

Research Article

Sleep Habits among Brazilian Dental Students

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Received: October 06, 2014; Accepted: November 22, 2014; Published: November 26, 2014

Abstract

The purpose of this study was to evaluate the sleep habits and sleep bruxism among dental students at the Federal University of Minas Gerais, Belo Horizonte, Brazil. It was a cross-sectional study on 183 Brazilian dental students aged from 17 to 46 years old. The complete course curriculum consists of nine semesters. Students enrolled in the first semester, the middle semester and the final semester of the course participated in the survey. The study used a pre-tested questionnaire for data collection. The questionnaire was distributed during lecture classes. Sleep pattern, snoring and sleep bruxism diagnosis were based on self-reported data. We used descriptive analysis and a chi-square test as the statistical tests with 95% confidence interval. There were a greater number of women among the participants (78.7%). The mean age of the students was 21.2 years (SD=3.7). Only 38 students (20.8%) reported having equal to or more than eight hours of sleep per night. In total, 27% of students reported bad quality of sleep; 79.2% reported difficulty in concentrating while performing daytime activities; 22.5% reported snoring; and the prevalence of sleep bruxism was 21.6%. The analysis of the association between the different periods of the course with the variables studied showed no significant association. Difficulty in concentrating while performing daytime activities was an important factor among dental students.

Keywords: Bruxism; Epidemiology; Sleep disorders; Snoring; Sleep quality; Students

Introduction

Nights with poor sleep can be a sign of disharmony in health [1]. Sleep deprivation may have a negative effect on mood, attention, sensory registering and academic performance [2–11]. Snoring, hours of sleep, use of medications, use of alcohol, waking in the night, bad dreams, and environmental factors were some characteristics that affected quality of sleep [12–16]. Student tasks, conflicts and pressures of everyday life can lead to stress [11]. Stress can affect the quality of sleep and consequently can affect the health [10–17].

Such profiles of stress may result in sleep bruxism [18,19]. Sleep bruxism is a sleep-related movement disorder that can affect oral and general health with multifactorial etiology [18–20]. Sleep bruxism is characterized by grinding and clenching of teeth while sleeping [20]. Muscle pain, headaches, tooth wear, TMD (Temporomandibular Disorder) and even loss of teeth are just some of the consequences of sleep bruxism [21]. The prevalence of sleep bruxism among Brazilian undergraduate students was 21.5% [22].

Snoring is the vibration of respiratory structures resulting in soft or loud sounds. The sound is a consequence of obstructed air movement during breathing while sleeping. Snoring during sleep may be a first warning sign of obstructive sleep apnea [14].

Sleep bruxism and habitual snoring are easily detectable by other persons through having very distinctive audible sounds [18–26]. These sleep disorders often cause discomfort for room partners [14,23]. This discomfort can lead to distorted concepts designed by the families and/or cohabitantes of students with sleep bruxism [23]. Historically, human beings have searched for mystical explanations for diseases when they do not understand what is happening to their

body [23]. In the Brazilian study 20.4% of parents analyzed applied this mystical idea to bruxism [23].

The study of sleep habits has great relevance. Therefore, in this study we aimed to evaluate sleep habits and sleep bruxism among dentistry students at the Federal University of Minas Gerais (UFMG) comparing the behavior of students at the beginning, in the middle and at the end of their courses.

Material and Methods

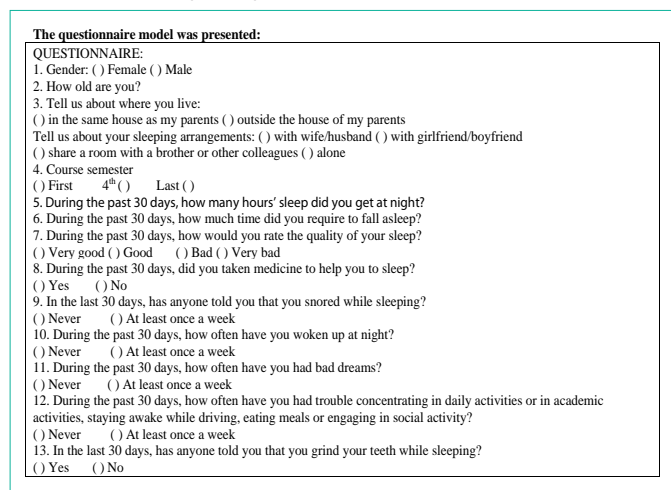
Participants

The Ethics Committee of the Federal University of Minas Gerais approved this study (032/05 Protocol). All participants signed a consent form. The student participation was voluntary.

