Research Article

Perceived Sleepiness, Sleep Habits and Sleep Concerns of Public School Teachers, Administrators and other Personnel

Denise H. Amschler and James F. McKenzie

ABSTRACT

Background: *Sleep deprivation is a world-wide health concern. Few studies have examined the sleep behaviors of those employed in the education field.* ***Purpose:*** *To describe the sleep habits and concerns of school personnel in a Midwest school corporation.* ***Methods:*** *A cross-sectional survey design was used to collect data about demographics, the Medical Outcomes Study (MOS) Sleep Measure, the Epworth Sleepiness Scale (ESS) and sleep concerns. Data were analyzed using univariate and bivariate procedures.* ***Results:*** *Almost 25% of teachers reported daily activities were impaired by sleepiness and 43% slept an average of six hours or less per night. Female respondents reported significantly poorer sleep. Overall, school employees experienced more sleep problems than reported by the general U.S. population.* ***Discussion:*** *This study confirmed the existence of sleep deprivation among school personnel. Sleepy teachers are at higher risk of providing insufficient supervision and inferior instruction. They also report more mood swings and are at higher risk for health problems. Little attention has been given to the sleep concerns and behaviors of school personnel, and there is a need for further research.* ***Translation to Health Education Practice:*** *Education regarding the importance of sleep and how to get a good night's sleep should be included in employee wellness programming.*

Amschler DH, McKenzie JF. Perceived sleepiness, sleep habits and sleep concerns of public school teachers, administrators and other personnel. Am J Health Educ. *2010;41(2):102-109. This paper was submitted to the* Journal *on September 15, 2009, revised and accepted for publication on November 21, 2009.*

BACKGROUND

A growing trend in the United States, and many other countries, is that of an increasing lack of sleep among both adults and children. Although most adults require seven to eight hours of sleep per night for healthy functioning, over 70% are reporting less than eight hours of sleep on weekdays and 40% are sleeping less than seven hours.[1] Among all ages, sleep deprivation is known to be associated with many health problems, including sleep apnea, type 2 diabetes, hypertension, obesity, musculoskeletal pain, poor reaction time and memory loss.[2] In children, inadequate sleep can also result in reduced academic performance and concentration.[3] With adults, a lack of sleep is associated with workplace accidents, decreased performance and a higher rate of absenteeism, all costing U.S. businesses over $100 billion annually in increased costs and lowered productivity.[2] In a study of matched workers in France, insomniacs reported twice as much absenteeism as those who experienced sufficient sleep.[4] In a related study, work absences of French employees who suffered from insomnia cost an average of $3,025 per employee each year, while the missed days of work among those with sufficient sleep average $1,250.[5]

In 2008, it was found that adults working at least 30 hours per week for pay in the United States were averaging 6.7 hours of sleep per night.[6] In addition, 33% of respondents reported getting a good nights sleep only a few times per month or less. Individuals in these categories were much

Denise H. Amschler is a professor in the Department of Physical and Health Science, Ball State University, Muncie, IN 47306; E-mail: dhamschler@bsu.edu. James F. McKenzie is a professor in the Department of Physiology and Health Science, Ball State University, Muncie, IN 47306.

more likely to report that they experienced high levels of daytime sleepiness, which interfered with their daily activities. In addition, 12% reported being late to work due to sleepiness, while 29% reported falling asleep or fighting sleep at work.[6] Another study of 588 employees in the San Francisco area found that 80% experienced sleep problems which was reflected in lower job satisfaction, lower job performance and more missed work days.[7]

Sleep Research and Specific Occupations

While virtually no research has been conducted, specifically, on sleep behaviors and needs of school personnel, limited research exists on the sleep behaviors and needs of those involved in various professions such as medicine and transportation. These occupations tend to involve long hours and/or shift work, all of which affect sleep patterns. Extended work hours and irregular work shifts can contribute to fatigue and fewer hours of sleep. A cohort study in the Netherlands found that among 12,095 workers, the amount of fatigue experienced was a function of the number of hours worked, the timing of work and the number or rest periods taken.[8] A study by Suzuki et al.[9] of 4,407 hospital nurses in Japan found that 26% experienced excessive daytime sleepiness. Rosekind[10] surveyed 2,082 nurses in the United States and found that over 27% suffered from insomnia and 32% had trouble staying asleep. As a result, falling asleep at work, making errors in dispensing medication and inaccurate charting of patients were reported frequently.[10]

