

# DYSFUNCTIONAL BELIEFS AND ATTITUDES ABOUT SLEEP IN UNDERGRADUATE MEDICAL AND DENTAL STUDENTS

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## ABSTRACT

**Objective:** To find out the association of dysfunctional beliefs and attitudes about sleep with sleep quality in undergraduate medical and dental students.

**Methodology:** This was a cross sectional study which included undergraduate medical and dental students of Peshawar, conducted from December 2018 to March 2019. Participants were asked to fill out Dysfunctional beliefs about sleep scale (DBAS-16) and Pittsburgh sleep quality index (PSQI) to determine the type of individual beliefs and attitudes about sleep and quality of sleep. The data were analysed using SPSS version 25. Chronbach's alpha was used to measure reliability of the scales. Chi square test was applied to find out the relationship between quality and expectations about sleep and also to find difference in both based on gender and institute, considering a p-value of <0.05 to be significant.

**Results:** The mean age of the sample (n=1199) was 20.90 ± 1.98 years. Majority of the students were females (n= 742, 61.9%). Unrealistic expectations about sleep were reported by 1060 (88.4%) students on DBAS and 1119 (93.3%) reported poor sleep quality on PSQI. Regarding expectation about sleep, no significant difference was observed in terms of gender and institutes using chi-square test (p=.850 and .363 respectively). However, female students showed significantly poor sleep quality (p=.000) as compared to male students.

**Conclusion:** The study concluded that a large number of medical and dental students have dysfunctional beliefs about sleep which leads to poor quality of sleep.

**Key Words:** Sleep quality, Dysfunctional beliefs, Medical students, Dental students,

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## INTRODUCTION

Sleep is an essential physiological process. It plays an important role in our daily life and reconstruction of physical and mental abilities<sup>1</sup>. Poor sleep quality can be an important symptom of many psychological and medical disorders and can have long term social consequences<sup>2, 3</sup>. This can lead to cognitive and emotional deficits leading to high risk behaviours, diminished behavioural control and poor emotional regulation<sup>4</sup>.

Medical students are considered a population that is particularly prone to sleep disturbance<sup>5</sup>, sleep deprivation<sup>6</sup>, poor sleep quality<sup>7</sup> and excessive daytime sleepiness<sup>8</sup> because of their tough study hours. Poor sleep quality has been proven to have negative influence on the academic results of a medical student<sup>9</sup>.

Some researchers have shown through a cognitive model that people having poor sleep quality are very concerned about their duration of sleep which in turn causes autonomic awakening leading to emotional disabilities<sup>10</sup>. The fear of losing sleep can be caused by the beliefs of an individual about the unpredictability of sleep. Therefore, normal changes in sleep patterns may be considered as clinical problems and may prolong normal sleeplessness into chronic problems. It is evident through research that such faulty beliefs have the potential to worsen the condition of a person having sleep issues<sup>11</sup>. Temporary sleep disturbance may be associated with dysfunctional cognition about sleep and the improvement in cognitive activity about sleep helps to relieve poor sleep using cognitive behaviour therapy<sup>12</sup>.

For medical and dental students, there is an apparent

relationship between sleep and overall health because proper and complete sleep is required for students to perform better in their daily activities and studies<sup>13</sup>. Furthermore, faulty beliefs of a medical student can even worsen the condition much more. Since these beliefs have not been studied in the population under study, we decided to carry out this study to find out the association of dysfunctional beliefs and attitudes about sleep in undergraduate medical and dental students of Peshawar with their sleep quality.

## METHODOLOGY

This Cross sectional study recruited sample from different public and private sector medical and dental institutions of Peshawar, Pakistan. The duration of the study was from November 2018 to March 2019. Convenience sampling technique was used and all the students consenting to participate were included. The study was approved by the Ethical Review Committee of Peshawar Medical College Peshawar. Informed consent was taken from all the participants with explanation of the purpose of the study. The questionnaire consisted of demographic information and the scales i.e., DBAS-16 and PSQI<sup>2,3</sup>. Any student already on treatment for sleep issues was excluded from the study.

The data were analysed by using SPSS version 25. Analysis of the basic variables was carried out using descriptive statistics. The reliability of the scales was measured by using Chronbach's alpha. Chi square test was applied to find out the relationship between the quality of sleep with the expectations about sleep using the cut off scores of DBAS and PSQI. Chi square test was also used to find out the difference regarding expectation and quality of sleep based on gender and institute (private and public sector medical/ and dental college). The results of all the test of significance were considered significant at  $p < 0.05$  level.

