via the circadian system through a function of the suprachiasmatic nucleus (SCN) of the brain; the complex signaling link systems channel behaviors to the appropriate portion of a solar day and emerge as the organism develops (Bedont & Blackshaw, 2015).

Earth's 24-hour rotation around the sun imposes day-night cycles on all organisms; these internal circadian clocks influence physiological processes in tissue and cells as well as behavior (Rouyer, 2013). Physiological processes controlled by circadian timing include core body temperature and the release of cortisol and melatonin;

misalignment of these variables by circadian disruption impacts tissue in the heart, lungs, esophagus, and spleen (Wilking, Ndiaye, Mukhtar, & Ahmad, 2013). Circadian disruption, associated with long and short term sleep deprivation, negatively impacts allostasis and allostatic load with consequences in the brain, e.g. mood disorders and increased aggression as well as the body, e.g. diabetes and obesity (McEwen & Karatsoreos, 2015). Circadian processes are also involved in cognitive functions, e.g. mood, memory, alertness; the manner and extent to which circadian process influence these functions may vary based on how the sleep-wake process is disturbed (Burke, Scheer, Ronda, Czeisler, & Wright, 2015).

An individual lacking adequate sleep over a period of time accrues a sleep debt that prompts increased efforts to obtain sleep including abbreviated sleep latency and longer sleep episodes. Interaction between the homeostatic processes in the brain and the circadian outputs for wakefulness thwart the accrual of sleep debt throughout the day; these signals give way and permit sleep at night (Luyster, Strollo, Zee, & Walsh, 2012). This system of alerts allows humans to remain awake approximately 16 hours per day and prompts initiation of sleep. Disturbances in developmental processes involved in establishing circadian rhythms may cause problems in the sleep/wake cycle. This occurs due to homeostatic pressure to sleep that is initiated upon awakening, this pressure escalates and intensifies over the period during which the individual remains awake and is linked to the amount of time since the last sleep episode (Luyster et al., 2012). NREM sleep is impacted by this cycle of inadequate sleep as evidenced by increased synchrony

in EEG studies. The pressure to erase sleep debt increases and may result in sleep being initiated at the expense of safety, e.g. while driving.

Positron emission tomography (PET) studies suggest the possibility that sleep may be involved in metabolism as evidenced by higher waking rates of glucose consumption when compared to NREM sleep (Krueger et al., 2016). This speaks to the influence of sleep at the cellular level and the way metabolic regulators are linked to sleep and the theory that sleep is involved in restoring energy in the brain. Such influences are important to the role of sleep in glycemic control in patients with type 2 diabetes, as glycemic control, insulin resistance, and obesity may be complicated by human behavior that resists physiological pressure to sleep to an extent that impacts sleep quality and quantity (Reutrakul & VanCauter, 2014).

The role of sleep in synaptic plasticity, defined as changes in synaptic strength, size, quantity, or structure, is acknowledged in the literature despite uncertainty regarding the exact influence of sleep and circadian processes on plasticity (Frank & Cantera, 2014). No single influence is apparent with variations being dependent on the specifics of the subject being studied (e.g. insect), activities prior to sleep, and the involvement of strong circadian rhythms which influence the interaction and the effectiveness of the synapses.

The function of restorative sleep (N3) is associated with significant decreases in heart rate, blood pressure, and stable breathing; inadequate N3 sleep is linked to increased risk for cardiovascular disease (Xie et al., 2013). Building on work by Illif et al. (2012) reporting the discovery of a glymphatic system of channels in the brain that

moved cerebrospinal fluid (CSF) and cellular waste from the brain, Xie et al. (2013) conducted research on the role of sleep in this process. Xie injected green dye into the cerebrospinal fluid of sleeping mice, then awakened them and injected a red dye; CSF flowed into the brain when the mice were asleep but not when they were awake. Mice were also injected with β amyloid proteins; following the dye allowed the researchers to observe expansion of the glial channels by 60% during sleep and removal of the β amyloid proteins. The buildup of these proteins and other pathogenic plaques is associated with a range of neurological diseases as is disturbed or inadequate sleep. The observation that this activity occurred only when the mice were asleep suggests the importance of sleep and the threat of neurological damage in the absence of restorative sleep. The researchers were not able to conclude if the accumulation of waste in the glymphatic system may prompt sleepiness.

Sleep Disorders

The International Classification of Sleep Disorders-3 defines seven major categories of sleep disorders including the most common, insomnia and sleep-related breathing disorders, as well as central disorders of hypersomnolence, circadian rhythm sleep-wake disorders, sleep-related movement disorders, parasomnias, and other sleep disorders (ICSD-3, American Academy of Sleep Medicine, 2014). Sateia (2014) asserted that the classification of sleep disorders is unclear particularly as to the amount of disturbance recognized as clinically significant and the best method for measuring the parameters of disturbance. Insomnia is the most common sleep disorder and it places

patients at higher risk for cardiovascular disease, hypertension and blood glucose regulation (Bailes et al., 2015).

Diagnostic criteria for insomnia includes problems with initiating or maintaining sleep, adequacy of the sleep environment, and the consequences of the sleep problem on daytime activity (American Academy of Sleep Medicine, 2014). To meet ICSD-3 criteria, insomnia must be experienced for 3 months, at least 3 times per week. Patients may present with sleep issues that do not warrant an independent, primary or secondary diagnosis of insomnia as sleep problems may be associated with other medical or psychological issues.

In rural areas, the prevalence rate for general insomnia is 38% with variations as to specific types of insomnia that may be related to sleep habits, particularly sleep duration (Kocoglu et al., 2013). In a study involving rural participants, dysfunctional beliefs about sleep, e.g. expectations for sleep and concerns regarding the consequences of insomnia were found to be significant in the diagnostic and treatment process. Participants expressed limited confidence in medication to treating their insomnia with medication, however the authors acknowledged that access to medical care for their sleep problems might preclude this treatment. Data from the CDC (2014a) suggest that income is associated with insomnia as evidenced by self-reported insomnia among 15.8% of respondents whose income exceeded 400% of the Federal poverty level compared to 24.8% of participants whose incomes were less than 100% of the Federal poverty level. Women were more likely than men to report sleep issues or insomnia across all income levels.

While multiple studies suggest the need for additional research to improve the diagnostic process in primary care settings, to improve patient-focused treatment, and to support patient adherence to provider recommendations, the research also demonstrates vastly expanded capability to identify and assess the influence of variations in sleep quality and quantity on individual and public health (Bailes et al., 2015; Ong et al., 2015; Wells & Vaughn, 2012). These improvements have resulted in consideration of sleep issues that, while not meeting clinical diagnostic standards, raise concerns for individual and public health.

Sleep Quantity and Quality

The ability to measure the quantity and various aspects of the quality of sleep has prompted many questions about how much sleep is adequate as well as the individual's responsibility to seek adequate sleep. While multiple studies found that engaging in adequate sleep is essential to maintaining health, nearly one-third of Americans obtain 6 or less hours of sleep, an amount of sleep that has continued to shrink for generations (Whinnery et al., 2014). Inadequate sleep is associated with obesity, diabetes mellitus, hypertension, and cardiovascular disease; the prevalence and economic burden of these diseases warrants further research on their association with sleep. The impact of inadequate of sleep on health and daily function may be exacerbated by socioeconomic status, although such impact may vary widely based on race, ethnicity, education, employment, and overall health (Patel, Grandner, Xie, Branas, & Gooneratne, 2010).

The invention of the light bulb in 1879 blurred the line between night and day, allowing for activities once precluded by darkness to be conducted around the clock (U.

S. Department of Energy, 2013). The scales were tipped in favor of operating factories around the clock by World War II and the need for armaments (Sundstrom, 1986). The United States government engaged in an educational campaign in favor of brightly illuminated workspaces for employees working in shifts around the clock, allowing workers to ignore natural day-night cycles and internal circadian rhythms. Sleep research focused on shift work has identified some of the consequences of disrupting sleep-wake cycles with exposure to artificial light at night including, but not limited to, sleeping less, irregular family and social life patterns, erosion of performance along with increased risk of accidents and long-term health issues such as sleep disorders, metabolic issues, and cardiovascular disease (Haus & Smolensky, 2013).

Preschoolers are also sleeping less and experiencing associated developmental consequences (Keefe-Cooperman & Brady-Amoon, 2012). Sleep duration, bedtime, and wake up time are important to daily behavior and learning. Sleep patterns are influenced by race, ethnicity, geographic, educational attainment, presence of a father/father figure and socioeconomic status, e.g. mothers with the least education reported the latest bedtimes and earliest wake times for their children. Bedtime and wake time may also be influenced by parental work schedules and geographic location. Preschool growth and development are influenced by sleep as is readiness for school, ability to engage with peers, and minimizing behavioral issues once the child enters school. Across all categories, children were sleeping less than in previous generations. Recommendations from the earliest sleep studies by Fleming (1925) to the present provide parents with

inconsistent guidelines concerning the needs of their children to engage in optimal sleep, resulting in stress to both parent and child (Keefe-Cooperman & Brady-Amoon, 2012).

Lost sleep, whether in the general population or specific segments such as shift workers or preschoolers, is typically studied in terms of sleep deprivation, sleep restriction, or sleep fragmentation (Womack, Hook, Reyna, & Ramos, 2012). Sleep deprivation refers to the absence of sleep over time, sleep restriction is associated with decreased sleep such as that associated with staying awake to watch an event on TV, and sleep fragmentation involves the disruption of sleep over the course of a typical sleep episode. Laboratory sleep studies typically involve sleep deprivation where participants are kept awake and observed by researchers; studies involving sleep restriction or fragmentation more often involve self-report or actigraphy and may be conducted with the participant sleeping at home. Whatever the research modality, the findings are mutually reinforcing: insufficient sleep prompts physiological changes that increase the risk of or predisposition to adverse health consequences that can be observed on a variety of levels from cellular activity to individual behavior.

Various methods of observing and measuring the impact of sleep on human health and performance allowed researchers to explore how humans shape their sleep behavior in the face of biological forces to fall asleep and a culture that beckons them to remain awake (Goel, Basner, Rao & Dinges, 2013). Wittmann, Dinich, Merrow, and Roenneberg (2006) termed this misalignment of biological and social timing “social jet lag,” (p. 497) and found the discrepancy to be stronger than the association with morning-evening chronotypes. The link between chronotype, health, and consumption of caffeine was

strongest among adolescents and adults under age 25; the authors indicated the incidence of social jet lag is widespread, chronic, and worsened by societal structure. Studies by the United States government and others regarding the use of time have identified factors associated with suboptimal sleep, however the activities chosen by at-risk populations in lieu of sleep are less frequently studied (Basner et al., 2014; U.S. Bureau of Labor Statistics and U.S. Census Bureau, 2012). Activities exchanged for sleep included paid employment, commuting to work, grooming, and social activities. Social activities, grooming, and watching television were reported more frequently among short sleepers; reports of watching television (to include using a computer, smartphone, or tablet) were more common among females, the unemployed, those with incomes below $25,000 and participants who lived alone.

More specific to the population of focus of this study is research conducted by Maslowsky and Ozer (2014) using data from the United States National Longitudinal Study of Adolescent Health. The authors found changes in sleep duration from adolescence to early adulthood (ages 13-32 years), noting sharp reduction in sleep to 7.3 hours at 18 years and an increase to 8.5 hours during the period characterized as emerging adulthood (ages 19-22), followed by a decrease to 7.7 hours during early adulthood (ages 23-32). Decreased sleep during adolescence is associated with biological factors such as phase-delay that comes with the onset of puberty and causes adolescents to stay awake later in the evening, this coupled with early school start times results in fewer hours of sleep each night. Transition to the period of emerging adulthood is characterized by shifting from the role of student to entering work, attending college, or

starting a family; this period may involve a substantial change in the ability to control one's sleep schedule and environment resulting in the increase in reported sleep time. The context of time may change without demands to get up and get ready for school allowing the emerging adult to sleep later in the morning. Maslowsky and Ozer (2014) found that female participants slept longer than males (8.4 hours per night for females and 7.8 per night for males). Short sleep duration of fewer than 6 hours was reported from 7.6% - 9.9% of participants, based on age with 22 year olds most frequently reporting short sleep; long sleep duration of more than 10 hours was reported from 15% - 25% of participants.

National Sleep Foundation (2016) recommendations indicate that young adults (a new age category) should sleep 7-9 hours per night, adolescents should sleep 8-10 hours per night, acknowledging that individual needs may vary within these ranges. Maslowsky and Ozer (2014) found that most emerging or young adults engaged in sufficient sleep, however, those reporting short or long sleep may be at higher risk for adverse health issues including diabetes, hypertension, and all-cause mortality in later adulthood as discussed elsewhere in this chapter. Both long and short term sleep duration was also found to be factors in the prevalence of depressive symptoms in rural populations, sleep duration was explored with the population of focus for the study (Chang et al., 2012).

Additional risks associated with sleep that is insufficient or of poor quality may cause harm to individuals while compromising public safety. Inadequate sleep is associated with the Exxon Valdez oil spill, the explosion of the Challenger space shuttle, and nuclear incidents at Three Mile Island and Chernobyl (Wells & Vaughn, 2012). Over

100,000 accidents annually are attributed to drowsy driving. More than $12.5 billion dollars in decreased productivity and property damage are the result of fatigue, drowsiness, difficulty concentrating, or some factor pertaining to sleep. Accidents in rural areas that may be impacted by sleep include not only those mentioned such as automobile accidents but also injuries associated with confined spaces, shootings, and working with heavy machinery. A study by Siu, Huang, Beacom, Bista, and Risto (2015) found that inadequate sleep was linked to balance and stability in farmers putting them at higher risk for a range of accidents while working. The authors noted the dearth of research specific to sleep issues and rural work such as farming, asserting the need for additional research to inform public policy to address some of the hazards arising from sleep issues, consistent with legislation enacted to protect shift workers.

The research presented in this chapter confirms the importance of sleep and the role of a wide range of factors in achieving adequate sleep quality and quantity as necessary to reduce the risk of adverse health consequences and to improve quality of life. A significant gap in this literature exists as to the lived experience of young adults, emerging from adolescence into new roles, and their sleep behavior. This next section of this chapter will consider research specific to the constructs of the Theory of Planned Behavior (TPB) and the adoption of sleep behaviors by young adults living in rural poverty.

Beliefs About Sleep

Research on the role of beliefs regarding sleep is often linked to sleep disorders such as insomnia where such beliefs are thought to prolong or exacerbate symptoms

(Eidelman et al., 2016). Research conducted over a period of more than twenty years amplifying the importance of sleep-beliefs in the course of insomnia, found that believing that the situation is hopeless or that the individual is helpless when experiencing insomnia exacerbated the condition (Kocoglu et al. 2013). Limited research is available on beliefs and insomnia in rural areas, however, a study by Chang et al., (2012) found that average sleep duration in rural areas is less than 7 hours, increasing the risk of depressive symptoms often associated with insomnia.