Physicians and medical students have also been targeted for study because of their long shifts and hours on call. Niemi and Vainiomaki [11] reported increasing amounts of sleep disturbances and job fatigue among 110 medical students as they approached graduation. Howard [12] makes an impassioned plea for physicians to not go to work impaired by fatigue, citing the link between daytime sleepiness with increased accidental self-injury as well as poor patient care. He makes a comparison of health care workers impaired by sleep deprivation to that of going to work impaired by alcohol.

Sleep Research and School Personnel

As stated earlier, an extensive review of the literature revealed that even less is known about the sleep status of teachers and other school personnel. The studies which do exist have been largely conducted in Great Britain and other European countries. The Sleep Council of Great Britain compared eight categories of working adults by average hours of sleep per night. Solicitors ranked highest at 7.8 hours while on call hospital physicians averaged lowest at 4.5 hours per night. Teachers averaged six hours of sleep per night, which was the third lowest average of the eight professions.[13] In a study of perceived fatigue related to work, Ahsberg[14] found that among 94 teachers, "lack of energy" was the main fatigue dimension reported. Chambers and Belcher[15] compared the health status and lifestyle factors of 704 general practitioners (GPs) with those of 588 teachers. They found that 58.5% of the teachers reported difficulties with sleeping while 49.6% of GPs reported having sleep problems. The teachers were also more likely to smoke, drink alcohol daily and miss work because of sickness. Cropley et al.[16] found that among 143 public school teachers surveyed, those reporting higher levels of job strain (*N*=98) also experienced poorer sleep quality.

PURPOSE

The purpose of this study was to describe the sleep habits and concerns of public school teachers, administrators and other professional personnel in a Midwest county school corporation.

METHODS

In order to obtain the quantitative and qualitative data to describe the sleep patterns and behaviors of selected professional school personnel in Delaware County, Indiana, this study was designed as an anonymous, cross-sectional survey.

Participants

The participants for this study came from a convenience population of the entire professional and staff employees (*N*=222) of a rural school corporation in Delaware County, Indiana. More specifically, the study population included 167 (75.2%) teachers, 12 (0.5%) administrators, and 43 (19.4%) with various other job titles such as instructional aides, counselors, librarians/media specialists, and nurses.

Instrumentation

The study participants completed a four-part questionnaire. Part I consisted of six original questions. Five were demographic questions (i.e., age, sex, number of children < 18 years old living at home, job in school district and whether or not the employees had a second job outside of the school district), while the sixth question asked participants if they used sleep aids (e.g., over-the-counter or prescription medication for sleep). Part II was comprised of the 12 questions of the Medical Outcomes Study (MOS) Sleep measure.[17] The MOS Sleep measure is a self-report measure of sleep quality and has been shown to be valid and reliable in the general U.S. population.[18] The MOS Sleep measure asks respondents to recall sleep behavior over the past four weeks using a six-point Likert-type scale ranging from "none of the time" to "all of the time." The 12 items yield a sleep problems index and six scales that measure: sleep disturbance (trouble falling asleep and poor quality of sleep), snoring, awaken short of breath or with a headache, sleep adequacy (getting enough sleep to feel rested in the morning), sleep somnolence (drowsy during the day, trouble staying awake, taking naps), and sleep quality (measured in hours of sleep). Cronbach's alpha for the six scales in this study ranged from .54 to .73, whereas Cronbach's alpha for the sleep problems index in this study was .74.

