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Sleep Disturbances among Medical Student in Haiti: A Cross - Sectional Survey

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Abstract: ***Objective: The objective of this study is to carry out a descriptive analysis of sleep disturbances among medical students in Haiti during the quarantine period due to COVID-19 since March 20, 2020, in Haiti. Materials and Methods: This is a cross-sectional and descriptive study by self-questionnaire among medical students in Haiti on sleep disturbances. Results: A total of 72 medical students from five medical schools participated in our study. The mean age was 22.8 ± 0.39 years. Most of the participants were women (56.9%, n = 41/72). Most of the participants came from the FMP/UEH (73.6%, n = 53/72). In our study, a relationship was established between sleep disturbances and tea consumption (P = 0.005) as well as alcohol consumption (P = 0.003). Most study participants did not smoke (n = 56, 77.77%), and among the non-smokers, only 14.28% had sleep disturbances. Conclusion: This study shows a high frequency of poor sleep quality among medical students in Haiti***

Keywords: Sleep disturbances, Students, Medicine, medical training, Haiti

1. Introduction

Since early December 2019, COVID 19 appeared in China and has caused more than 2 million deaths worldwide[1]. In March 2020, the Haitian government made the decision to place the population in quarantine due to the number of cases infected with the virus [2]. Sleep is a key and essential factor in our physical, mental and moral well-being [3]. It allows us to maintain our cognitive abilities, to be functional for our daily activities of learning, memorization, and decision-making. It is a physiological phenomenon that ensures physical recovery of our body, good brain maturation and adequate growth [4]. As a result, any sleep disorder constitutes a source of functional or even emotional imbalance. And this can have serious consequences on our relationships, whether professional, family, or friendly. In times of health crisis, this statement is very often true, given the level of stress generated by these situations, where people are often forced to change their habits to fight for survival. Many studies have already been carried out on sleep disorders in medical students. [5]–[8]. But in Haiti there is little or no data yet to our knowledge. Normally, medical students, because of all that they must learn and the pressure they are exposed to, are often in challenging situations. In times of health crisis, knowing that they are the future healthcare providers or have already been exposed to the healthcare system in clinicals or internships, particularly in Haiti, where the healthcare system faces complex challenges, it's fair to think that their wellbeing, sleep included, will be at stake. To have some information on the subject, we carried out a survey whose objective is to provide an overview of sleep disturbances among medical students in Haiti during the quarantine period put in place due to COVID-19 since March 20, 2020.

2. Materials and Method

Study design

This is a cross-sectional and descriptive study by self-questionnaire among medical students in Haiti on sleep disturbances. This work was carried out with medical students in Haiti from different Universities, from the first year to social service, living in Haiti during the first month of due to COVID 19.

Questionnaire

Non-medical students were excluded from the study. For this study, all measures were taken to respect the dignity and anonymity of the participants. To carry out our investigation, we used questionnaires in which the identity of the students is not revealed. We used the *Hôtel-Dieu Sleep Questionnaire* (QSHD). This is a questionnaire comprising 4 large groups of questions relating to demographic characteristics: age, sex, education level, weight and height, sleep habits: bedtime/get up time during the week and weekends, duration of sleep during the week and at weekends, sleep latency and nap time, factors which influence sleep: the environment when falling asleep, consumption of substances (cigarettes, coffee, tea, coca, alcohol, hypnotics and psychostimulants) and the use of screens in the evening. Also sleep disorders as expressed in the DSM IV [9]like insomnia, snoring, parasomnias (nightmares, sleepwalking, sleep paralysis, somniloquy and bruxism). This questionnaire makes it possible to identify the reported symptoms and known sleep disturbances.

We also used the *Pittsburgh Sleep Quality Index* (PSQI), which is the standard questionnaire for assessing subjective sleep quality. The questions analyze seven factors, namely subjective sleep quality; sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping pills, and daytime dysfunction. A total score is obtained by adding the

scores of the different components. And we used the average of this score to provide insight into overall sleep quality.

Data collection and Statistical Analysis

Data collection was carried out using an online electronic form on Google that participants completed. To be able to answer our research questions and better describe the characteristics of our sample, we carried out a descriptive statistical analysis. This allowed us to present the data as a grouped frequency distribution. We used the Chi-square test (or fisher's depending on expected frequency < 5) for qualitative variables with $P < 0.05$ as the significance level. The analyzes were carried out using Excels 2016 and SPSS software.

3. Results

Socio-demographic characteristics

A total of 72 medical students from five medical schools participated in our study. The mean age was 22.8 ± 0.39 years. Most of the participants were women (56.9%, n = 41/72). Most of the students came from the FMP/UEH (73.6%, n=53/72).

