Sleep Hygiene Awareness, Sleep Hygiene Practice, and Sleep Quality among public secondary school students at Minia district, Egypt

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Abstract

Sleep is critically essential to human beings as it can safely maintain mental and physical health and well-being, especially among adolescents. **Aim:** The study aimed to assess the relation between sleep hygiene awareness, sleep hygiene practice, and sleep quality among public secondary school students at Minia district, Egypt. **Research design:** A descriptive correlational design was used in the study. **Setting:** The study was conducted at three governmental public secondary schools at Minia district. **Sample:** A stratified random sample of 600 students was included in the study. **Tools of data collection:** The 1st tool was a self -administered questionnaire to assess sleep hygiene awareness, the 2nd tool was the sleep hygiene index to assess the practice of sleep hygiene and the 3rd tool was the Pittsburgh Sleep Quality Index to assess sleep quality. **Results**: The study revealed that more than half (56.8%) of the participants had an unsatisfactory level of sleep hygiene awareness, more than half (52.0%) had a good level of sleep hygiene practice**,** while the majority (84.8%) had a poor level of sleep quality. The study also revealed statistical significant differences between sleep quality and sleep hygiene awareness and practices. **Conclusion:** Sleep hygiene awareness was unsatisfactory among more than half of the participants, while sleep hygiene practice was poor among about half of them, and the majority, their sleep quality was poor. The study also, revealed that sleep quality is related to both sleep hygiene awareness, and sleep hygiene practice. **Recommendations:** A planned educational intervention regarding the importance of sleep, sleep hygiene, and good sleep quality can be an effective way of empowering adolescents to mitigate the long-term effect of poor sleep quality on their health**.**

Keywords: Sleep Hygiene Awareness, Sleep Hygiene Practices, and Sleep Quality, public secondary school students

Introduction

Sleep is an essential physiological process for mankind. It is considered one of the main causal factors for somatic and intellectual health and safety, particularly among teenagers. Sleep has a critical role in physical, mental, and emotional development **(Ranasinghe et al., 2018, Gautam et al., 2021).**

The transferal from the stage of childhood to adolescents often takes place through the schooling period. Throughout this alteration period, numerous biological, somatic, and emotional features of variations will happen to teenage. During this period the teenagers complain of growing stressors from home, school, societal, and even the ecological factors that secondarily lead to the interruption in sleep timing, along with delay in the biological sleep point leading to reduced quality of sleep **(Hirshkowitz et al., 2015)**

The required duration of sleep for teenagers ranges from eight to ten hours of sleep every night to be able to function healthily. The significant cause of a healthy sleep period is sleep hygiene, which includes a sequence of behaviors that are essential for a healthy quality night-period sleep and complete attentiveness during the daytime **(Murugesan et al., 2018)**.

Behaviors of sleep hygiene can influence sleep (i.e., specific sleep hygiene practices may lead to poor sleep quality while others enhance the quality of sleep), and are characteristically described as "good" and "bad" sleep hygiene. Persons are thought to be with good sleep hygiene when they do not participate in poor sleep hygiene behaviors over three times every week **(Hinojosa, 2021).**

Behaviors of sleep hygiene comprise, but are not limited to the subsequent: evading daytime sleeps, not consuming stimulant late in the day, using the bed merely for sleep, increasing the period of contact with natural light, and enhancing a quiet and soothing atmosphere for sleep **(Bruce et al., 2017)**. On the other hand, poor sleep hygiene behaviors

embrace sleeping in noisy surroundings, in a room with uncomfortable temperature, or doing activities that increase physiological stimulation or attention at bedtime (e.g., responsibilities that need a higher level of awareness and psychological investment **(Hinojosa, 2021)**.

Besides, poorer sleep hygiene practices include overusing technology have been proved in previous research work. Current studies on sleep hygiene behaviors have explored that excessive use of technology was related to poor quality of sleep**(Galland et al., 2017)**. Using technology may be a disturbing sleep period, precisely, because of possible exposure to blue light that is released from electronic devices, and the watching of stressful content on media, which hinder the steadiness of safe and healthy sleep hygiene habits **(Bathory & Tomopoulos, 2017)**.

Sleep quality is identified as an individual's satisfaction with his sleep experience, mixing features of sleep beginning, sleep preservation, sleep duration, and attentiveness upon awakening. Sleep quality possibly has several definitions from one individual to another. For an individual with trouble starting sleep, the sleep beginning period may be the main factor in sleep quality. In contrast, the relative trouble of going to sleep might be of small significance to an individual who sleeps restlessly and complains of recurrent arousals**(Kline, 2013)**.