Part III of the data collection instrument used the Epworth Sleepiness Scale (ESS).[19] The ESS uses eight different commonly occurring daily situations (e.g., sitting and reading, watching television, sitting and talking with someone) to measure daytime sleepiness. The eight items of the ESS are scored using a four-point Likert-type scale (0= no chance of dozing to 3= high chance of dozing). The summed scores of the eight items can range from 0-24; higher scores

indicate being more sleepy. The ESS has shown a high sensitivity and specificity with a cut-off score greater than 10 for daytime sleepiness.[20] Those with scores of 11 or greater "are assessed to be impaired in their daily activities by their extraordinary sleepiness, and the remainder are not."[21(p.146)] Cronbach's alpha for the ESS in this study was .74. Table 1 presents a summary of the number of items in the MOS and ESS scales, scale-score ranges, and the direction of scoring of each scale.

Part IV of the questionnaire was an open-ended question that allowed the participants to provide any other observations or concerns about their sleep quality or quantity.

Table 1. Summary of the MOS Sleep Measure and Epworth Sleepiness Scale

Scale	No. of Items	Scoring Range	Direction of Scoring*
MOS Sleep Scales			
Sleep Disturbance	4	0-100	–
Snoring	1	0-100	–
Awaken short of breath or with a headache	1	0-100	–
Sleep Adequacy	2	0-100	+
Somnolence	3	0-100	–
Sleep Quality	1	0-24 hours	+
Sleep Problems Index II	9	0-100	–
Epworth Sleepiness Scale	8	0-24	–

* The + symbol means that a higher score indicates a more positive outcome.
The – symbol means that a higher score indicates a more negative outcome.

Procedures

Prior to finalizing the study protocol, the principal investigator made contact with the superintendent of the school corporation and the leadership of the teacher's association to explain the study and seek their support. Once their support was received, the study protocol was submitted to and approved by the institutional review board of the university where the investigators were employed.

School personnel were asked, via a letter of invitation that was distributed through the school district mail system, to complete the data collection instrument and return it in an attached postage-paid, business reply envelope. Not only did the letters invite participation, but they were also used for informed consent. Recipients were told in the letter that if they completed and returned the questionnaire, they were consenting to participating in the study. Approximately two weeks after the original mailing, a reminder notice was also distributed through the school district mail system. If the employees had misplaced the questionnaire and return envelope from the first mailing they were offered replacements. All subjects received the follow-up reminder because participation was anonymous.

Analysis

Upon receipt of the data collection instruments they were checked for completeness and the data from the questionnaires were transferred to scan forms and included in the analysis. The data were analyzed using univariate (i.e., frequencies, percentages), bivariate (i.e., chi-square, t-test, and correlations), and multivariate analyses (i.e., ANOVA) with the SPSS for Windows 15.0.1 statistical package. The univariate analyses were used to describe the demographic variables and responses to each sleep-related item, the bivariate analyses were used to examine associations between the scores on the two scales—*Medical Outcomes Sleep measure* and *Epworth Sleepiness Scale*—and the demographic questions, while the multivariate analyses were used to examine the relationships among the various employment sub-groups. The level of significance was set *a priori* at 0.05.

RESULTS

Participants and Demographic Variables

Of the total number of professional and staff employees in the school corporation, 109 (49.1%) returned a useable questionnaire. Table 2 presents demographic data about the participants. As can be seen, a majority of the employees were teachers (*N*=72, 66.1%) and women (*N*=76, 69.7%). In addition, eight (7.3%) of the participants were administrators, 12 (11.0%) were instructional assistants, and the remaining 17 (15.6%) participants included individuals with nine other job titles. For analysis purposes, the latter two groups were combined into a single group called "Other." The ages of the participants ranged from 21 to 63 years old with a mean of 44.2 (SD=11.9) years and a median of 46 years. Just over two-fifths (*N*=45, 41.5%) of the participants had children under the age of 18 living at home. Forty-nine (44.9%) of the participants had a second job outside of the regular school hours during the academic year, with almost all of those (*N*=47, 96%) being part-time jobs. None of the administrators held a second job, while almost half of both the other sub-groups–teachers (*N*=35, 48.6%) and the other employees (*N*=14, 48.3%)–did. These differences in holding a second job were statistically significant (χ^2=7.052, df=2, *P*=0.029). Most (*N*=84, 77.1%) of the participants did not use sleep aids to fall asleep. Of those who did (*N*=25, 22.9%), 60% (*N*=15 used them ≤ once a week.

