PARENTAL PERCEPTIONS OF SLEEP HYGIENE PRACTICES OF URBAN, MINORITY SCHOOL-AGED CHILDREN: A DESCRIPTIVE QUALITATIVE STUDY

By

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Abstract

Results from an expanding body of research suggest that sleep problems resulting in inadequate sleep may be particularly prevalent among children of minority status and/or low socioeconomic status (SES), and healthcare professionals should be especially attuned to screening for sleep problems in these populations, especially in the case of children with daytime behavioral concerns or attentional problems (Daniel, Grant, Chawla & Kothare, 2010).

The purpose of this descriptive qualitative research study was to describe the sleep hygiene practices of healthy, urban, minority school children ages 6-12 years old in the Bronx from the perspective of parents/caregivers.

Focus groups were used to obtain information from 36 parents/caregivers. The parents/caregivers answered 4 open-ended questions pertaining to sleep and school children. Three themes emerged from the focus groups data, they are as followed: 1) parent/caregiver actions to ensure good quality sleep, 2) child’s physical or emotional response to poor quality sleep and 3) school/daytime problems that develop from poor quality sleep.

The result of this study showed that parents/caregivers of healthy, urban, minority school age children have a wealth of knowledge when it comes to sleep practices for their children but they are not using them effectively.

The themes from the focus groups described parents'/caregivers’ perceptions of children’s sleep practices. School nurses and nurse practitioners may use these findings to develop appropriate educational interventions to support parents'/caregivers’ in implementing sleep hygiene practices for urban, minority school children that will promote quality sleep for this population.
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Chapter I

Introduction and Statement of the Research Problem

Every living being needs sleep, in fact sleep is essential to good health. Amschler and McKenzie, (2005) states that good sleep is as important as daily exercise and proper nutrition. The authors further state that sleep may be thought of as “nutrition for the brain”. Unfortunately, sleep inadequacy effects 15 million American children, 6 million at a moderate or severe level (Smaldone, Honig & Byrne, 2009).

Children aged five to 12 need 10-11 hours of sleep. At the same time, there is an increasing demand on their time from school (e.g., homework), sports and other extracurricular and social activities. In addition, school aged children become more interested in TV, computers, the media and Internet as well as caffeine products—all of which can lead to difficulty falling asleep, nightmares and disruptions to their sleep. In particular, watching TV close to bedtime has been associated with bedtime resistance, difficulty falling asleep, anxiety around sleep and sleeping fewer hours. Sleep problems and disorders are prevalent at this age. Poor or inadequate sleep can lead to mood swings, behavioral problems such as hyperactivity and cognitive problems that impact on their ability to learn in school (www.sleepfoundation.org). Adequate sleep among children has therefore become an important health issue (Matricciani, Olds, Blunden, Rney & Williams, 2012).

Evidence is accumulating that even for otherwise healthy children, sleep inadequacy may have serious outcomes that extend beyond parents’ inconvenience and children’s daytime sleepiness. Children who sleep less than the hours recommended for their age and developmental level have been found to have behavioral, emotional, and academic performance difficulties (Smaldone, Honig & Byrne, 2009). Indeed, inadequate sleep has been linked to difficulties with
attention, impulse control, and behavior regulation. Because poor regulation of attention and behavior are the key features of attention-deficit/hyperactivity disorder (ADHD), it has been concluded that a subgroup of children with primary sleep problems may be misdiagnosed with ADHD (Beebe, 2011).

Results from an expanding body of research suggest that sleep problems resulting in inadequate sleep may be particularly prevalent among children of minority status and/or low socioeconomic status (SES), and healthcare professionals should be especially attuned to screening for sleep problems in these populations, especially in the case of children with daytime behavioral concerns or attentional problems (Daniel, Grant, Chawla & Kothare, 2010).

Lastly, sleep hygiene and sleep habits are crucial to helping children with poor quality or inadequate sleep problems. Healthy sleep practices (sleep hygiene or “sleep health”) have been empirically linked to better quality and more adequate sleep in the pediatric population; these include regular sleep schedules, early bedtimes, a regular bedtime routine, the absence of an adult when falling asleep, absence of electronics and particularly a television from the bedroom, and lack of caffeine consumption (Owens, Jones, & Nash, 2011).

**Background of the problem**

In recent years, worldwide concerns have been expressed about the increasing number of healthy children and adolescents whose sleep is inadequate or disturbed (Jan et al., 2008).

Normative requirements for adequate sleep based on epidemiologic and laboratory studies reflect the need for progressively less sleep by developmental stage with averages of 10 hours for 5- to 13- years-olds (declining from 11.1 at 5 years to 9.0 hours at 13 years) and 8 to 9 hours for adolescents 14 to 18 years of age (Smaldone, Honig & Byrne, 2007). Adequate or optimal sleep in children is not well defined in the literature, and the total amount of sleep
necessary for peak functioning varies from individual to individual. It is reported that the child is getting enough sleep if he or she can fall asleep easily at night (in less than 2 minutes), wake easily at his or her normal wake time, and does not require daytime naps (except when developmentally appropriate) (Shakankiry, 2011). Poor quality sleep is a significant and growing public health issue among children in America (Owens, Jones, Nash, 2011).

The problem of sleep is well documented; however another problem lies in the numerous definitions of key terms. For example, “sleep amount,” “sleep need,” “sleep duration,” and “time in bed” are terms that often are used interchangeably in the literature. Apart from the obvious that “time in bed” may be different from actual sleep time and thus is not a reliable proxy for “sleep amount or duration, “these common research terms may have different conceptual meanings across the cultures in which the studies were conducted (Jenni & Werner, 2011). In addition the terms “poor,” “inadequate,” “deprivation,” “insufficient” are also used interchangeably in the literature on sleep in children. For the purpose of this study the terms will be limited to: poor and inadequate.

The Institute of Medicine (IOM) 2006 report entitled “Sleep Disorders and Sleep Deprivation: An Unmet Public Health Problem” estimates that 50-70 million Americans suffer from a chronic disorder of sleep and wakefulness hindering daily functioning and adversely affecting their health and longevity. The cumulative effects of sleep loss and sleep disorders represent an under recognized public health problem and have been associated with a wide range of health consequences.

A nationwide poll conducted by the National Sleep Foundation (NSF, 2004) indicated that many children are getting insufficient amounts of sleep, and that the quality of their sleep is too often compromised. Estimates of the numbers of children presenting with sleep problems vary
depending on definitional criteria and types of measure. While the functions of sleep are still largely unknown, contemporary research is confirming the common belief that developing brains need to spend considerable portions of each day in sleep, and an adequate amount of good quality sleep is essential for optimal child functioning (Buckhalt, El-Sheikh & Keller, 2007).

Significance of the Problem

A number of recent studies have reported that there are a significant number of healthy children who have poor quality of sleep nationally. Although previously thought to be rare in middle childhood, more recent surveys suggest that sleep problems are present in 25 to 40 percent of 4-10 year old children. Elementary school-aged children require an average of 10-11 hours of sleep per night, but according to the “2004 Sleep in America Poll” which examined the sleep habits of children, 69% of children experience one or more sleep problems at least several nights a week (Amschler & McKenzie, 2005). Estimates of parent-reported sleep problems in school-aged populations range from 11% of 4-12 year olds to 37% of elementary school-aged children, making sleep issues also one of the most common complaints in pediatric practice (Owens, 2005).

Until recently inadequate or poor sleep quality of sleep in children has been poorly studied. In fact one of the proposed Healthy People 2020 objectives of Early and Middle Childhood is to decrease the percentage of children who have poor quality of sleep. One of the data sources for the Healthy People 2020 objective is based on the 2003 and 2007 National Survey of Children’s Health (NSCH).

The NSCH is a national survey conducted by telephone in English and Spanish for a second time during 2007-2008; the first administration of the survey took place in 2003-2004. The second survey provides a broad range of information about children’s health and well-being.
collected in a manner that allows comparisons among states as well as nationally. Telephone numbers are called randomly to identify households with one or more children under 18 years old. In each household, one child was randomly selected to be the subject of the interview. A total of 91,642 surveys were completed nationally for children between the ages of 0-17 years.

The 2007-2008 NSCH survey was designed to produce national and state-specific prevalence estimates for a variety of physical, emotional, and behavioral health indicators and measures of children’s experiences with the health care system. The 2007-2008 survey also includes questions about the family (e.g., parents’ health status, stress and coping behaviors, family activities) and about respondents’ perceptions of the neighborhoods where their children live.

In both the 2003 and 2007 surveys the adequate sleep results are based on question 6.9. The 2007 results showed that 64.3% of children between the ages of 6-17 years old experienced enough sleep every night as compared to 68.8% of children in 2003 (www.childhealthdata.org).