Dysfunctional beliefs and Attitude Scale (DBAS-16) is a self-reporting questionnaire designed to identify and assess various sleep related cognitions (e.g., beliefs, attitudes, expectations, appraisals, attributions) and it was initially designed by Morin et al<sup>14</sup>. It is a 16-item likert scale ranging from strongly agree to strongly disagree. Scores can be computed by adding scores for all 16 items and dividing by 16 for an average total score. Those with scores of 4 or greater may have unrealistic expectations for sleep or their thoughts about sleep.

Pittsburgh Sleep Quality Index (PSQI)<sup>2,3</sup> is a self-rated questionnaire which assesses sleep quality and disturbances over the last one month. Nine individual items generate seven "component" scores: "subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction". In scoring the PSQI, seven

component scores with each scored 0 (no difficulty) to 3 (severe difficulty) are derived. The component scores are summed to produce a global score (range 0 to 21). The global score is the sum of scores for these seven components. A total score of "5" or greater is indicative of poor sleep quality.

## RESULTS

A total of 1199 students participated in the study. The mean age of the sample was  $20.90 \pm 1.98$  years. Majority of the students were females ( $n=742$ , 61.9%), were from private sector colleges ( $n=707$ , 59%), and were from 2nd year ( $n=366$ , 30.5%). The Cronbach's Alpha Reliability was 0.822 for the Dysfunctional Belief and Attitude Scale (DBAS) and 0.542 for Pittsburgh Sleep Quality Index (PSQI). Unrealistic expectations about sleep were reported by 1060 (88.4%) students on DBAS and 1119 (93.3%) reported poor sleep quality on PSQI. Further details are given in table 1.

Chi Square test revealed that the students with unrealistic expectations about sleep had poor sleep quality ( $p=.000$ ). The details are given in table 2.

The results showed no significant difference in terms of gender and institutes using chi-square test with DBAS ( $p=.850$  and  $.363$  respectively). However female students showed significantly poor sleep quality ( $p=.000$ ) as compared to male students. Further details are given in table 3.

## DISCUSSION

The purpose of this study was to find out the association of dysfunctional beliefs and attitudes about sleep with sleep quality in undergraduate medical and dental students. The Cronbach's Alpha Reliability of PSQI in our study was similar to other studies conducted in different countries, ranging from 0.7 to 0.85<sup>15-17</sup>. The Cronbach's Alpha Reliability of DBAS<sup>16</sup> scale used in our study was in line with the consistency reported by researches carried out in Turkey, China and Australia, reporting the reliability of 0.8, 0.80, 0.81, respectively<sup>14, 18, 19</sup>. The mean age of our sample was in line with another research carried out on medical students of Karachi<sup>20</sup>. Another research carried out in Brazil had higher mean age than our study<sup>21</sup>.

According to the results of our study, 93% of students showed poor sleep quality on PSQI scale, which is much higher than a study conducted in Brazil on medical students, showing it to be 38.9%<sup>13</sup>. Another study carried out in Pakistan, showed a lower percentage of poor sleep quality in students than our study, that is 77%<sup>22</sup>. Similarly a research carried out in USA, also reported lower percentage than our results, which is 50.9% of the medical students<sup>23</sup>. This is an alarming situation and preventive measures should be taken in

**Table 1: Sociodemographic and psychopathological characteristics of the participants (n= 1199).**

S. No	Variables		Frequencies (%)
1	Gender	Male	457 (38.1%)
		Female	742 (61.9%)
2	Institutes	Private	707 (59%)
		Public	492 (41%)
3	Class	1st year	258 (21.5%)
		2nd year	366 (30.5%)
		3rd year	243 (20.3%)
		4th year	183(15.3%)
		5th year	149 (12.4%)
4	Dysfunctional Belief and Attitude Scale (DBAS)	Realistic Expectations for sleep	139 (11.6%)
		Unrealistic Expectations for Sleep	1060 (88.4%)
5	Pittsburgh Sleep Quality Index (PSQI)	Good Sleep	80 (6.7%)
		Poor Sleep	1119 (93.3%)

**Table 2: Comparison between expectation and quality of sleep.**

		Pittsburgh Sleep Quality Index (PSQI)		Chi-sq. (p- value)
		Good sleep	Poor sleep	
Dysfunctional Beliefs and Attitude Scale (DBAS)	Realistic Expectations for sleep	22 (27.5%)	117 (10.5)	21.163** (.000)
	Unrealistic Expectations for sleep	58 (72.5%)	1002 (89.5%)	

