THE EVALUATION AND COMPARISON OF SLEEP QUALITY AND RESILIENCE OF BRAZILIAN AND AMERICAN HEALTH STUDENTS

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Abstract

Sleep quality and resilience are important factors for the health and quality of university students, helping to cope with daily adversities. This study aimed to compare the sleep quality and resilience of Brazilian and American university students. Methods: To evaluate the quality of sleep the Pittsburgh sleep quality index and Wagnild and Young questionnaire (1993) was used to assess resilience. Data were collected between February and April 2017. Students from the physiotherapy program of Estácio de Sá College in Vitória, Brazil, and students of the athletic training and nursing program of the Bethel University, USA, participated in the study. The t-student test and U Mann-Whitney test were used to compare the groups. Results: A total of 93 students, of which 52 Brazilian students and 41 American students were evaluated for sleep quality and degree of resilience. A mean (±SD) PSQI score was 9,38 (±2,87) for Brazilian students and 11,41 (±3,04) for American students. For resilience 135,57 (±14,72) for Brazilian students and 143,29 (±18,61) for American students. The t-student demonstrated did not differ between students for PSQI-BR scores. The U Mann-Whitney demonstrated significant differences in Resilience score ($p<0,05$) and sleep latency ($p<0,05$; cohen's $d = 0,51$), use of sleeping medication ($p<0,01$; cohen's $d = 0,98$) and daytime dysfunction ($p<0,01$; cohen's $d = 0,59$). Conclusions: The results of the present study showed that there was difference only in the components of sleep quality, where Brazilian students showed better sleep than American students. American students, on the other hand, have proved to be more resilient than Brazilian students.

Keywords: Sleep quality, Resilience, Students

1. Introduction

Professional development is strongly anchored in learning about new knowledge, skills and attitudes (MONTEIRO, MOURÃO, 2016). The beginning of academic life should be a moment of joy, for some, due to new relationships, mood disorders and career choice (ANSARI et al., 2014) can be a bit troubled this phase. According to Santos et al. (2012), the student entering higher education faces new challenges compared to high school. Such modifications impact on their individual characteristics, where many are unprepared to face new requirements of a university environment (ROSINI, 2012). Among the characteristics and behaviors that can suffer alteration in the students, the sleep and resilience.

Sleep is a neurobiological process necessary for all species to maintain physical and mental health (BERTOLAZI et al., 2011; OBRECHT et al., 2015), their deprivation may reduce performance in studies. About 8-18% of the general population around the world present poor sleep (ARAUJO et al., 2015). ZanutoI et al. (2015), cite a high prevalence of sleep disorders from 37.2 to 69.4% in the adult population. According to Bertolazi et al. (2011), the evaluation of sleep is complex, since it involves numerous quantitative parameters (sleep duration, sleep latency and number of awakenings), as well as qualitative (purely subjective) parameters. A polysomnography exam, although considered the gold standard for sleep evaluation, has a high cost (ARAUJO et al., 2015). The use of other ways to measure sleep, such as the Pittsburgh Sleep Quality Index (PSQI), has been shown to be effective and able to provide quantitative and qualitative information about sleep quality.

According to Martinez et al. (2016), resilience is a dynamic process of self-reconstruction. Resilience has been an object of study, since it involves a set of social and psychological processes that can favor the healthy development of the person, even experiencing unfavorable experiences (PESCE et al., 2005). This is characterized by the coping and positive adaptation to an extreme event (LUTHANS et al., 2008), maintaining balance and responsibility (SIQUEIRA et al., 2014). Pesce et al. (2005) cite that the understanding of this construct can aid in the prevention and promotion of mental health. According to Monteiro and Mourão (2016), initially studies on resilience

focused on how the human being adapted to stress issues and their immunity, currently resilience is studied as a common phenomenon and present in the development of any human being.

Studies on the quality of sleep in university students are important, since 5-71% of students, regardless of their nationality, present problems with sleep (Araujo et al 2013). In this way, knowing and understanding students' sleep behavior, allows health and education professionals to create programs aimed at improving this public (OBRECHT et al., 2015), reducing the chances for various health problems, absenteeism, decreased productivity; And is closely related to physical, psychological and even death (Araujo et al 2013). Resilience has a positive relationship with academic development, playing an important role for students in the academic program (MATHAD, PRADHAN, RAJESH, 2017). This study aimed to compare the sleep quality and resilience of Brazilian and American university students.