In 2004 the NSF commissioned the first nationwide poll on the sleep habits of children (ages 0-10) and their parents or other primary caregivers. Among the conclusions of NSF’s 2004 Sleep in America poll are: many children (newborns through school aged) aren’t getting enough sleep. Two-thirds of children experience a sleep problem at least a few nights a week. Parents/caregivers pay a price for their child’s poor sleep habits. The poll results indicate that children in every age group, on average, do not meet the low end of the range of sleep recommended by experts during a 24-hour period. For example: School-aged children (1st through 5th grades) get 9.5 hours of sleep in a 24-hour period, but experts recommend 10-11 hours (Mindell et al., 2009).
Healthy People 2020 and its antecedents including 2010 and 2000 have set national objectives to prevent or delay diseases, decrease morbidity, mortality and improve health related quality of life for all Untied States (U.S.) residents. Like other disorders, sleep disorders have mortality, morbidity, and financial implications on society. Much is documented about adults who suffer from poor sleep/ or lack of sleep, in fact the Centers for Disease Control (CDC) does surveillance on such. However, sleep conditions in children under 18 years old until recently were not widely studied, but that is beginning to change. For example—the link between sleep and obesity in children has recently started to be explored.

The mortality and morbidity statistics about children and sleep problems are also very sparse. The following statistics from Cone Health” Children and Sleep Problems Statistics”, October, 2011 states that over 2 million children suffer from sleep disorders. Children require an average of 9-10 hours of sleep each night, and it is estimated that 30-40% of children do not get enough sleep (www.sleepmed.md). About one to three percent of children not only snore, but also suffer from breathing problems during their sleep. More than 263,000 in the U.S. have tonsillectomies each year and sleep apnea is a major reason, for having tonsillectomies (www.sleepforkids.org). In a study of children between the ages of 2 through 14 found that youngsters who frequently snore or have sleep disorders are almost twice as likely to suffer from attention deficit hyperactivity disorder (ADHD) as those who sleep well (www.sleepforkids.org). Overweight and obese children are at higher risk for developing sleep apnea. About sixty-nine percent of children 10 and under experience some type of sleep problem (www.sleepforkids.org). Some of the most common sleep problems in children are insomnia, nightmares, Restless Legs Syndrome, sleep walking, sleep talking, sleep terrors, sleep apnea and snoring. Lastly,
sleepwalking is experienced by as many as 40 percent of children, usually between ages three and seven (www.sleepforkids.org).

Inadequate sleep in healthy children is typically associated with changes in behavior that include irritability, decreased attention span, distractibility, impulsivity, hyperactivity, excessive daytime sleepiness, chronic fatigue, decrements in daytime alertness and performance, and an increase in school absenteeism (Labyak, Bourguignon & Docherty, 2003). Health outcomes of inadequate sleep in children include potential deleterious effects on their cardiovascular (Plante, 2006), immune, and various metabolic systems (Majde & Krueger, 2005), including glucose metabolism and endocrine functions (Harsch, Hahn & Konturek, 2005), as well as impaired coordination and an increase in accidental injuries (Owens, Fernando & McGuinn, 2005) (Jan et al., 2008).

The economic burden of sleep on society is estimated to be in the billions of dollars spent each year in the United States on the direct costs of sleep loss and sleep disorders. In 2002, Hossain & Shapiro reported that to date, only the economic effects of sleep-related accidents and direct medical cost have been examined; the cost of sleep disorders were estimated to be $15.9 billion (U.S.dollars) in 1990 for direct costs only. These medical costs include expenses associated with doctor visits, hospital services, prescriptions and over-the-counter medications. The indirect costs associated with sleep loss and sleep disorders also result in billions of dollars annual expenditures, including costs associated with illness-related morbidity and mortality, absenteeism, disability, reduction or loss of productivity, industrial and motor vehicle accidents, hospitalization, and increase alcohol consumption (Hossain & Shapiro, 2002). Although the complete economic impact of sleep disorders and sleep loss is limited, the available data demonstrates the high burden that inadequate sleep has on the economy. Hundreds of billions of
dollars are spent and/or lost annually as a result of poor or limited sleep. However, greater surveillance and analysis are required to estimate the full economic implications of these problems (National Research Council, 2006).

Relatively little if any has been published on the economic implications of sleep disorders or loss upon individuals under the age of 18. The cost that could be associated with children under 18 years of age most likely would be intangible costs. Intangible costs represent the economic value of pain, suffering, grief, loss of activities of daily living (ADLs), impaired schooling, inconvenience, and other nonfinancial outcomes of a disorder and its treatment (Crawford, 1997).

The sleep habits of children have a direct impact on the adults caring for them. Parents/caretakers whose children get the least amount of sleep are twice as likely to say they sleep less than six hours a night. On average, parents/caretakers lose slightly more than one half hour of sleep each night because their child awakens them during the night. Parents of infants lose the most sleep; they are awakened an average of four nights a week, losing close to an hour of sleep each night—that’s more than 200 hours of lost sleep in the child’s first year (Mindell et al., 2009).
Purpose Statement

The purpose of this research study is to describe the sleep hygiene practices of healthy, urban, minority school children ages 6-12 years old in the Bronx from the perspective of parents/caregivers.

Research Question

What are the sleep hygiene practices of healthy, urban, minority school children ages 6-12 years old?

Definitions of terms (Variables)

The principal variable in this study is sleep hygiene. The conceptual and operational definitions of the variable are as followed:

Conceptual Definitions:

Sleep Hygiene denotes the variety of behaviors and conditions that promote the amount and quality of sleep (Moore, Allison, & Rosen, 2006). “Sleep Hygiene” a term that describes modifiable parent and child practices that promote good sleep quality, allow sufficient sleep duration, and prevent daytime sleepiness (Mindell, Meltzer, Carskadon, & Chervin, 2009).

Operational Definition:

Sleep hygiene practices are the daytime habits, evening habits, sleep environment, and bedtime routines that school children engage in.
Assumptions

The assumptions that can be raised from both the background and significance of this research are similar to those of the IOM which are: The general public does not recognize the prevalence of, or the consequence associated with chronic sleep loss and/or sleep disorders. Most health care providers neither recognize the prevalence of, nor the many risks associated with, chronic sleep loss and/or sleep disorders. Many of the technological advances made in the previous century (e.g., television, Internet) serve to deprive people, especially children and adolescents, of needed sleep. Sleep loss and sleep disorders are associated with numerous other health complications. Increased understanding will lead to better sleep behaviors and thus improved health and function (National Research Council, 2006).
Chapter 2

Review and Critique of the Literature

Introduction

The purpose of this research study is to describe the sleep hygiene practices of healthy, urban, minority school children ages 6-12 years old in the Bronx from the perspective of parents/caregivers.

Search Strategy and Yield

A comprehensive review of the literature between the years 2002 to 2012 was performed using the following databases Cochrane, CINAHL, Medline, PsylINFO, and Pub Med. The search strategy included the following keywords separately or in combination: school-aged children, inadequate sleep in children, poor quality of sleep, sleep hygiene practices, and/or parental, maternal or caregiver knowledge, attitudes, or beliefs. Adult papers were excluded. The search included both full text and citation only articles.

The search yielded 624 articles: a) 21 from Cochrane, b) 81 from CINAHL, c) 350 from Medline, d) 98 from Pub Med, e) 74 from PsylINFO. This researcher reviewed 60 articles and found only 40 articles met inclusion criteria.

Inclusion/Exclusion Criteria

Inclusion criteria were a) English language, b) focused on school-aged children 6-12 years old, c) published between the years 2002-2012, and d) included sleep habits/sleep hygiene practices. Exclusion criteria included the following: no relationship to sleep habits/sleep hygiene practices of children, paternal/caregiver knowledge, attitudes or beliefs and school-aged children.
The 2006 IOM Report

The IOM is an independent, nonprofit organization that works outside of government to provide unbiased and authoritative advice to decision makers and the public. Established in 1970, the IOM is the health arm of the National Academy of Sciences, which was chartered under President Lincoln in 1863. Nearly 150 years later, the National Academy of Sciences has expanded into what is collectively known as the National Academies, which comprises the National Academy of Sciences, the National Academy of Engineering, the National Research Council, and the IOM.

The aim of IOM is to help those in government and the private sector make informed health decisions by providing evidence upon which they can rely. Each year, more than 2,000 individuals, members, and nonmembers volunteer their time, knowledge, and expertise to advance the nation’s health through the work of the IOM.

In recognition of the limited appreciation of the importance of sleep disorders and sleep deprivation for individuals and the public health, the American Academy of Sleep Medicine (AASM), the National Center on Sleep Disorders Research (NCSDR) at the National Institutes of Health (NIH), the National Sleep Foundation (NSF), and in 2006 the Sleep Research Society (SRS) requested that the IOM prepare a report on sleep in America. Thus, in 2006 the IOM appointed a 14-member committee with expertise in pulmonology, cardiology, nursing, neurology, pediatrics, adolescent medicine, psychiatry, epidemiology, public health, otolaryngology, academic and medical administration, and health sciences research.

The charge of the committee was to: 1-review and quantify the public health significance of sleep health, sleep loss, and sleep disorders, including assessments of the contribution of sleep disorders to poor health, reduced quality of life, and early mortality, as well
as the economic consequences of sleep loss and sleep disorders, 2-identify gaps in the public health system relating to the understanding, management, and treatment of sleep loss and sleep disorders and assess the adequacy of the current resources and infrastructure for addressing the gaps, 3-identify barriers to and opportunities for improving and stimulating multi-and interdisciplinary research and education in sleep medicine and biology. Delineate organizational models that will promote and facilitate sleep research in the basic sciences, collaborative research between basic scientists, clinicians, and population scientists in relevant specialties, and education of practitioners and scientists in sleep health, sleep disorders, and sleep research for improving the public’s health. 4-develop a comprehensive plan for enhancing sleep medicine and sleep research for improving the public’s health.

