

St Paul Hospital Millennium Medical College



Prevalence and Associated Factor of Sleep Disorders among St. Paul's hospital millennium Medical College

Undergraduate medical students, 2018

By- Mahlet Seyoum (Medical Intern)

Public health Adviser – Yoseph Worku, (MD, MPH)

**Clinical adviser–Dr. Elisabeth Berhanu, (Assistant professor of
Psychiatry)**

A STUDENT RESEARCH PROPOSAL TO BE SUBMITTED TO THE
DEPARTMENT OF PUBLIC HEALTH, SPHMMC, IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF MEDICINE

February, 2018

Addis Ababa / Ethiopia

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Abstract

Background- Medical students are exposed to a significant level of pressure due to academic demands. Their sleep pattern is characterized by insufficient sleep duration, delayed sleep onset, and occurrence of napping episodes during the day.

Objective- To examine the prevalence of sleep disorder among SPHMMC medical students and Associated factors.

Methods- This is a cross-sectional self-administered questionnaire-based study. The participants will be eligible and volunteer medical students of first year up to sixth year. The Pittsburgh sleep quality index (PSQI) was also included to identify sleep disorder **Study Period-**The study period will be from January 8 2018-July 30,2018

Budget- A total of 1749 birr,

Personnel-200 birr

Materials-890 birr

Communications-300 birr

Acknowledgment

I would like to express my deepest gratitude to my Public health advisor Dr. Yoseph for this continuous guidance for proposal development and completion.

Acronyms and abbreviations

C1- Clinical year1

DSPD-Delayed sleep phase disorder

DSM 5-Diagnostic and Statistical Manual 5

EDS-Excessive day time sleepiness

GPA-Grade point average

NREM-Non rapid eye movement

NPY-Neuropeptide Y

PC –preclinical year

PSCI- Pittsburgh sleep quality index

REM-Rapid eye movement

RLS-Restless leg syndrome

SPHMMC-St paul hospital millennium medical college

SD-Standard deviation

USA-United states of America

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Background

Sleep is one of the most significant of human behaviors, occupying roughly one third of human life. Its quality should be an important factor for the quality of life as well. It is a universal behavior that has been demonstrated in every animal species studied, from insects to mammals. Sleep is a process the brain requires for proper functioning. The amount and timing of sleep and sleep architecture (sleep stages) are determined by several factors, important among which are the environment, circadian rhythms and time awake. Sleep is important for memory consolidation and learning and its deprivation results in sleepiness and impaired neurocognitive and psychomotor performance, learning abilities and consequent academic performance (10). Prolonged sleep deprivation leads to severe physical and cognitive impairment and, eventually, death (7). Sleep may appear to be a passive process but in fact can be associated with a high degree of brain activation. The past three decades have witnessed discoveries that make sleep medicine truly multidisciplinary. (8) Sleep disorders are both dangerous and expensive to treat. Sleepiness is a serious, potentially life-threatening condition that affects not only the sleepy individual but also his or her family, coworkers, and society in general. In fact, sleep-related vehicle accidents represent a major public safety concern, and some states have enacted criminal statutes to deter sleepy driving (1). Sleep is made up of two physiological states: non-rapid eye movement (NREM) sleep and rapid eye movement (REM) sleep. In NREM sleep, which is composed of stages 1 through 4, most physiological functions are markedly lower than in wakefulness. REM sleep is a qualitatively different kind of sleep characterized by a high level of brain activity and

physiological activity levels similar to those in wakefulness. About 90 minutes after sleep onset, NREM yields to the first REM episode of the night. This REM latency of 90 minutes is a consistent finding in normal adults; shortening of REM latency frequently occurs with such disorders as narcolepsy and depressive disorders.(7)

The sleep-wake disorders' current classifications in accordance with the DSM-5 include the following(7). The sleep-wake cycle of medical students is characterized by insufficient sleep duration, delayed sleep onset, and occurrence of napping episodes during the day . A high correlation has been demonstrated between sleep duration and performance in some activities as well as subjective alertness . In fact, the quality and quantity of sleep of many students might change after enrollment into a university(11).