Sleep Measures

Overall responses to the Medical Outcome Study (MOS) Sleep measure and the Epworth Sleepiness Scale (ESS) are presented in Table 3. The mean (SD) for the nine-item MOS Sleep Problems Index II was 30.4 (13.0), with a 95% confidence interval

of 28.0 to 32.9. Even though the teachers had higher scores on each of the scales of the MOS Sleep measure than the other employment groups (i.e., administrators and others), none of the ANOVAs among the three groups were significant. However, when the sub-groups of administrators and others were collapsed into a single category and compared to the teachers, statistically significant values were found for both sleep quality (t = -2.171, df=99, P=0.032) and the sleep problems index II (t = 2.126, df=99, P=0.036), indicating that the teachers had poorer scores. When male respondents were compared to female respondents, statistically significant values were found for the scales of sleep disturbance (t = -2.309, df=107, P=0.004), somnolence (t = -2.727, df=107, P=0.007), and sleep problem index II (t = -3.148, df=107, P<0.001). In each case females had the poorer scores.

Results of the Epworth Sleepiness Scale (ESS) showed that almost one-fourth (N=26, 23.9%) of the participants had scores of 11 or greater which indicates that they were impaired in their daily activities by their extraordinary sleepiness. Doi et al.[21] have referred to these individuals as those with excessive daytime sleepiness (EDS). The analysis of EDS by employment sub-groups showed that whereas over one-third of both the teachers (N=17, 33.7%) and administrators (N=3, 37.5%) had EDS, approximately one-fifth (N=6, 20.7%) of those in the "other" employment group had EDS. However, these differences were not significant. When EDS was compared with the demographic variables (i.e., age, sex, number of children < 18 years old living at home, job within school district and whether or not the employees had a second job outside of the school district), no significant associations were found.

Not surprisingly, respondents with Epworth Sleepiness Scale scores that showed excessive daytime sleepiness (≥11) reported significantly more difficulties with sleep as measured by several different MOS Sleep scales than those who did not have excessive daytime sleepiness (Table 4). Statistically significant differences were found on the

Table 2. Descriptive Data about the Respondents (N=109)

	N	%
Position in the school district		
Elementary/Preschool Teacher	30	27.5
Middle/Junior High Teacher	12	11.0
Middle/High School Teacher	1	0.8
High School Teacher	26	23.9
Special Education Teacher	3	2.6
Administrator	08	7.3
Other–comprised of:	29	26.6
Instructional Assistant	12	11.0
Various others	17	15.6
Children under the 18 years old living at home		
Yes	45	41.3
Teachers	25	55.6*
Administrators	4	8.9*
Others	16	35.5*
No	64	58.7
Another job outside of school hours		
All employees		
Yes (full-time)	2	1.8*
Yes (part-time)	47	43.1*
No	50	55.0*
Teachers		
Yes (full-time)	2	2.8*
Yes (part-time)	33	45.8*
No	37	51.4*
Administrators		
Yes (full-time)	0	0.0*
Yes (part-time)	0	0.0*
no	8	100.0*
Others		
Yes (full-time)	0	0.0*
Yes (part-time)	14	48.3*
No	15	51.7*
Sex		
Male	33	30.3
Female	76	69.7
Sleep Aids		
Do not use	84	77.1
< 1 per week	13	11.9
1 per week	2	1.8
2 per week	5	4.6
4 per week	1	0.9
5 per week	2	1.8
6 per week	0	0.0
7 per week	2	1.8
Age	Mean Yrs.	Std. Deviation
Teachers	44.6	12.3
Administrators	44.4	9.3
Others	42.6	11.4
Total	44.2	11.9
Range for all = 21-63 years old		
Median for all = 46 years old		

* = percent of category

Table 3. MOS Sleep Scales and Epworth Sleepiness Scale Scores for All Participants (*N*=109) and by Employment Sub-group