The committee met five times during the course of its work and held two workshops. In addition, the committee received input from relevant federal, private, and nonprofit organizations. The findings confirmed the enormous public health burden of sleep disorders and sleep deprivation and the strikingly limited capacity of the health care enterprise to identify and treat the majority of individuals suffering sleep problems (National Research Council, 2006).

After an extensive literature review, the expert committee held a series of meetings and public workshops with other researchers, representatives from federal agencies, and academic, professional and nonprofit organizations to make the following four key recommendations: improved education, both professional and public, and starting with elementary school students; advancement of diagnostic technologies, including improved ambulatory monitoring; coordination of research, clinical care, and education within academic health centers; and coordination of national research initiatives.
For clinicians, there is a wealth of useful material, including review of basic sleep physiological and emotional consequences of chronic sleep loss. For mental providers working with children and adolescents, awareness of the impact of impaired sleep on children’s brain development, behavior, emotional control, and academic performance could make a critical difference in diagnosis and treatment. The authors also explain the associations between inadequate sleep, depressed mood, anxiety, and other behavioral problems in childhood and adolescence, and delineate the public health benefits of early sleep education (Harding & Feldman, 2008).

Finally, considering the burden that chronic sleep loss and sleep disorders have on all age groups, a multifocal campaign has been recommended by the committee to improve awareness among children, adolescents, adults, elderly people, and high-risk populations. The primary role of such a campaign would be to improve sleep, as well as educating parents and adults of the consequences associated with not receiving adequate sleep. In this regard it will be important to inform the public and policy makers of the negative consequences of chronic sleep loss and sleep disorders. The campaign could argue that by taking specific personal actions to improve sleep hygiene, by recommending specific behaviors for all age groups, the adverse health and economic consequences could be reduced (National Research Council, 2006).

Consequences of Inadequate and Poor Sleep Quality

Evidence is accumulating that even for otherwise healthy children; sleep inadequacy may have serious outcomes that extend beyond parents’ inconvenience and children’s daytime sleepiness. Children who sleep less than the hours recommended for their age and developmental level have been found to have behavioral, emotional and academic performance difficulties. (Smaldone, Honig & Byrne, 2009).
In 2009, Smaldone, Honig and Byrne conducted a study to examine the prevalence and characteristics of children experiencing a continuum of inadequate sleep and its associations with child, family, and environmental variables. They conducted a secondary analysis of weighted responses of 68,418 parents or caregivers of children aged 6-17 years participating in the 2003 National Survey of Children's Health (NSCH). Inadequate sleep was categorized as mild, moderate, or severe. Approximately one third of parents reported their child’s sleep inadequacy as mild, moderate or severe. The NSCH was conducted by the Health Resources and Services Administration’s Maternal and Child Health Bureau from January 2003 to July 2004 to provide national-and state-level estimates of a variety of child health indicators. Interviews were conducted in either English or Spanish with parent or caregivers of more than 102,353 children from birth to 18 years using random-digit dialing and computer-assisted telephone interviewing. All analysis were performed using SAS Software, version 9.1 (SAS Institute, Inc., Cary, NC) and SUDAAN 9.0.0 (Research Triangle Institute, Research Triangle, NC) (SUDDAN Language Manual, Release 9.0, 2004). Bivariate models were used to test for trends in the levels of outcome variable, inadequate sleep, in different subgroups. They then used multivariate logistic regression models to assess the associations between each gradient of inadequate sleep versus adequate sleep while controlling for variables within the child, family, and community domains. The sleep behavior was described as adequate/enough sleep-7 nights, inadequate sleep mild-5-6 nights, moderate- 3-4 nights, and severe- 0-2 nights.

Parental responses of 68,418 children were weighted and provide a national population estimate of 48.4 million children. Of these, approximately two thirds (68.7%) of parents responded that their child slept well each night, with the remaining children described as having not slept well on 1 to 2 nights (18.6%), 3 to 4 nights (6.8%), or 5 to 7 nights (5.8%) during the
week preceding the survey. In general, teens were most commonly affected. More than half of children described as demonstrating moderate and severe inadequate sleep come from this age group despite the fact that they represent only one third of the total interview sample. More than one fifth of children with severe inadequate sleep were of Hispanic ethnicity. Fewer children with severe inadequate sleep were reported to be in excellent health compared with those whose sleep was described as adequate (48% versus 60.8%).

Limitations to the study included the fact that the NSCH 2003-2004 survey data was cross-sectional with interpretation limited to association; neither cause nor direction of relationships may be determined. The variable sleep inadequacy was derived from one survey question, and parental response was limited to one aspect of sleep behavior, getting “enough sleep” during the past week. For example, a parent may have reported their child’s sleep as adequate because the child slept all night; however, the sleep may have been of poor quality. The gradations of inadequate sleep as mild, moderate, or severe were investigator-defined rather than parent defined, and the boundaries between levels may be subject to different interpretation. Given the strong associations with sleep inadequacy that were uncovered in this study, by assessing sleep adequacy, primary care providers may indirectly become alert to the need to screen for depression, parental stress and family violence. Sleep hygiene and patterns should be routinely evaluated during pediatric primary care encounters. In the presence of poor sleep, primary care providers should consider and assess for its associated psychosocial morbidities, including undiagnosed depression, family violence, and parental stress. The major issue of concern identified by this study is sleep inadequacy and its strong associations with depressive symptoms, parental stress and family violence, for which interventions can be effectively
The National Institutes of Health (NIH) State-of-the-Science Conference on Manifestations and Management of Chronic Insomnia in Adults, June 13-15, 2005, had members of an independent panel prepare and present a state of science statement and answer key questions. In her presentation “Insomnia in Children and Adolescents” Judith Owens, MD, (2005) identified the impact of inadequate sleep in children and adolescents. According to Owens recent evidence suggests that sleep disorders may have significant short-and long-term consequences on children’s academic and social functioning and health. A wealth of empirical evidence from several lines of research clearly indicates that children and adolescents experience significant daytime sleepiness as a result of inadequate or disturbed sleep and that significant neurobehavioral and performance impairments and mood dysfunction are associated with that daytime sleepiness. Higher-level cognitive functions, such as cognitive flexibility and the ability to reason and think abstractly, appear to be particularly sensitive to the effects of disturbed or insufficient sleep. Finally, health outcomes of inadequate sleep include an increase in accidental injuries (ranging from minor injuries to drowsy, driving-related motor vehicle fatalities) and potential deleterious effects on the cardiovascular, immune, and various metabolic systems, including glucose metabolism and endocrine function (Owens, 2005).

There is evidence that suggest that inadequate sleep quality and/or quantity can cause sleepiness, inattention and, very likely, other cognitive and behavioral deficits that significantly impact children and adolescents in functional settings. In his article entitled “Pediatric Sleep Medicine Update Cognitive, Behavioral, and Functional Consequences of Inadequate Sleep in Children and Adolescents” Dean Beebe summarized 13 correlational, case-controls, quasi-

provided. The study suggests that it is very important to keep this in mind when assessing children’s sleep habits.
experimental, and experimental studies that have examined whether sleep during childhood and adolescence is related to daytime functioning. Findings from studies that used complementary research methods have converged to strongly suggest that inadequate sleep quality and quantity are causally linked to sleepiness, inattention, and probably other cognitive and behavioral deficits that affect daytime functioning, with potential implications for long-term development (Beebe, 2011).

**Sleep Patterns of Urban Dwelling Minority Children**

It is important to note that even though sleep disturbances frequently occur in healthy children certain populations of children are at particular risk for sleep disturbances; disparities exist along racial, ethnic and economic lines.

Disrupted sleep patterns and behaviors have been highlighted in recent literature as occurring more often in families of lower socioeconomic means (Spilsbury et al., 2004). Specifically, lower socioeconomic status (SES) has been associated with reports of more daytime sleepiness, shorter nighttime sleep durations, more frequent sleep disruptions, increased reports of parasomnias, and higher occurrences of sleep-disordered breathing. It has been hypothesized that differences in sleep behaviors of children as a function of SES may be due to more crowded living conditions, parental education, inadequate knowledge regarding sleep hygiene, or increased family stress (Crabtree et al., 2005).

In 2010, Daniel, Grant, Chawla & Kothare conducted a study that examined the sleep patterns of healthy, urban-dwelling, ethnic-minority children from lower SES using a validated screening measure CSHQ- Children’s Sleep Habits Questionnaire, along with the Hollingshead Index of Social Status and a child health history. Parents of children were approached during well-care outpatient clinic visits at an inner-city children’s hospital located in a low-income
neighborhood in Philadelphia, Pennsylvania. Non-English speaking and parents of children with chronic medical conditions were excluded. Seventy-eight families of children ages 2-18 completed the questionnaire: 52 children were within the 4-10 age range. Cronbach's alpha-coefficient was calculated to assess for internal consistency of the CSHQ, Pearson correlations and independent-sample T-tests were also used for data analysis. Symptoms associated with sleep-disordered breathing, bedtime resistance, night waking, and daytime sleepiness occurred more frequently in the current sample than the original validation sample. The sample for this study was made of forty-four African American and eight Hispanic children, mean age 6.71 years compared to the 469, primarily Caucasian, middle-class, suburban-dwelling children who the original tool was validated on back in 2000.