This is a cross-sectional study on a group of dental students from UFMG, in the campus of Belo Horizonte, Minas Gerais State in southeastern Brazil. The current course curriculum has a nine-semester duration. Three groups of students were evaluated: students in the first semester of the course, from the middle of the course (fourth semester) and from the last semester of the course. Our study controlled behavior among dental students at different periods of the course: first, middle and last. One group was the control of the other. The choice of these groups is based on the aim of observing the behavior of students beginning a dentistry course (first), those in the middle of the course (fourth) and, therefore, beginning to treat patients at university dental clinics and those close to finishing their dentistry course. Data were collected from February to July 2013. The target sample population of the study comprised 183 undergraduate dental students aged from 17 to 46 years.

We approached the participants during lecture classes. Once they had signed a consent form, the participants completed a pre-tested questionnaire. Each class group received the questionnaire three times, on three different occasions, in order to allow absent students to participate in the study.

The questionnaire required students to answer 13 questions regarding gender, age, course period, hours of sleep, time required to fall asleep, self-report of quality of sleep, use of sleep medication, snoring, waking at night, bad dreams, difficulty in daytime concentration and sleep bruxism. All questions asked about sleep habits “in the last 30 days.” A proxy measure was done in the last 30 days. The questionnaire was developed by the researchers based on the format of the Brazilian version of the PSQI (Pittsburgh Sleep Quality Index) [27]. This instrument assesses the previous 30 days’ sleep quality. The variable self reported quality of sleep had four types of response: very good, good, bad and very bad. For purposes of analysis the variable of self reported sleep quality was dichotomized into good (good and very good) and bad (bad and very bad). To detect the presence of sleep bruxism students answered the following question: “In the last 30 days has anyone told you that you grind your teeth while sleeping?” (Figure 1).



Pilot study

Twenty phonoaudiology students of the Federal University of Minas Gerais took part in a pilot study developed to observe the operationalization of the study. We used a qualitative observation. The undergraduate students in the pilot study were not included in the main sample. The results of the pilot study revealed that there was no need to change the previously proposed methods. Hence, the quality of collected data was assured.

Statistical analysis

A descriptive analysis was performed using the Kolmogorov-Smirnov test to assess the normality of the distribution of the sleep habits and students’ course period, which demonstrated a non-normal distribution, and a chi-square test with 95% confidence interval was the statistical test. Data analysis was performed using the Statistical Package for Social Sciences program (SPSS for Windows, version 21.0, SPSS Inc, Chicago, IL, USA).

Results

Two hundred and twenty two undergraduate students were enrolled in the first, middle and final period of the dental course and 183 participated (82.4%). The predominant gender was female (78.7%) and 39 were male (21.3%) (Table 1). The mean age of the students was 21.2 years (SD=3.7). Most of them reported still living in the parental home (88%). Asked about the place where they slept, only four reported sleeping alone. The majority reported sharing a room with a brother/sister or colleagues (78%). No participant reported being married or living with his/her girlfriend or boyfriend, but this does not mean that they never slept with girlfriends or boyfriends for at least one night.

One hundred and thirty three undergraduate students subjectively classified their sleep quality as very good (73%) and 49 as bad (27%). Participants reported that they had on average 6.8 hours of sleep per night during the previous month, with a minimum of four hours and maximum of 11 hours per night (SD=1.1). Only 38 students (20.8%) reported having equal to or more than eight hours of sleep per night. Forty-one students (22.5%) reported snoring. The major percentage of participants reported difficulty in daytime concentration (79.2%) and bad dreams (67.2%). The majority of undergraduate students required a short amount of time to fall asleep (53.8%), and 80.9% reported waking in the night at least once a week. Self-reported sleep bruxism was 21.6% (Table 1).