Comprehending the idea of sleep hygiene and quality of sleep is important to the nursing profession as nurses are vital in helping enough sleep and assisting their patients to evade sleep troubles, which can harmfully impact health consequences**(Nelson et al., 2022)**.

Significance of the Study

Preceding research work has detected that bad sleep has related to increasing weight, obesity, excessive sleep during the daytime, tiredness, diminished glucose tolerance and diabetes mellitus, unhappiness and worry, weakened memory, and increased chance of motor vehicle accidents(Ismail et al., 2017). A satisfactory sleep performance is valuable for both somatic and intellectual health and advances the general activity. It can also postpone neurodegenerative variations in geriatrics **(Ahmed et al., 2018)**.

Hence, assessment of sleep hygiene awareness and practice and sleep quality is considered important for health and well-being of adolescents, given the higher chance of changes in sleep patterns and negative sleep hygiene in this period as a possible pointer to poor somatic and intellectual health status**(Şimşek & Tekgül, 2019)**.

Sleep hygiene awareness and practices among Egyptian public secondary school students are not well studied, so we conducted this study to assess sleep hygiene awareness and practice and their relation to sleep quality among public secondary school students, especially considering academic stressors and the hard study nature of those students which may give them a different pattern of sleep distinguishing them from other secondary school students in Egypt, to put the concept of sleep hygiene education in practice among this category of students through this study.

Aim of The study:

1- To assess the relation between sleep hygiene awareness, sleep hygiene practice, and sleep quality among public secondary school students at Minia district.

Objectives of the study:

1- To assess the level of sleep hygiene awareness, sleep hygiene practice, and sleep quality among the studied subjects.

2- To assess the relation between sleep hygiene awareness and demographic data of the studied subjects.

3- To assess the relation between sleep quality and demographic data of the studied subjects.

Research Questions

1- Is there a relationship between sleep hygiene awareness, sleep hygiene practice and sleep quality among public secondary school students at Minia district?

2- What is the level of sleep hygiene awareness, sleep hygiene practice, and sleep quality among public secondary school students at Minia district?

3- Is there a relation between sleep hygiene awareness, sleep quality and demographic data of the studied subjects?

Subject and Methods

Study design: A descriptive correlational design was used in the study. This design is a type of observational or descriptive research design that examines the associations between and among variables across a sample population or a pre-defined subset.

Setting: The study conducted at three governmental public secondary schools at Minia district. Minia district is affiliated to Minia governorate which is one of Egypt's 27 governorates. Minia governorate located in Upper Egypt, and composed of 9 districts while Minia district is one of these districts. Minia public secondary educational district is divided into three zones north, south and middle zone, all included 18 governmental public secondary schools (12 urban schools and 6 rural ones) ,while the schools were categorized into three groups; only males, only females, and mixed schools. One school was selected randomly from each zone. Accordingly, the following three governmental public secondary schools (2 urban and one rural) were included in the study; Zohra village public secondary school (mixed males and females school) affiliated to Zohra village at the south of Minia district, Martyr Muhammad Waheed Habashi public secondary school for girls located at the middle of Minia district, and El salam secondary public school for males located at the north of Minia district.

Sample size and technique

A stratified random sample of 600 students was included in the study, while the selected schools were divided into strata; first, second and third stages. Each stage was classified into classes; two classes were chosen randomly from each stage. Each class contains a number of students ranging from 30 to 35. All students in the class had been involved in the sample. A few students refused to participate in the study.

Exclusion criteria for the study sample:

Students with chronic diseases.

Tools of Data Collection:

Tool No1: A self-administered questionnaire developed by the researcher to assess sleep hygiene awareness among the participant, this tool included the following parts:

Part I: to assess the demographic data of the participants including sex (male and female), residence (rural and urban), study grade (first, second, and third), smoking (nonsmoker, currently smoker, and ex-smoker), father and mother education (doesn't read or write, primary, preparatory, secondary, university, post-graduate).

Part II: It was designed to measure sleep hygiene awareness among the subjects; comprising 25 multiple choice questions to assess knowledge of sleep hygiene; comprising the definition of sleep hygiene (1 question), importance(1 question), poor sleep signs(1 question), the usual number of hours that an adult and teenage require to sleep every night(2 questions), reasons of nightmares(1 question), health problems related to poor sleep quality(2 questions), the meaning of sleep apnea(1 question), and sleep hygiene measures(15 questions).