Treatments targeting these beliefs or behaviors associated with them, for example behavior therapy, cognitive therapy, or cognitive-behavioral therapy were compared in a study of 188 participants to examine the link between changes in belief and changes in sleep, the relative efficacy of each treatment on beliefs, and to determine which how various treatments impact different types of beliefs (Eidelman et al., 2016). Findings demonstrated the importance of targeting beliefs when treating insomnia and indicated that cognitive treatment was particularly effecting in changing beliefs, although the way the treatment enhances beliefs about sleep to reduce insomnia symptoms remains unclear. Behavioral therapy improves beliefs that negatively influence sleep behavior however behavioral therapy and cognitive therapy may impact different beliefs (Roane, Dolan, Bramoweth, Rosenthal & Taylor, 2012). The authors recommended additional research in this area to improve understanding of individual factors regarding sleep beliefs and appropriate treatment. Each of these studies utilized the Dysfunctional Beliefs about Sleep Index (DBAS) which informed the development of the interview guide for this study and is further discussed in Chapter 3.

Behavior is among the determinants of sleep duration; cultural beliefs and practices influence behavior (Knutson, 2013). Variations in beliefs about sleep have been identified between cultures, but little is known about why these variations exist. For example, differences in beliefs regarding napping with 10% of adults in Japan reporting regular napping compared to 72.3% of adults living in an agricultural area of Brazil. Kocoglu et al. (2013) found higher levels of dysfunctional beliefs regarding sleep, symptoms of insomnia, and the consequences of inadequate sleep among rural dwellers and explained the difference by the weight of cultural beliefs on health issues and the desire to seek treatment. Knutson (2013) urged that additional research move beyond sleep as a biological function to explore how cultural perspectives vary regarding sleep to assist in identifying novel targets for interventions to improve sleep. This is particularly relevant to working with rural populations and those living in poverty, where beliefs may be at odds with recommendations for optimal sleep behavior and sleep hygiene.

A review of archival literature yields descriptions of rural culture, defined in terms of behavior and beliefs, along a timeline punctuated by major social or economic events that shaped its evolution. Beers (1937) wrote that rural farm family portraits carry with them "patterns of social arrangement" that are adjusted at intervals as cultural changes emerge. Rural dwellers are often geographically isolated and socially self-contained with heavy dependence on religion and ritual. The stoic farmer presents with emotional control that is a vestige of the pioneer attitudes portrayed in popular culture. Long hours of work and a constant awareness of the risks of farm life came together with Puritan beliefs to produce a strong tradition of independence, endurance and restraint.

Primary family values that were pervasive across rural farm culture were, according to Beers "self-restraint, thrift, and industry" (p. 592). Agriculture continues to be cited as a common feature of rural culture along with values involving independence and personal responsibility; these beliefs influence individual personality characteristics and view of the self in relation to family (Smalley & Warren, 2012).

Variations exist between the rural communities in which 60 million Americans live; differences are shaped by region, geography, ethnicity, and economics resulting in local idiosyncrasies within rural culture (Bischoff et al., 2014). Open space, whether farmland, mountains, or river valleys, is associated with rural culture as is population density which is typically low and contributes to the isolation also commonly connected with rural culture (Smalley & Warren, 2012). Religion is often part of rural culture and may influence individual beliefs about seeking treatment for health issues, especially those involving mental health. Persistent poverty is often disproportionately present in rural areas and is frequently associated with other aspects of rural culture such as isolation, although rural poverty is less frequently mentioned in the literature than urban poverty, a significant link between health and poverty is observed with negative health outcomes being associated with higher rates of poverty (Canto, et al. 2014).

Lewis (1963) asserted the existence of a culture of poverty characterized by economic challenges such as underemployment, unemployment, low wages, absence of savings, chronic shortages of cash, and food insecurity and social issues such as crowded or substandard living arrangements, lack of privacy, frequent use or observation of violence, early initiation into sex and high incidence of abandonment of women and

children. Owens (2008) asserted that culture has a significant impact of sleep practices in families, this is especially pronounced in parental expectations for children's sleep. The author argued that understanding cultural beliefs is essential to informing clinical approaches to addressing sleep issues. This study explored the culture of rural poverty as expressed by participants relative to their lived experience of sleep.

Subjective Norms Regarding Sleep

Closely related to individual beliefs about sleep behavior are subjective norms or the individual's belief of what another individual or group thinks regarding that behavior. Ajzen (1991) indicated that subjective norms may influence an individual's behavior more than that individual's belief about the specific behavior. One might surmise that among the influencers of young adults would be a parent or any individual playing that role in the individual's life. Information provided by parents might have been obtained from the family pediatrician, other family members, church members, or community organizations. Early research pertaining to sleep and behavioral issues in preschools was published by Lavigne et al. (1999), when the population of focus for the study were young children. The authors found fewer hours of sleep over 24 hours to be associated with DSM-IIIR diagnoses in participants aged 2-5 years and increased behavioral problems to be more common among participants engaging in less night time sleep.

Pesut, Bottorff, and Robinson (2011) noted that the challenges of providing services in rural areas are exacerbated by cultural beliefs and behaviors grounded in self-reliance and self-care to the exclusion of recommendations from service providers. In addition, the authors identified a strong rural work ethic and focus on health as it pertains

to the ability to continuing to work as important to rural residents. The authors recommended qualitative research focused on the lived experience of the targeted health behavior as necessary to enhance understanding of values. When focusing on sleep, significant referents might include but not be limited to health care providers, employers, clergy, community agencies, and extended family.

Perceived Behavioral Control

The extent to which an individual has control over a behavior has an obvious impact on that behavior; Azjen (1991) posited that perception of control impacts health behavior as well as one's intention to engage in that behavior. The ability to control and the perception of control over the decision to engage in sleep behavior may be evaluated in relation to sleep hygiene.

Sleep hygiene emerged from the treatment of insomnia and is now used in health education to improve sleep behavior. Recommendations include avoiding caffeine, exercising regularly, creating an environment conducive to sleep (e.g. free of noise, cool temperature) and adhering to a consistent sleep schedule (Irish et al., 2015). Each of these recommendations is subject to varying levels of individual control as experienced or perceived by the individual, for example an individual has a higher ability to control caffeine consumption than their sleep environment. Socioeconomic status is associated with many challenges to engaging in positive sleep hygiene; individuals with low socioeconomic status are most likely to have inadequate sleep and are more likely to use caffeine, typically in the form of energy drinks, to combat fatigue resulting from inadequate sleep (Grandner, Knutson et al., 2014). The effectiveness of caffeine in the

instance may provide short-term relief from fatigue but does not address any other negative health outcome associated with insufficient sleep.

Several aspects of creating an environment conducive to sleep are problematic for rural residents and for those living in poverty, including the ability to acquire necessary space and furnishings for sleep and the ability to control that space (Hale and Hale, 2010). The ability to control the sleep environment is also limited by external factors including the way light, social patterns, and work or other demands on time influence the sleep-wake cycle or require individuals to alter sleep patterns (Carvalho, Hidalgo, & Levandovski, 2014). A study of 5942 subjects comparing rural farm and urban populations found significant differences in sleep patterns and exposure to light as rural residents often worked longer hours outside (Carvalho et al., 2014). Environmental noise may be beyond the control of an individual attempting to sleep, as in the example of industrial wind turbines, and is associated with both sleep disruption and negative health outcomes (Nissenbaum, Aramimi & Hanning, 2012).

Socio-economic factors may also influence an individual's ability to control sleep behavior. From December 2007 to June 2009, economic recession in the United States resulted in long-term unemployment and job losses; a study by DeMarco (2013) found rural residents more likely to be un- or under-employed or to be employed in work with non-standard shifts during this period resulting in increased health issues, diminished sense of well-being, and insufficient quality sleep. DeMarco (2013) found that poverty and living in a rural location disproportionately impacted health outcomes during the recession and that this impact was amplified by the lack of resources in these areas to

support individuals experiencing difficulties. Sleep was impacted by multiple factors associated with employment, whether the individual was unemployed, under-employed, or working on non-standard shifts requiring irregular sleep habits. Williams (2012) argued that socio-economic status plays a key role in distribution of disease and affects not only an individual's current health, but also health across the lifespan, citing observations and studies dating to 1845 when Engels found that England's upper classes had longer life expectancies than day workers.

Marmot (2006) advanced the term "status syndrome" to describe the phenomenon of individuals of higher social position enjoying better health, noting that this is widely observed relative to coronary heart disease among other health outcomes. The author argued that high socio-economic status not only supports superior health through what such an individual may have, but also through what the individual can do with those resources, to include enhanced control over his/her environment and full social participation. Decreased control is associated with increased risk of disease, e.g. coronary heart disease, mental illness, and more frequent absences from work or school. Low social participation is also associated with increased risk for of disease and mortality. As both control over activity and environment are implicated in sleep hygiene and behavior, consideration of these issues was important to this study.

Intention

Intention involves the motivation to engage in a behavior and the amount of effort and individual is willing to exert to act on that intention (Ajzen, 1991). Intention is very much influenced by perceived behavioral control as individual intention can be acted

upon only when the individual has volitional control over the behavior. Ajzen (1991) asserted that in most situations, the strength of the intention will be commensurate with the likelihood that an individual will engage in the desired behavior. The relationship between intention and behavior regarding sleep is more complex and sometimes paradoxical. In a sleep laboratory study of 39 good sleepers, Rasskazova, Zavalko, Tkhostov, and Dorohov, (2014) found that high intention to sleep led to participant arousal that resulted in sleep fragmentation to include increased awakening after initial sleep onset, more awakening during sleep, and an overall reduction in both total sleep time and the longest period of sleep between awakenings. Strong intention to sleep among those with chronic insomnia is also associated with selection of dysfunctional behaviors to initiate sleep or to remain asleep (Tkhostov & Rasskazova, 2011).

Each of these constructs will be explored with participants in Section 2 on the interview protocol (see Appendix B), using open-ended questions informed by existing research using TPB.

Selection of Methodology

Phenomenology is the preferred approach for this study based on theoretical and methodological traditions focused on the essential elements of the experience targeted in the research (Gallagher, 2012). The phenomenological model involves interviewing participants using open-ended questions that elicit information about the experience of the targeted phenomenon and to use the narrative spoken by participants. This was the preferred approach for the study, consistent with its purpose of expanding awareness of the experiences of rural adults living in poverty regarding sleep behaviors.

Wuytack and Miller (2011) conducted a phenomenological study on fibromyalgia and noted that phenomenological methods allowed them to delve deeply into patient experiences to obtain explanations beyond the biomedical model. The authors taped interviews with 18 patients with fibromyalgia; the tapes were transcribed and then analyzed to yield meaning units which were included in the final report(s) along with extensive quotations from participants. The authors asserted that their study could be used to help increase focus on teaching health care providers how to hear patient's presentations, particularly when symptoms are unclear. This is consistent with the this study's purpose to seek information from the population about their sleep behaviors and the choices they make relative to sleep while allowing the participants' definitions of sleep hygiene to emerge.

Summary

The CDC (2014b) defined sleep problems as public health epidemic. Research on sleep behavior makes extensive use of the theory of planned behavior gathering data and developing strategies for improving sleep and associated health outcomes. This chapter used TPB as a framework for reviewing literature on sleep and identifying a gap in the literature on sleep behavior among those living in rural poverty. Recommendations for additional qualitative research on the dimensions of the rural life and the lived experiences of rural residents were explored in this study focused on young adults living in rural poverty in northern New York.

Chapter 3: Research Method

Purpose

The purpose of this qualitative phenomenological study was to explore and gather rich descriptions of the lived experience of sleep among young adults living in rural poverty to inform development of relevant and effective prevention and intervention strategies to improve sleep behavior in this population.

This chapter presents the research design, the rationale for that selection, and the methodology used in completing this study of sleep among young adults living in rural poverty. The role of the researcher is also discussed as are issues involving ethics and trustworthiness and how those issues were addressed. All written tools, including the interview protocol are presented along with evidence of the process used in their development.

Research Design and Rationale

The research questions for the study were:

RQ1: What is the lived experience of sleep among young adults living in rural poverty?

RQ2: What do young adults living in rural poverty believe about sleep?

RQ3: How do subjective norms influence sleep behavior among young adults living in rural poverty? Subquestion: What sources of external input are most influential?

RQ4: How do young adults living in rural poverty perceive their ability to control their sleep behavior?

RQ5: What are the intentions of young adults living in rural poverty about sleep?

Subquestion: How does this influence sleep quantity and quality?

RQ6: How are personal experiences with sleep linked to a larger cultural context?

Prompted by an interest in eliciting information about the essence of sleep in young adults living in rural poverty, I chose a qualitative approach was selected for the study. Gagliardi and Dobrow (2011) asserted that qualitative methodology not only permits examination of complex health issues but also provides the opportunity to obtain data on perceptions and behavior that could inform problem solving and treatment. Morse (2012), in advancing the case for qualitative health research, posited that too often medical research is focused on pathophysiological issues rather than the patient's experience of illness and treatment and suggested much could be learned from the use of qualitative methodology. These arguments supported the use of qualitative methodology in the study.

The term phenomenology is derived from the Greek *phainomenon* and is understood as the study of experiences, to include how things appear in an experience and the way things are experienced in the subjective view of an individual (Husserl, 1965). The central phenomenon of this study was sleep, which may be defined in biological, behavioral, or social contexts as discussed in Chapter 2. This approach was preferred for this study because I sought detailed accounts of the essence of the lived experience of sleep among young adults living in rural poverty. Husserl (1965) wrote that meaning may be gathered from personal accounts of lived experiences. Moustakas (1994) asserted that phenomenological knowledge is obtained by understanding the initial

description of an experience and may be used to delve more deeply into the phenomenon being studied.

Wuytack and Miller (2011) conducted a phenomenological study on fibromyalgia and noted that phenomenological methods allowed them to delve deeply into patient experiences to obtain explanations beyond the biomedical model. The authors argued that their study could be used to help increase focus on teaching health care providers how to hear patient's presentations, particularly when symptoms are unclear. This is particularly germane to the study of sleep given the association between beliefs about sleep and disorders such as insomnia. Additional training might allow providers to better care for those seeking help with sleep issues, particularly around patient sleep beliefs (Eidelman et al., 2016). Another example of the utility of phenomenology in sleep research is the work of Nettleton et al. (2012), who found a range of beliefs about sleep among homeless drug users including a perception of increased vulnerability when attempting to utilize shelters. Some participants indicated they valued sleep and thought it important but the risks of accessing resources outweighed the benefits. These studies cast light on the diverse experiences of marginalized populations regarding sleep and the need for further study to understand these experiences in advance of developing policy and programs. By conveying first person accounts of experiences of a phenomenon, these studies provided data that deepens understanding of the phenomenon on which this study was focused while providing benefits to participants and others engaged with the phenomenon either personally or professionally.

Role of the Researcher

Moustakas (1994) wrote that the value and richness of the data obtained through qualitative research is its subjective nature. To elicit these data the researcher must balance active interest in and involvement with participants against sufficient detachment to allow an accurate rendering of the data obtained in the study. In support of this balance, a researcher may take a stance of empathetic neutrality during implementation of the research design, communicating interest and caring to participants while withholding judgment about information shared by those participants (Patton, 2002). In this study, I employed reflexivity throughout the design and implementation of the study by continuously examining the influence of personal experience with the phenomenon, the context of the research, and the ethical issues associated with doing research with the population of focus. Work with reflexivity was documented in a research journal and in notes written during the literature review.