Table 1: Descriptive analysis of sleep habits among Brazilian dental students.

Variables	Number	%
Gender		
Female	144	78.7
Male	39	21.3
Age (median)		
17–21 years	108	59.0
22–46 years	75	41.0
First semester students	63	34.4
Middle semester students	64	35.0
Final semester students	56	30.6
Time of sleep		
≥8 hours	38	20.8
< 8 hours	145	79.2
Time required to fall asleep in previous month		
≤ 15 minutes	98	53.8
>15 minutes	84	46.2
Use of sleeping medication		
No	173	94.5
Yes	10	5.5
Self-reported of quality of sleep		
Good	133	73.0
Bad	49	27.0
Snoring		
Never	142	77.5
At least once a week	41	22.5
Waking in the night		
Never	35	19.1
At least once a week	148	80.9
Bad dreams		
Never	60	32.8
At least once a week	123	67.2
Difficulty in concentrating while performing daytime activities		
Never	38	20.8
At least once a week	145	79.2
Sleep bruxism		
Absent	142	78.4
Present	39	21.6

Note: not all questions were answered by all students.

Table 2: Association between course period and sleep habits.

Variables	First Semester	Middle Semester	Final Semester
Time of sleep			
≥8 hours	07(11.1)	25(39.1)	06(10.7)
< 8 hours	56(88.9)	39(60.9)	50(89.3)
P value*	0.783		
Time required to fall asleep in previous month			
≤ 15 minutes	44(69.8)	29(46.0)	25(44.6)
>15 minutes	19(30.2)	34(54.0)	31(55.4)
P value*	0.008		
Use of sleeping medication			
No	60(95.2)	61(95.3)	52(92.9)
Yes	03 (4.8)	03(4.7)	04 (7.1)
P value*	0.559		
Self-reported quality of sleep			
Good	41(65.1)	51(79.7)	41(74.5)
Bad	22(34.9)	13(20.3)	14(25.5)
P value*	0.277		
Snoring			
Never	51(81.0)	48(75.0)	43(76.8)
At least once a week	12(19.0)	16(25.0)	13(23.2)
P value*	0.609		
Waking in the night			
Never	13(20.6)	11(17.2)	11(19.6)
At least once a week	50(79.4)	53(82.8)	45(80.4)
P value*	0.910		
Bad dreams			
Never	21(33.3)	19(29.7)	20(35.7)
At least once a week	42(66.7)	45(70.3)	36(64.3)
P value*	0.758		
Difficulty in concentrating while performing daytime activities			
Never	04 (6.3)	22(34.4)	12(21.4)
At least once a week	59(93.7)	42(65.6)	44(78.6)
P value*	0.064		
Sleep bruxism			
Absent	57(90.5)	47(74.6)	38(69.1)
Present	06 (9.5)	16(25.4)	17(30.9)
P value*	0.006		

Note: not all questions were answered by all students. *chi square test

The analysis of association between the behaviors of the students in different periods of the course with the variables studied showed no significant association (Table 2). However, Table 2 shows that higher percentages of students at the end of the course reported that they woke in the night (80.4%) and slept less than eight hours per night (89.3%). Students in the first semester of the course presented greater difficulty concentrating on daytime activities (93.7%). Sleep bruxism was more prevalent among students in the final semester (30.9%), followed by students in the middle (25.4%) and only 9.5% of first semester students reported sleep bruxism ($p = 0.006$) (Table 2).

Discussion

The World Health Organization recommends a minimum of eight hours sleep per night as the ideal amount for a good quality night's sleep [22]. The present study found that the mean amount of sleep of participants was 6.8 hours per night. The results of the present study were similar to other studies that evaluated undergraduate students and found that student tasks and high anxiety could influence the amount of sleeping hours per night [7,9,15]. A study of 1118 university students in Malaysia reported that participants slept for more than 7 hours per night [8].