2. Methods

2.1 Research tool

The PSQI assesses sleep quality over a 1-month period. The questionnaire consists of 19 self-rated questions and 5 questions that should be answered by bedmates or roommates. The latter questions are used only for clinical information. The 19 questions are categorized into 7 components, graded on a score that ranges from 0 to 3. The PSQI components are as follows: sleep sleep quality (C1), sleep latency (C2), sleep duration C4), sleep disturbances (C5), use of sleeping medication (C6) and daytime dysfunction (C7). The sum of scores for these 7 components yields a global score, which ranges from 0 to 21, where the highest score indicates worst sleep quality. A global PSQI score greater than 5 indicates major difficulties in at least 2 components or moderate difficulties in more than 3 components.

For the evaluation of resilience, the resilience scale was adopted Wagnild and Young (1993). The scale consists of 25 positively described items, answered on a Likert scale ranging from 1 (totally disagree) to 7 (totally agree). The possible scores range from 25 to 175, with higher scores reflecting greater resilience. After repeated resilience scale applications with a variety of samples, the authors defined that the overall resilience index is composed of the sum of the scores of all items. Indexes above 145 indicate high resilience, between 125 and 145, moderate resilience, and scores below 120, low resilience.

2.2 Statistical analysis

Quantitative variables were expressed as mean ± SD, and qualitative variables were expressed as percentage values. Two-tailed P values of 0.05 or less were considered as statistically significant, and 95% confidence intervals were calculated for results. Group data are described by standard deviations (SD). For comparisons between groups, an analysis of variance (ANOVA) was performed. Internal consistency of the PSQI-BR was assessed by Cronbach's statistics. A probability of $p < 0.05$ was considered statistically significant. Data were analyzed by the Statistical Package for the Social Sciences for Windows (SPSS), version 22.0.

3. Results

Participating in this study were 93 students, 52 Brazilian students and 41 American students. Most of the respondents are female (79.5%), with the majority of respondents being in the 2nd and 3rd semesters (62.3%), 58% of the students do other activities besides the study. Most parents went to high school. Most students do not practice aerobic physical activity (63.4%). Demographic data are shown in table 1. The mean age of Brazilian students was 25.76 ± 6.95 years and for American students 22.58 ± 4.73 years. Regarding body mass index, the majority of students had a normal index.

Table 1. Socio-demographic characterization of the sample,

		Brazilian students		USA students	
		N	%	N	%
Gender	Male	8	15,4	11	26,8
	Female	44	84,6	30	73,2
Semestre in clinical	1˚ year	0	0	4	9,8
rotation	2˚year	18	34,6	9	22,0
	3˚year	19	36,5	12	29,3
	4˚year	9	17,3	1	2,4
	5˚year	6	11,5	15	36,6

Kind of student	Student	27	51,9	12	29,3
	Student & other required activit	25	48,1	29	70,7
Father education	Elementary school	23	44,2	1	2,4
	High school	23	44,2	20	48,8
	University	6	11,5	20	48,8
Mother education	Elementary school	23	44,2	1	2,4
	High school	23	44,2	16	39,0
	University	6	11,5	24	58,5
Exercise for week	0–150 min	30	57,7	29	70,7
	≥150 min	22	42,3	12	29,3
		Mean	SD	Mean	SD
Age (years)		25,76	6,95	22,58	4,73
BMI	Underweight	3	5,8	2	4,9
	Normal	26	50,0	21	51,2
	Overweight	19	36,5	7	17,1
	Obese	4	7,7	11	26,8

BMI = Body Mass Index

Comparison between students showed that the overall sleep quality score showed no difference among the students. However, when analyzing sleep quality components there was a difference in sleep latency components ($p < 0.05$, cohen's d = 0.51), use of sleeping medication ($p < 0.01$, cohen's d = 0.98) and daytime dysfunction ($p < 0.01$, cohen's d = 0.59), these components had a medium, large and medium effect, respectively. The resilience demonstrated significant differences in score ($p < 0.05$; cohen's d = 0.48), showing a small effect (Table 2).

Table 2. Measures of sleep and resilience among students

	Mean	SD	*p*	*Cohen's d*
PSQI	9,38	2,87	*0,591**	0,68
	11,41	3,04		
Subjective sleep quality	1,38	0,82	*0,968*	0,04
	1,43	1,30		
Sleep latency	1,23	0,92	*0,026*	0,51
	1,68	0,84		
Sleep duration	,73	0,95	*0,120*	0,34
	1,09	1,13		
Habitual sleep efficiency	3,00	0,00	*1,000*	---
	3,00	0,00		
Step disturbances	1,57	0,57	*0,381*	0,20
	1,46	0,50		
Use of sleeping medication	0,30	0,70	*0,000*	0,96
	1,07	0,90		
Daytime dysfunction	1,15	0,87	*0,003*	0,59