1. Insomnia Disorder

is defined as difficulty initiating or maintaining sleep. It is the most common sleep complaint and may be transient or persistent.

2.Hypersomnolence Disorder-Excessive sleepiness (hypersomnolence) is a serious, debilitating, potentially life threatening non communicable condition. It affects not only the afflicted individual but also his or her family, coworkers, and the public at large.

3. Narcolepsy-Narcolepsy is a condition characterized by excessive sleepiness, as well as auxiliary symptoms that represent the intrusion of aspects of REM sleep into the waking state.

4. Non-Rapid Eye Movement Sleep Arousal Disorders:

a. Sleepwalking type-Sleepwalking in its classic form, as the name implies, is a condition in which an individual arises from bed and ambulates without fully awakening.

b. Sleep terror type-Sleep terror disorder is an arousal in the first third of the night during deep NREM (stages 3 and 4) sleep. It is characterized by a sudden arousal with intense fearfulness.

Nightmare Disorder - Nightmares are frightening or terrifying dreams. Sometimes called *dream anxiety attacks*, they produce sympathetic activation and ultimately awaken the dreamer.

5.Substance/Medication-Induced Sleep Disorder A variety of drugs, substances, and comorbid conditions can produce or exacerbate sleep-related movement disorders.

6. Breathing-Related Sleep Disorders:

a. Obstructive Sleep Apnea Hypopnea

b. Central Sleep Apnea

i. Idiopathic central sleep apnea

ii. Cheyne-Stokes breathing

iii. Central sleep apnea comorbid with opioid use

c. Sleep-Related Hypoventilation

7. Circadian Rhythm Sleep-Wake Disorders:

a. Delayed sleep phase type

b. Advanced sleep phase type

c. Irregular sleep-wake type

d. Non-24-hour sleep-wake type

e. Shift work type

f. Unspecified type

8. Parasomnias

9. Rapid Eye Movement Sleep Behavior Disorder

10. Restless Legs Syndrome (7)

Global cross-sectional survey conducted among 35,327 individuals in 10 countries on international Sleep Well Day (21 March 2002), based on the questionnaires, 24% of the subjects reported that they did not sleep well, 31.6% had insomnia and 11.6% were found to be “very sleepy” or “dangerously sleepy” during the day(8).

Among university students around the world from both the East and the West, sleep deprivation is common. Different studies have indicated that 24% of university students in the United Kingdom, 30% in Korea, and 49% in Taiwan reported that they obtained < 7 h of sleep per night(6). In a Lithuanian survey, more than half (59.4%) of the university students scored > 5 on the PSQI, indicating poor sleep quality. Sleep complaints are prevalent among college students and are associated with a number of negative outcomes. It is known that college students frequently report difficulties falling asleep, daytime hypersomnolence, and fatigue.(3) However, specific data regarding the presentation of sleep disordered symptoms and exact diagnostic prevalence are lacking. Therefore the main objective of this research will be to assess the prevalence of sleep disorder in st paul millennium medical college students and associated factors.

Statement of the problem

It is recommended that adults (18-64 age group) should get 7-9 hrs Of sleep. Adequate sleep is important for Restoration, Memory process, dreaming...in spite of this Medical students carry a large academic load which could potentially contribute to poor sleep quality above and beyond that already experienced by modern society(6). It has been demonstrated that sleep complaints and sleep disorders are prevalent in College students, typically at rates comparable to adults. However, the rates of sleep disorders in College students, as compared to the general population, likely vary with the specific sleep Disorder(3). Sleep complaints are prevalent among college students and are associated with a number of negative outcomes. It is known that college students frequently report difficulties falling asleep, daytime hypersomnolence, and fatigue. However, specific data regarding the presentation of sleep disordered symptoms and exact diagnostic prevalence are lacking (6). The consequences of sleep deprivation are severe, impacting adolescents' physical and mental health, as well as functioning adequately in the daytime. Sleep restriction in healthy adults has been found to have adverse effects on endocrine functions, metabolic and inflammatory responses. An example of the impact of sleep deprivation on endocrine responses is the secretion of certain hormones that are linked to obesity and diabetes, such as the hormone leptin which regulates the carbohydrate metabolism, as well as neuropeptide Y (NPY) which stimulates food intake. Besides, one study found that sleep deprivation might lead to increased serum levels of glucagon, corticosterone, and norepinephrine in rats. Some epidemiological studies have concluded that chronic sleep complaints are associated with an increased risk of cardiovascular morbidity and mortality. Furthermore, sleep deprivation may affect the brain's ability to process information, which may lead to problems in terms of hyperactive behavior, like sitting still and others. Behaving impulsively and the inability to stays focused, in students with sleep deprivation; resemble behaviors commonly found in attention deficit hyperactive disorder(3).