Scale	Mean (SD)	95% CI
MOS Sleep Scale Scores		
Sleep Disturbance		
All respondents	24.9 (17.1)	21.7 - 28.2
Teachers	26.8 (18.0)	22.6 - 31.1
Administrators	22.2 (07.7)	15.8 - 28.6
Others	21.0 (16.3)	14.8 - 27.2
Snoring		
All respondents	33.5 (29.5)	27.7 - 39.3
Teachers	34.2 (28.9)	27.3 - 41.2
Administrators	48.6 (30.2)	20.6 - 76.5
Others	27.7 (30.5)	15.4 - 40.0
Awaken short of breath or with a headache		
All respondents	09.7 (18.4)	06.2 - 13.2
Teachers	11.1 (19.5)	06.5 - 15.7
Administrators	05.0 (09.3)	-02.7 - 12.7
Others	07.6 (17.2)	01.0 - 14.1
Sleep Adequacy		
All respondents	44.3 (22.0)	40.1 - 48.5
Teachers	41.4 (21.3)	36.4 - 46.4
Administrators	52.5 (27.1)	29.8 - 75.2
Others	49.3 (21.7)	41.1 - 57.6
Somnolence		
All respondents	24.7 (15.9)	21.7 - 27.7
Teachers	26.4 (16.1)	22.6 - 30.2
Administrators	17.5 (13.8)	06.0 - 29.0
Others	22.5 (15.7)	16.6 - 28.5
Sleep Quality		
All respondents	06.7 (00.9)	06.5 - 06.9
Teachers	06.6 (00.9)	0.63 - 06.8
Administrators	06.9 (00.6)	0.63 - 07.4
Others	07.0 (00.9)	06.3 - 07.4
Sleep Problems Index II		
All respondents	30.4 (13.0)	28.0 - 32.9
Teachers	32.5 (13.5)	29.7 - 35.7
Administrators	25.7 (10.6)	16.8 - 34.6
Others	26.5 (11.2)	22.2 - 30.8
Epworth Sleepiness Scores	***N***	**%**
≤ 10 all respondents	83	76.1
Teachers	55	66.3*
Administrators	5	62.5*
Others	23	79.3*
≥ 11 all respondents	26	23.9
Teachers	17	33.7*
Administrators	3	37.5*
Others	6	20.7*

* = percent of category

sleep adequacy, somnolence, sleep quality, and sleep problems index II scales.

Other Observations or Concerns about Sleep Quality or Quantity

In Part IV of the questionnaire the participants had an opportunity to provide observations and concerns about their sleep quality and quantity. Almost half (*N*=51, 46.8%) of the participants took the opportunity to respond in this section. Forty (78.4%) of these comments reflected a variety of concerns about their personal sleep. The majority of these responses came from teachers and were often shared in candid and revealing ways. One theme that emerged was how professional responsibilities outside of the classroom contributed to a lack of sleep: "*With teaching, the problem is that there is always work to do…grading, staying up to prepare lessons, etc., thereby setting up a pattern of going to bed between 11 p.m. and 12 a.m. and getting up between 5-5:30 a.m. Add to that, graduate classes, kids, and working out, and you have a sleep-deprived American!*" Another teacher mused: "*I actually think my job impacts my sleep! Teachers never stop thinking, rethinking and reflecting. During the week, I think my brain plans lessons all night….*"

Difficulty falling asleep after one has gone to bed was also a common thread: "*I feel that I am worn out at the end of every day. However, when I lay down, I can never fall asleep—it is a never ending cycle.*" "*I have a hard time falling asleep because I worry about things that happened during the day or what is going on the next day,*" and "*I wish that I could get to sleep and turn off my mind at night.*"

Specific ways in which sleep deprivation impacted teachers' performance in the classroom included such revealing remarks as: "*My sleep, or lack of it, always shows up in my speech fluency, mixing up words, forgetting a line of thought, remembering what I have/have not said,*" "*There are times when I have to move around the room and drink water to stay awake,*" and "*I'm not as sharp as I should be to be able to perform my job. I use back-up notes to make sure I don't miss anything. Sometimes I catch myself making nonsensical errors so I must be diligent about rechecking myself.*"