One point (1) for the right answer and zero (0) for the incorrect answer or don't know respectively were considered for the sleep hygiene awareness assessment tool. Therefore the subjects were considered to have a satisfactory knowledge of sleep hygiene if the total score is ≥60, and unsatisfactory level if the total score is < 60%.

Verification of the tool for content validity was done by five experts in community health nursing. Its Reliability was considered using Cronbach's alpha. Based on data analysis, the coefficient alpha for the sleep hygiene awareness tool was 0.78.

Tool No2: The sleep hygiene index (SHI)

The SHI is a self-reported index consisting of 13-item, designed by the International Classification of Sleep Disorders (ICSD) to evaluate sleep hygiene practice during everyday life. Participants were asked to specify if they participated in certain behaviors of sleep hygiene

such as taking naps during daytime continued for two or more hours, going to bed at varying times from day to day, doing physical exercise to the degree of sweating within one hour before going to bed, feeling stressed when going to bed, sleeping in an uncomfortable bedroom or doing significant work before bedtime (for example, schedule, or study), etc. Every item of the SHI is ranked on a five-point Likert scale (fluctuating from 0 [never] to 4 [always]). The overall scores ranged from 0 to 52, with scores ≥ 60% (31/52) showing poorer sleep hygiene conditions and score less than 60% showing good sleep hygiene practice. The SHI scale has an internal consistency of Cronbach alpha of .66, and good test-retest reliability of 0.71**(Seun et al., 2018)**.

Tool No3: Pittsburgh Sleep Quality Index (PSQI).

It quantifies the quality of sleep during the previous month and aid to discriminate between a person who suffers from poor sleep against a person who sleeps healthily. The PSQI was designed by Developed by researchers at the University of Pittsburgh and it is one of the utmost broadly utilized sleep questionnaires. It has numerous areas, which comprise personal/subjective sleep quality, sleep latency, sleep period, habitual sleep effectiveness, sleep turbulences, usage of sleep medication, and dysfunction during the daytime. The scale includes two portions: 19 questions reported by the subject himself, and five questions answered by a bed partner. A maximum of the items are arranged in multiple choice questions and are concise and easy to comprehend and respond to **(Chiu & Hsu, 2016)**.

The PSQI questions are ranked from 0 = no difficulty to 3 = severe difficulty, producing scores that resemble the areas of the scale. The scores fluctuate from 0 to 21 and the writers of the questionnaire propose that participants with a total score >5/21 are considered to have a poor level of sleep quality while participants with a total score ≤ 5 are considered to have a good level of sleep quality. Time to fill PSQI scale ranged from 5–10 min. The reliability of the scale is detected as good with Cronbach's alpha of 0.83 for the overall score. Test-retest reliability is also detected as good. The validity of PSQI has been designated by the writers of the questionnaire as good with a sensitivity of 89.6% **(Chiu & Hsu, 2016)**.

Data collection procedures:

Before conducting the study an official permission was taken from the director of the educational administration at Minia governorate to conduct the study. Also, a formal approval was obtained from the directors of the schools included in the study to clarify the aim of the study and the time for beginning data collection. Data was collected by the researcher from the end of February 2022 to the end of April 2022. Participants who agreed to participate spent about 10–15 min in completing the data collection tools of the study.

Pilot study: It was applied to 10% of the planned sample; its main aim was to evaluate the validity of the tools of the study and to assess the acceptability of the subjects to the focus of the research. The results of the pilot study were encompassed in the final results of the research as there were no central adjustments were done to the tools of the study.

Ethical considerations:

Informed oral consent was obtained from all students before participation to gain their cooperation; it included data about the aim of the work, study design, site, time, subject, and tools of the study. Each assessment sheet was coded for privacy and confidentiality. Participants' voluntary involvement and their right to withdraw from the study at any time were ensured.

Statistical analysis

Data were tabulated using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. The Chi-square was used in tests of relationships. Statistical significance was considered at a p-value <0.05. Data entry and statistical analysis were done using SPSS 24.0 statistical software package.

Results

Table (1) shows that more than two-thirds (67.2%) of the studied subjects were in the age group of 15-17 years, more than half (50.8%) were females, more than two-thirds (67.3%) were from urban areas, the majority (94.7%) were

nonsmokers, and the educational level of about one third of the father and mother of the studied subjects was secondary (30.7%, 30.8) respectively.