The researcher is responsible for collection, preservation, and dissemination of rich data from study participants. Strategies to support this work included use of an interview protocol informed by theory and practice as well as reliable and valid instruments currently used in sleep research. An intentional effort to set aside personal bias to create a space of receptive presence was created for each participant (Patton, 2002; Moustakas, 1994). Further protection from the influence of bias was afforded using epoche, allowing for the derivation of meaning from participant responses exclusively in the active suspension of personal assumption and bias. I conducted interviews and documented my experience in the research by maintaining a research journal.

Stewart (2016) explored and described engaging in research in close, personal experience and noted that all experience takes place in situations that are part of connections to other experiences. Connected situations, or multiple roles, existed in this study as I worked as a clinician in the region for agencies serving the population of focus. Conducting research in rural areas requires careful attention to delineation of boundaries at various points in the process from casual contact with participants to obtaining informed consent (Werth, 2012). In the interest of establishing and maintaining boundaries, participants were not recruited from settings where previous clients might remain engaged in services, and no prior clients were deemed eligible to participate in the study due to the potential for ethical challenges and contamination of data collection because of any prior contact.

Methodology

Semistructured interviews were conducted for this study using a theory-based research tool informed by instruments commonly used in sleep medicine research and practice. The constructs of TPB are psychological or internal, obliging the researcher to obtain information about attitudes, subjective norms, perceived behavioral control, and intention directly from participants. This study focused on sleep behaviors among young adults aged 18-24 who resided in the five northernmost counties of New York state: Clinton, Essex, Franklin, St. Lawrence, and Herkimer (Figure 2) and who had incomes at or below the supplemental poverty measure and were not currently enrolled in a secondary education program.

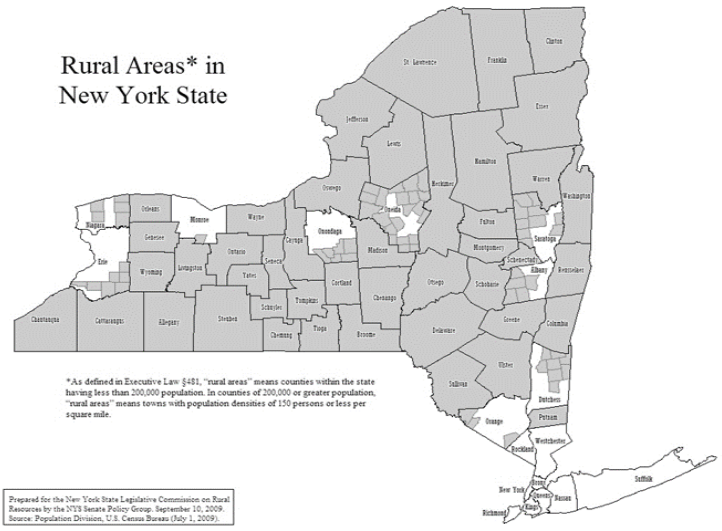

Figure 2. Rural counties in New York State

Participant Selection

This study utilized purposeful sampling techniques, appropriate for use in research exploring behavior in a selected population in that the process allows the researcher to choose from among prospects based on a judgment that the individual is eligible to participate (Patton, 2002). Units of analysis were individuals and selection criteria included age, income, residence in targeted counties, and sufficient interest in the study to prompt meaningful engagement in a semistructured face-to-face interview. Eligibility was assessed in a phone interview. Potential participants were asked about any history of medical treatment for sleep problems and the use of medication or use of sleep apnea equipment; these individuals were excluded from the study. I did not seek additional medical or psychiatric information from participants in the screening phase of the research. I assumed that participants would answer the questions honestly.

Sample size in qualitative research may be thought of in terms of process because the researcher cannot determine in advance how many interviews might be required to reach to point of redundancy or saturation, that is, all questions have been thoroughly answered and no new themes are emerging in additional interviews. Ando, Cousins, and Young (2014) asserted that the process of determining saturation when using thematic analysis is unclear in the literature. The authors conducted an exploratory study using a two-stage code book and determined that a sample size of 12 was sufficient for thematic analysis. For this study, an initial pool of 29 eligible participants were assembled from the targeted counties to assure that redundancy and saturation could be achieved across the region.

Participants were recruited from the general population in the targeted counties using recruitment flyers (see Appendix C) placed in community locations and advertisements in the various free publications distributed throughout the region. Interested individuals were screened by phone to determine eligibility When individuals responded to the recruitment materials, a phone interview was used to determine eligibility (see Appendix A) Recruiting and interviewing participants in a natural setting using multiple strategies based on understanding the population of focus was important to obtaining a sufficient sample and establishing a rapport with participants (Namageyo-Funa et al., 2014).

Instrumentation

The initial screening will be conducted using a simple questionnaire developed by the researcher to capture basic identifying information (Appendix A). An overview of the Interview Protocol (Appendix B) is shown below.

Table 1.

Interview Protocol Overview

Interview section	Question or construct explored
Create space for participant to share initial narrative about sleep	RQ1: General information on sleep
Questions focused on TPB constructs	RQ2: Attitudes and Beliefs
	RQ3: Subjective Norms
	RQ4: Perceived Behavioral Control
	RQ5: Intention
Questions placing sleep behavior in social context	RQ6: Influence of media, community health care provider, others as provided during initial narrative.
Demographic and health questions	RQ1, RQ6: Housing, connection to community, health status

The interview protocol was informed by instruments used in sleep medicine, as presented in Table 2. These instruments, with elements as described below, are useful to those involved in the diagnosis of sleep disorders and typically administered to patients presenting with symptoms or complaints about their sleep behavior. The instruments assist the administrator in obtaining specific information about aspects of the individual's sleep behavior in relation to diagnostic criteria. For example, the Dysfunctional Beliefs

About Sleep Scale was designed to explore the role of beliefs in insomnia (Morin, Vallières & Ivers, 2007). The Sleep Practices and Attitudes Questionnaire is built upon epidemiological research on sleep and provides a comprehensive standardized instrument for the quantitative examination of these factors using response scales which preclude exploration of the individual's lived experience (Grandner, Jackson, Gooneratne, & Patel, 2014). Self-report questionnaires used over several days, called sleep diaries, provide information about sleep parameters and are of particular value in assessing circadian patterns and medication compliance (Thomas, Lichstein, Taylor, Riedel, & Bush, 2014). Sleep diaries were not considered for use in this study due to potential problems posed by functional or health literacy in the population of focus. The limitations of these instruments coupled with the increasing interest in qualitative health research and the desire to access thick description of the lived experience of sleep in the population of focus led to the decision to create an interview protocol that did not include these instruments but was informed by them.

Table 2.

Instruments Informing Interview Protocol

Instrument	Source	Description
Sleep Practices and Attitudes Questionnaire	Grandner, Jackson, Gooneratne, and Patel (2014)	Focused on sleep knowledge and importance, factors influencing sleep, impact of sleep on other functions, impact of sleep of health, and subjective norms; 16 subscales and 151 individual items. Moderate to high internal consistency (*Mdn* = 0.629); concurrent and divergent validity established via subscale comparison to existing instruments.
Chronotype Questionnaire	Ogińska (2011)	Examines subjective phase and subjective amplitude of chronotype; symmetric design of four statements answered yes or no; good internal reliability as evidenced by item-total correlations and Cronbach's alpha (0.66-0.84) depending on age group.
Sleep Hygiene Index	Mastin, Bryson & Corwyn (2006)	Assesses sleep hygiene practice using 13 items derived from International Classification of Sleep Disorders. Favorable test-retest reliability (r (139) = 0.71, p <0.01); validity established via positive correlation with all features of sleep hygiene.
Dysfunctional Beliefs About Sleep Index	Morin, Vallières & Ivers (2007)	Measures agreement/disagreement with 25 beliefs and attitudes about sleep. Reliable as evidenced internal consistency (Cronbach alpha = 0.79 for and temporal stability (r = 0.83); validity positively correlated.

The first section of the interview protocol gathered data in response to RQ1 and will involve creating an opportunity for the participant to describe the experience of sleep in a way determined by that participant. Johansson, Karlsson, Brödje, and Edell-Gustafson (2012) found that data was more rich and thick among participants encouraged to explore and discuss their emotions and thoughts regarding sleep, their sleep environment, and the factors that could influence sleep. I supported this process as necessary to elicit the core elements of that experience. Based on the type(s) of information shared, I used probing questions to enhance clarity or to gain insight into the item(s) being discussed. Probing questions for Section 1 were informed by the Sleep Practices and Attitudes Questionnaire (SPAQ), e.g. What would you do when you are having trouble sleeping? (Grandner, Jackson, et al., 2014). The variables/responses provided in the SPAQ would not be stated to avoid tainting the participant's response. Probing questions to explore the participant's chronotype were also used in Section 1, and were informed by the Chronotype Questionnaire, e.g. Do you feel you are at your best in the morning or some other part of the day? (Ogińska, 2011). When all probing questions were posed, the participant was asked is there is anything else they would like to add.

Section 2 of the interview sought data in response to RQ2-RQ5 and drew on the participant's narrative while moving focus to the constructs of the Theory of Planned Behavior: beliefs, subjective norms, perceived behavioral control, and intention. Questions began at a very general level, e.g. what are your beliefs about sleep; prompts based on the variables of SPAQ, the Sleep Hygiene Index, and the Dysfunctional Beliefs

about Sleep Index were used to elicit additional information. For example, when considering perceived behavioral control and the sleep environment participants were prompted to consider light, temperature, and noise. Probes in this section moved beyond simple clarification to elicit additional narrative material and explore its meaning.

Section 3 of the interview sought data in response to RQ6. These questions connected participant narratives to the larger cultural context of sleep and moved the interview toward closure. Participants were asked about conversations with their healthcare provider or employer regarding sleep, any desire they might have to alter their sleep behavior, and the anticipated benefits of that change. In this section I sought information about the discussion of sleep during a health encounter rather than specific medical information, consistent with the study's purpose to inform those involved in development or implementation of sleep education or intervention programs. Participants were asked for their comments on selected materials regarding sleep: a brochure on drowsy driving, a brochure on sleep hygiene, and a news article about napping. During this section of the interview I engaged with the participant to connect personal experiences with the phenomenon of sleep to the larger cultural context.

Data Collection

Archival and contemporary data was collected from medical, public health, and law enforcement agencies (e.g. brochures, flyers) as well as newspapers and social media**.** Participants will be invited to review these materials during the interviews as described above.

Approval from the Walden University Institutional Review Board was obtained prior to initiation of data collection from participants. Walden University's approval number for the study is 09-16-16-0363488 and it expires on August 15, 2017. Upon receipt of approval, recruitment materials as discussed above were released in the target counties. A pool of potential participants was identified.

The interview protocol was piloted with two participants (Chenail, 2011). Steps planned to modify the interview protocol improve comprehension or assure that it was phrased in a manner that addressed the research questions to minimize threats to validity were deemed unnecessary based on the pilot study. Participants in the pilot study were also asked for input regarding interview length, no changes were made.

Individuals responding by phone or email to indicate an interest in the study were screened as described above and a sample was drawn from the eligible pool. Face to face appointments were scheduled with eligible participants. Upon arrival, the participant was provided with information about the proposed study and given an opportunity to provide informed consent prior to beginning the interview. Participants received an incentive envelope containing a five-dollar gift card.

Data Analysis Plan

The data obtained through the semistructured interview process was analyzed using thematic analysis, described by Braun and Clarke (2006) as a process that may be actively used by the researcher in six phases to identify, analyze, and report patterns or themes found in a body of research data. The authors explained that the researcher may take an active stance, engaged as a realist reporting on the reality of participants involved

in the study or the stance of a constructionist examining the way participant realities are the result of layers of meaning in society or as a contextualist examining how participants might have created meaning of their experiences while acknowledging how society influences the creation of these meanings. The contextualist stance was taken in this study to explore the experiences of the participants as well as the manner in which social factors such as rurality and poverty, shape these experiences and participants' beliefs, subjective norms, perceived behavioral control, and intention regarding sleep.

During Phase I, I immersed myself in the data, increasing familiarity with it through transcribing the interviews, reading the data and notes, and maintaining a detailed journal of the process. I was prepared to engage in member checking activities with the participants but did not do so as participant responses were unambiguous. Excel spreadsheets were used in Phase II to code and sort participant comments and my notes. Phase III involved identifying themes by manually reviewing the code spreadsheets. Themes were reviewed and the was data analyzed on an individual interview and data set level in Phase IV of the process. Phase V included additional analysis to examine the overall narrative of the experiences of the sample and the details of each identified theme. Addition review focused on comments that stood out from major themes as participant experiences with sleep were influenced by life circumstances that did not align with those themes, e.g. homelessness. Phase VI produced the analysis used in Chapter 4 to include relating the data to the research questions, extracts from the participant interviews, analysis of these extracts, and analysis of the data set.

Issues of Trustworthiness

Steps were taken in each phase of the research process to enhance the trustworthiness of the study to address issues of credibility, transferability, dependability, and confirmability.

Credibility, or internal validity for this study was established by engaging in reflexivity, interviewing to saturation, and checking with members. The credibility of the study rests on the analysis of data that is free of bias and sufficient to contain all aspects of the population's experience with the phenomenon (Elo et al., 2014). Each of these aspects of establishing credibility was addressed, as described elsewhere in this chapter. These strategies were also used to establish confirmability of the data obtained from participants and the researcher's analysis of that data.

Transferability, or external validity, was established using thick description throughout the study. Holloway (1997) asserted that thick description must include the full gamut of thoughts, feelings, actions, perceptions, and intentions regarding the subject being observed and the participant's experience with that subject. The use of thick description includes how the phenomenon or behavior is experienced at the micro level (e.g. family) as well as macro level (e.g. the community or shared culture). Thick description was to describe participants in the study to the extent that it does not result in disclosing the identity of any participant; thick description allows presentation of the sample through relevant characteristics (Ponterotto, 2006). As the study sought to fill a gap in the literature regarding individuals living in a rural area, detailed description of the setting and procedures used in the setting is important in conveying the context in which the data

was gathered as well as exploring how that context might have influenced the participants' responses.

Among the purposes of the study was to support the increase of research in rural populations. Toward that end steps were taken to achieve dependability by making the research process accessible to other researchers (Elo et al., 2014). Dependability was established by ensuring and documenting consistency in the research process to include using recording interviews and using an audit trail (See Appendix D).