In a research which was done in southeastern of USA, Twenty seven percent of university students were at risk for at least one sleep disorder. Students reported insufficient sleep and a discrepancy between weekday and weekend amount of sleep. Students at risk for sleep disorders were overrepresented among students in academic

jeopardy ($GPA < 2.0$)(5). Realizing the deleterious effects of sleep disorders among college students, more sleep studies focused on this particular demography have been done and published in recent years. Of these studies, most were conducted in the United States some European countries, with some studies in Asia (5). Sleep studies are relatively new in Ethiopia. Due to different ethnicity, lifestyle and culture, findings obtained from one population might not necessarily be true for another population (4). Therefore, the main aim of this study was to investigate prevalence of sleep disorder and associated factors in SPHMMC undergraduate students.

Significance of the study

The purpose of this research is to assess the prevalence of sleep disorders in SPHMMC students who are prone to the problem more than any other population. The research also will disclose which type of disorders are common .additionally the associated factors will also be assessed. The results of the questionnaire will help SPHMMC provide information and assistance to students regarding their poor sleep habits and ultimately aid them in improving their academic performance .The findings of this review will make the medical educators and planners aware to take necessary steps for the Improvement of medical students' quality of life.

2) Literature review

Magnitude of Sleep Disorders

Sleep problems are common in the general population, and approximately one-third of adults report some form of insomnia. An international survey in 10 countries showed 32.6% prevalence of insomnia among primary care patients (1). The prevalence of sleep disturbances appear to be of significant magnitude affecting about one third of adults ranging from 10 – 48% (10). Research which was done among university students of Haromaya and Hawassa universities shows, A significant proportion (55.8%) of students was classified as having poor sleep quality. A research which was done among 491 students (62.5% male and 32.4% female) in Saudi Arabia King khaid University on medical students shows, 48% sleep less than 4–6 h and 7–10 h by 46.67% while a small numbers of students were sleeping less than 4 h (2.6%) or more than 10 h (2.6%)(6).

After conducting a clinical interview, at University of Alabama ,24% of students met diagnostic criteria for asleep disorder. ISS and DSPD were the two most prevalent sleep disorders, each diagnosis occurring in 8% of students Occurring in 8% of students. Insomnia was the next most prevalent sleep disorder at 6%. RLS occurred in 1% of the sample. One student (1%) met criteria for a disorder of excessive sleepiness (3).A research on Ain shams university medical university shows, one type of parasomnia was as high as 69.7%. The prevalence of sleep disorders in the general population has been estimated to range from 22 to 65% . Bad or unsatisfactory sleep quality occurred in 7% of the students . Insomnia symptoms were prevalent in 28% of medical students(11).

Factors associated with sleep disorders

Sociodemograohic factors

Sleep disturbance is a considerable issue among adolescents and adults and it is associated with age, gender, living conditions, doing exercise and workload (10). A research in The University of Alabama Institutional Review Board approved this study on April 20, 2012 Students had a mean age of 18.6 years ($SD = 1.16$), were largely female (59%), and Caucasian (80%). A majority of students (66%) were freshmen. The sample represented eight different