Table (2) shows that more than half (56.8%) of the studied subjects had an unsatisfactory level of sleep hygiene awareness with a mean ± SD of 14.01±8.03

Table (3) shows that more than half (52.0%) of the studied subjects had a good level of sleep hygiene practice with a mean ± SD of 29.39±7.77

Table (4) shows that the majority (84.8%) of the studied subjects had a poor level of sleep quality with a mean ± SD of 9.10±3.631.

Table (5) shows that there are statistically significant differences between sleep hygiene awareness and the age of the studied subjects while those in the age group of 15-17 years (72.7 %) had a significantly unsatisfactory level of sleep hygiene awareness whereas the p-value is (0.001). The table also shows there are statistically significant differences between sleep hygiene awareness and, school grade, while those in the first grade (51.6%) had a significantly unsatisfactory level of sleep hygiene awareness where the p-value is(0.000*).

The same table shows there are statistically significant differences between sleep hygiene awareness and Smoking status, while non-smokers had a significant satisfactory level of sleep hygiene awareness where the p-value is(0.000*). Furthermore, there are statistically significant differences between sleep hygiene awareness and father, and mother education of the studied subjects where the p-value is (0.000*, 0.003*) respectively.

Table (6) shows that there are statistically significant differences between sleep quality and gender while males had significantly good sleep quality (70.3%) compared to females (29.7%). The table also shows that there are statistically significant differences between sleep quality and father, and mother education of the studied subjects where the p-value is (.000*).

Table (7) shows that there are statistically significant differences between sleep quality, and sleep hygiene awareness with a p-value of (0.000*) while 61% of subjects with good sleep quality had a significant satisfactory level of sleep hygiene awareness. The same table shows that there are statistically significant differences between sleep quality, and sleep hygiene practice where the p-value is (0.000*), while students with good sleep quality had a significant good sleep hygiene practice.

Table (8) shows that there is a positive significant correlation between sleep quality and sleep hygiene practice of the studied subjects where the p-value is (0.000*).

Table (1): Distribution of the studied subjects according to their sociodemographic characteristics

Item	No (n=600)	Percent%
Age:		
15- <18 yrs.	403	67.2
18-19 yrs.	197	32.8
17.02±.865		
Gender:		
Male	295	49.2
Female	305	50.8
School grade:		
1st year	200	33.3
2nd year	200	33.3
3rd year	200	33.3
Residence:		
Rural	196	32.7
Urban	404	67.3
Smoking:		
Smoker	19	3.2
Non smoker	568	94.7
Ex.smoker	13	2.2
Father education:		
Illitrate	32	5.3
Primary	39	6.5
Preparatory	76	12.7
Secondary	185	30.8
University	171	28.5
Post university studies	97	16.2
Mother education:		
Illiterate	67	11.2
Primary	47	7.8
Preparatory	100	16.7
Secondary	184	30.7
University	137	22.8
Post university studies	65	10.8

Table (2): Distribution of the studied subjects according to their level of sleep hygiene awareness

Total level of knowledge	No. (n= 600)	%	Mean ± SD
Satisfactory	259	43.2	14.01±8.03
Unsatisfactory	341	56.8	

Table (3): Distribution of the studied subjects according to their level of sleep hygiene practice

level of sleep hygiene	No. (n= 600)	%	Mean ± SD
Good sleep hygiene	312	52.0	29.39±7.77
Poor sleep hygiene	288	48.0	

Table (4): Distribution of the studied subjects according to their level of sleep quality

level of sleep quality	No. (n= 600)	%	Mean ± SD
Good	91	15.2	
Poor	509	84.8	9.10±3.631

Table (5): Relation between sleep hygiene awareness and demographic data of the studied subjects (No=600)