Ethical Considerations

The study was conducted in a legal and ethical manner that respected the participants. As stated above, approval from the Walden University Institutional Review Board was sought and obtained prior to initiation of data collection from participants. Walden University's approval number for this study was 09-16-16-0363488 and it expires on August 15, 2017. Damianakis and Woodford (2012) asserted that there is a challenge in generating new knowledge in small communities without compromising participant privacy, asserting that thick description can be particularly problematic. In a study of ethical issues experienced in rural areas by mental health workers, Warren et al. (2014) found dual roles to be of greatest concern among participants. The authors suggested setting clear boundaries at the initiation of a relationship and openly discussing concerns to be effective in addressing these issues. Setting boundaries and discussing them with clients is essential to ethical behavior in a small community. Warren et al. (2014) asserted that setting ethical boundaries is an important aspect of self-care and an indication of the prioritization of the practitioner's commitment to wellness. This seemed

particularly true regarding multiple roles which could disrupt one's daily personal and professional life while compromising research.

Protecting Participants

I conducted the study in a manner consistent with the General Principles of American Psychological Association (2008) by doing no harm while conducting the research and protecting individuals from any adverse effects of participation. I remained mindful of the possibility that discussing personal experiences with health behaviors has the potential to cause harm to participants including but not limited to re-triggering of past traumatic events (Raja, Hasnain, Hoersch, Gove-Yin, & Rajagopalan, 2015). Participants were provided information on free or sliding scale resources in the informed consent document to use in obtaining assistance with any problems arising after the interview.

Treatment of Data

The Framework Method, commonly used in thematic analysis, was employed to monitor data collection and map its analysis (Gale, Heath, Cameron, Rashid, & Redwood, 2013). I will retain interview notes, transcripts, and other data in a format consistent with the initial framework design. To protect the identity of participants, each was assigned a number referencing county of origin. Interviews were recorded using digital technology and backed up in external storage on portable drives and in a secure cloud. Field notes prepared manually were scanned and saved in a similar redundant pattern.

Uploading the recorded interviews at the end of each session allowed me to review and make preliminary observations about the data that proved useful in refining questions and the use of prompts during the interview. I have exclusive access to the data and all devices used are protected with encrypted passwords. All back up devices are stored in a safe that is stored in a locked office.

Summary

In this chapter, the selection of qualitative research methodology was discussed and the use of phenomenology to study the lived experience of sleep among young adults living in rural poverty was described. Phenomenological methodology supported the collection of data via semistructured interviews and the use of other media situated the questions in the context of larger cultural consideration of sleep. Thematic analysis was used to analyze the data obtained and the process for assuring trustworthiness of the research included steps taken throughout the research process.

Chapter 4: Results

Introduction

The purpose of this qualitative phenomenological study was to explore and gather rich descriptions of the lived experience of sleep among young adults living in rural poverty to inform development of relevant and effective prevention and intervention strategies to improve sleep behavior in this population.

The research questions used in this study that provide the framework for presentation of the data in this chapter are:

RQ1: What is the lived experience of sleep among young adults living in rural poverty?

RQ2: What do young adults living in rural poverty believe about sleep?

RQ3: How do subjective norms influence sleep behavior among young adults living in rural poverty? Subquestion: What sources of external input are most influential?

RQ4: How do young adults living in rural poverty perceive their ability to control their sleep behavior?

RQ5: What are the intentions of young adults living in rural poverty about sleep? Subquestion: How does this influence sleep quantity and quality?

RQ6: How are personal experiences with sleep linked to a larger cultural context?

This chapter includes information on the setting in which the study was conducted, relevant demographics, and an examination of the influence of the setting on the recruitment of participants and collection of data. I present the steps involved in the

data analysis as well as evidence of the trustworthiness of the data. The themes identified by conducting the described analysis are presented in relation to each research question.

Pilot Study

I pilot tested the interview protocol with two participants (Chenail, 2011). The interview protocol was not modified following the pilot study as the participants demonstrated the ability comprehend all questions in a manner that addressed the research questions. Participants in the pilot study were asked for input regarding interview length and each indicated that they were comfortable with the length of time consumed by the interview, approximately 45 minutes.

Setting

The study focused on sleep behaviors among young adults aged 18-24 residing in the five northernmost counties of New York State: Clinton, Essex, Franklin, Herkimer and St. Lawrence. Clinton, Essex, Franklin, and St. Lawrence counties share a northern border with Canada. The region is mountainous, creating communication and travel challenges for many residents that are exacerbated for those whose resources are limited, including the target population for this study. This reality created barriers to recruitment and complicated completion of the interviews for the study. I became aware of service coverage issues while traveling around the area to post recruitment flyers when prospect calls were dropped or difficult to understand. Two individuals eligible for the study expressed concern about having “minutes” available later in the month and I was unable to reach some eligible participants to schedule interviews due to their loss of phone service. I arranged access to the phones of 15 libraries throughout the region, allowing

interested individuals to complete the eligibility screening; three individuals exercised this option. This option may have allowed individuals to call who might not otherwise have participated in the study.

Transportation to an appropriate site for the interview was identified as a challenge in the eligibility screening process. This was resolved for some participants by syncing the interview with appointments participants already had with agencies that provided transportation to a central location. This may have influenced participants to the extent that they experienced some control over the interview and engaged in the interview in a familiar setting such as a library or community room at Head Start.

Demographics

This qualitative phenomenological study consisted of 12 research participants who were selected using a purposeful sampling strategy. Demographic information for the research participants, including county of residence, age, gender, education level, employment and housing is shown in Table 3.

Participants were from each of the five target counties engaged in the study, with two participants each from Clinton, Essex, and Herkimer counties and three each from Franklin and St. Lawrence. The age range of the participants was from 18-24, with five participants (42%) being 24 years old. Seven of the participants were female, composing 58% of the sample and five were male, composing 41% of the sample. Four of the participants reporting leaving high school before graduating, five reported graduating from high school, two reported that they were currently attending college and one participant reported graduating from college with a 4-year degree.

Eight participants (67%) indicated they were employed in some capacity with 3 reporting part-time employment and 5 reporting full-time employment. Two of the employed participants worked on variable shifts. Four participants reported being unemployed. Those working reported incomes ranging from $11,000-$20,000 per year.

Table 3.

Participant Demographics

Category	Clinton	Essex	Franklin	Herkimer	St. Lawrence
Age					
18			1		
19	1			1	
20					
21			1		
22		1			
23					1
24	1	1	1	1	2
Gender					
Male	1	1	2	1	0
Female	1	1	1	1	3
Highest Level of Education		2	2		
Less than high school	2			1	2
GED/High School				1	1
Some college			1		
4-year college degree					
Employment					
Part-time			1	1	1
Full-time	1	1	1	1	1
Unemployed	1	1	1		1
Income					
$0-10,000	1	2	1		
$11,000-$15,000				2	2
$16,000-$20,000	1		2		1
Housing					
Lives with parent(s)	1			1	
Lives with partner	1		1		1
Lives alone			2	1	2
Homeless		2			

Participants reported a variety of living arrangements, including two who lived with their parents. One of these individuals has not ever lived outside the family home, a second had returned after living away for thirteen months. Two participants were married and living with their spouses, one lived with a significant other. Of the five participants who lived alone, one reported renting a room in a single-family home; four participants reported living in their own apartments. Two of the participants indicated they were homeless and sought shelter from friends, resulting in frequent moves.

Data Collection

The purpose of the data collection process was to obtain rich, thick, descriptions of the experience of sleep from emerging adults living in Clinton, Essex, Franklin, Herkimer, and St. Lawrence counties of New York State. Upon receipt of approval from the Walden University Institutional Review Board to collect data, 86 recruitment posters (see Appendix C) were placed in community centers, libraries, convenience stores, and laundromats throughout the target area. Arrangements were made with 15 libraries to increase access to the opportunity to participate in the study as described above.

A total of 29 phone calls were received over the six-week data collection period; each of these individuals were screened using the Eligibility Questionnaire (see Appendix A); 25 of the callers were determined to be eligible for the study. Four callers were determined to be ineligible; two were outside the target age range, one had an income outside target range, and one was in a psychology program studying sleep. I was not able to schedule interviews with two of the eligible individuals because their phones were no longer in service, and six were not able to schedule interviews because of changes in their

schedules or status after the initial screening. Four individuals did not appear for scheduled interviews, and one left the interview site after signing the consent and collecting the incentive.

A total of 12 interviews were conducted from the initial pool of 25 eligible individuals using the Structured Interview Protocol described in Chapter 3 (see Appendix B). All interviews were recorded. Each participant was assigned an identifying county and integer combination. I transcribed the interviews and saved each transcript with the relevant county and integer combination; all documents were saved in a password protected folder on a password protected computer in a locked office. All documents used in data collection were sealed in safety envelopes and are retained in a locked file cabinet in a locked office.

No unusual circumstances or variations to the data collection process described in Chapter 3 were encountered.

Data Analysis

Thematic analysis was conducted on the data obtained from the 12 semistructured interviews, using a six-phase process described by Braun and Clarke (2006). The first phase of this process included continuing to maintain a detailed journal of the research process, including extensive notes on the recruitment and data gathering process as a means of immersing the researcher in the data and its context. Additional steps included listening to the recorded interviews, preparing transcripts, re-listening to the interviews to confirm accuracy of the transcripts. Member checking was not employed in this process

as the recordings and transcripts provided accurate documentation of each participant's responses.

Phase II of the process included initial coding of the data. This was conducted manually using the interview transcripts and spreadsheets to record the codes. A spreadsheet was prepared using the initial codes and excerpts sorted by participant; this provided a complete overview of the coded data. Phase III of the process focused on identifying themes in the dataset and sorting those themes by relevance to the research questions. During Phase IV of the research an additional spreadsheet sorting coded excerpts by theme was created and used to review and analyze data on both the individual interview level and at the data set level. Phase V involved additional analysis using each of the spreadsheets and listening to the recorded interviews to examine the narrative of participant experiences. Additional analysis and review was conducted to confirm the details of each identified theme in the spreadsheets and recorded interviews. Phase VI was used to develop the analysis appearing in the results section of this chapter to include linking the data to the research questions, selection of extracts from the interviews, analysis of the extracts, and analysis of the overall data set.

Evidence of Trustworthiness

The following actions were taken to enhance the trustworthiness of the study and to address issues of credibility, transferability, dependability, and confirmability.

The credibility of the study is based on my engaging in reflexivity during all aspects of data collection and interviewing participants to saturation to develop a rich and thick description of the phenomenon of sleep. Data was analyzed from a sample of 12

participants; no new themes emerged after analysis of the seventh data set however, all data was analyzed. in pursuit of thick description. Transferability was established using thick description to the greatest extent possible while conducting the research. The interview protocol included creating an opportunity for the participant to share his/her narrative about sleep in addition to asking questions about their experience at the micro (family) level and the macro level (community and shared culture). Thick description established transferability to the extent that the reader will be able to grasp context in which the research was conducted, bound by the requirement to protect the privacy of participants. As presented in this chapter, description of the setting and procedures used in the study allow the reader to understand the context in which the data was gathered and to consider how that context might have influenced participant responses. The process of documenting the setting and procedures used in the study enhances dependability and confirmability by making the research process accessible to other researchers (Elo et al., 2014). Toward that end, interviews were recorded and transcribed by the researcher; an audit trail was created to document the research process (See Appendix D).

Results

A theme identified in each interview and across the data set is the inherent struggle experienced by participants relative to sleep, a struggle involving the ability to strike a balance between various external demands and their desire to engage in preferred activities. This struggle also includes concerns about sleep quantity, sleep quality, the impact of sleep on health and productivity as well as issues with external factors influencing sleep, e.g. work, parents, and children. Responses to the first section of the

interview, which provided participants with the opportunity to discuss their experience with sleep in a self-driven narrative with probes being given to obtain rich, thick description, yielded not only data relevant to RQ1 concerning the lived experience of sleep but also RQ 2, 3, 4, 5 which focused on the constructs of the Theory of Planned Behavior employed as the theoretical framework for this study. Results of the 12 semistructured, qualitative interviews completed for this study are presented in this section, beginning with exploration of the lived experience of sleep as described by the participants in answer to RQ 1 and continuing with additional data organized by research question and theme.

Lived Experience of Sleep

The struggle involved in balancing sleep with other life activities is writ large in the decision points involved in sleep: when to go to sleep, when to wake up, and how long to sleep. An exploration of these decision points and other factors relating the lived experience of sleep is presented here in response to RQ1.

Sleep initiation. When prompted to discuss bedtime, five participants stated a specific time between 11p.m. and midnight; seven participants provided an explanation of various issues that complicated sleep initiation. Participant 2 expressed a strong desire to have a sleep schedule but indicated the he was "not good at falling asleep" and that his body "tells me to sleep at this time" i.e. around midnight. Other participants expressed similar beliefs that their bodies prompted sleep initiation. Participant 11 reported being a "couch surfer," moving from one friend's apartment to another as needed to get a place to sleep and said "I will toss and turn until my body overrules everything and sleeps."

Participant beliefs around the body's role in their sleep behavior will be further discussed in sections relating to RQ2 on beliefs and RQ4 on perceived behavioral control.

Five participants indicated that they did not have a consistent schedule or plan for initiating sleep; each noted the influence of activities, either work or play, on their decision to sleep. Participant 3 stated that she had no goal for bedtime, "it really depends on the day and how exhausted I am," and that she tries to go to sleep "at a reasonable hour" but bases that decision on what she is doing in the evening hours. She compared the impact of doing household chores to watching television, indicating a willingness to delay sleep initiation to attend to chores but not to watch television. Participant 1 indicated he didn't have a schedule and the problem with getting to bed "between 10 and 11" was "being able to just drop everything and rest." Participant 7 indicated that many factors influenced her ability to create a sleep schedule and that her decision to initiate sleep is not a simple one, "The way the day goes is a big factor, it's not just me saying oh, ok, I want to go to sleep." Participant 12 expressed limited control over having a schedule, "all that is out of my hands. I sleep where I can and when I can." Participant 8, a temporary factory shift worker, reported a "constantly" changing schedule. He acknowledged that he was "always tired" but added "I need to get hired regular at the factory not mess around with sleeping more." Participant 4 reported that while he did not have a set schedule, he was aware of changes in his sleep behavior:

> When I was in high school I stayed up all the time 'til midnight, 1 o'clock or 2 o'clock in the morning and wake up for school at 6 or 7 that was I don't know it was fun sometimes but it really didn't work. I think moving out and being by

> myself really, the more work load, the more I worked and the more I saw, outside of high school, life in general, made it so I needed more sleep because I have more responsibilities now you know I have bills and everything like that.

Participant 11 emphasized that in addition to losing control over his schedule by moving around, he no longer has "my own blankets and stuff." Other participants expressed strong preferences about their sleep environment with the majority indicating a preference to have the room cold and dark. Preferences regarding noise were split between the seven participants who preferred some noise in the room, either from a television, radio, or fan and the five participants who preferred no noise at all or who were bothered by noise. Seven participants presented bedtime routines that demonstrated control over their sleep environment. These participants also expressed a desire to prioritize sleep behavior as necessary to support preferred activities, either employment or recreational, and a belief that adequate sleep was essential to maintaining energy. Participant 1, who discussed the struggle to balance work with a strong interest in outdoor activity, stated "if you're not rested, it drains you faster somehow, your mental capacity and physical stamina are less."