Table 4. Respondents Reported Outcomes (N=109)

	Epworth Sleep Scale Scores				
	<11		≥11		
	No.	Mean (SD) No.	Mean (SD)	*P*-value*	MOS Sleep Scale
Sleep disturbance	83	23.47 (16.36)	26	29.62 (18.91)	0.111
Snoring	78	30.26 (26.33)	24	44.17 (36.82)	0.095
Shortness of breath	83	9.16 (17.48)	26	11.54 (21.30)	0.567
Sleep adequacy	83	46.63 (21.03)	26	36.92 (23.96)	0.050
Somnolence	83	21.85 (14.88)	26	33.85 (15.88)	0.001
Sleep quality	83	6.80 (00.96)	26	6.38 (00.75)	0.049
Sleep problem index II	83	28.39 (11.66)	26	36.92 (14.87)	0.003

* *t*-test for equality of means

Finally, an extremely busy and concerned educator wrote: *"I almost never get enough sleep due to teaching, coaching and working another part-time job. It impacts my time and can make me grouchier than I should be. In the end, it will probably shorten my life, but my personality makes me try to be all things to all people."*

DISCUSSION

The purpose of this study was to describe the sleep patterns and behaviors of school personnel. Results of both the Medical Outcomes Study (MOS) Sleep Scale and Epworth Sleepiness scale (ESS) showed that a substantial portion of the participants of this study had sleep problems and daytime sleepiness, respectfully. Because the study was designed to be descriptive in nature, no comparison or control group was used. However, when the results of this study were examined in relationship to the results of a previous study of the general U.S. population by Hays et al.,[18] the school employees' scores were worse on each of the MOS sleep scales. Considerable differences were seen on four scales [snoring (school employees = 33.5 vs. general population = 28.3), somnolence (24.7 vs. 21.9), sleep adequacy (44.3 vs. 60.5), and the sleep problems index II (30.4 vs. 25.8)] with school employees having poorer scores on each. These results suggest that the school employees may have greater sleep problems than the general U.S. population.

Few studies have been conducted using the ESS on healthy working populations. However, one such study was conducted in Tokyo, Japan, that included male non-shift white-collar workers (*N*=3,909).[21] The excessive daytime sleepiness prevalence in the participants in the study was 7.2%. That figure is considerably less than the prevalence of 23.9% (*N*=26) found in this study.

Respondents to the 2008 Sleep in America poll indicated that they needed over 7.25 hours of sleep per night to function best on the job, yet reported getting an actual average of 6.67 hours of sleep, including weekends.[6] This finding was consistent with responses of teachers participating in the present study, who averaged 6.7 hours of sleep night. However, the present study also indicated that 43% (*N*=31) of the teachers slept 6 hours per night or less. Overall, two-thirds of teachers felt that they got enough sleep only "some of the time," "a little of the time," or "none of the time." Twenty-five percent of administrators reported that they slept ≤ 6 hours per night.

Of additional concern regarding teachers is that 64% (*N*=46) felt drowsy during the day "some," "a good bit," or "most of the time." One-half of administrators related the same experiences with drowsiness.

Limitations

This study was limited in four primary ways. First, the study was limited by the shortcomings of using a mail survey to collect the data. Because the intra-corporation mail service was used to distribute the questionnaires and the U.S. mail system was used to collect the completed questionnaires, the written word was the sole means of communication. Participants could not readily ask questions. In addition, no attempt was made to verify the accuracy, completeness and currency of information provided to the researchers. The researchers could only analyze the data as provided by the respondents.

Second, approximately one-half of the employees in the school corporation studied did not respond to the survey. It may be that those who did not respond were "different" with regard to sleep habits and behaviors than those who did respond. Though it would have been useful to conduct a second follow-up with non-respondents, lack of resources prevented the researchers from doing so.

Third, this study used a cross-sectional survey design with no comparison group. Using a comparison group could have strengthened the design of the study by providing some insight into whether the sleep habits and behaviors of the respondents were typical of a larger population of school employees. Finally, the generalizability of the results is limited because only a single school corporation in the Midwestern United States was studied.