academic colleges or schools (e.g., Arts and Sciences, Engineering, Nursing, etc.) and had completed a mean of 25.5 course credits ($SD = 33.25$) (reported maintaining variable bedtimes (variance in bedtimes greater than two hours) After conducting a clinical interview, 24% of students met diagnostic criteria for asleep disorder. ISS and DSPD were the two most prevalent sleep disorders, each diagnosis occurring in 8% of students (5). The response rate in this study was 94%. The median age was 21 years and 88.6% (2,465) of students were between 20 and 24 years of age (4). A research which was done in Turkish population among (51.7%) females; 14.8%, 25.5%, 22.1%, 17.5%, 11.7% and 8.3% of the participants were between 18–24, 25–34, 35–44, 45–54, 55–64 years of age and 65 years old or older, respectively shows the prevalence of sleep disorders and symptoms. Insomnia, risk of SDB, habitual snoring, EDS and RLS were reported by 15.3%, 13.7%, 9.6%, 5.4% and 5.2%, respectively. Mean age was 40.7. But this research didn't assess the associated factors with the disorders and the prevalence of sleep disorders at all (1). In the other hand overall prevalence of current sleeping problems in this national sample of older south Africans was 9.1% which is the same as other studies in low and middle income countries. The average number of self-reported hours of sleep was 8.6 with 11.6%, 4.1%, 20.0%, 23.5% reporting less than 6, 7-8, 9 and 10 hours respectively (2). A research in Saudi Arabia King Khalid University shows Female students have a higher prevalence of sleep disorder than males (6).

A survey which was done in Alabama University students shows, 24% reported frequent use of a substance that might affect sleep (e.g., caffeine, alcohol, or medications), 6% reported having a bedroom that was too light, and 6% reported having a bedroom that was too noisy. Students spent 2.4 days ($SD = 2.0$) exercising for 24 minutes per day ($SD = 29.9$) each week. Exercise was not associated with sleep characteristics, mental/physical health complaints, or academic performance. Nearly all students (99%) reported having a cell phone in their bedroom. A subset of this sample ($n = 63$) was further questioned regarding specific use of their cell phone in the bedroom. Of these students, 18% set their cell phone to silent or off, 48% set their cell phone to vibrate, and 35% left their cell phone on at night. Approximately half of students (48%) indicated that their cell phone wakes them up at night with an average of 0.89 awakenings per week ($SD = 1.36$). Students who reported cell phone awakenings also reported spending less

time in bed, ($r = -.27, p < .05$) and more time napping during the day ($r = .30, p < .05$). No other relations were found between cell phone awakenings and sleep characteristics, mental/physical health complaints, and academic performance (3).). A study in Nepal revealed that 31.5% of medical students suffered from sleep deprivation due to late night internet surfing (6). A research done on medical students of the Arabian Gulf University showed that the most prevalent sleep habit is going to bed late at night, of 0.97, where more than 43% experience that more than 3 times per week, followed by 0.61 for drinking coffee late at night, while taking sleeping pills prevalence was only 0.2. On the contrary the most two prevalent sleep problems were difficulty in falling asleep and wake up because of noise of 0.84, and 0.82 respectively (10).

School work load

Medical students carry a large academic load which could potentially contribute to poor sleep quality above and beyond that already experienced by modern society. The fact that the transition from secondary school to university is characterized by reduced adult supervision, new social opportunities with its commitments, difficult studies and other extracurricular activities resulting in irregular sleep schedules and higher risks for sleep deprivation(3). Medical students are one subgroup of the general population who appear to be especially vulnerable to poor sleep. Different studies have indicated that 24% of university students in the United Kingdom, 30% in Korea, and 49% in Taiwan reported that they obtained < 7 h of sleep per night (5). A research on university students in Ethiopia which include students from two universities (Hawassa and Haromaya) shows that, increasing year of study in university was associated with reduced odds of poor sleep quality. This observation is inconsistent with reports from the study of university students in Hong Kong . Another study found higher proportion of short sleep duration among freshman students and longer sleep latency among seniors; however the second study did not find any difference on overall sleep quality by year of study in university students (4).

3) Objectives

3.1) General –

To assess the Prevalence and associated factor of sleep disorders among SPHMMC undergraduate medical students in 2018.