Five of the participants reported inconsistent sleep initiation processes because of limited control over their environment, lack of interest in maintaining a regular schedule, and anxiety. Participant 11 linked his environment to sleep problems, including inadequate sleep, but expressed an interest in life goals and work that prompted him to strive to improve his sleep behavior. In contrast, Participant 12, who also reported being homeless, labeled sleep as a default in the absence of other activity or interests and

expressed limited interest in changing this sleep pattern. Participant 7 reported renting a room in a "busy house" where noise interferes with her preference to sleep in a quiet environment. She also identified the influence of daytime activities as a challenge to maintaining a consistent sleep schedule:

> If I am busy during the day and get tired, it can be a good sleep night but if I'm busy and overwhelmed or frustrated it ends up being a bad night. And once there's a bad night, I'm tired during the next day so I get frustrated quickly.

Participant 5 expressed no interest in establishing a sleep schedule and indicated her children were generally asleep by 7 pm "so I can go to bed anytime I want but I like to stay up." Participant 10, also a parent, discussed various issues around initiating sleep to include a history of nightmares, anxiety, and a sense of forgetting something that will jeopardize the safety of her children, for example forgetting to shut off the stove. She described being exhausted but unable to fall asleep, indicating that it takes more time than she believes it should.

Arousal from sleep. Those participants who expressed difficulty with initiating sleep also shared issues with arousal from sleep. Participant 10 indicated that on nights when she experiences the greatest difficulty initiating sleep she awakens tired but addressing the needs of her children requires her to get out of bed. Such demands were influential in the arousal time and process of six of the participants who stated a consistent time for waking up that was linked to their work schedule. Participant 1 indicated that his plans for the day significantly impact his arousal time "it's the difference between night and day getting up to go to work or to get up to do something

you love doing, a hobby." The five who indicated no set time for waking up indicated that they had no need for a schedule and slept until they woke up on their own or got up at a certain time only when a specific activity required them to do so. Participant 2 expressed concern about difficulty waking up and waking up at inconsistent times despite going to bed at the same time each night, "I have a varied waking up time I guess and that's something that effects a lot of what I do regarding sleep."

Three participants described feeling groggy upon awakening, two indicated that this cleared within thirty minutes. Participant 3 indicated she takes time for herself in the morning, "I don't just eat and rush out the door," she indicated that the feeling of grogginess might remain throughout the day if she is busy at work and that it wears her down. Participant 4 stated that he needed to "experience things" when waking up, such as going outside with his dog. Participant 9 expressed enthusiasm for waking up "I'm just like zip, zip, I'm done, when I'm up, I'm up."

Awareness of personal chronotype was evident in participant descriptions of their arousal time. Nine of the participants indicated they were "night" people, or owls; Participant 10 indicated she remembered "fighting my mom to go to sleep when I was 8, 9, 10, I never wanted to go to bed early." Participant 9 indicated that her mother "is a night owl because she worked night shifts, I think that had a part in my being a night owl." Participant 5 remembered "when I was in school I was a night person, I hated during the day," she stated that her children's activities now require her to be more of a day person but that she continues to have trouble adjusting. Two participants discussed their chronotypes in the context of employment. Participant 8, described himself as

"definitely a morning person," noting that this may become a challenge to his desire to be employed in a local factory that offers shift work. Participant 7 indicated "I feel more energy and think better starting in the afternoon, I tend to look for work that is more toward afternoon or evening."

Sleep duration. Each of the 12 participants reported sleeping between 5 and 8 hours on average, with sleep episodes of longer duration taking place on weekends. Concern about sleep duration was strongest among participants who wanted to sleep long enough to attend to daily responsibilities such as work or parenting. Participant 2 discussed the length of time necessary to meet obligations to his parents and his employer while leaving time to pursue his interests but acknowledged the need to sleep "I do what I think I need to do for me, I mean I'll sleep because I feel I need to be productive the next day." Participant 5 stated "depending on what I am doing the next day, that's what I go by for how much sleep I need to get." Participant 8 acknowledged the problem of obtaining adequate sleep while working various shifts "I try to get about 5 hours when I'm working nights, because it's hard to sleep during the day...then I catch up when I'm working days and get more sleep, like 8 or 10 hours."

Participant 11 stated "I get along and do what I have to no matter what," while discussing the factors that influenced his sleep duration, including lack of a personal sleep environment and ruminating thoughts about his children. Two participants who focused on how to minimize sleep time to create more time for non-work "life" activities." Participant 8, when asked if there were disadvantages to sleep answered that it meant "missing out" and "not having a life." He added "you need to figure out how to

sleep as little as possible to keep your job and still have time for your friends." Participant 1 indicated "there are things you sacrifice sleep for" in discussing pursuit of his outdoor activities.

Four participants described experiences with what they perceived to be excessive sleep. Participant 3 asserted that she felt "more exhausted" when she slept longer than 8 hours as did Participant 5 who also described that she felt she functioned better with less sleep. Participant 10 made a similar statement "it feels like the less sleep I get the more awake I am," adding that "I can get more things done but then on the next day I need to sleep a long time." Participant 1 also described his need to "try to catch up, you can feel it when your body is exhausted."

Sleep quality. Participants reported fragmented sleep and health issues as influencing the quality of their sleep. Participant 6, who discussed having trouble with initiating sleep also reported difficulty with interrupted sleep "it has never been an all the way through thing for me, I usually wake up anywhere from 1am to 3 am." Participants 1, 4, and 9 reported having trouble in initiating or sustaining sleep that was linked to pain and other health issues. Participant 4 stated "I never really have problems unless I have a headache or back ache," he also mentioned waking up to check the alarm clock but indicated that he resumes sleep without difficulty. Participant 9 described her sleep as "fitful," and reported pain often interrupted her sleep. Two participants reported experiencing insomnia. Participant 11 associated his insomnia with his children being placed with foster care and indicated he resolved the problem with help from a counselor.

Participant 10 reported insomnia in her childhood associated with nightmares, she engaged in counseling and took medication to resolve the problem.

The narrative descriptions of the lived experience of sleep provided by participants in the first section of the interview in answer to RQ1 provided information about aspects of sleep considered significant in sleep medicine, such as sleep initiation, arousal, duration, quantity, and quality. The narratives also document individual struggles with these components of sleep experience, their relationship to emerging adulthood, and the way young adults formulate their health behaviors. The second section of the interview focused on the constructs of the TPB which was used as the theoretical framework for this study and the basis for RQ 2, 3, 4, 5. In describing their experiences with sleep and in answering questions focused on TPB constructs, participants provided information about their beliefs, the subjective norms influencing these beliefs, their perceived control over their sleep behavior, and intentions around sleep. Themes relating to these constructs and in response to RQ 2, 3, 4, and 5 are presented in the following sections.

Beliefs Influencing Sleep

Research question 2 asks: What do young adults living in rural poverty believe about sleep? Attitudes and beliefs about sleep as well as potential consequences of the behavior or of not engaging in the behavior were examined in section 2, by inquiring about the advantages and disadvantages of sleep, consistent with the TPB construct (Ajzen, 1991). The most frequently mentioned beliefs about sleep, however, emerged from participant narratives about their experience of sleep in section 1 of the interviews.

Each of the 12 participants mentioned the significant role of "the body" in sleep initiation and arousal, indicating that "the body" is in control of sleep behavior and can be trusted to set drowsiness in motion if the individual needs to rest or can awaken the individual at the appropriate time. Underlying the struggle referenced by each participant concerning how to manage sleep behavior was the belief that choices are somewhat outside their control, that their bodies will make the decision to sleep or to wake.

> Participant 1: "I do a lot of pretty physical work and my body is, well when its tired it will make me rest."
>
> Participant 2: "My body, it's always telling me sleep at this time and not sleep at this time."
>
> Participant 3: "I do like initially have that internal alarm clock."
>
> Participant 4: "My body will automatically wake up at 4."
>
> Participant 7: "I try to listen to my body."
>
> Participant 8: "It seems like my body just gets used to going to sleep at a certain time."
>
> Participant 9: "My body is programmed for that."
>
> Participant 11: "My body overrules everything and sleeps."

The belief, in whatever form, that "the body" is in control is also relevant to the TPB construct of perceived behavioral control and be considered in response to RQ4.

Questions specific to the belief construct of the TPB focused on the advantages and disadvantages of sleep. Answers to these questions brought the struggle to balance desired activity with the need for sleep into sharp focus, with each participant being able

to advance an advantage of sleep but weighing that against missing out on activities, cited as a disadvantage by each of the 12 participants. Many participant comments regarding the advantages of sleep focused on improved mood or health. Participant 3 stated "I know like when you are starting to get sick a good night's sleep is good," and Participant 11 asserted "I think you're in a better mood when you sleep."

While speaking to the advantage of sleep for mood and health, some participants expressed disbelief that they could act to improve their mood or health by changing their sleeping habits. Participant 6 described multiple issues with sleep interruption and stated "if I'm grumpy I didn't get enough sleep." She explained that this interferes with her work but that her experience with trying to improve her sleep left her believing that she could not be successful. Participant 10 expressed a belief that her health "inside me" might change if she improved her sleep and stated that she has tried many things to resolve sleep issues but indicated "it always goes back to the same thing." Participant 9 indicated that her doctor referred her for a sleep study as he suspected she has sleep apnea and expressed her belief that "if I got more sleep it would help with my blood pressure and sleep apnea" but indicated she did not complete the study as she is not willing to wear the device used to treat sleep apnea. Her beliefs do not overcome her resistance to the proposed treatment. Participant 2 acknowledged advantages to sleep regarding his mood and health, "I feel it's important but I don't like think it's a miracle drug."

Participant 2 was among the participants who expressed their belief in the advantage of sleep relative to productivity, energy levels, and decision-making: "I'll sleep because I feel I need to be productive the next day." Participant 6 stated "it's very

important to be able to function." Participant 4 noted the link between sleep and being "engaged" at work and indicated "you're more alert during the day," with extra sleep. Participant 9 opined "you have more energy, your brain reacts faster, you are more energetic throughout the day." Participant 10 indicated she believes "sometimes when people lack sleep they don't make good decisions, they are not thinking clearly." These participants evaluated their sleep behavior from time to time and changed their sleep patterns to obtain perceived levels of adequate sleep.

Some participants acknowledged advantages of sleep as described above but explained their beliefs about other life activities outweighed these advantages and indicated that sleep was an expendable activity. Participant 7 stated "it's not something I'm going to schedule my whole life around." Participant 12 believed there were advantages to sleep for others, but not for herself "sleep is just something to do when I don't have anything else to do." Participant 11 who explained complex demands on his time in addition to work stated, "I think that is more important than sleeping."

Participant 8 stated "I need to do more than work and sleep, so I think it's important but there are other things I'm interested in so if something has to go, it's sleep." The comment was followed by the assertion that "it's a disadvantage to be sleeping a lot. You need to figure out how to sleep as little as possible, to keep your job and still have time for fun and friends." Other participants identified similar disadvantages to sleep: Participant 1 stated "you miss out on a few hours a day that you could spend with friends or loved ones you know. As far as disadvantages yeah, like if you have projects at home you are working on and stuff and making headway a lot of

times you don't want to stop," and Participant 12 explained "If you had a life you might be missing out on things while you slept. It would be a trade-off – doing something you want or sleeping to get enough energy to do things. For me, there's probably a disadvantage to how much I sleep. But I don't think there's anything else for me to do." When assessing the possibility of missing out on other activities against sleeping, participants who were employed or had children were more likely to indicate that the advantages of sleep outweighed the disadvantages.

Some participants identified their beliefs in the context of the individual or ideas that shaped those beliefs, this information will be considered in response to research question 3, focused on the TPB construct subjective norms.

Subjective Norms

Subjective norms about health behaviors are determined by normative beliefs that are formed based on external input, such as the approval or disapproval of important referent individuals mediated by the individual's motivation or desire to maintain the connection to the referents (Ajzen, 1991). Participants were asked who influences their sleep behavior and if there were individuals or groups who might approve of their sleep behavior in section 2 of the interview to obtain data as necessary to answer RQ3: How do subjective norms influence sleep behavior among young adults living in rural poverty? What sources of external input are most influential?

When the question, who influences your sleep behavior, was posed to participants their initial response was some variation on the idea that they were free of external influence on the subject. Upon further consideration, four types of influencers were

identified by participants: family, employers, authority figures such as their healthcare providers, and various agencies where the participants received services. Several participants identified the influence of their parents. Participant 1 linked his father's need for a "pitch black" sleep environment to his own need for the same. Participant 7 spoke of her family's desire to influence her sleep "in my family everyone wants me to be working or getting ahead, so they approve of my sleep if I am sleeping enough to work. They disapprove if I'm sleeping after staying out late to have fun." She indicated these attempts to influence her behavior are not very effective but that she does "follow the routine I've had since I was little, cleaning up, brushing my teeth, and reading. So, I guess that's an influence." Participant 8 identified his parents as major influencers, "I grew up watching them sleep whenever they could." He would like a different sleep pattern, "I would like to be normal, not do what my folks did."

Parents described the influence of their children on their sleep behavior as well as other family members. Participant 5 indicated that the birth of her first child greatly influenced her sleep "when I was in school I was a night person, I hated during the day so since I've been about 16 I have switched to a day person." Participant 10, who reported multiple issues with initiating sleep and nightmares, described the influence of a cousin who had difficulty sleeping and "actually hates sleep. So, that's all I can think about."

External influencers outside the family were also mentioned. Participant 3 indicated that her work schedule and employer were important influencers of her sleep as she wanted to be appropriate in the workplace. Participant 7 also discussed work in relation to sleep "my job is a big influence, my schedule influences when I sleep." Four

participants reported discussing their sleep behavior with their healthcare providers but no one reported acting on the recommendations they received. Participant 11 described extensive involvement with various agencies, indicating his family court problems were "just part of everything. So yeah, they influence my sleep." As he considered who might be influencing his sleep behavior he continued "and before I had them in my life, I guess my girlfriend influenced me, and before that my mom. I always have someone kind of telling me what to do. Like my boss, telling me to get more rest so I'll move faster."

The subjective norm construct includes not only consideration of influence but also the strength of that influence based up on the individual's desire to maintain the relationship with the referent. Participants describing the influence of family members seemed comfortable enough in the relationship to either heed or ignore that influence. Participants perceived the need to surrender more influence and control to employers or service providers by altering their sleep schedules to keep their jobs or comply with requirements.

Perceived Behavioral Control

Perceived behavioral control involves an individual's perceptions regarding control over an identified behavior to include knowledge of the behavior, the skills necessary to engage in the behavior, and the influence of past experiences with the behavior (Ajzen, 2011). For the purposes of this study voluntarism, or the individual's capacity to make a free choice as to the best course of action was also considered regarding sleep behavior (Roberts, 2014). Participants were asked what factors and circumstances would enable or make it difficult to sleep in section 2 of the interview to

obtain data as necessary to answer RQ4: How do young adults living in rural poverty perceive their ability to control their sleep behavior? Participants shared information relevant to perceived behavioral control in their narrative descriptions and in direct response to the questions posed in this section.