Table 1: Socio-demographic characteristics

	N	%
Age group		
18-23 years	36	50.0
24-29 years	35	48.6
30-35 years	1	1.4
Gender		
Male	31	43.1
Female	41	56.9
Faculty / University		
FMP/ UEH	53	73.6
UNDH/ FMSS	13	18.1
UNIFA	4	5.5
Lumière University	1	1.4
CHCL	1	1.4
Academic year		
First grade	12	16.7
Second grade	10	13.9
Third grade	7	9.7
Fouth grade	5	6.9
Fifth grade	16	22.2
Pre-Internship	9	12.5
Internship	11	15.3
Social Service	2	2.8

Sleep Quality

The mean PSQI score was 7.51, ranged from 0 to 18. Among the participants, 51.7% took approximately 30 minutes to fall asleep (n = 37). A total of 62 students or 86.1% went to bed in a calm atmosphere. Only 11.1% of participants (n = 8) sometimes had sleep apnea. 23.6% of participants often woke up with a headache. A total of 36 Students or 50% of the participants woke up at least once every night. 19.4% of students specified that their sleep disturbances started right after the quarantine order. Use of the mobile phone screen before falling asleep was noted among 68.1% of participants (n = 49). 5% of subjects were sleepwalkers and 33.3% said they knew that they sometimes talk in their sleep. A minority of 26.4% of Students often had nightmares.

Table 2: Characteristics of sleep duration over the last month

	N	%
Bedtime during the week		
• 8h-10h p.m.	6	8.3
• 10h p.m.-12h a.m.	36	50.0
• >12h a.m.	30	41.7
Wake-up time of the week		
• <4h a.m.	1	1.4
• 4h-6h a.m.	13	18.1
• 6h-8h a.m.	35	48.6
• >8h a.m.	23	31.9
Number of hours of sleep per week		
• 4h-8h	54	75.0
• 8h -12h	15	20.8
• >12h	3	4.2
Bedtime on the weekend		
• <8h p.m.	4	5.5
• 8h-10h p.m.	8	11.1
• 10 p.m-12 a.m.	29	40.3
• >12 a.m.	31	43.1
Wake-up time of the week		
• 4h-6h a.m.	7	9.7
• 6h-8h a.m.	37	51.4
• >8 a.m.	28	38.9
Number of hours of sleep on weekends		
• 4h-8h	46	63.9
• 8h -12h	22	30.6
• >12h	4	5.5

Factors associated with sleep quality.

In our study, a relationship was established between sleep disturbances and tea consumption (P: 0.005) as well as alcohol consumption (P: 0.003). Most study participants did not smoke (n= 56, 77.77%), and among non-smokers only 14.28% had sleep disturbances.

Table 3: Factors associated with sleep quality

Characteristics	Level	Poor Sleep Quality (n = 61)	Good Sleep Quality (n = 11)	P-value
Age Group	18-23 years	33	3	0.487
	24-29 years	27	8	
	30-35 years	1	0	
Sex	Male	28	3	0.552
	Female	33	8	
Academic years	First grade	11	1	0.227
	Second grade	9	1	
	Third grade	6	1	
	Fouth grade	4	1	

	Fifth grade	13	3	
	Pre-Internship	7	2	
	Internship	9	1	
	Social Service	2	1	
Coffee consumption	Sometimes	38	4	0.256
	Often	15	5	
	Never	8	2	
Tea Consumption	Sometimes	42	8	0,005
	Often	15	2	
	Never	4	1	
Alcohol Consumption	Sometimes	50	6	0.003
	Often	1	1	
	Never	10	4	
Drinking energy drinks	Sometimes	38	8	0.319
	Often	7	0	
	Never	16	3	

4. Discussion

To our knowledge, this is the first study carried out on sleep disturbances among medical students in Haiti. The main objective of this study was to discuss the prevalence of sleep disturbances among medical students in Haiti during the period of quarantine due to COVID 19. This pandemic has had consequences on physical, psychological and emotional health through the world[10] and on medical students in Haiti. Our results showed an alarming level of frequency of poor sleep quality among medical students (84.7%). A study carried out in Saudi Arabia show a prevalence of 76% [6]. And research conducted in Nepal showed a prevalence of 30.36% [11]. The average age of the students in our series is 22.8 years. A study published in 2017 carried out in Saudi Arabia shows an average age of students of 21.9 years [6]. In another study carried out at the University of Jordan located in Amman, the average age was 19.79 years [12]. And in the study done in Nepal, the average age was 21.57 years [11]. The age of the participants in these different studies is therefore close to that of the participants in our survey. The predominant gender of participants in our study was female, i.e. 56.9% of cases compared to males who represented 43.1% of participants. In a survey carried out on sleep disorders in Iraq at Duhok University [12], the participants were mainly female and represented 56.7% of the students, so it presents similar results to our study. However, the study carried out in Saudi Arabia shows opposite results, men represented the majority of participants, i.e. 62.3% [6]. The PSQI score gives a subjective idea of sleep quality. In this study, the average score was 7.51. In the other studies we looked at, the average PSQI score was between 4 and 8 [6], [11], [12]. 11.1% of participants in our study experienced sleep apnea on more than one occasion. In the study conducted in Nepal, 58% of participants had sleep apnea [11], significantly higher results than our study.

5. Conclusion

This study shows a high frequency of poor sleep quality among medical students in Haiti. A relationship has been established between tea and alcohol consumption and sleep disturbances. Due to these results, we recommend medical school administration to address students' wellbeing and sleep as it could affect performance. We also recommend educating students about sleep disorders, the factors associated with them, and their consequences.

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Conflict of interest

The authors have no competing interest to declare.

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Abbreviations

FMP/UEH: Faculty of Medicine and Pharmacy / State University of Haiti.

UNDH/ FMSS: Medicine and Health Sciences of the University of Notre Dame D'Haïti.

UNIFA: Dr. Aristide Foundation University

CHCL: Henry Christophe Campus of the State University of Haiti in Limonade.

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