\*\* Significant at 0.05 level

**Table 3: Chi-Square distribution of Dysfunctional beliefs and attitude and sleep quality among gender and institutions (n= 1199).**

Variables		Gender		Chi-sq. (p- value)	Institutions		Chi-sq. (p- value)
		Male	Female		Private	Public	
Dysfunctional Beliefs and Attitude Scale (DBAS)	Realistic Expectations for sleep	54 (11.8%)	85 (11.5%)	0.036 (0.850)	77 (10.9%)	62 (12.6%)	0.828 (0.363)
	Unrealistic Expectations for Sleep	403 (88.2%)	657 (88.5%)		630 (89.1%)	430 (87.4%)	
Pittsburgh Sleep Quality Index (PSQI)	Good Sleep	46 (10.1%)	34 (4.6%)	13.656** (.000)	45 (6.4%)	35 (7.1%)	.261 (.609)
	Poor Sleep	411 (89.9%)	708 (95.4%)		662 (93.6%)	457 (92.9%)	

\*\* Significant at 0.05 level

order to create awareness regarding good sleep.

Similar findings to our study regarding dysfunctional beliefs about sleep were reported in a study carried out in India that showed 86.6% of the medical students to report dysfunctional beliefs<sup>24</sup>.

Our study showed that students having unrealistic expectations about sleep had poorer sleep quality. This

has been reported in a number of studies conducted with varied population<sup>25-27</sup>.

In the light of our study, dysfunctional beliefs score did not show significant difference with gender and were nearly same in both male and female students while a research carried out in China reported the scores to be lower in female students<sup>28</sup>. The contradictory results in that study indicate that females may be more

likely to have greater sleep knowledge and in turn, more proactive in seeking assistance for their sleep problems than males. Another study carried out in USA showed findings similar to our study that there was no gender difference on DBAS scores<sup>29</sup>.

In our study, female students reported poor sleep quality than male students, while a study carried out in India involving medical students reported it to be the same in both the genders<sup>24</sup>. The probable problem with our female students is that they take a lot of stress regarding their studies.

According to a study carried out in China, DBAS<sup>16</sup> score did not show significant difference with type of college<sup>25</sup> which is in favour of the findings of our research, where medical students of private sector medical colleges have non-significant but slightly more dysfunctional beliefs than students of public sector medical colleges.

## CONCLUSION

The study concluded that a large number of medical and dental students have dysfunctional beliefs about sleep and these dysfunctional beliefs lead to their poor quality of sleep. This is an alarming situation; therefore need to work on changing their dysfunctional beliefs and improving their quality of sleep.