The results suggest that healthy, ethnic-minority children living in impoverished, urban areas may have higher rates of snoring, and more problematic behaviors than children from middle-class suburban environments. The strengthens of the study is the potential impact that the results have on society for the group differences may reflect cultural discrepancies in practices and perceptions regarding sleep habits and needs of children. In fact as disordered breathing and excessive daytime sleepiness can negatively impact neurocognitive and behavioral functioning, screening of sleep habits during routine clinical care could help with identifying not only children at risk for sleep disorders but also those with poor sleep hygiene, thus providing opportunities for appropriate educational interventions. The limit of the study includes that sample size and the size of the ethnic-minority groups represented can potentially limit the ability to generalize the study findings. Also having the questionnaire completed in a clinic waiting area can lead to potential bias, possibility of participants giving socially desirable response. The lack of physical evidence of some of the reported sleep problems is a limitation.
In 2004, Spilsbury, Storfer-Isser, Drotar, Rosen, Kirchner & Benham conducted a cross-sectional analysis of 755 (50% female, 35% ethnic minority) children 8 to 11 years old from a community-based sample of children participating in a cohort study. Sleep and health data were from a child-completed 7-day sleep journal and a caregiver questionnaire. The purpose of the study was to describe sleep behavior of elementary school-aged children and to assess variations by age, sex, and ethnicity. The original cohort (907 full/preterm children) study results came from the Cleveland Children’s Sleep and Health Study with data also collected from caregiver-completed Child’s Health Questionnaire-Parent Report and the Children’s Sleep and Health Questionnaire- a pediatric modification of a validated questionnaire that assesses sleep symptoms and disorders. Means and proportions were used to summarize the sample characteristics for continuous and categorical data, respectively. Paired t tests were used to compare means for weekday and weekend sleep outcomes. Multivariable linear regression was used to assess the effects of the primary predictors (age, sex, and ethnicity) on mean sleep time over all recording days, controlling for the following potential confounders: preterm status, vacation, chronic health problems, caregiver’s educational level, and sick days occurring during the journal-recording period. Use of self-completed pediatric 7-day sleep journals provided average estimates for sleep duration consistent with current national recommendations for school-aged children.

However, overall, 16% of children reported sleeping less than the recommended 9 hours, including 43% of 10- to 11-year-old minority boys reported less than 9 hours nightly sleep versus 5% to 26% of the other age, sex, and ethnicity subgroups. After controlling for potential confounding, minority children were more likely than nonminority children to have a bedtime of 11 PM or later.
The strengthens of this study looks at the sleep behavior of US elementary schoolchildren, particularly among ethnic minorities, which is not well documented, the study goes on to provide normative sleep data for this age group in an urban community and is one of the first to report ethnic differences in bedtime and sleep duration among school-aged children after controlling for potential confounding. The limitations of the study include the fact that the study was not designed to identify the specific behavioral and environmental determinants of sleep behavior. The original cohort study was constructed to over represent preterm children which interfere with the generalizability of the study. There were limitations of the analysis, a significantly greater proportion of minority than nonminority children were excluded from analysis because of incomplete sleep journal data, secondly, only a limited number of minority subgroups other than African Americans (e.g. Asian, Native American, Hispanic) were represented in this cohort, thirdly, because a large proportion of children were recruited from an earlier cohort study a bias might exist. Lastly, the measures of the SES were not fully inclusive the only indicator was maternal education, the inclusion of occupation, and family income would improve the assessment.

In their article, “Sleep patterns in an urban-dwelling minority pediatric population” reported in the “Vulnerable Children and Youth Studies” (December 2010), Daniel et al., reported that healthy, ethnic-minority children living in impoverished, urban areas may have more problematic sleep behaviors than children from middle-class, suburban environments. The authors acknowledged that resulting daytime sleepiness can negatively impact neurocognitive and behavioral functioning, the study concluded with the suggestions to screen these children for poor sleep hygiene and to provide opportunities for appropriate educational interventions.
Most recently a study on the sleep patterns of early school-aged children living in a low income, urban, minority community in New York City (NYC) determined that sleep problems may be more prevalent than previously recognized in urban early school-aged children. The study was conducted by Beverly J. Shears, MD and associates at Columbia University. The results were presented at the 2011 American Thoracic Society International Conference in Denver, Colorado in April. The researchers determined that sleep problems among urban, minority children has significant public health implications for a highly vulnerable population.

Researchers randomly enrolled parents of 160 healthy 5 and 6 year old children. Data were obtained through parental sleep log records, face-to-face interviews using the Child’s Sleep Habits Questionnaire (CSHQ), a validated tool commonly used to screen for childhood sleep problems. In addition, researchers were able to obtain data from 30 children who underwent sleep monitoring at home for 5-7 days using actigraphy, the monitors were worn 24 hours a day. Actigraphy utilizes a portable device (actigraph) that records movement over extended periods of time and is worn most commonly on the wrist. Sleep wake patterns are estimated from periods of activity and inactivity based on this movement (www.aasmnet.org/Resources).

Evaluating the results of the sleep questionnaire, researchers found that 147 of the 160 children, or 92%, had scores indicating the presence of a sleep problem. In addition the parents reported the following behaviors were the specific sleep problems for their children: parsomnias (51%), bedtime resistance (51%), shortened sleep duration (50%), daytime sleepiness (47%), night waking (41%), sleep-onset (27%), sleep anxiety (19%), and sleep-disordered breathing (11%). All children who completed actigraphy monitoring had shortened sleep duration, with mean sleep duration of seven hours 45 minutes per night on average, significantly less than 10 to 11 hours recommended by the National Sleep Foundation for children in this age group.
The results of this study suggest that sleep problems may be more previously recognized in urban, early school aged minority children. These findings indicate the need for further study and interventions that are tailored for use in this high risk population. The strengths of this study is the next steps that the researchers intend to pursue including the development of a tailored, interactive, educational and behavioral intervention that utilizes trained sleep counselors to assist parents in improving their children’s sleep hygiene and reducing risk factors for poor sleep. The limitations of the study include the fact that the sample size was small, the age groups were limited and the ethnic minority groups were limited to African American and Latino children. Additionally, the actigraphy monitoring was limited to only 30 of the children in the study.

**Sleep Hygiene Practices and Parental/Caregiver Knowledge/Attitudes/Beliefs**

In 2011, Schreck and Richdale conducted a research study the goal of which was to assess parents’ knowledge of sleep. The sample of parents were both from the United States and Australia, parents of 173 children, aged 2-17 years old completed the survey, 3 parents were eliminated for a total of 170 parents. The researchers created a 62 item questionnaire, called Parents’ Sleep Knowledge Inventory (PSKI). The questions were divided into: sleep aspects related to age of child, developmentally normal sleep, and sleep problems. In Australia, questionnaire packages with a reply-paid, return-addressed envelope were sent to groups and schools willing to participate or to families directly indicating interest in participating; at some schools parents could also return the questionnaire via school drop-box. Responses are anonymous. In the United States, participants were referred to a web address to complete the online questionnaire. All responses were de-identified and informed consent implied by completion of the questionnaire.
They calculated sleep knowledge by the percentage of correct answers for the sleep themes—the themes were general sleep, problem sleep and age-related sleep where appropriate, chi-square, analysis of variance or t-tests were used to examine demographic differences across knowledge themes. Consistent with their prediction, they found that parents’ knowledge of pediatric sleep was generally poor. Fewer than 10% of the parents sampled answered 50% or more of the total PSKI questions correctly (Schreck & Richdale, 2011).

The results of this study were similar to studies related to medical professionals’ knowledge of sleep problems, which indicated low knowledge about child sleep development by many pediatricians, particularly in specific sleep areas (Owens, 2001). According to the authors, the results of the study showed that the majority of parents could not answer correctly questions about developmental sleep patterns or sleep problems. Parents also were more likely to answer “don’t know” to questions about older children.

Although this study consisted of a small group of parents from different continents, included children with and without developmental disabilities, examined a wide range of age groups and used a non-standardized questionnaire. The study did identify some broad themes and supports the need for further research of parental knowledge of healthy sleep patterns.

In 2010, Owens, Jones and Nash conducted a brief parent-report survey at the Children’s Museum of Manhattan in order to examine sleep health knowledge and beliefs and their relationship to sleep practices. The participants were parents of at least one child aged 3 months to 12 years, they completed a survey on site across 2 weekend days in March 2010, and a total of 253 parents were in the final sample (Owens et al., 2011).

The brief 2-page survey was developed by the authors based on principles of healthy sleep practices in children; survey items addressed the following topics: child sleep habits, basic
sleep knowledge, and beliefs and attitudes regarding sleep as a health behavior. Usual bedtime and wake times on week and weekend nights were used to calculate weighted mean nighttime sleep duration. Using this estimate and NSF daily sleep recommendations, children were categorized as obtaining at least sufficient sleep for their age, or too little sleep. Similarly, parents’ estimates of sleep need were coded as within or above the recommended range or underestimated. Sleep knowledge responses were coded as incorrect (including do not know) or correct; the number of correct answers was calculated for each parent. Descriptive statistics and frequencies were calculated. Associations among sleep characteristics and of sleep characteristics with parental knowledge and demographic variables were examined using chi-square, regression, and ANOVA.