When asked about difficulty in concentrating while performing daytime activities, most students reported daytime dysfunction (79.2%). Such findings in students who require concentration to treat patients are worrying. The quality of sleep among medical and nursing students indicates difficulties in sleeping and the poor quality of sleep experienced by such students [5,9,11,15]. The study also analyzed this difficulty in concentrating between the different groups (first, middle and final groups). Students in the first semester of the course presented greater difficulty concentrating on daytime activities when compared with other students from other periods [15]. The majority of undergraduate students in the first semester required a short amount of time to fall asleep (69.8%) compared with the other groups. Perhaps this behavior may suggest a greater fatigue in that group.

A study with 2551 Ethiopian undergraduate students found that first-year students had higher levels of anxiety, stress and poor sleep quality when compared to students from the more advanced course periods [6]. A student who has recently entered university is subjected to the pressures of choosing a profession and entering a new environment, which can increase his or her levels of anxiety

and subsequently can affect their concentration on daytime activities [6,15]. It seems that an association between quality of sleep and concentration may occur. In our study we did not evaluate this association but further studies should be encouraged.

The prevalence of sleep bruxism was 21.6%. A nine-year longitudinal study of young Finns found a similar percentage of sleep bruxism to the present study (21.7%) [25]. A study of 4235 Dutch adolescents reported a prevalence of 14.8% for sleep bruxism [26]. It may be that this difference is the result of the age range studied by the authors, who evaluated adolescents aged between 12 and 18 years, while the present study evaluated undergraduate students aged from 17 to 46 years. Self-reported sleep bruxism increases from adolescence to young adulthood [25,26]. The undergraduate students of first semester showed greater difficulty concentrating and other features that could suggest stress. The sleep bruxism was not more prevalent in this group compared to other groups. Our study only investigated sleep bruxism; we did not investigate awake bruxism. Perhaps another type of bruxism would present other results. Other investigations should be encouraged.

Forty-one students reported habitual snoring (22.5%). A study with Chilean students reported a prevalence of 18% for habitual snoring [14]. The age range studied in Chile was 7 to 18 years while the present study evaluated students aged from 17 to 46 years. Snoring can be an important signal for nocturnal apnea [14]. This issue deserves further studies and longitudinal follow-up.

This study provides important insights into the sleep habits and sleep disorders among dental students. However, there are limitations. One limitation is the study design. Cross-sectional studies are commonly used in epidemiological studies to analyze risk factors and associations, but not to evaluate causes. Longitudinal studies on this subject, with representative samples, should be performed.

Alcohol consumption and cigarette smoking also had a statistically significant association with increased daytime dysfunction and this information was not included in this study [16]. These factors deserve evaluation. We did not ask students if they worked at night. This is also an important limitation because night work may interfere with sleep habits and in concentration on the activities of daily life [26].

Sleep bruxism diagnosis was a limitation too. Sleep bruxism was evaluated from questions aimed at individuals. This methodology was similar to that used in the study of Dutch adolescents [25]. Self-reported sleep bruxism results were used in other studies [17–19,21–23].

Polysomnography can also be used to evaluate sleep bruxism [20]. Evaluation using electronic instruments is more sophisticated and the practicality of using questionnaires should be reassessed [1,20,27–29].

Conclusion

The findings of the present study reveal that difficulty in concentrating while performing daytime activities is an important factor that affects dental students. Special attention should be given to the quality of sleep of undergraduate students. Interdisciplinary educational campaigns about snoring, bruxism, sleep hours and other sleep habits should be encouraged.

Acknowledgement

The following Brazilian funding agencies provided support for this study: the National Council for Scientific and Technological Development (CNPq), the Minas Gerais State Research Foundation (FAPEMIG) and Pro-Reitoria de Pesquisa of the Federal University of Minas Gerais (PRPq/UFGM).

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