3.2) Specific-

- ✧ To assess the Prevalence of sleep disorders
- ✧ To determine factors association with sleep disorders

4) Methods and Materials –

Study will be conducted at stpaul millennium medical college. which is located in Addis Ababa .SPHMMC is a a public medical college which was established in 2000 E.C. St paul hospital was built in1969,by Emperor Haileselassie in Collaboration with the German evangelical church .as a source of medical care for underserved populations .It currently has 392 beds. With an annual average of 200,000 patients and a catchment population of more than 5 million. Approximately 75%of the patients receive medical services free. there are over 1300 clinical and non clinical staffs .The medical school opened in 2007 it was intended to alleviate the sever shortage of medical professionals in the country. The students come from all regions in Ethiopia, with students from emerging and under represented regions given special considerations. The college also prioritize gender equality in its student body and percentage of female students reached almost 40% .there are currently 800 students learning in the college. 498 male students and 302 female students. 306 in preclinical and 387 in clinical year and the rest 107 in internship. The curriculum in st paul is unique in Ethiopia .the medical school and other undergraduates follow an integrated modular education. The post graduate programs are also similarly distinctive as they are competency based (8).

4.2 Study period – Totally from January 8 – JULY 30, 2018 GC

4.3 Study design

A cross sectional study design will be employed populations

4.4 Source population

All 1st year to 6th year male and female undergraduate medical students of SPHMMC.

4.5 Study population

Randomly selected undergraduate medical students.

4.6 Inclusion criteria and exclusion criteria

Inclusion criteria-

All students who are selected randomly and present in the time of data collection .

Exclusion criteria

Students who are sick and unable to respond during the data collection period .

Students unwilling to participate in the study will be excluded.

4.7 Sample size

The sample size will be determined using sample size formula

$$n = \frac{Z^2 P(1 - P)}{d^2}, n$$

where n= sample size

$$Z= 1.96$$

$$d=\text{Margin of error}=0.05$$

n_f = final sample size

- ❖ According to a research in two Ethiopian universities (Hawaasa and Haromaya) the prevalence of Sleep disorder was 55.6%~56%.