The results of this survey study of a generally well-educated sample of caregivers suggest that there are clear parental knowledge gaps regarding healthy sleep in young children and supports the need for increased sleep health education. The limitations of this study include the fact that it was a self-report study of parenting practices and beliefs and thus subject to biases, including giving socially desirable responses, in addition the small sample size, education level, ethnicity (predominately white) and higher SES can potentially limit the ability to generalize the study findings to other populations. It is important to keep in mind the results that suggest that parents often lack basic knowledge regarding healthy sleep practices and sleep amounts in children. This author plans to use these results as guidelines in developing questions that can be used for parental/caregiver focus group about sleep hygiene practices.

Owens and Jones (2011) study evaluated the associations among parental knowledge and beliefs about healthy sleep, sleep practices, and insufficient sleep in a pediatric primary care clinic sample. The study population consisted of a convenience sample of parents of patients at a
hospital-based pediatric primary care clinic in an academic center serving a largely minority population. All participants were parents of at least 1 child aged 3 months to 12 years attending the clinic for routine or sick visit - 1 survey per family. A total of 184 analyzable surveys were completed between 5 to 10 minutes between February and March 2010, the survey was available in English and Spanish. Usual bedtime, wake times, daily nap duration, along with recommended daily sleep were calculated. Children were categorized as achieving at least sufficient sleep for their age or too little sleep. Sleep knowledge responses were coded as incorrect (including do not know) or correct, the number of correct answers was calculated for each parent. Descriptive statistics and frequencies were calculated. Associations of baseline sleep characteristics, parental knowledge, and demographics were examined using chi-square, t tests, Mann-Whitney U test, regression, and analysis of variance.

The survey found that 42% of children did not have a consistent bedtime, 43% had a bedtime later than 9pm, 76% had a television in the bedroom, 69% frequently fell asleep with an adult present, and 18% had daily caffeine intake. Although 76% of parents underestimated their child’s sleep needs compared to recommended amounts, just 8% reported that their child was not getting adequate sleep. More than half of parents believed that inadequate sleep increases the risk of being underweight and endorsed snoring as a sign of healthy sleep. An increased level of sleep knowledge was associated with a number of positive sleep practices and inversely correlated with sleep duration.

The study limitations included self-report parenting practices and beliefs, the possibility that participants gave socially acceptable responses and sleep duration estimates were based on parent recall of average sleep amounts rather than data from daily log or actigraphy. Finally, the sample size and demographics, as well as the fact that the sample was one of convenience and
drawn exclusively from a single academic center limits the ability to generalize the study findings to other populations. The strength of this study was the fact that it documented the need for increased targeted caregiver education regarding healthy sleep practices, the importance of adequate sleep, the impact of insufficient sleep on health, and recognition of potential signs of sleep problems in young children, especially in high-risk populations.

**Sleep Hygiene: Behavioral/Educational Interventions**

The first step in treating inadequate sleep hygiene is parent and child education at developmentally appropriate levels (Moore, Allison & Rosen, 2006).

Mindell et al. (2009) conducted a secondary analysis of the findings from the 2004 NSF Sleep in America Poll (2008). The purpose of the study was to examine the associations between sleep hygiene and children’s sleep in this national sample.

The NSF, a nonprofit organization dedicated to public education of sleep and sleep disorders, has conducted an annual national poll of sleep patterns, sleep habits, and sleep disturbances in the United States. The focus of the 2004 Sleep in America Poll was sleep in children from birth to 10 years. Questions included information on children’s sleep practices, including sleep hygiene.

A national poll of 1473 parents/caregivers of children age’s newborn to 10 years was conducted in 2004. The poll included questions on sleep hygiene (poor sleep hygiene operationally defined as not having a consistent bedtime routine, bedtime after 9:00 PM, having a parent present when falling asleep at bedtime, and consuming caffeinated beverages daily) and sleep patterns (sleep onset latency, frequently of night waking, and total sleep time). A targeted random sample of telephone numbers was purchased from SDR (Sophisticated Data Research, Inc.) and quotas were established by region and age of child to provide equal representation.
Households were polled between September 15 and October 17, 2003. To be eligible participants had to have a child 10 years or younger and be the primary or share equally in the child’s care. The mean interview took 23 minutes. The interview questions included those about sleep behaviors, bedtime routines, and sleep hygiene. Descriptive analysis (means, frequencies) were used to describe demographics and sleep variables. The sleep pattern variables of interest were then compared using one-way ANOVAs for continuous variables and chi-squares analyses for categorical variables across four age groups infants, toddlers, preschoolers, and school-aged. Because both sleep patterns and sleep hygiene change over development, it was necessary to divide the sample into age groups. Most respondents were female (72%), married (91%), Caucasian (89%), college educated (74%), and employed (71%). Median household income $57,500. Most of the children were male (51%), and school-aged children (n=637). The sleep hygiene and sleep variables results for school-aged children included the following questions and results: Bedtime routine? Yes (n=600), No (n=27), Late bedtime? Before 9pm (n=227), After 9pm (n=400), Parent present at bedtime? Never or rarely (n=485), Few to every night (n=141), Reading to child at bedtime? Yes (n=157), No (n=470), Television in the bedroom? No (n=357), Yes (n=270) and How many caffeinated beverages per day? None (n=370), At least one per day (n=257). The results of this poll of caregivers of young children (age newborn to 10 years) indicate that sleep hygiene is significantly associated with how well children sleep. Across all ages, a late bedtime and having a parent present when the child falls asleep had the strongest negative association with reported sleep patterns. A late bedtime was associated with longer sleep onset latencies and reduced total amounts of sleep, whereas parental presence was associated with increased night wakings.
The analysis of the NSF poll data also found that positive aspects of sleep hygiene related to better sleep.

The limitations of the study included the fact that the description of sleep in this study relied on parental report as children get older parents are not attuned to their child's sleep habits, the study design does not enable analysis of other more in-depth questions such as assessment of developmental effects versus potential cohort effects. Also data was not collected on concurrent medical/psychiatric disorders, as well as medications that may affect sleep. The poll also did not include other sleep hygiene factors that may influence sleep, such as a consistent sleep schedule and the timing and duration of naps. The strengths of the study is that it is one of the few studies to investigate the impact of sleep hygiene in the pediatric population, in addition the principal hypothesis that in children whose caregivers reported poor sleep hygiene practices, longer sleep onset latencies, more frequent night wakings, and shorter total sleep time would also be reported was proven.
Summary/Synthesis

Based on a review of these limited studies and reviews, the author has identified the need for further research into the sleep hygiene practices of urban, minority school-aged children. This research needs to be based on issues that have been identified as important to children and families, concentrating on those areas that most need improvement, such as the lack of parental/caregiver’s knowledge of sleep needs and sleep habits of school-aged children, and the fact that school aged children are experiencing poor or inadequate sleep. The study will build on the findings of both Mindell et al. (2009) and Owens et al. (2010) and responses will be correlated with demographic information such as age, ethnicity/race, and their address. The results would further our understanding of what is known and unknown. An important void in the existing research literature would also be filled. This fact alone makes this research very significant.
Chapter 3
Methodology and Implementation

Introduction

The purpose of this research study is to describe the sleep hygiene practices of healthy, urban, minority school children ages 6-12 years old in the Bronx from the perspective of parents/caregivers.

Methodology

Study Design

A qualitative design was used for this study, using focus group discussions. Participants completed a demographic questionnaire (Appendix A) and responded to a series of open-ended questions regarding their perceptions of their school-aged child's sleep practices. Each focus group lasted for 45 minutes. The demographic questionnaires were completed individually by participants.

The focus group was conducted according to a modified nominal group technique for collecting group data. For this study there was 1 moderator/facilitator. The steps for the modified nominal group technique included: (1) introduction of the question, (2) silent generation of ideas in writing, (3) round robin sharing and listing of ideas on a flip chart, (4) discussion of ideas, (5) ranking of ideas, and (6) arriving at consensus (Gallagher M, Hares T, Spencer J, Bradshaw C, & Webb I, 1993).

Sample/Sampling Methods

The study utilized a convenience sampling strategy for parents/caregivers of school-aged children between the ages of 6-12 years old who attends either PS55 or Success...
Academy Bronx 2 and are enrolled in the Montefiore School Health Program (MSHP). The participants were recruited during open school day/night events at the elementary school and during clinical or administrative visits to the school-based clinic, an oral script was used to explain the research (Appendix C). Volunteering parents/caregivers were asked to supply their name and telephone number for further contact.

The participants were from 5-8 parents/caregivers per focus group. A total of 7 groups were held to produce an adequate sample size. Inclusion criteria: Parents/caregivers will be considered eligible a) if they are over age 21, b) are able to read, write and speak English, c) are the parents or caregivers of a child between the ages of 6-12 years old who attends either PS55 or Success Academy Bronx 2 and are enrolled in the MSHP. Exclusion criterion: Parents/caregivers, who cannot read, write or speak English.