TRANSLATION TO HEALTH EDUCATION PRACTICE

We live in a sleep-deprived nation, and demanding lifestyles play a central role in our lack of sufficient, restorative sleep. In a recent study, it has been acknowledged that a significant number of school-age children are sleep deficient[3], but little attention has been paid to the sleep needs and concerns of teachers and other personnel responsible for the education and well-being of children.

Anecdotally, teachers have long shared their experiences of being tired. After teaching all day, professionals continue their work at home preparing lesson plans, grading papers and writing reports. This long workday is often coupled with home and family responsibilities and perhaps a second job. Thus, many educators find themselves exhausted and therefore physically as well as mentally compromised in their classrooms.

This study confirmed the existence of sleep deprivation among teachers and other school personnel in one school corporation. Teachers who fight sleepiness and struggle to stay mentally sharp are putting themselves, as well as the students they serve, at risk. Examples of potential concerns at school include insufficient supervision of children, imparting incorrect information, and mood swings related to tiredness. Additionally, increased teacher absenteeism related to fatigue results in greater costs and administrative time spent in procuring and paying substitute teachers.

Although there is no specific nationwide movement at present to address the sleep needs of teachers and other school personnel, the 2008 Sleep in America poll[6] focused exclusively on sleep needs and concerns of all working adults and identified some alarming trends. Also, in a hearing on 2008 funding for the Department of Health and Human Services to address sleep deprivation and sleep disorders, Dr. Barbara Phillips of the National Sleep Foundation made an urgent request for a $10 million increase in the budget. In her testimony, Phillips asked the Centers for Disease Control and Prevention (CDC) to take a leadership role in collecting data, creating awareness and developing programs to address the consequences of sleep deprivation.[22]

School systems in the United States employ approximately 6.7 million faculty and staff members and are in a strategic position to address health concerns and behaviors of these individuals.[23] In 1998, Allegrante stressed the importance of making school site health promotion a part of the coordinated school health program, citing the potential benefits of screening and assessment of at-risk employee behaviors as well as education and motivational programs to enact lifestyle changes.[24] The CDC School Health Policies and Programs Study found that in 2006, although 67.3% of states provided assistance to schools for developing faculty and staff health promotion services, very few schools actually offered them within a comprehensive employee wellness program. The CDC then went on to urge all schools to develop school employee wellness programs, citing benefits such as reduced employee absenteeism, improved morale, and lower incidence of chronic disease.[23]

The National Alliance for Nutrition and Activity, in its Model School Wellness Policies, advocates for a staff wellness committee which plans and implements programs to support healthy lifestyles.[25] This type of staff wellness plan is strongly supported by the National Association of State Boards of Education. Specific mention is given by this organization regarding the need for educational activities for school staff members on healthy lifestyle behaviors.[25]

In light of the lack of information available regarding sleep habits and concerns of school personnel, there is a great need for further research. Our nation's teachers, administrators and other professional school personnel represent a vital and precious faction of our workforce. Furthermore, it is clear that school personnel have concerns about their lack of sleep and how sleep deficit impacts upon their professional and personal lives. Because school personnel are independent adults and make decisions about how much sleep to get, efforts must be increased to educate them about the importance of sleep and its impact on their ability to function and carry out their work. A logical place to provide this education is in the "health promotion for staff" component of a coordinated school health program. Such programming not only has the potential to improve the health of school personnel, but their engagement in health-enhancing behavior also "often transfers into greater commitment to the health of students and creates positive role modeling."[26(¶9)] In addition to school-site health promotion programs, more supportive assistance is needed to reduce teacher stress and after hours workloads. A well-rested faculty, administration and staff are an essential part of a healthy school and are a natural fit with newly implemented wellness policies.

REFERENCES

1. 2005 Sleep in America Poll. 2005. Washington, D.C.: The National Sleep Foundation.

2. Sleep-wake cycle: Its physiology and impact on health. 2006. Washington, D.C.: The National Sleep Foundation.

3. Amschler DH, McKenzie JF. Elementary students' sleep habits and teacher observations of sleep-related problems. *J Sch Health.* 2005;75(2): 50-56.