	1,65	0,82		
Resilience	135,57	14,72	*0,020*	0,46
	143,29	18,61		

* t-student

** Mann-Whitney test

PSQI – Pittsburgh sleep quality index

4. Discussion

The results showed that both Brazilian students and American students have poor sleep quality. This result corroborates with other Brazilian studies (OBRECHT et al, 2015, ARAUJO et al, 2013) and around the world (LEMMA et al., 2012), which shows the vulnerability of undergraduate students to poor quality independent of cultural, environmental and social factors in their region or country. The general average hours of sleep in the sample were 6.67 ± 1.54 hours per day for Brazilians and 5.71 ± 1.32 hours per day for Americans. This result is lower than the general average of the Brazilian adult population (7-9 hours) and worldwide (6.5-8.5 hours) (ARAUJO et al, 2013). However, this result was similar to that found in other studies with Brazilian students (ARAUJO et al, 2013) and American students (LUND et al., 2010; ELIASSON, 2009).

The investigated sample presented a low sleep efficiency for both groups of students. This result resembles the study of Araujo et al (2013), but different from other studies conducted in Brazil (FURLANI, CEOLIM, 2005) and abroad (AKHLAGI, GHALEBANDI, 2009; ROSALES et al., 2007). In this study, a high prevalence of sleeping drug use was observed 19.2% for Brazilian students and 70.7% for American students. This rate is higher than that found in studies by Cardoso et al (2009) (8.7%) and Souza et al (2002) (6.9%) for Brazilian students and Nishino and Mignot (1999) (7.1%) For American students. The use of sleeping pills may be related to other emotional problems, since many students reported being worried.

Daytime sleepiness and daytime disturbances had a high prevalence among students. As daytime sleepiness was 36.5% for Brazilian students and 87.8% for American students, the disturbances during the day were 75% for Brazilian students and 90.2% for American students. These results, similar to that found in the Brazilian population in general (11.6% to 36%), the value for American students is similar to that of Chilean medical students (93.2%) (SANTIBAÑEZ, 1994), but Disagrees with Cardoso et al. (2009) (51.5%) for Brazilian medical students. Daytime sleepiness is present in health students (CARVALHO et al., 2013). This is due to the greater workload in the classroom and to the involvement of extracurricular activities, which may have repercussions on sleep pattern changes (CARVALHO et al. 2013; SOUZA; MAGNA; PAULA, 2003).

The results of resilience have shown that American students are more resilient than Brazilian students. These values resemble the study by Martinez et al. (2016), who evaluated the resilience of medical students. Factors related to high resilience can contribute to the development and well-being of students. In Mathad, Pradhan, Rajesh (2017) study, evaluating the resilience and attention of Indian nursing students, showed that they have moderate resilience, this data corroborates with the data of this study. In the present study, it is possible to compare the effects of resiliency on the mental health of individuals (MATHAD; PRADHAN; RAJESH, 2017, CHAMBERLAIN et al., 2016, PESCE et al., 2005). In the study by Chi and Lee (2014), they found a positive relationship between resilience with satisfaction, commitment and happiness, and a negative relationship with stress. Karasek's model on demand, control, and support says that low-control, high-psychological, and low-support professionals tend to have more wear and tear, suffer more from stress and dissatisfaction (BARCAUI; LIMONGI-FRANÇA, 2014). Such a model resembles physical therapy and nursing students because they are in contact with terminal or chronic patients who in many cases present severe emotional impairment, expose the student to a high demand and low control on certain personal and/or work occasions. Students at AT program have high control and support, as well as high demand. Chamberlain et al. (2016) cite the need for educators and academics to seek strategies for positive coping or to improve current strategies for coping with difficult situations for success.

This study presents as a limitation the small number of participants and because the sample is not probabilistic, and the data can not be generalized. Another limitation is the lack of studies involving students of physical therapy and TA on sleep quality and resilience limiting the discussion about these students.

As a suggestion of future studies, a larger sample to understand the real characteristic of these students. In addition to studies that involve the psychological abilities to understand the profile of these future professionals.

5. Conclusion

The present study compared sleep quality and resilience among health students from two countries. The results showed that Brazilian students present better sleep quality than American students, in the components of sleep latency, use of sleeping pills and daytime dysfunction. The sleep quality score did not differ among study students. Resilience has been shown to be higher among American students compared to Brazilians, showing that American students are better able to deal with adverse situations.

Biography

Fagner Luiz Pacheco Salles is a clinical physiotherapist and acupuncturist, professor, coordinator and researcher of the integrative health group of Estácio de Sá University in Vitória, Espírito Santo. This group aims to improve health and well-being through open, evidence-based assessments. His research line is in human behavior and auriculotherapy.

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