**Description of the Setting**

This study was implemented at the Montefiore School Health Program (MSHP). The MSHP is the largest school-based health program of its kind in the country—currently there are 21 clinics in the program; the clinics are located in high schools, middle schools, and elementary schools. The MSHP is composed of four divisions: medical, mental health, dental and community health. The medical division of the program provides comprehensive medical care for the children and adolescents enrolled in the program which includes annual health assessments, referrals, school/camp/working paper physicals, reproductive care/family planning, asthma care, immunizations, and acute/episodic visits.
The MSHP is part of Montefiore Medical Center. The medical center is one of the largest healthcare systems in the nation, serving two million individuals from the Bronx, New York and nearby Westchester County as well as many across the nation and around the world. The medical center now covers three campuses and more than 100 ambulatory locations. Since 1884, the medical center has cared for the chronically ill and has made it a priority to improve the quality of life for underserved populations. This founding belief is the cornerstone of the hospital’s mission, vision, and values. The MSHP at PS 55/SAB2 is located in the South Bronx and the majority of residents in the area are of African, African American/Black, Puerto Rican or Dominican descent.

The 45 minute session was held in the MSHP clinic between the hours of 3:30 – 4:15 pm. The location of the clinic in the school helped to keep transportation costs down since most of the families live within 1-2 blocks of the school, the school building also remains open until 7 pm daily. For those parents who have children in afterschool, the locale removed the need for babysitting fees. The clinic has a large all purpose room that can accommodate the sample size, light refreshments were served.

**Institutional Review Board approval and protection of human subjects**

Institutional Review Board (IRB) approval for the study was granted by the Medical Center and Fairleigh Dickinson University (FDU). Each participant was asked to complete an informed consent (Appendix B) prior to the commencement of the focus group.

There were no anticipated physical risks to participants. Focus group members were asked to keep the information provided in the groups confidential; however, the anticipated risk
of social harm is minimal, and exists only in the event of an unanticipated breach of the 
anonymity standards and data security procedures described elsewhere in this proposal.

Direct benefits to study participants were not anticipated. However pediatric primary care 
providers are likely to benefit from a better understanding of what sleep hygiene practices 
school-aged children engage in and gain an understanding of what parents/caregivers perceive 
as healthy sleep hygiene practices for school-aged children. Additionally, this proposed research 
study will fill a gap in the existing literature on urban, minority children's sleep practices.

There are no identifying information or names used in any written reports or publications 
which result from this research study. Participation in this study will be kept strictly confidential.

All findings used in any written reports or publications which result from this research 
study will be reported in aggregate form with no identifying information. It is, however useful to 
use direct quotes to more clearly capture the meanings in reporting the findings from this form of 
study. Participants were asked at the end of each focus group if there was anything that they said 
which they do not want included as a quote, and they all agreed to the use of the statements.

Data collection

Once consent forms and demographic questionnaires were collected and reviewed for 
completeness the focus group interview began. A list of the focus group questions is found in 
Table 2. The written material was collected at the end of the group. The written material was 
stored in locked files before and after being analyzed and will be destroyed within 3 years after 
the completion of this study.

Data Analysis

A descriptive phenomenological research strategy was undertaken for this study.

Descriptive frequencies was used for focus group participant demographics and summarized on
Table 1. The raw data from all 7 focus groups was transcribed and combined from all participants in all groups and organized into themes by the investigator. Another seasoned nursing researcher reviewed the theme. The meanings of the themes were stated in a narrative form.

**Implementation**

The sample was composed of 36 parents/caregivers of school age children ages 4.5 years to 12 years who are registered at the MSHP clinic located in PS 55/ SAB2. The participants were recruited at open school day and night events, parent teacher conferences and when they came to the school clinic for services. A scripted dialog was used to explain the research study (Appendix C). If they agreed to participate their name and telephone number was collected on a Participant contact/Tracking sheet (Appendix D).

Approximately 60 parents/caregivers agreed to participate in the study, only 36 parents/caregivers were able to attend a focus group. Many parents/caregivers expressed interest in participating in the research but it corresponded to children coming home, parents going to work in the afternoon and after school responsibilities. To better meet parent/caregivers schedules the time for the meeting was changed from 4-5 pm to 3:30-4:15 pm. Once the time and scheduling of the groups was settled the generation of the focus groups and data collection went smoothly.

The focus group met inside the school clinic. Each focus group participant completed a demographic questionnaire and received a signed copy of the consent form. Using a modified nominal group technique the parents/caregivers were asked to answer 4 open-ended questions as shown in Table 2. They were supplied with index cards and pens. The parents were instructed to write down their ideas on the cards and then to share them in a round robin fashion. As the participants called out their responses they were listed on a flipchart and then ranked from 1-5
with 1 being most important and 5 being the least. Several participants did not write on the cards as instructed they choose to chime in with the others during the round robin portion. At the end of each question and discussion the responses were reviewed for clarity and to make sure the ranking was correct. At the closing of the focus group each participants was instructed to keep the pen that was given to them and to turn in the index cards used, they were then given a sports bag, a water bottle and a $10.00 Visa gift card in appreciation for participating in the focus group. The snacks, incentives and gift cards were sponsored by the MSHP.
Chapter 4

Results, Discussion and Recommendations

Introduction

The purpose of this research study was to describe the sleep hygiene practices of healthy, urban, minority school children ages 6-12 years old in the Bronx from the perspective of parents/caregivers.

Results

Demographics

Seven focus groups were conducted with a total of 36 participants. Although the researcher intended to collect all data from 5 focus groups as written in the research proposal, the groups had to be extended to 7 to accommodate participants who agreed to participate but had scheduling difficulties. In addition one parent did not disclose the correct age of her child until the end of her focus group believing that because her child was in elementary school that made her automatically school age.

All participants were female and their children were registered with the school clinic. The parents/caregivers were between 20 and 62 years old, the mean age group was 36-40 years old. Almost half of the groups were Latino or Hispanic at 41.66 % and 50% of the participants were married. Demographic data on the focus group participants are presented in Table 1.
Table 1.
Demographic Data of Focus Groups Participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Parent/Caregiver (n = 36)</th>
<th>Percentage</th>
<th>Child (n = 48)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age/ Gender/Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship to child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>32</td>
<td>88.88</td>
<td></td>
</tr>
<tr>
<td>Grandmother</td>
<td>2</td>
<td>5.55</td>
<td></td>
</tr>
<tr>
<td>Adoptive Parent</td>
<td>1</td>
<td>2.77</td>
<td></td>
</tr>
<tr>
<td>Other Relative</td>
<td>1</td>
<td>2.77</td>
<td></td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 8th grade</td>
<td>12</td>
<td>33.33</td>
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</tr>
<tr>
<td>Some high school</td>
<td>4</td>
<td>11.11</td>
<td></td>
</tr>
<tr>
<td>High school graduate</td>
<td>8</td>
<td>22.22</td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>8</td>
<td>22.22</td>
<td></td>
</tr>
<tr>
<td>College graduate</td>
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<td>11.11</td>
<td></td>
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<td><strong>Family Income</strong></td>
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<td></td>
</tr>
<tr>
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<td>5.55</td>
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</tr>
<tr>
<td>$45,000 to $49,000</td>
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<td>5.55</td>
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<td>13.88</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Did not respond</td>
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<td>25</td>
<td></td>
</tr>
<tr>
<td><strong>Number of Persons in the home</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>9</td>
<td>25</td>
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</tr>
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<td>5-6</td>
<td>15</td>
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</tr>
<tr>
<td>7-8</td>
<td>11</td>
<td>30.55</td>
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</tr>
<tr>
<td>9-10</td>
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<tr>
<td><strong>Child’s Age Group</strong></td>
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<td></td>
</tr>
<tr>
<td>4-5</td>
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</tr>
<tr>
<td>5-6</td>
<td>18.75</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>7-8</td>
<td>20.83</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>9-10</td>
<td>39.58</td>
<td>19</td>
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</tr>
<tr>
<td>11-12</td>
<td>18.75</td>
<td>9</td>
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<tr>
<td><strong>Child’s Gender</strong></td>
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</tr>
<tr>
<td>Male</td>
<td>50</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td><strong>Current grade in school</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th</td>
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<td>10.4</td>
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<td>Kindergarten</td>
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<tr>
<td>Pre-Kindergarten</td>
<td>4.166</td>
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</table>

*Data for parent/caregiver age, gender and marital status previous documented in results. ^Total number of persons in home 212 persons. c,d Based on total of 48 school age children (one child was 4.5 years old).
Description of the themes

During the focus groups themes began to develop as the participants listed and ranked their answers to the 4 open ended questions about sleep practices and school aged children. As shown in Table 3 the three themes that developed relate to the following: parent/caregiver actions to ensure good quality sleep, the child’s physical and emotional response to poor sleep quality and school/ daytime problems that develop from poor sleep quality.

Theme 1 Parent/Caregiver Actions to Ensure Good Quality Sleep

Parents/caregivers felt it was very important to get children to bed early. One parent stated “I make them go to bed early even on the weekends.” This idea was expressed over and over again in different groups. Some parents expressed that certain activities like baths, warm drinks like milk and hot tea are ways that they ensure good sleep for their children. Parents/caregivers all expressed that steady hour, steady routine, sticking to a bedtime or bedtime routine works, this was very apparent when one mother stated “they eat dinner at 5-6 pm, tv, computer off at 8 pm in bed at 9/930 pm everyday”, with that statement several parents/caregivers agreed with her in the group. Lastly, no TV and shutting TV off or turning out lights seemed to also be a favorite of some parents/caregivers.