The result will $n=378$

$$n = \frac{n_0}{1 + \frac{n_0}{N}}$$

With Correctional formula = $= 256$

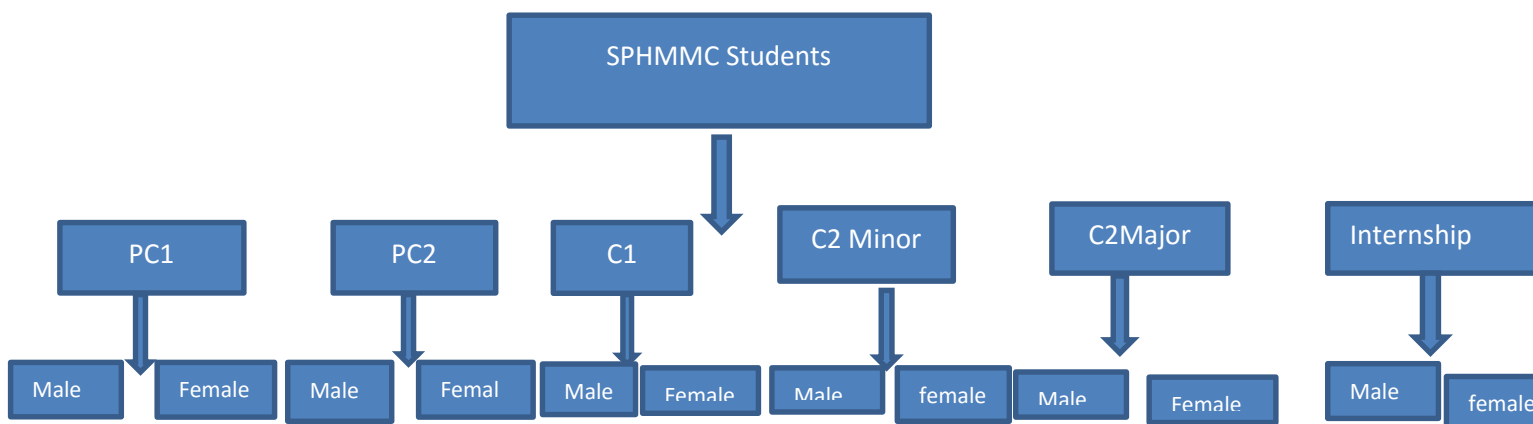
Final Sample size =256 Students

- ❖ From year 1 (PC 1) 46 students will be selected, 22 females and 24 males.
- ❖ From Year 2 (PC2) 52 students will be selected ,32 males 20 females.
- ❖ From C1=37 students will be selected ,25 males and 12 females.
- ❖ From C2 minor 36 students will be slected,24 males and 12 females.
- ❖ From C2 major 51,students will be selected,33 males and 18 females.
- ❖ From Intern students 34 students will be selected ,22 male and 12 females.

4.8) Sampling procedure

A validated sleep disorder questionnaire which is prepared in English will be filled by the students. A demographic questionnaire will be used to obtain information for the purposes of screening participants and providing data for a descriptive analysis of the sample. This questionnaire included basic demographic information, such as age, gender, ethnicity, year (PC1,PC2,C1,C2minor, C2 major, internship), medication use, current psychiatric illness, current medical illness, treatment, class attendance,..... .

4.9 Data collection and Procedures



The number and sex of students who are studying in their respective year will be checked. The sample size will be proportionally allocated to all year students. Then Students will be selected by stratified random sampling.

The questionnaire will have questions taken from PSQI which is used internationally to check the presence of poor sleep disorder. And other questions will be taken from DSM 5, which will help to check if one fulfills the diagnostic criteria of sleep disorders .some questions are selected also from previous researches done in the same topic to see the associated factors with sleep disorders .the data will be collected by giving the questionnaire to the randomly selected students in each specific year.

4.10 Variables

Dependent Variable

Sleep Disorders

Independent Variables

Age, Sex ,Year of study, Place used to sleep, Use of caffeine ,substances , Excessive use of mobile phone and internet.

4.11 Operational definitions

Sleep hygiene- is variety of different practices and habits that are necessary to have good to have night time sleep and daytime alertness.

Sleep disturbance-disorders of initiating and maintaining sleep.

Sleep disorders –Are group of conditions that affect the ability to sleep well on regular basis.

4.12 Data Processing and quality

The completeness, Consistency and appropriateness of collected data will be checked every day after the data collection. The precoded and decidentified data will be entered into SPSS. Data cleaning, organizing, transforming and summarizing will be done once the data are entered in to SPSS.

4.13 Data Analysis

The collected data from the pre coded questioner will be entered cleaned, summarize and analytically used statistical package for social science (SPSS) 22 version software. Descriptive statics will be used to summarize some key variables (including socio demographic)by calculating percentage ,mean, median, mode, standard deviation and quartile and range .Bivariate analysis will be used to look for associations between single independent variable and the dependent variable (Sleep disorder).To control possible confounders ,binary logistic regression will be run p-values <0.05 and odds ratio(AOR)with 95 percent confidence interval will be used to check the presence ,direction and magnitude of association between the independent and dependent variables.

5) Ethical consideration

The proposal will be submitted to SPHMMC institutional review board for ethical clearance .Having secured the ethical clearance, the respondents will be told about the importance of the study, the confidentiality of their responses and they will be asked to fill the questionnaire honestly after their willingness.

6 Dissemination of findings

Once the research is concluded, it will be presented to SPHMMC community and final report will be submitted to SPHMMC public health department .It will also be sent to pre reviewed journals for publication.