	Sleep hygiene awareness level				χ2	P-value
	Satisfactory (n= 259)		Unsatisfactory (n= 341)			
	No.	%	No.	%		
Age:						
15- <18 yrs.	155	59.8	248	72.7	11	0.001*
18-19 yrs.	104	40.2	93	27.3		
Gender:						
Male	138	53.3	157	46.0	3	0.07
Female	121	46.7	184	54.0		
School grade						
1st year	24	9.3	176	51.6	123	0.000*
2nd year	128	49.4	72	21.1		
3rd year	107	41.3	93	27.3		
Residence:						
Rural	93	35.9	103	30.2	2.1	0.14
Urban	166	64.1	238	69.8		
Smoking:						
Smoker	0	0.0	19	5.6	15.9	0.000*
Non smoker	255	98.5	313	91.8		
Ex.smoker	4	1.5	9	2.6		
Father education:						
Illiterate	14	5.4	18	5.3		
Primary	8	3.1	31	9.1		
Preparatory	22	8.5	54	15.8	35.8	0.000*
Secondary	104	40.2	81	23.8		
University	82	31.7	89	26.1		
Post university studies	29	11.2	68	19.6		
Mother education:						
Illiterate	31	12.0	36	10.6		
Primary	15	5.8	32	9.4		
Preparatory	44	17.0	56	16.4	17.8	0.003*
Secondary	98	37.8	86	25.2		
University	53	20.5	84	24.6		
Post university studies	18	6.9	47	13.8		

Column percentage table
*Statistical significant difference, Chi-squared test.

Table (6): Relation between sleep quality and demographic data of the studied subjects (No=600)

	Sleep quality				χ2	P-value
	Good (n= 91)		Poor (n= 509)			
	No.	%	No.	%		
Age:						
15- <18 yrs.	51	56.0	352	69.2	6.01	0.01
18-19 yrs	40	44.0	157	30.8		
Gender:						
Male	64	70.3	231	45.4	19.2	0.000*
Female	27	29.7	278	54.6		
School grade						
1st year	20	22.0	180	35.4	7.7	0.02
2nd year	31	34.1	169	33.2		
3rd year	40	44.0	160	31.4		
Residence:						
Rural	27	29.7	169	33.2	0.43	0.5
Urban	64	70.3	340	66.8		
Smoking:						
Smoker	1	1.1	18	3.5	2.09	0.3
Non smoker	87	95.6	481	94.5		
Ex.smoker	3	3.3	10	2.0		
Father education:						
Illiterate	6	6.6	26	5.1	22.7	0.000*
Primary	13	14.3	26	5.1		
Preparatory	9	9.9	67	13.2		
Secondary	38	41.8	147	28.9		
University	18	9.8	153	30.1		
Post university studies	7	7.7	90	17.7		
Mother education:						
Illiterate	13	14.3	54	10.6	23.6	0.000*
Primary	12	13.2	35	6.9		
Preparatory	26	28.6	74	14.5		
Secondary	24	26.4	160	31.4		
University	13	14.3	124	24.4		
Post university studies	3	3.3	62	12.2		

Column percentage table
*Statistical significant difference, Chi-squared test.

Table (7): Relation between sleep quality, sleep hygiene awareness and sleep hygiene practice among the studied subjects (No=600)

	Sleep quality				χ2	P-value
	Good (n= 91)		Poor (n= 509)			
	No.	%	No.	%		
Sleep hygiene awareness:						
Satisfactory	56	61.5	203	39.9	14.7	0.000*
Unsatisfactory	35	38.5	306	60.1		
Sleep hygiene practice	82	90.1	230	45.2		0.000*
Good	9	9.9	279	54.8	62.4	
Poor						

Column percentage table
*Statistical significant difference, Chi-squared test.

Table (8): Correlation between sleep quality and sleep hygiene practice among the studied subjects

	Mean ± SD	r-value	P-value
Sleep quality	9.10±3.631	.323	0.000*
Sleep hygiene practice	29.39±7.77		

P values were generated using Spearman correlation

Discussion

The current study aimed to assess the relation of sleep hygiene awareness, sleep hygiene practice, and sleep quality among public secondary school students at Minia district.

As regards to the level sleep hygiene awareness among participants, the current study revealed that more than half (56.8%) of the participants had an unsatisfactory level of sleep hygiene awareness. These findings are consistent with the studies conducted by **Al-Kandari et al., (2017)** in Kuwait and **Alshahrani & Al Turki., (2019)** in Saud Arabia while the level of sleep hygiene awareness among the participants was detected to be insufficient. On the other hand, the finding of the current study was inconsistent with the results of a study conducted by **Felix et al., (2017)** while it was revealed that the majority of participants in the study reported good and average level of sleep hygiene awareness. This inconsistency may be attributed to the little resources providing teaching about sleep hygiene among the subjects of the current study.