Perceived behavioral control may be considered in terms of power and capacity. A lack of agency was expressed by participants regarding their sleep behavior, giving a sense that each has limited power over their sleep. This is manifest in participant narratives revealing a belief that "the body" is in control of sleep behavior as well as efforts to blame external influences for problems with various aspects of sleep. Among others, Participant 11 indicated that his body "overrules everything else" to initiate sleep and Participant 9 discussed how her body was "programmed" to wake at a certain time. Participant 8, a shift worker, noted that "my body just gets used to going to sleep at a certain time," in discussing his limited control over initiating sleep over the course of periodic shift changes. Participant 7 indicated a willingness to abdicate control over sleep decisions "I try to listen to my body." She also discussed her night owl chronotype as a significant influencer that was beyond her control, indicating that she leveraged this awareness by looking for afternoon or night work.

Lack of agency is also present in comments regarding the surrender of power over sleep behavior to schedules established by external influences. Participant 1, who was vocal in his desire to establish a consistent sleep schedule, discussed the stress of a work schedule with a variety of start times "that like was so different in the way I woke up, it got like I don't know it just kept me inconsistently waking up time," but indicated he felt

his options were limited. Participant 3 and Participant 8 seemed aware of their ability to exert their power over their schedules. Participant 3 described her experience with a flexible work schedule and stated "I like to make my own schedule and not have to go off with somebody else, I need to sleep" as the reason for taking another job as well as her preference for not starting a family. Participant 8 was aware of the choice to submit to the influence of a work schedule that altered his sleep preferences "How much power do I have over getting the right shift? None. I need to get hired regular at the factory not mess around with trying to sleep more."

Two participants lived with spouses and one participant lived with his significant other; each reported compromises in control of their sleep behavior because of the presence of their partner. Participant 3, who identified as a "daytime" person, indicated her husband is a night person, "He is a gamer. He works the same hours that I do but he will stay up until 2 or 3 o'clock in the morning to play video games," she indicated that they had a computer in their room for a while and that he did not like it when she woke up early and started moving about the house. Participant 4 reported that "there are problems" when he and his girlfriend do not agree on bedtime and that his sleep is interrupted when he gets up to drive her to work at 4 a.m. Participant 10 explained that her husband found it difficult to understand her problems with sleep initiation "He's goes to bed and he's out, so he's always like, why are you not trying to sleep? It's not me, it's just the way I am, I have to take time to fall asleep;" she reported his behavior exacerbated her sleep problems.

Four participants were parents and discussed how their children altered the factors and circumstances that would allow them to sleep. Whether or not the children were present in the home, each of these parents believed that their children held a significant amount of power over their sleep behavior. Participant 5, who had her first child at 16, described being a "night person" who "hated the day" until "motherhood changed that," she indicated that her children have the greatest power over her sleep behavior and considers herself a day person by necessity. Participant 10 also explained that her children have power over her sleep behavior, "I guess the intuition with my kids in the next room, I can hear everything. I used to be actually be a heavy sleeper but being a mom changed that, my kids will wake up and I will hear them. But if they weren't there I would probably be sleeping through."

Participant 11 and Participant 12 indicated that they were homeless and that their children were not in their custody at the time of the interview. Each spoke of a loss of power and diminished capacity to engage in desired sleep behavior because they lacked a consistent sleep environment. Participant 12 indicated that she was required to engage in various services to avoid going to jail, "so I'm not really in control, everything else is taking away my control." Participant 11 reported being extensively involved with "DSS," and stated that he was required to participate in various services that drained resources he could be using to find shelter which would help him gain control over his sleep behavior. Each of these participants believed their power and capacity to control their sleep behavior were compromised by entanglements with the agency, not the result of their actions.

Limited behavioral control because of insufficient capacity to control the sleep environment was also mentioned by participants who had housing. Eleven of the participants expressed a preference for a cold sleep environment and noted a lack of control over achieving the desired temperature. Participant 7 reported that she lived in a single rented room in a "busy" house where she had no control over noise during the day when she preferred to sleep. Participant 8 also reported issues involving the lack of control over his environment during the day. Participant 4 and Participant 6 reported loss of control over their sleep behavior due to the presence of pets in their bedrooms who disturbed their sleep.

No participant reported a strong sense of control over their sleep behavior. Issues that impacted perceived behavior control included the belief that "the body" controlled their sleep behavior as well as diminished power and capacity associated with external influences.

Intention

Issues contributing to behavioral intention, specifically control over the behavior, weigh heavily on the decision to sleep. Responses to questions regarding perceived behavioral control indicated that participants believed they had minimal control over their sleep behavior, for reasons involving power and capacity. Consideration of behavioral intention also includes the motivation underlying both the quantity and the quality of exertion an individual is willing to expend regarding a specific behavior (Ajzen, 1991). In section 2 of the interview, participants were asked about their intentions regarding sleep behavior and the effort they might be willing to exert to act on those intentions to obtain

data to answer RQ5: What are the intentions of young adults living in rural poverty about sleep? How does this influence sleep quantity and quality?

Participant 1 responded to the question by saying that he had intentions around his schedule and desired quantity of sleep but indicated that he had little "willpower" to act on those intentions and that his resolve could be thwarted by a request from a friend for help or by his desire to "order a pizza at 10 o'clock at night." Participant 6 expressed limited willingness to act on her intentions: "My intention would be to get a full 8 hours sleep and go to bed at a good time and wake up feeling rested and ready to go but usually its laying in bed and like I'll watch a movie and I'll stay up too late and then waking up is too hard." Participant 3 expressed intention around the quantity of sleep she prefers: "I try to keep it between 5 and 7 hours." Acting on her intentions "depends on how much energy I have, if I'm feeling ok, I'll stay up." Participant 5 indicated that she had no difficulty acting on her intentions to sleep but indicated that her intentions were significantly influenced by the needs of her children.

Some participants expressed cautious intentions for sleep behavior and made conditional statements about the effort they would exert to carry out those intentions. Participant 7 was concerned that focusing on her intentions might disrupt her actual sleep,

> I intend to sleep at some point every night but it's not like I intend to go to bed at the same time or have any obsession about it. It just happens, or doesn't. Yeah, but it's not like a big thing. I try not to think about it a lot. That can, like I said before, feed on itself and create this whole chase of not sleeping then worrying about not sleeping which makes me sleep less. So, you asked about intentions, I

> wouldn't say I have any intentions about sleeping, other than to try to sleep when I am tired and feel sleepy. I would be a little worried about trying to make it a big thing.

Participant 12 articulated intentions about sleep initiation and arousal but argued that her circumstances give her no reason to act on her intentions to establish her desired sleep schedule; as discussed above she does not believe she has control over her schedule due to external influences. No participant made a clear statement of intention regarding sleep behavior that was coupled with a willingness to exert consistent effort toward fulfilling that intention.

Context

Section 3 of the interview focused on the context of participant sleep behavior and focused on obtaining data as necessary to answer RQ6: How are personal experiences with sleep linked to its larger cultural context? Context was explored with questions about interaction with employers and healthcare providers, information observed by participants on social media, and three topics involving sleep. Information regarding interaction with or the influence of employers and healthcare providers was presented as part of the response to RQ 1, 2, and 3. In this section, participant responses to questions about their experience with information about sleep on social media, in brochures, or in the news will be presented. In addition to answering questions, participants were asked to review three brochures on sleep-related topics, i.e. drowsy driving, sleep hygiene, and napping, and to provide their reactions to the material.

Public information. Eight participants reported seeing something about sleep on social media. Three reported reading personal posts from friends about sleep, Participant 5 said she observed social media posts "just everybody complaining about how much they want, but that's about it." Three participants reported reading longer pieces about topics. Participant 10 shared that "I've seen an article about that, that women need more sleep than men." And three participants reported reading something but were unsure of the specifics. Participant 2 indicated that he was aware of items on social media about sleep and described how he processed new information:

> I try not to let outside opinions influence me unless they seem reasonable. Like I try to keep things, I try to use my discernment on my own life and I don't like, I'm one of the people that when I read something, I'm skeptical whatever it is.

No participant reported seeing information on drowsy driving, one reported seeing information on sleep hygiene and one reported seeing information about napping. Neither participant could recall any specific information about these items.

Drowsy driving. Each participant was shown a brochure on drowsy driving distributed by the New York State Department of Health. All participants indicated some awareness of drowsy driving; eight reported experience with drowsy driving, one indicated she would never drive it tired and one indicated he did not drive. Each of the eight participants indicated some familiarity with the warning signs of sleepiness but none of them ever pulled over to take a nap as recommended on the brochure; each of the participants described coping strategies listed as ineffective on the brochure and disputed the information presented. The most common strategy for coping with drowsy driving

disclosed by participants was turning up the air conditioning on the car or opening the windows. Participants stated they believed that drowsy driving was dangerous but indicated that many circumstances required an individual to proceed using the strategies they described to remain awake. Four participants agreed with a statement in the brochure that drowsy driving is as dangerous as driving while intoxicated.

Sleep hygiene. Each participant was shown a brochure on sleep hygiene that included recommendations for before bedtime, getting ready for bed, and sleep time. The "Bedtime" items were not familiar to all the participants. Most participants agreed that ingesting caffeine influenced their sleep, although individual experiences with caffeine varied from a minimal impact to sleep disruption sufficient to cause the individual to avoid caffeine after a certain time of day. Three participants were aware that their evening meals could negatively impact sleep. Only one participant mentioned the possibility that exercise in the evening could impact sleep.

The "Getting Ready for Bed" items were familiar to all participants. Six of the participants articulated some sort of ritual or routine associated with sleep initiation; two referenced securing their homes, and four mentioned personal hygiene preparations. All participants confirmed their belief that light, temperature, and noise impacted sleep as discussed in other parts of the interview. Seven participants indicated they included quiet time prior to going to bed that involved reading or watching television. Two participants indicated they played games on their phones prior to going to sleep. Participants indicated that watching television before bed often made them fall asleep or that they were less rested when they fell asleep with the television playing in their bedroom.

Participants indicated that they were aware of the "Sleep Time" items from various sources but found the information to be at odds with their experiences. Each participant acknowledged being aware of medical recommendations to maintain a consistent sleep schedule, to strive for eight hours of sleep nightly, and to restrict the use of screens in the bedroom. Participants who reported issues with initiating sleep or with sleep interruptions disagreed with the recommendation to get up and engage in a boring activity if they could not get to sleep after 20 minutes in bed.

Consistent with comments concerning beliefs and intentions about sleep, no participant indicated that it was likely they would change their sleep behavior based on information in the brochure.

Napping

The final brochure presented to each participant provided an overview of how naps of varying lengths (e.g. 10-20 minutes, 30 minutes, etc.) might impact an individual. Participant 4 indicated that he "liked the occasional nap," usually a 10-minute nap after engaging in physical work such as mowing the lawn. Participant 6 discussed her upbringing which included scheduled naps that she admitted to fighting as a child but now longed for as an adult. Two participants indicated they might take naps of less than 30 minutes, three reported taking 30 minute naps, three reported taking naps of 30-60 minutes and four reported no recent experience with naps. Two of those four participants were mothers who reported taking naps until their children no longer took naps. Participant 8 reported that taking naps was supported at his workplace by the presence of "cabanas" on the factory floor but that he was concerned about taking a nap for fear of

being thought lazy. All participants expressed a favorable attitude toward napping even if their current lifestyle or schedule precluded time for a nap.

In this section of the interview, participant responses reflected limited exposure to topics that frequently appear in social and news media. Participants also expressed some skepticism about the quality of information in the brochures, particularly when their experience contradicted the information presented as in the example of opening a window to cope with drowsy driving.

Summary

The central theme of this data set and in each of the interviews is the ongoing internal struggle experienced by these individuals relative to sleep as they attempt to balance external demands with preferred activities. This struggle is found in decisions about all aspects of sleep from decision points on sleep initiation and arousal to the impact of sleep on health and productivity. The choices made regarding sleep appear to influence not only sleep behavior but relationships with important referents to include parents, children, and employers.

Research Question 1 explored the lived experience of sleep among participants; their comments narrate the challenges participants encounter in determining when to go to sleep, when to wake up, how long to sleep, and where to sleep. In discussing their experiences, participants revealed a strong belief that the body ultimately controls their sleep behavior by prompting drowsiness associated with sleep initiation and arousal, described by various participants as the body “overwhelming” their choice to remain awake or being “programmed” to rouse them from sleep. Concerns about sleep quantity

and quality focused on obtaining the amount of sleep necessary to engage in preferred activities from work to recreation.

Research questions 2, 3, 4, and 5 explored the constructs of the Theory of Planned Behavior which was employed as the theoretical framework for the study. Research Question 2 explored participant beliefs about sleep; in addition to a belief that "the body" controls sleep behavior, participants expressed belief in advantages of sleep to include improved physical and mental health, increased productivity, enhanced decision-making and the essential disadvantage of sleep as missing out on life activities. Participants who were parents or who were employed indicated that the advantages of sleep outweighed the disadvantages.

Research Question 3 explored the subjective norms of participants. Participants initially indicated they were free of external influence when asked about their sleep behavior but after further probing, four types of influencers were identified: family, employers, and authority figures to include doctors and various agencies where the participants received services. Parents and children influenced sleep behavior directly in specific ways such as influencing bedtime rituals or interrupting participant sleep during the night. Participants reported the influence of employment on sleep behavior to include both the employer's scheduling of work and the sleep required to maintain productivity while working.

Research Question 4 explored participants' perceived control over their sleep behavior. Participants indicated limited power to control their sleep behavior due to external influences such as employment and family obligations. In addition, participants'

comments demonstrated limited capacity to influence their sleep behavior owing to issues with being able to control their sleep environment. Research Question 5 focused on intention to engage in sleep behavior and the amount of effort that might be exerted to act on these intentions. Participants articulated intentions involving bedtime and sleep quantity but indicated their reluctance to exert effort toward acting on their intentions.

Research Question 6 attempted to explore participant experiences with sleep in a larger cultural context. Participants described limited exposure to social and news media information about sleep. Participants were skeptical about information presented in public health brochures, often as result of experiences that were inconsistent with that information. Participants indicated a preference for making sleep decisions based on experience and existing external influencers.

The purpose of this study was to amplify the voices of this population, to increase understanding of their experience of sleep, and to inform the work of further research and translational medicine. To advance accomplishment of this purpose, Chapter 5 will interpret the results of the study and its findings in the context of existing literature.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this qualitative phenomenological study was to explore and gather rich descriptions of the lived experience of sleep among young adults living in rural poverty to inform development of relevant and effective prevention and intervention strategies to improve sleep behavior in this population. Research indicated that poverty and characteristics of rural life influence sleep behavior, exacerbating the consequences of sleep issues; these findings coupled with recommendations from other studies suggesting the importance of qualitative research in health behavior led to the selection of the target population and the methodology employed in this study (Chang et al., 2012; Liu et al., 2013, Morse, 2012). TPB (Ajzen, 1991) was selected as the theoretical framework for the study as cognition-driven models are appropriate for the study of health-related behavior. TPB is frequently used in the study of sleep behavior, potentially increasing accessibility of the data for those involved in research or translational sleep medicine (Kor & Mullan, 2011).