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## REFERENCES

- Ghoreishi A, Aghajani AH. Sleep quality in Zanjan university medical students. *Teh Univer Med J (TUMS) Publications* 2008; 66(1):61-7.
- Buyse DJ, Reynolds III CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Res* 1989; 28(2):193-213.
- Giri PA, Baviskar MP, Phalke DB. Study of sleep habits and sleep problems among medical students of Pravara Institute of Medical Sciences Loni, Western Maharashtra, India. *Ann Med Health Sci Res* 2013; 3(1):51-4.
- Chee MW, Goh CS, Namburi P, Parimal S, Seidl KN, Kastner S. Effects of sleep deprivation on cortical activation during directed attention in the absence and presence of visual stimuli. *Neuroimage* 2011; 58(2):595-604.
- Alsaggaf MA, Wali SO, Merdad RA, Merdad LA. Sleep quantity, quality, and insomnia symptoms of medical students during clinical years: relationship with stress and academic performance. *Saudi Med J* 2016; 37(2):173.
- Chinawa JM, Chukwu BF, Obu HA. Sleep practices among medical students in Pediatrics Department of University of Nigeria Teaching Hospital, Ituku/Ozalla, Enugu, Nigeria. *Niger J Clin Pract* 2014; 17(2):232-6.
- Veldi M, Aluoja A, Vasar V. Sleep quality and more common sleep-related problems in medical students. *Sleep Med* 2005; 6(3):269-75.
- Rajendran D, Vinod PB, Karthika M, Prathibha MT. Excessive Daytime Sleepiness in Medical Students. *J Evol Med Dent Sci* 2018; 7(6):747-50.
- Ahrberg K, Dresler M, Niedermaier S, Steiger A, Genzel L. The interaction between sleep quality and academic performance. *J Psychiatr Res* 2012; 46(12):1618-22.
- Harvey AG. A cognitive model of insomnia. *Behav Res Ther* 2002; 40(8):869-93.
- Morin CM. *Insomnia: Psychological assessment and management*. Guilford Press; 1993.
- Okajima I, Nakajima S, Ochi M, Inoue Y. Association among changes in sleep-related beliefs, sleep reactivity, and improvement of insomnia following cognitive behavioral therapy. *Sleep Med* 2017(29):96-7.
- Medeiros AL, Mendes DB, Lima PF, Araujo JF. The relationships between sleep-wake cycle and academic performance in medical students. *Biol Rhythm Res* 2001; 32(2):263-70.
- Morin CM, Vallières A, Ivers H. Dysfunctional beliefs and attitudes about sleep (DBAS): validation of a brief version (DBAS-16). *Sleep* 2007; 30(11):1547-54.
- Backhaus J, Junghanns K, Broocks A, Riemann D, Hohagen F. Test-retest reliability and validity of the Pittsburgh Sleep Quality Index in primary insomnia. *J Psychosom Res* 2002; 53(3):737-40.
- Sohn SI, Kim DH, Lee MY, Cho YW. The reliability and validity of the Korean version of the Pittsburgh Sleep Quality Index. *Sleep Breath* 2012; 16(3):803-12.
- Manzar MD, Moiz JA, Zannat W, Spence DW, Pandi-Perumal SR, BaHammam AS, Hussain ME. Validity of the Pittsburgh sleep quality index in Indian university students. *Oman Med J* 2015; 30(3):193.
- Chung KF, Ho FY, Yeung WF. Psychometric comparison of the full and abbreviated versions of the dysfunctional beliefs and attitudes about sleep scale. *J Clin Sleep Med* 2016; 12(06):821-8.
- Carney CE, Edinger JD, Morin CM, Manber R, Rybarczyk B, Stepanski EJ, Wright H, Lack L. Examining maladaptive beliefs about sleep across insomnia patient groups. *J Psychosom Res* 2010; 68(1):57-65.
- Surani AA, Zahid S, Surani A, Ali S, Mubeen M, Khan RH. Sleep quality among medical students of Karachi, Paki-

- stan. *J Pak Med Assoc* 2015; 65(4):380-2.
21. Rique GL, Fernandes Filho GM, Ferreira AD, de Sousa-Munoz RL. Relationship between chronotype and quality of sleep in medical students at the Federal University of Paraiba, Brazil. *Sleep Sci* 2014; 7(2):96-102.
  22. Waqas A, Khan S, Sharif W, Khalid U, Ali A. Association of academic stress with sleeping difficulties in medical students of a Pakistani medical school: a cross sectional survey. *Peer J* 2015; 3:e840
  23. Brick CA, Seely DL, Palermo TM. Association between sleep hygiene and sleep quality in medical students. *Behav Sleep Med* 2010; 8(2):113-21.
  24. Joshi K, Mishra D, Dubey H, Gupta R. Sleep pattern and insomnia among medical students. *Somnologie (Berl)* 2015; 19(3):205-11.
  25. Carney CE, Edinger JD. Identifying critical dysfunctional beliefs about sleep in primary insomnia. *Sleep* 2006;29(4):440-53.
  26. Edinger JD, Wohlgemuth WK, Radtke RA, Marsh GR, Quillian RE. Does cognitive-behavioral insomnia therapy alter dysfunctional beliefs about sleep? *Sleep* 2001;24(5):591-9.
  27. Espie CA, Inglis SJ, Harvey L, Tessler S. Insomniacs' attributions: Psychometric properties of the Dysfunctional Beliefs about Sleep Scale and the Sleep Disturbance Questionnaire. *J Psychosom Res* 2000;48:141-8.
  28. Jin L, Zhou J, Peng H, Ding S, Yuan H. Investigation on dysfunctional beliefs and attitudes about sleep in Chinese college students. *Neuropsychiatr Dis Treat* 2018; 14:1425.
  29. Ahmed N, Sadat M, Cukor D. Sleep knowledge and behaviors in medical students: results of a single center survey. *Acad Psychiatry* 2017; 41(5):674-8.

### CONTRIBUTORS

NA and MI conceived and conceptualized the idea and wrote the manuscript. NA, HA, SR & SE did data collection, data entry and helped in the write up of the study. MRS did statistical analysis and helped in the write up of the study. MI critically revised the manuscript and supervised the study. All authors contributed significantly to the submitted manuscript