Theme 2 Childs’ Physical or Emotional Response to Poor Quality Sleep

In addition to the different actions that parents/caregivers take to ensure sleep parents/caregivers remarked on the physical and emotional toll that they notice in their children when their sleep is not enough such as no energy. One mother commented that her “son did not want to get up in the morning.” Another mother mentioned that her daughter has “a bad attitude and is very agitated in the morning and fights with her brothers if she does not get good enough
Several of the parents/caregivers also linked physical complaints such as headaches if their children did not get enough sleep. One parent commented that it is not healthy, she can tell when her child has not slept well “he becomes weak and burned out and comes home and takes a nap after school.”

**Theme 3 School/ Daytime Problems that Develop from Poor Quality Sleep**

The last theme that emerged from the focus group responses pertained to school/daytime problems that develop from poor quality sleep. Both parents/caregivers commonly expressed that children have no or poor focus in school- in fact one mother mentioned that “my son keeps getting up in class, not finishing classwork”, and now the school has called her in to start evaluating him for possible ADHD. Parents/caregivers recognized the relationship between sleep and school performance. Many of the parents/caregivers clearly verbalized the pair by making such statements like pointing out falling asleep in class, sleeping during the day or rude behavior.
Table 2.  
Focus Group Questions Guiding Data Collection

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
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<tbody>
<tr>
<td>1</td>
<td>How does sleep help a child's health?</td>
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<td>2</td>
<td>What are some reasons that interfere with a child's sleep?</td>
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<tr>
<td>3</td>
<td>What are some effects of a child not sleeping well?</td>
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<tr>
<td>4</td>
<td>What are some strategies to help a child sleep?</td>
</tr>
<tr>
<td>Theme</td>
<td>Key Terms</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Parent/Caregiver actions to ensure good quality sleep</td>
<td>Bed early</td>
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<tr>
<td></td>
<td>Bath or warm shower</td>
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<td></td>
<td>Warm milk or hot tea</td>
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<tr>
<td></td>
<td>No TV, Shutting TV or turning out lights</td>
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<td></td>
<td>Steady hour, steady routine, stick to a bedtime, or bedtime routine</td>
</tr>
<tr>
<td>Child’s physical or emotional response to poor quality sleep</td>
<td>No energy, tired</td>
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<tr>
<td>Bad attitude, agitated,</td>
<td>&quot;Fighting with brothers.&quot;</td>
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<tr>
<td>------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Not healthy</td>
<td>&quot;My son gets headaches.&quot;</td>
</tr>
<tr>
<td>Weak/burned out</td>
<td>&quot;Comes home and takes a nap.&quot;</td>
</tr>
</tbody>
</table>

**School / Daytime problems that develop from poor quality sleep**

<table>
<thead>
<tr>
<th>No or Poor focus in school</th>
<th>&quot;Getting up in class, not finishing classwork&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falling asleep in class, sleeping during the day</td>
<td>&quot;Teacher complaining about sleep at parent / teacher conference last week.&quot;</td>
</tr>
<tr>
<td>Rude behavior</td>
<td>&quot;Yelling back at teacher.&quot;</td>
</tr>
</tbody>
</table>
Discussion

Parents/caregivers in the study initially thought that the focus group was a workshop for them to learn about sleep and their school age children. They saw the moderator/facilitator as an important source of data about sleep and they were very surprised that the focus group was designed to learn about their sleep knowledge. In fact many of the parents/caregivers voiced that they have never been asked about sleep and their school age children outside of what time the child went to bed and what are the child’s sleep accommodations.

In addition many of the parents/caregivers wanted reassurance that their described actions where correct for their children’s sleep and many parents were very happy to hear that their ideas/practices mirrored others in the groups. Several times the moderator/facilitator had to remind the focus groups that here were no right or wrong answers or responses to the open ended questions.

The study also provided new insight about urban, minority parents/caregivers knowledge of appropriate sleep practices. Many of the parents/caregivers whose’ education level is less than 8th grade, in fact more than a 1/3 of the parents/caregivers are taking literacy classes twice weekly at the school. These same participants answered or responded to the questions with some of the same practices and techniques that the experts in sleep and children recommend in the literature. Parents/caregivers based their answers on the practices that have worked for them such as going to bed early, warm drinks, shutting off the TV. They also related how sleep helps and the effects of not sleeping well in terms of subjective and objective observations such as: poor focus to more focused, no energy, tired, falling asleep in class to-more energy, not healthy,
weak, burned out, sick, poor growth to helps growth, helps body heal, helps body rest, and bad
attitude, cranky, agitated, rude behavior to improves behavior or better behavior.

Limitations and Strengths

The researcher noted limitations related to the collection of the qualitative data obtained
using the nominal group technique focus groups. More than 1/3 of the parent/caregivers had less
than 8th grade education. Many could not write their ideas down on the index cards as instructed
because they could not spell. The focus group consensus may have inhibited those individuals
who felt embarrassed by their educational level. Timeframe was not the best for many of the
parents/caregivers because of diverse schedules. To meet sample size required recruitment had to
go on longer and the number of focus groups had to be extended.

The strengths of the study are numerous including those that were not directly related to the
study particularly empowerment and trust. As stated previously many of the participants have
less than an 8th grade education. Several of the mothers who fell into this category revealed that
their education was even less than 2nd grade and that culturally their opinions are not valued and
so participation in such an event was an accomplishment. In addition the trust to give out the
demographic information was also a strength for a community that does not trust easily.
Recommendations

Based on the findings of the focus groups there should be a school wide parental/caregiver survey of sleep practices to produce quantitative data for future studies. More research is needed to examine how parents can implement the sleep practices that they have described in the focus groups especially with a household size of 5-6 people and an income of less than $15,000 as shown in demographic data. Understanding parent/caregiver perception of sleep is an important aspect of assessing the quality of sleep that urban, minority school children are having, especially in light of previous studies that found that parents/caregivers have a lack of knowledge.

This study provides a view of what some parents/caregivers perceive as healthy sleep practices for school age children. As nurses we are in a strategic position to support parents/caregivers in the accurate perceptions of what constitutes healthy sleep practices for their children. We can use this information to develop interventions on sleep hygiene practices for school age children that builds upon what is already known by their parents/caregivers.
References


Centers for Disease Control (CDC)


http://www.aasmnet.org/Resources

http://www.childhealthdata.org

http://www.sleepforkids.org

http://www.sleepmed.md


Appendix A: Demographic Questionnaire

Today's Date ____________________

Parent/Caregiver Information

a) How old are you? ______

b) What is your gender?
   1) ______ Female
   2) ______ Male

c) What is your race/ethnicity or cultural background?
   1) ______ American Indian
   2) ______ Asian or Pacific Islander
   3) ______ Black or African American
   4) ______ White (non-Hispanic)
   5) ______ Latino or Hispanic
   6) ______ Other _______________

d) What is your relationship to the child?
   1) _____Mother
   2) _____Father
   3) _____Step-Mother
   4) _____Step- Father
   5) _____Grandmother
   6) _____Grandfather
   7) _____Foster Parent
   8) _____Adoptive Parent
   9) _____Other Relative
e) What is your current marital status?

(1) _____ Single, never married
(2) _____ Married
(3) _____ Living with a partner
(4) _____ Widowed
(5) _____ Separated
(6) _____ Divorced

f) What is the highest grade of schooling or level of education you have completed?

1) _______ Less than 8th grade
2) _______ 8th grade graduate
3) _______ Some high school
4) _______ High school graduate
5) _______ Some college
6) _______ College graduate
7) _______ Graduate school

g) What is your family income?

1) _______ $50,000 or more
2) _______ $45,000 to $49,000
3) _______ $35,000 to $40,000
4) _______ $25,000 to $30,000
5) _______ $15,999 to $20,000
6) _______ Less than $15,000

h) Number of persons living in the home: ________________
Child’s Information

i) How old is your child? Age: __________

j) Gender:
   1) ______ Female
   2) ______ Male

k) What grade of school is your child in?
   (1) _____ 6th grade
   (2) _____ 5th grade
   (3) _____ 4th grade
   (4) _____ 3rd grade
   (5) _____ 2nd grade
   (6) _____ 1st grade
   (7) _____ Kindergarten
Appendix B: Consent Form

1) Informed Consent

MONTEFIORE MEDICAL CENTER
DOCUMENTATION OF INFORMED CONSENT AND HIPAA AUTHORIZATION

Introduction
You are being asked to participate in a research study called Parental Perceptions of Sleep Hygiene Practices of Urban, Minority School-Aged Children: A Descriptive Study. Your participation is voluntary -- it is up to you whether you would like to participate. It is fine to say "no" now or after you have started the study. If you say "no," your decision will not affect your child’s access to care.

The researcher in charge of this project is called the “Principal Investigator.” His name is Neal Hoffman. The “Co-Investigator” is Darlene Dickson, CPNP. You can reach Dr. Hoffman at:
Office Address: [Redacted]
City, State Zip Bronx, New York [Redacted]
Telephone [Redacted]
For questions about the research study, or if you believe you have an injury, contact the Principal Investigator or the IRB.