The research questions used in this study and providing the framework for interpretation of the findings were:

RQ1: What is the lived experience of sleep among young adults living in rural poverty?

RQ2: What do young adults living in rural poverty believe about sleep?

RQ3: How do subjective norms influence sleep behavior among young adults living in rural poverty? Subquestion: What sources of external input are most influential?

RQ4: How do young adults living in rural poverty perceive their ability to control their sleep behavior?

RQ5: What are the intentions of young adults living in rural poverty about sleep? Subquestion: How does this influence sleep quantity and quality?

RQ6: How are personal experiences with sleep linked to a larger cultural context?

This chapter includes an interpretation of the findings, discussion of limitations of the study, recommendations for additional research, implications for positive social change and conclusion drawn from the study.

Interpretation of the Findings

This study is added to others dating back centuries and crossing multiple disciplines focused on sleep behavior. It was conducted in the context of emerging research involving technology that allows unprecedented access to the brain during sleep. Findings from such research gave rise to expansion of the field of sleep medicine and implicated insufficient sleep as a factor in a plethora of health problems and public safety issues. The significance of sleep behavior, especially inadequate sleep, is evident in action taken by the CDC (2014a) to identify sleep problems as a "public health epidemic." While none of the twelve participants in the study were aware of the scope of attention focused on sleep behavior in research or public health, each participant narrated their experience of sleep in a way that was largely consistent with the research presented

in Chapter 2 and would be informative for those involved in developing strategies to assist this population with their sleep behavior.

Lived Experience of Sleep

In the first portion of the interview, participants were asked to provide a general narrative of their sleep behavior to gather information in answer to RQ1: What is the lived experience of sleep among young adults living in rural poverty? This data-gathering strategy was informed by research indicating that data was more rich and thick among participants who were encouraged to explore their sleep experience (Johansson et al., 2012). The use of this invitation to speak, along with prompts informed by relevant sleep medicine instruments such as Sleep Practices and Attitudes Questionnaire, Chronotype Questionnaire, Sleep Hygiene Index, and Dysfunctional Beliefs About Sleep Index, yielded narratives that detailed a struggle to balance the external demands of emerging adulthood with preferred activities (Grandner, Jackson, et al., 2014; Ogińska, 2011; Mastin, et al., 2006; Morin et al., 2007). This struggle was evident in participant descriptions of sleep decision points including sleep initiation, arousal, duration, and environment. Problems in these aspects of sleep behavior are not unique to those living in rural areas; however, the literature suggests that among young adults living in rural areas, sleep problems are often exacerbated by socioeconomic status and the challenges of rural life. Issues such as low health literacy impact the ability to understand the importance of sleep, insufficient resources preclude adopting sleep hygiene routines, and lack of transportation to services increase the vulnerability of the individuals living in rural

poverty when compared to those living in urban areas (Chang et al., 2012; Liu et al., 2013; Wells & Vaughn, 2012).

Sleep initiation. Participants described problems associated with initiating sleep, attributing these problems to a belief that the body controls sleep behavior. The experience and belief that the body influences initiation of sleep is consistent with the research of Luyster et al. (2012) who described the interaction between brain activity and circadian outputs that influence wakefulness during the day for approximately 16 hours before prompting sleep initiation. Discussion of such beliefs in sleep behavior will be continued in answer to RQ2.

Maintaining a consistent sleep schedule is a key element of sleep hygiene. Participants described the role of various activities on their decision to maintain a sleep schedule, including shift work (Irish et al., 2015). Haus and Smolensky (2013) identified consequences of disrupted sleep-wake cycles associated with shift work, for example, less sleep, irregularities in family and social patterns, diminished work performance, and increased risk of accidents. The experience of Participant 8, a factory shift worker, is consistent with this research. He described problems with initiating sleep when his shift changed, difficulty in engaging in desired social activities because of insufficient sleep, and his father's involvement in an accident caused by drowsy driving after working a night shift.

Participants also explained the influence of their sleep environment on their ability to initiate and sustain sleep. Most participants expressed preferences for a cool, dark, and quiet sleep environment, consistent with sleep hygiene recommendations (Irish

et al., 2015). Participants also described barriers to controlling their sleep environment involving factors such as light in the room, the presence of others, and work schedules, which is consistent with the research of Carvalho et al. (2014). Challenges reported by Participant 7, Participant 10, and Participant 11 are examples of issues described by Hale and Hale (2010), who asserted that creating an environment conducive to sleep is problematic for rural residents and for those living in poverty. These challenges include the ability to acquire necessary space and furnishings for sleep and the ability to control that space.

Arousal from sleep. Goel et al. (2013) reported that emerging methods of measuring the impact of sleep on human health and performance have expanded capacity for research on how sleep behavior is managed when biological imperatives to sleep are challenged in a 24-hour culture. Participant descriptions of problems with waking often included mention of delayed sleep initiation, fragmented sleep, or the need to awaken to meet an external demand such as children or work. All participants expressed awareness of what they perceived to be their chronotype, and nine mentioned their chronotype being at odds with responsibilities or obligations. Wittman et al. (2006) termed this conflict of biological and social timing "social jet lag" (p. 497); the authors recommended an alignment of work schedules and chronotype that was congruous with the efforts described by Participant 7 to seek employment consistent with her chronotype.

Sleep duration. Participants reported sleep duration patterns similar to those reported in the U.S. National Longitudinal Study of Adolescent Health including an increase in sleep in the transition from adolescence to emerging adulthood followed by a

decrease in early adulthood (Maslowsky & Ozer, 2014). Participant 4 was keenly aware of how his sleep behavior was evolving in response to increased independence and the associated responsibilities of being an adult, consistent with the pattern identified by Maslowsky and Ozer (2014).

Time-studies have identified factors associated with insufficient sleep including paid employment, commuting to work, grooming, and social activities (Basner et al., 2014; U.S. Bureau of Labor Statistics and U.S. Census Bureau, 2012). Participants engaged in activities such as work or parenting were most concerned with sleep duration and focused on obtaining sufficient sleep to function effectively. Other participants expressed their preference to restrict sleep in favor of other activities.

Eight participants discussed watching television (to include using a computer, smartphone, or tablet) and its influence on sleep initiation, quantity, and quality. Basner, Spaeth, and Dinges (2014) found that screen use was more common among females, those who were unemployed, those with incomes below $25,000, and individuals who lived alone. These findings are consistent with the demographics of participants reporting experience with screen use. Light exposure from backlit screen displays can disrupt sleep and circadian rhythms by inhibiting the production of melatonin; this problem is compounded when the devices are used in bed, which disrupts sleep hygiene recommendation to maintain a clear association between bed and sleep (Chang, Aeschbach, Duffy, & Czeisler, 2015; Lanaj, Johnson & Barnes, 2014).

Four participants discussed their experience with sleeping “too much” and reported that engaging in excessive sleep resulted in feeling more tired and less able to

function upon arousal than if their sleep was of a shorter duration. Their experience is consistent with the symptoms of Excessive Quantity of Sleep (EQS), a disorder involving sleeping nine or more hours in a 24-hour period that is accompanied by impaired function and distress upon arousal (Ohayon, Reynolds, & Dauvilliers, 2013). Individuals diagnosed with EQS are 2-4 times more likely to report diminished quality of life associated with disruption of life activities and relationships.

Sleep quality. Participants reported fragmented sleep and health problems as influencing the quality of their sleep. Sleep fragmentation involves the disruption of sleep over the course of a typical sleep episode and is linked to a strong intention to sleep that leads to arousal that disrupts sleep after initial sleep onset, resulting in reduced sleep time (Rasskazova, Zavalko, Tkhostov, & Dorohov, 2014). The experience described by Participant 6 is consistent with this research. She reported both fragmented sleep and a specific intention to sleep 8 hours but noted that an eight-hour sleep episode was rarely achieved because of insufficient effort in initiating sleep and a pattern of waking up at 1 a.m.

Health issues, to include pain and insomnia were also reported as factors interfering with sleep quality. Three participants reported pain as a problem in initiating or sustaining sleep; theirs is not an isolated experience. Substantial research on the relationship between sleep and pain is now focused on causality in that relationship as well as the mechanisms involved (Finan, Goodin, & Smith, 2013). Two participants reported experiences with insomnia, perhaps fewer than might be anticipated given that the prevalence rate for general insomnia is 38% in rural populations (Kocoglu et al.,

2013). Participants may have under-reported their experiences with insomnia or chosen to ignore their symptoms. Participant 5 and Participant 12 reported they were reluctant to discuss sleep problems with their healthcare providers, each expressing limited confidence in their provider to help or that they were not interested in complying with treatment recommendations such as medication or a sleep apnea mask.

The narratives provided by participants confirm much of the data found in literature on sleep behavior and extend knowledge in the field by providing details of how research findings are experienced among individuals in this understudied population. The second section of the interviews gathered data specific to the constructs of the TPB and extends knowledge specific to the adoption of sleep behavior in addition to general knowledge about the adoption of health-related behaviors among young adults living in rural poverty.

Beliefs

Information answering Research Question 2—What do young adults living in rural poverty believe about sleep?—was gathered in sections 1 and 2 of the interview protocol. As discussed above, a belief that the body controls sleep behavior was the strongest belief identified in participant narratives about sleep. This belief is consistent with research on the biology of sleep including the influence of internal circadian clocks on physiological processes in tissue and cells as well as behavior (Rouyer, 2013). Closely linked to participants' beliefs about the influence of the body on sleep is the belief that sleep influences health and mood. Participants' comments about the advantages of sleep focused on sleep as a way to improve health, enhance mood, and recover from illness.

This is also consistent with research demonstrating the role of sleep in physiological processes controlled by circadian timing, the consequences of circadian disruption on tissue, and the involvement of circadian processes in cognitive functions (Wilking, et al., 2013; Burke, et al., 2015). Participant 3 discussed her belief that sleep advanced recovery from illness, consistent with the research of Besedovsky, Lange, and Born (2012) that identified the influence of sleep on immune function. Kocoglu et al. (2013) found higher levels of dysfunctional beliefs regarding sleep among rural dwellers and explained the difference by the weight of cultural beliefs about health issues and the desire to seek treatment. Participant comments identified the connection between sleep and health but did not include statements about a willingness to address problems or seek treatment; this gap between knowledge and action might be attributed to beliefs about culture or self-efficacy.

Participants did not express belief in their ability to influence their sleep behavior or its consequences. The influence of such beliefs on sleep behavior is apparent in research on insomnia that found that a belief that the situation is hopeless or that the individual is helpless may exacerbate the disorder *(*Kocoglu, et al., 2013). Participants also expressed doubt as to their ability to improve sleep through expanding sleep hygiene routines such as avoiding caffeine, creating an environment conducive to sleep or adhering to a consistent sleep schedule (Irish et al., 2015). This topic will be further considered in answer to Research Question 6.

Behavioral beliefs, to include the likely consequences of a behavior, influence attitudes toward the behavior (Ajzen & Sheikh, 2013). Participants indicated that

productivity, energy levels, and decision-making were influenced by sleep and identified consequences of not engaging in adequate sleep to include insufficient energy to be productive at work, challenges in meeting the needs of young children and difficulty enjoying preferred activities. Concern over productivity was most pronounced among participants explaining difficulties with externally imposed schedules and engaging in sufficient sleep.

In contrast to participants prioritizing sleep, other participants found the disadvantages of sleep to outweigh the advantages. Participants explained their interest in maximizing the time they were awake so they could engage in a variety of activities and indicated sleeping was a barrier to their lifestyle. Research by Owens et al. (2014) documents the extensive risks associated with inadequate sleep among young adults and reported on causes including external schedules (i.e. school, work), social activities, use of electronic media, and use of stimulants (e.g. caffeine and prescription medication). Participants reported some awareness of the health benefits of sleep but indicated that their age protected them against risks associated with inadequate sleep.

Knutson (2013) asserted that cultural beliefs and practices influence sleep behavior. Research by Lewis (1963) asserted the existence of a culture of poverty characterized by economic challenges and substandard living arrangements. Rural culture holds values such as independence and personal responsibility in high regard (Smalley & Warren, 2012). Aspects of these values and beliefs are these potentially important to sleep behavior as evidenced by comments of participants concerning the challenges of

creating an appropriate sleep environment, prioritization of sleep to maintain productivity, and establishing independence.

These beliefs influence individual personality characteristics and view of the self in relation to family (Smalley & Warren, 2012). Some participants discussed how their beliefs were shaped by their families, this information will be considered in response to Research Question 3, focused on the TPB construct subjective norms.

Subjective Norms

Participants were asked about who influences their sleep behavior in section 2 of the interview in response to Research Question 3: How do subjective norms influence sleep behavior among young adults living in poverty? What sources of external input are most influential? Participant responses identified parents as being most influential, typically influencing the beliefs and behaviors of the participants when they were younger with information about the sleep environment, sleep routines, or through their example of sleep behavior. Parent participants reported that their children exerted significant influence over their sleep behavior. Keefe-Cooperman and Brady-Amoon (2012) found that sleep patterns are influenced by race, ethnicity, geographic location, educational attainment, presence of a father/father figure and socioeconomic status; bedtime and wake time may also be influenced by parental work schedules. These patterns were apparent in overall participant demographics and responses general and specific data regarding educational attainment, as mothers with the least education reported limited interest in maintaining a sleep schedule for their children as well as late bedtimes.

Employers were influential among employed participants who identified employer influence on sleep duration, arousal, and maintaining adequate sleep to achieve optimal productivity. Pesut, et al. (2011) identified a strong rural work ethic as influencing health behaviors to assure the ability to carry on with work as important to rural residents. The authors also noted that the importance of self-reliance and self-care to the exclusion of medical advice is common among rural residents; the reluctance of the four participants who discussed sleep issues with their health care providers to act of recommendations is consistent with this research. Kocoglu et al. (2013) described higher incidence of dysfunctional beliefs regarding sleep among rural residents and attributed the difference to cultural beliefs about health issues and the associated preference to rely on self rather than health care providers.

Normative beliefs or beliefs about the expectations and behaviors of others play are influence the development of subjective norms (Ajzen & Sheikh, 2013). Ajzen (1991) indicated that subjective norms may influence an individual's behavior more than that individual's belief about the specific behavior. Answers to Research Questions 2 and 3 suggest that subjective norms may have an ongoing influence over beliefs that in turn influence behavior.

Perceived Behavioral Control

Beliefs regarding the factors that might facilitate or inhibit adoption of a behavior and the individual's control over these factors give rise to an individual's perceived behavioral control (Ajzen & Sheikh, 2013). In section 2 of the interview participants were asked what factors and circumstances would enable or make it difficult to sleep to

gather responses to Research Question 4: How do young adults living in rural poverty perceive their ability to control their behavior? Perceived behavioral control was examined in terms of power and capacity; as discussed elsewhere participants thought themselves to have limited power to control their sleep, based on the belief that the body is in control or that external influences control their sleep behavior and schedule. Such influences limit individual capacity to make a free choice about sleep behavior based on their values and experience (Roberts, 2014). The role of autonomy, or individual control over one's actions, is identified in the literature as more significant in sleep behavior than in other decisions involving health practices, e.g. tobacco (Calkins, et al., 2013; Hale, 2014; Wells & Vaughn, 2012). Perceived and actual lack of autonomy were present in comments made by participants. Maslowsky and Ozer (2014) noted that transition from adolescence to emerging adulthood involves significant changes in roles that may impact the ability to control both sleep schedules and the sleep environment.