As regards to the level sleep hygiene practice among participants, the current table shows that about half (48.0%) of the participants had a poor level of sleep hygiene practice. This result are similar to **Al-Kandari et al., (2017) & Felix et al., (2017).**

Regarding sleep quality among the participants, the current study revealed that the majority (84.8%) of the participants had a poor level of sleep quality. These results are in accordance with the study conducted by **Ismail et al., (2017)** Among Egyptian Secondary School Students in Assiut city in upper Egypt while the percent of poor sleepers was higher among public school students (81.4%). Another study result was similar to the current study revealed by **Alshahrani & Al Turki, (2019) in** Kuwait and **Awopeju et al., (2020)** in Nigeria , however, sleep quality is worse in the current study which could be attributed to the difference in the age group between the studies and may be influenced by different socioeconomic and cultural factors between populations.

Regarding the relation between sleep hygiene awareness and demographic data of the participants, the present study showed that there were statistically significant differences between sleep hygiene awareness and age group while those in the age of 15-<18 years (72.7 %) had a significant unsatisfactory awareness about sleep hygiene indicating lesser awareness among the younger subjects. These finding are in harmony with **Al-Kandari et al., (2017) and Voinescu** & **Szentagotai-Tatar, (2015)** while it was shown that senior students have an enriched sleep hygiene awareness than students who are young.

The present study revealed that there were statistical significant differences between sleep hygiene awareness and, school grade, while those in the first grade (51.6%) had a significant unsatisfactory level of sleep hygiene awareness where the p value is(0.000*). This result contradicted with **Al-Kandari et al., (2017)** who reported that age of the participants was not correlated with the level of awareness about sleep hygiene.

Concerning the relation between sleep quality and sociodemographic characteristic of the participants, the current study showed that there were statistical significant differences between sleep quality and gender while females had a significant poor sleep quality compared to males. This was consistent with the results of many studies in different countries. In Egypt, **Ismail et al., (2017)** found that poor sleep quality was associated with females only. In Jeddah, **Merdad et al., (2014**) found that females had significantly higher poor sleep quality than males in a study of 947 high school students aged 14–23 years. In another study in Japan, it was also found that female adolescents had reduced sleep period than males, and more female adolescents ranked their quality of sleep as poor or very poor **Munezawa et al., (2011)**. A possible clarification for the poor quality of sleep among females can be attributed to features other than biological ones,

such as the responsibilities of a female in the family, daily life routine (eating, drinking, exercise, etc), ways to manage stressful life situation, and intellectual changes between males and females**(Al-Kandari et al., 2017).**

As regard to the relation between sleep quality and sleep hygiene awareness, the current study showed that there were statistical significant differences between sleep quality, and sleep hygiene awareness among the participants, while 61% of participants with good sleep quality had a significant satisfactory level of sleep hygiene awareness. This result disagreed with **Al-Kandari et al., (2017) , Voinescu & Szentagotai-Tatar, (2015) & Alshahrani & Al Turki, (2019).**This disagreement may be explained by the difference in the age group of the subjects of the previous studies.

Concerning the relation between sleep quality and sleep hygiene practice, the current study showed that there were statistical significant differences between sleep quality, and sleep hygiene practice among the participants. The result of the current study are in the same line with **Al-Kandari et al., (2017), Awopejuet al., (2020) & Brick et al., (2010).**

Conclusion

To sum up, the level of sleep hygiene awareness was relatively unsatisfactory among more than half of the public secondary school students, while the level of sleep hygiene practice was poor among about half of them, and the majority of the students experienced a poor level of sleep quality according to the criteria of the PSQI. The study also, declared that sleep quality is related to both sleep hygiene awareness, and sleep hygiene practice. This result suggests that being knowledgeable about healthy sleep habits affects sleep quality while practicing the right sleep behaviors is intensely associated with good quality of sleep.

Limitations of the study:

The instruments used for data collection used in the current study based on self-report by the participants which may be liable to information bias. In addition, our study did not have objective measures of sleep hygiene practice and quality to aid self-report way.

Recommendations

Based on the finding of the current study, the following recommendations were suggested:

1 -Future research and interventions should focus on the importance of practicing healthy sleep hygiene, especially among public secondary school students considering academic stressors and the hard study nature they experience, while healthy sleep has important benefits for academic performance, physical health, and emotional well-being.

2 – Sleep hygiene education programs should be included in public secondary school students educational courses which can be a very effective way of empowering them to mitigate the long term effect of poor sleep quality on their health.

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