Support for this research study is provided by the Montefiore School Health Program.

The Institutional Review Board (IRB) of the Albert Einstein College of Medicine and Montefiore Medical Center has approved this research study under the protocol #12-1234. If you have questions regarding your rights as a research subject you may contact the IRB office at 718-430-2253 or by mail:

Einstein IRB
Albert Einstein College of Medicine
1300 Morris Park Ave., Belfer Bldg
Room 1002
Bronx, New York 10461

Why is this study being done?
School aged children are not getting enough sleep as is needed for them to have healthy rest.
Many healthcare professionals and parents do not realize that school aged children are experiencing poor quality sleep. The goal of this study is to increase understanding of the sleep habits/practices of school aged children in the Bronx from the view of their parents/caregivers.

Why am I being asked to participate?
You are being asked to participate in this study because you are the parent/caregiver of a school aged child between the ages of 6-12, who is enrolled in the Montefiore School Health Program and attends PS 55 or Success Academy Bronx 2.

**What will happen if I participate in the study?**

If you decide to participate in this study, you will take part in a focus group discussion with 7-10 other participants, which will be led by a focus group facilitator. We will make written notes for later analysis.

The questions that the focus group facilitator will ask will address your views of school aged children and sleep. You also will complete a brief survey that will request information about your age, sex, race, relationship to child, marital status, education, income and number of people who live in your home, child’s age, sex and grade. The focus group session will last approximately 45 minutes.

**Will I be paid for being in this research study?**

You will receive a gift card at the end of the focus group in appreciation of your participation in the focus group.

**Will it cost me anything to participate in this study?**

There will be no cost to you to participate in this study.

**Are there any possible risks to me?**

We do not anticipate that participation in this study will pose physical or psychological risks beyond what you encounter in everyday life. However, if you are uncomfortable answering a particular question, you are free to refuse to answer the question, and you are free to quit the study at any time.

We will keep your information private, however, a risk of taking part in this study is that your confidential information might be shared accidentally with someone who is not on the study team and is not supposed to see or know about your information. This is very unlikely, because the study team takes confidentiality of your information seriously. Your research records will be kept private and your name will not be used in any written or verbal reports. Your information will be given a code number and separated from your name or any other information that could identify you. The form that links your name to the code number will be kept in a locked file cabinet and only the investigator and study staff will have access to the file. All information will be kept in a secure manner and computer records will be password protected. Your study information [if relevant: and samples] will be kept as long as they are useful for this research.
The only people who can see your research records are the research team, the organization that funded the research, and the groups that review research. These groups are the Einstein IRB and the Office of Human Research Protection [if relevant: and the US Food and Drug Administration]. These persons who receive your health information, may not be required by privacy laws to protect it and may share your information with others without your permission, if permitted by laws governing them.

Certificate of Confidentiality
The information collected in this study will remain confidential. This means that your identity as a participant will not be revealed to people other than the investigators listed above. Any references to information that would reveal your identity will be removed or disguised prior to the preparation of the research reports and publications.

If you choose to participate, you will not be asked your name at the focus group discussion. You will not need to use your name in the focus groups. If by chance, you or someone you know addresses you by name in the sessions, the transcriber will be instructed to delete all names from the transcription. Individuals from the Montefiore School Health Program, Institutional Review Board and Research Protections Program, and federal regulatory agencies may look at records related to this study for quality improvement and regulatory functions. There will however be no names attached to the tapes or transcriptions, and there will be no identifying information or names used in any written reports or publications which result from this research project. Your participation in this evaluation will be strictly confidential. All findings used in any written reports or publications which result from this evaluation project will be reported in aggregate form with no identifying information. It is, however useful to use direct quotes to more clearly capture the meanings in reporting the findings from this form of evaluation. You will be asked at the end of the focus group if there is anything you said which you do not want included as a quote, and we will ensure that they are not used.

Are there possible benefits to me?
You will not experience any direct benefit personally from participating in this study. We hope you will participate because the study will generate important data about what parents/caregivers perceive as healthy sleep habits/practices for school-aged children.

Are there any consequences to me if I decide to stop participating in this study?
No. If you decide to take part, you are free to stop participating at any time without giving a reason.
CONSENT TO PARTICIPATE

I have read the consent form and I understand that it is up to me whether or not I participate. I know enough about the purpose, methods, risks and benefits of the research study to decide that I want to take part in it. I understand that I am not waiving any of my legal rights by signing this informed consent document. I will be given a signed copy of this consent form.

Printed name of participant                Signature of participant                Date

Printed name of the person conducting the consent process    Signature                      Date
Appendix C: Oral Script

Oral Script for Recruitment at Open School Day/ Night Tabling and within School-Based Health Center

My name is Darlene Dickson I work with MSHP-Montefiore School Health Program here at PS 55. We are hoping to understand better about sleep in school- aged children. We are conducting a focus group to learn about parents/caregivers attitudes/beliefs on sleep in school children. We are recruiting about 50 parents/caregivers of children at PS 55 or Success Academy Bronx 2 and it will take about 45 minutes of your time. The focus group will take place here in the school clinic between 4 and 5 pm. Each participant will get a $10 Visa gift card. There will be no more than 10 per group.

All of your responses will be confidential and you will not be identified when results of the study are discussed. Your decision whether or not to participate will not affect your child’s medical care in any way. Participation is voluntary and you may withdraw at any time. Participation in this research study may not benefit you directly, but may benefit others in the future by providing information about how urban, minority school aged children sleep. Would you be interested in attending? If so, may I have your address and phone number? Approximately one week before the focus group, I will call you to confirm your participation and answer any questions you may have.

Thank you,

Darlene Dickson, CPNP

Montefiore School Health Program @ PS 55 and Success Academy Bronx 2
## Appendix D: Participant Contact / Tracking Sheet

Focus Group-Parental Perceptions of Sleep Hygiene Practices of Urban, Minority School-Aged Children:
A Descriptive Study

<table>
<thead>
<tr>
<th>#</th>
<th>Participant Name and Address</th>
<th>Phone</th>
<th>Contact Notes</th>
<th>Reminder Phone Call</th>
<th>Yes</th>
<th>No</th>
<th>Focus Group Date</th>
</tr>
</thead>
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Appendix E: Fairleigh Dickinson University IRB Determination

Fairleigh Dickinson University IRB approval letter

From: Diccianni, Kim [Redacted]
Sent: Thursday, January 23, 2014 1:58 PM
To: Darlene Dickson
Cc: [Redacted]

January 23, 2014

Darlene Dickson, Doctoral Student
School of Nursing
University College
Fairleigh Dickinson University

Dear Ms. Dickson:

The project, IRBEX#: PT-2014/01-001007: Parental Perceptions of Sleep Hygiene Practices of Urban, Minority School-Aged Children: A Descriptive Study, was reviewed on January 23, 2014 and determined to qualify as exempt from 45 CFR 46, as stated in 45 CFR 46.101(b) under Category (2) research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior.

A determination that the research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means that the regulatory requirements related to continuing review, informed consent, and certain IRB policies do not apply to the research. The Montefiore IRB approved consent form is appropriate for use in this project.

If changes are made to the project so it no longer meets the above applicable category for exemption found at 45 CFR 46.101 (b), the following materials must be submitted for IRB Review and approval:

Application for Full/Expedited Review and appendices;

Description of proposed revisions;
Any new or revised materials, such as recruitment fliers, letters to subjects, or consent documents; and
Any updated letters of approval from cooperating institutions and IRBs. If you have any questions about the information provided in this letter, please contact me at [redacted] or via e-mail at [redacted].

Sincerely,
Kim R. Diccianni, CIP
Human Research Compliance Manager
Fairleigh Dickinson University IRB

Cc: Elizabeth Parietti, EdD, Faculty Mentor

Kim R. Diccianni, CIP, Manager
Pre-Awards/Human Research Compliance
Grants and Sponsored Projects Office, T-BE2-02
Fairleigh Dickinson University
1000 River Road, Teaneck, NJ 07666
[redacted] (Phone)
[redacted] (Fax)
IRB Website: [http://view.fdu.edu/default.aspx?id=221](http://view.fdu.edu/default.aspx?id=221)
Notification of Exempt Determination

Date: November 18, 2013

Principal Investigator
Neal D Hoffman

Study Title: Parental Perceptions of Sleep Hygiene Practices of Urban, Minority School-Aged Children: A Descriptive Study
IRB #: 2013-2839
Type of Submission: Initial Review Submission Form

Determination Date: 11/15/2013

Exempt Category
Exempt 2: Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior.

HIPAA Determination
HIPAA does not apply to this study.

Re-review by the IRB will be required if any substantive change is made in the protocol during the course of the study, to determine whether or not the study still qualifies as Exempt Research.

Reportable Events must be reported to the IRB in compliance with the Einstein IRB policy.

Reviewed Documents: To obtain a list of documents that were approved with this submission, follow these steps: Go to Study Assistant — My Studies and open the study — Click on Submissions History — Go to Completed Submissions — Locate this submission and click on the Details button to view a list of submitted documents and their outcomes.

For a list of all currently approved documents, follow these steps: Go to Study Assistant — My Studies and open the study — Click on Informed Consent to obtain a list of approved consent documents and Other Study Documents for a list of other approved documents.