7) Work budget

Sr. #	Item/Activity	Unit	Quantity	Unit Price	Total	Remark
1	Personnel					
1.1	Data Collector	Number	2	100	200	
		-		-	-	
1.2	Data Entry Clerk	Days	2	100	200	
	Sub-total					
2	Materials					
2.1	Paper	Ream			200	
2.2	Note Book	Dozen				
2.3	Pen	Pieces	5		25	
2.4	Pencil	5			25	
2.5	Printing	60 pages			120	
2.6	Photocopying	300 pages			300	
2.7	Binding	4			40	
2.8	CD	2			30	
2.9	Flash Disc	1			150	
	Sub-total					
3	Communication and Transportation					
3.1	Internet	200 birr			200	

3.2	Mobile Card	100 birr			100	
4						
	Contingency (10% of sum of sub-totals 1, 2 & 3)				159 birr	
	<u>Total = 1749 birr</u>					

8,WORK PLAN

Activity	NOV2017	JAN2018	FEB2018	MAR2018	APRIL2018	MAY2018	JUN2018	JUL2018
Research topic selection	*							
Proposal development		*	*					
Research proposal submission			*					
Data collection				*	*	*		
Data analysis							*	*
Report writing							*	*
Final thesis								

report submission								*
Thesis defense								*
Final report submission								*

9) ANNEXES

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SPHMMC

Department of public health

Student research program

Questionnaire

My name is Mahlet Seyoum. I am Last year student at the St paul millennium medical college. The purpose of this Research is to assess prevalence of sleep disorders and associated factors in SPHMMC students .I am asking for your help in gathering this information. There are no perceived risks or benefits associated with your participation in this survey.

Please answer the following questions to the best of your ability:

1.Age-----

2Gender-----

Year of study

A)1 st year B) 2nd year C)C1 D)C2 minor E) C2 major F)Internship

3.Religion

A)Orthodox Christian B) Muslim C) Protestant D) Catholic E)Other

4.Ethnicity

A) Amhara B)Oromo C)Tigre D) Gurage E) Other

Where do you sleep mostly

A) Home B) Dormitory C)Both

5. During the past month SWhen have you usually gone to bed ?

6 How long in minutes does it take you to go to be bed ?

7. What time have you usually gotten up in the morning?

A. How many hours of actual sleep did you get at night?

B. How many hours were you in bed?

8. During the past month, how often have you had trouble sleeping you

9.During the past month, how often have you had trouble sleeping you	NOT During the past month (0)	Less than once week (1)	Once or twice a week (2)	Three or more time a week(3)
A.Can t get to sleep in 30 min				
B. Wake up in the middle of the night or early morning				
C. Have to get up to use the bathroom				
D. Cant breath comfortably				
E. Cough or snore loudly				
F. Feel too cold				
G. Feel too hot				

H. Have bad dreams

I. Have pain				
J. Other reasons please describe including how often you have had trouble because of this reasons.				
10.During the past month how often have you taken medicine to help you to sleep				

11. During the past month how often have you had trouble Staying awake while driving ,eating meals or engaging in social activities ?				
12. During the past month how much of a problem has it been for you to keep up enthusiasm to get things done ?				
13. During the past month how would you rate your sleep quality overall?				

14. Other reasons please describe including how often you have had trouble because of this reasons.

15. During the past month how often have you had trouble Staying awake while driving ,eating meals or engaging in social activities ?

16. During the past month how much of a problem has it been for you to keep up enthusiasm to get things done?

17. During the past month how would you rate your sleep quality overall

18. How many hours do you sleep on an average school night, Monday-Friday?

- a. 3 or less.
- b. 4-5.
- c. 6-8.
- d. 9-10.
- e. 11 or more

19. I find myself feeling sleepy in daylight hours:

1) Always 2) Often 3) Occasionally 4) Rarely

20. Please choose the behavior that best describes how long it takes you to fall asleep once in bed:

___ I never have trouble falling asleep; I am asleep the moment I lie down.

___ I rarely have trouble falling asleep; at most, it takes me 15 minutes.

___ I occasionally have trouble falling asleep; it may take up to 30 minutes.

___ I often have trouble falling asleep; it usually takes at least 10 minutes and can sometimes take up to an hour.

___ I always have trouble falling asleep; I never fall asleep right away, and I have had nights where it takes me hours to fall asleep.

___ Other: _____

21. Have you been told by anyone that you move your legs about or kick excessively during sleep?

A) Always B) Often C) Occasionally D) none