Ajzen (1991) posited that perceived control impacts not only health behavior but also one's intention to engage in that behavior. Perceived control and capacity to control sleep behavior may be evaluated in relation to sleep hygiene recommendations, which include avoiding caffeine, exercising regularly, creating an environment conducive to sleep (e.g. free of noise, cool temperature) and adhering to a consistent sleep schedule (Irish et al., 2015). Individual control over actions necessary to comply with these recommendations varies, e.g. an individual has more control over caffeine intake than their sleep environment. Among study participants, a lack of agency was expressed regarding all aspects of sleep hygiene as indicated by comments indicating that they do

have sufficient "willpower" to avoid caffeine or late night snacks and statements placing blame for their poor sleep hygiene on external factors. Grandner, Knutson, et al. (2014) found socioeconomic status to be associated with poor sleep hygiene and inadequate sleep; individuals with low socioeconomic status were more likely to use caffeine to ward off fatigue associated with inadequate sleep. This cycle of poor sleep hygiene, including daytime use of caffeine and difficulty initiating sleep, was described by Participant 3 who mentioned feeling "exhausted" thirteen times while being interviewed.

Cultural values that complicate healthcare seeking behavior, non-standard shifts, underemployment, and insecure housing are aspects of the influence of socioeconomic status on the ability to control sleep behavior (DeMarco, 2013). Participants' narratives provide insight into their sleep behavior and the insidious influence of poverty and living in a rural location. The phenomenon of individuals in higher social position having fewer health issues was widely observed relative to coronary heart disease by Marmot (2006) who labeled his findings "status syndrome." Marmot argued that diminished personal control of resources and environment coupled with limited social participation is linked to increased risk for disease and mortality.

Lack of agency over sleep behavior is evident in participant comments about limited power and capacity to sleep due to the influence of the body's internal mechanisms and external factors such as work schedules.

Intention

An individual can only exert intention to engage in a behavior when s/he has control over the decision and factors that influence control over the behavior, e.g.

resources; evaluating intention includes examining the quality and quantity of exertion the individual is willing to expend (Ajzen, 1991). Participants were asked about their intention to sleep and the effort they would exert to act on those intentions in section 2 of the interview to gather information to answer Research Question 5: What are the intentions of young adults living in rural poverty about sleep? How does this influence sleep quantity and quality? Issues involving intention weighed heavily on all aspects of the decision to sleep described by participants.

In response to questions regarding perceived behavioral control, participants expressed a lack of agency over their sleep behavior that included limited power and capacity to control their sleep behavior. Participant comments about intention to sleep ranged from descriptions of intention to establish and maintain a consistent sleep schedule to those who found no reason to exert themselves in any way regarding their sleep behavior. No participant made comments that linked strong intentions to a similar level of exertion regarding sleep.

Sleep research findings characterize the relationship between intention and sleep as complex and sometimes paradoxical (Tkhostov & Rasskazova, 2011). The experience of Participant 7 is a case in point, she reported vague intentions regarding sleep initiation and indicated that having a more specific intention, e.g. bedtime, might interfere with her ability to initiate sleep. Her comments are consistent with the findings of Rasskazova, et al. (2014) linking high intention to sleep with arousal that resulted in sleep fragmentation and a reduction in sleep duration. Tkhostov and Rasskazova, (2011) studied intention in

subjects with chronic insomnia and found strong intention to be associated with dysfunctional behaviors to initiate sleep.

Research Questions 2, 3, 4, and 5 focused on the TPB constructs of beliefs, subjective norms, perceived behavioral control, and intention. Participant narratives were consistent with findings of sleep research literature to include the extent of biological influence on sleep behavior and the ongoing influence of subjective norms, especially family members and employers. Participants expressed beliefs about behavior control that indicated a lack of agency over their sleep behavior as evidenced by perceived lack of power and control. This lack of perceived behavioral control negatively impacted intention relative to sleep behavior; participants were cautious in establishing intention and reluctant to exert effort toward fulfilling their intentions.

Context

The lived experience of sleep among young adults living in rural poverty takes place in the context of widespread global interest in sleep behavior. Section 3 of the interview focused on this context in gathering information to answer Research Question 6: How are personal experiences with sleep linked to its larger cultural context? Questions in this section asked participants about their discussions on sleep with healthcare providers and employers, their observations of media on sleep, and three topics involving sleep. Participant responses regarding the influence of healthcare providers and employers was provided in responses to Research Questions 1, 2, and 3.

Public information. Eleven participants reported seeing something about sleep in social media, ranging from comments of friends about sleep issues to articles on topics

such as “healthy sleep habits.” Participants indicated they were skeptical about what they read or tended to scroll by items as sleep was not an interesting topic. These comments have important implications for those developing educational programs; Blunden, Chapman and Rigney (2011) that educational programs may increase knowledge, however, the impact of that knowledge on sleep behavior is inconsistently observed. Comments made while reviewing brochures on drowsy driving, sleep hygiene, and napping included those identifying experiences that contradicted information presented in the brochures. Basner et al. (2014) suggest that that successful education and intervention programs will target specific behaviors relevant to the population of focus and present that information in a relevant context.

Drowsy driving. Luyster et al. (2012) found that pressure to erase sleep debt may result in sleep being initiated while driving. All participants indicated some awareness of drowsy driving. As mentioned above, participants identified information on the brochure that contradicted their experience and tended to discredit other information.

Sleep hygiene. Participant comments regarding sleep hygiene appear in answers to Research Questions 1, 2, 3, 4, and 5. Comments specific to the brochure indicated varying levels of awareness of sleep hygiene strategies and found some of the items to contradict their experiences. No participant indicated a willingness to adopt new sleep hygiene strategies based on the information in the brochure. Knutson (2013) found that beliefs about sleep hygiene might be at odds with cultural perspectives regarding sleep in rural populations and recommended additional research to identify novel targets relevant to culture and beliefs when developing sleep interventions.

Napping. Participants reported a favorable attitude toward napping, particularly about maintaining productivity in the workplace. Participants considered napping a useful strategy for recovering from physical exertion or inadequate sleep. Faraut, Andrillon, Vecchierini, and Leger (2016) indicated that napping could play an important role in reducing sleep debt and its consequences such as accidents, cardiovascular issues, and diminished productivity.

Participant comments on drowsy driving, sleep hygiene, and napping conveyed their limited interest in the issues frequently covered in the media regarding sleep behavior. Criticism of information that contradicted their experience not only limited their interest in the topics but also in altering their behavior to improve sleep. The comments were consistent with research findings concerning the difficulty of motivating individuals to act on new knowledge to improve their sleep or health.

Limitations

As discussed in Chapter 1, this study has a small sample size with specifiers that make it less likely that the sample is representative of the population from which it was drawn thus limiting generalizability. The study is further limited by the possibility that the participants were unwilling or unable to accurately share details of their lived experience of sleep.

Recommendations

Limited research exists on specific approaches to the treatment of sleep among those living in rural poverty despite prevalence rates of insomnia of 38% of those living in rural areas and of 24% of those whose incomes are at or below 100% of Federal

poverty guidelines (CDC, 2014b; Kocoglu, et al., 2013). Additional research is recommended to explore how to increase receptivity to education about sleep behavior and disorders in a manner that is sensitive to the culture of rural poverty.

Existing research points to the use of behavior theory to improve programs targeting health behavior, additional research involving the use of the Theory of Planned Behavior is recommended to hone the focus of educational and treatment programs targeting sleep behavior Blunden, et al., (2011). The use of qualitative methodology is also recommended to expand insight into the lived experience of sleep in its entirety, removing limitations imposed by sleep medicine practices that may not be relevant to the experiences of all targeted populations.

Implications

Social Change

Social change can be realized through increased awareness of the sleep experiences of the population of focus, particularly those whose voices are not frequently heard. At an individual level, positive social change may be realized through the experience of being heard and having opinions documented for sharing with others. This was a new experience for each of the participants. This process can amplify the voices of participants as consumers of services in a manner that informs the development of education and treatment strategies.

Methodology and Theoretical Framework

Qualitative research provided a vehicle for helping these individuals to find their voices and share information within a theoretical framework appropriate for examination

of health behaviors. This is in keeping with Knutson's (2013) recommendations that additional research move beyond sleep as a biological function to explore cultural perspectives regarding sleep that may be helpful in identifying novel targets for interventions to improve sleep.

Practice

Enhanced focus on listening to the voices of participants in this study by public health and other professions may support as translation of what is learned by their experiences into meaningful assistance to address challenges to individual and public health. Dissemination of the findings creates an opportunity to open a dialogue on the experience of sleep among healthcare providers, service agencies, and employers referenced by participants concerning their influence on sleep behavior.

Conclusion

One in six Americans, or 60 million people live in areas defined as rural and 16.2% of the rural population lives at or below the Federal threshold for poverty (U. S. Bureau of the Census, 2010; U. S. Department of Agriculture, 2015). This segment of the population is the target of substantial research detailing specific problems arising from living in rural poverty as well as the need for an approach to these problems that is sensitive to culture and community (Bischoff et al., 2014; Canto, et al., 2014). While the participants do not represent all individuals living in rural poverty, their comments detail issues associated with health behavior in general as well as specific challenges associated with sleep. Participant comments revealed the struggle to find a balance between attending to their health by engaging in sufficient, restorative sleep and work, family, and

desired activities. In most situations described by participants, sleep was sacrificed for other activities even when the participant was aware of consequences to include negative mood, diminished productivity, and safety issues, e.g. drowsy driving.

This study achieved its purpose of gathering data from young adults living in rural poverty about their lived experience of sleep in a framework commonly used in the study of health behaviors. Participant responses regarding obtaining information from healthcare providers, social media, and public health brochures revealed substantial skepticism about the information and a reluctance to act on that information. The opportunity to enhance personal health and public safety by providing education about sleep is evident in the literature. Participant comments suggest that those developing educational programs and treatment protocols face significant challenges rooted in strong beliefs when attempting to increase awareness of the importance of sleep to health and motivating individuals to act on that information.

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Appendix A: Study Eligibility Questionnaire

Thank you for your interest in this study which involves exploring sleep behavior among young adults, living in rural areas. The study is specifically focused on people whose resources are limited and are considered poor per Federal guidelines. If you are eligible to participate, you will be asked to complete an interview involving questions about your sleep habits that will take approximately 45 minutes; you will receive a $5 gift card.

Are you still interested?

To help me determine if you are eligible to participate in this study, I would like to ask you a few questions.

First, please let me know who I am talking with and how I can get in touch with you in the future.
Name:
Phone number:
Address:
Email address:

Next, what is your date of birth?

Please tell me about your household income. Can you tell me about your income or benefits from any programs that might be providing you with services?

Finally, have you ever been treated for any sleep problems or do you currently take medication to help you sleep? Do you use a sleep apnea machine?

One of two closing processes:

- Thank you for your interest in the study, based on your answers you are not eligible to participate in the study.

Or,

- Thank you for your interest in the study, I think your experiences would make a great contribution to it. I would like to schedule an interview with you. I have several times available in your community [insert]. Would you like to complete the interview at your home or at another location, please select any place that would be comfortable.

Appendix B: Interview Protocol

Participants will be interviewed in their preferred environment, for example library or community center depending on that participant's preference.

After greeting the participant, the researcher will provide and review the informed consent documents and answer the participant's questions; upon satisfactory completion of this process the participant will provide informed consent, the researcher will provide a copy of the informed consent document for the researcher to keep which will include contact information for the researcher, the University, and for service providers who may assist with any issues that arise as a result of participating in the study.
The researcher will then begin recording the session.

Section 1: General Narrative

The participant will be asked to generally discuss his/her sleep behavior. The researcher will elicit additional information or description to assure that the research question is addressed using these prompts:

- Sleep duration: desired, actual, barriers to preferred sleep duration
- Wake-sleep preferences: day or night, drowsiness upon awakening, morning/afternoon/evening mood, response to being awakened in morning/afternoon/evening
- Sleep quality: desired, actual, barriers to preferred sleep quality
- Sleep environment: all sensory data (e.g. bed is hard/soft, room is cold/hot, lights are on/off), presence of partner, child, or pet, activities in bed (e.g. reading, television, sex)
- Sleepiness, tiredness, fatigue and coping with these issues
- Insomnia, acute or chronic, coping strategies
- Importance of sleep and achieving preferred duration, quality, environment

When the participant has completed his/her narrative, researcher will create a break for standing up, using restroom, etc. Upon return the focus will shift to more specific examination of theory of planned behavior constructs.

Section 2: Focus on Theory of Planned Behavior Constructs

- Beliefs
    - What do you believe are the advantages of sleep?
    - What do you believe are the disadvantages of sleep?
    - Is there anything else you associate with your own views about sleep?
- Subjective Norms
    - Who influences you the most about sleep behavior?
    - Are there other individuals or groups who would approve of your sleep behavior?
    - Are there individuals or groups who would disapprove of your sleep behavior?
    - Is there anything else you associate with other people's view about sleep?
- Perceived behavioral control
    - What factors or circumstances would enable you to sleep?
    - What factors or circumstances make it difficult for you to sleep?
- Intentions
    - What are your intentions about sleeping?
    - How much effort are you willing to exert to act on your intentions?

Section 3: Context

Has your doctor every talked to you about sleep?

- Is there anything about your health that might change if you changed how you sleep?

- If participant has children: Has your pediatrician ever talked to you about how sleep?

If participant is employed:

- Have you ever talked to your employer about sleep?
- Is there anything at work that would change if you changed how you sleep?

Have you seen anything on social media about sleep?

Have you noticed any brochures about sleep?

Have you heard anything on the news or in the newspaper about sleep?

What do you think about these items?

- Brochure on drowsy driving

- Brochure on sleep hygiene

- Print out of social media piece on napping

Is there anything else you would like to add about your experience of sleep, either your personal experience or in a larger context?

Thank you for your time, the information will be very helpful in the study.

Appendix C: Recruitment Poster

Participants Needed
Rural Sleep Research

Participants must be 18-24 years old,
low-income, not attending high school.

Participants will complete a brief
In-person interview
about their sleep habits.
Participants will receive $5

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Susan Skinner, Walden University
IRB Approval #09-16-16-0363488

Appendix D: Audit Trail

The purpose of this trail is to disclose and document steps taken during this study for to establish and ensure the dependability and confirmability of the work presented.

1. Data Collection
    - Collect archival data
    - Identify eligible participants
    - Select participants
    - Conduct interviews
    - Transcribe interviews
    - Engage in member checking
2. Data Management
    - Initiate coding using NVIVO
    - Manually review data to search for themes
    - Generate analytical maps of themes
3. Interpretation of data
    - Examine overall narrative of the sample
    - Review details of each identified theme
    - Relate data to research question
    - Select and analyze extracts
    - Conduct final review of transcripts
4. Write findings for dissertation