4. Leger D, Massuel M, Metlaine A. Professional correlates of insomnia. *Sleep.* 2006;29(2):171-178.

5. Godet-Cayre V, Pelletier-Fleury N, LeVaillant M, et al. Insomnia and absenteeism at work: Who pays the cost? *Sleep.* 2006;29(2):179-184.

6. 2008 Sleep in America Poll. 2008. Washington, D.C.: The National Sleep Foundation.

7. Kupperman M, Lubeck D, Mazonson P, et al. Sleep problems and their correlates in a working population. *J Gen Intern Med.* 1995;10(1):25-32.

8. Jansen N, van Amelsvoort L, Kristenson T, et al. Work schedules and fatigue: a prospective cohort study. *Occ Environ Med.* 2003;60(Suppl 1):i47-i53.

9. Suzuki K, Ohida T, Kaneita Y, et al. Daytime sleepiness, sleep habits and occupational accidents among hospital nurses. *J Adv Nurs.* 2005;52(4):445-453.

10. How insomnia affects job performance and safety revealed by new survey. *Med News Today.*

2007. Available at: http://www.medicalnewstoday.com/medicalnews.php?newsid=74509. Accessed March 10, 2008.

11. Niemi PM, Vainiomaki PT. Medical students' distress—quality, continuity and gender differences during a six-year medical programme. *Med Teacher.* 2006; 28(2):136-141.

12. Howard SK. Sleep deprivation and physical performance: Why should I care? *Baylor U Med Center Proc.* 2005;18(2):108-112.

13. Many politicians sleep deprived. BBC News. 2005. Available at: http://news.bbc.co.uk/go/pr/fr/-/1/hi/health/4307331.stm. Accessed March 5, 2008.

14. Ahsberg E. Dimensions of fatigue in different working populations. *Scand J Psy.* 2000;41(3):231-241.

15. Chambers R, Belcher J. Comparison of the health and lifestyle of general practitioners and teachers. *Brit J Gen Pract.* 1993;43(374):378-382.

16. Cropley M, Dijk D, Stanley N. Job strain, work rumination, and sleep in school teachers. *Eur J Work and Organ Psy.* 2006; 15(2):181-196.

17. Hays, RD, Stewart AL. Sleep Measures. In A.L. Stewart and J.E. Ware (eds.) *Measuring functioning and well-being: The Medical Outcomes Study Approach.* 1992. Durham, NC: Duke University Press.

18. Hays RD, Martin SA, Sesti AM, et al. Psychometric properties of the medical outcomes study sleep measure. *Sleep Med.* 2005;6(1):41-44.

19. Johns MW. A new method for measuring daytime sleepiness: the Epworth Sleepiness Scale. *Sleep.* 1991;14(6):540-545.

20. Johns MW. Sensitivity and specificity of the multiple sleep latency test (MSLT), and the Epworth Sleepiness Scale: Failure of the MSLT as a gold standard. *J Sleep Res.* 2000;9(1):5-11.

21. Doi Y, Minow M, Fujita T. Excessive daytime sleepiness and its associated factors among male non-shift white-collar workers. *J Occup Health.* 2002;44(3):145-150.

22. Testimony to House Labor, Health and Human Services, Education and Related Agencies Appropriations Subcommittees Regarding Fiscal Year 2008 Funding for the Department of Health and Human Services, 2007.

23. Eaton D, Marx E, Bowie S. Faculty and staff health promotion: Results from the school health policies and programs study 2006. *J Sch Health.* 2007;77(8):557-566.

24. Allegrante J. School-site health promotion for faculty and staff: A key component of the coordinated school health program. *J Sch Health.* 1998;68(5):190-196.

25. Model School Wellness Policies. National Alliance for Nutrition and Activity. Available at http://www.schoolwellnesspolicies.org/WellnessPolicies.html. Accessed July 25, 2009.

26. Healthy Youth!: Coordinated School Health Program. Centers for Disease Control and Prevention. Available at http://www.cdc.gov/HealthyYouth/CSHP/. Accessed October 10, 2009.