

EXTENT OF SLEEP QUALITY AMONG STUDENTS OF INDIA AND IRAN: A COMPARATIVE STUDY

¹SomayyehPrikamali, ²Lancy D'Souza

ABSTRACT--*In the recent years there have been many studies and researches which have been focused on sleep quality from different parts around the world. Sleep quality of an individual plays very important role in his/her bio-psycho-social functioning. Present study attempted compare and find out extent of sleep quality among students in India and Iran. The sample consisted of 388 students of which 195 were Indian and 193 were Iranian students who were randomly selected from few colleges in India and Iran. The randomly selected students were subjected to the Pittsburgh Sleep Quality Index (PSQI-1989) scale which measured global sleep quality with 7 components. Two way ANOVA was employed to find out the difference among students in terms of country and gender along with interaction effects. Results revealed that Indian students experienced poorer sleep quality than Iranian students, more so in the case of subjective sleep quality and sleep disturbance. Gender comparison revealed that sleep latency scores and sleep efficiency was poorer for female students and sleep disturbance was poorer for male students. Female students of India had poor subjective sleep quality, Iranian female students had poorer sleep efficiency and more use of sleep medication*

Keywords--*Sleep quality, India, Iran*

I. INTRODUCTION

Recently there have been numerous investigations and studies which have been centred around sleep quality from various parts of the world. Sleep can be characterized as a natural and a repeating cycle of the mind and body, viewed as an altered awareness, generally inhibited sensory activity, inhibition of almost all voluntary muscles, and diminished associations with the environment. Sleep is one of the most significant part of an individual's daily schedule. A normal individual spends around 33% of his/her life sleeping. The significance of good sleep and adequate sleep at the proper time is as basic as to endurance as nourishment and water. Without sleep one cannot frame or keep up the pathways in their cerebrum that causes them learn and make new memories. It is harder to focus and respond to a given situation rapidly when the person is deprived of sleep (Brain Basics: Understanding Sleep, 2017). Normal healthy sleep is characterized by adequate time, great quality, proper timing and regular frequency, with the absence of sleep disturbances and unnecessary distractions (Watson et al, 2015).

College life accompanies numerous new stressful encounters, with expanded opportunity, self-duty, disorganized way of life, variable timetables, repeated deadlines, quarters living, and social and scholastic commitments. In order to be aware of such challenges, students disregard sleep by investing the energy in late

¹ Research scholar, Dept. of Psychology, Manasagangothri, University of Mysore, Mysuru-570 006, India,

² Associate Professor of Psychology, Maharaja's College, University of Mysore, Mysore-570 005, India. lancyd@gmail.com

night study meetings, projects, socialising, overusing internet, and different exercises. Despite the fact that enough information on sleep and sleep quality is wide spread, today we are finding many sleep related disorders particularly in adolescents and adults worldwide. Adolescence is a period wherein people from the age 12-20 need to settle on extraordinary choices, for example, applying for college, picking a subject, choosing a profession, and so on. The process of selection is serious, and it brings anxiety and distress from different sources which are gigantic hazard factors for encountering sleep disorders (Rocha, Rossini, & Reimao, 2010). Similarly, College is a significant and sustaining environment for professional education. It furnishes young adults with the imperative aptitudes for their preferred fields, together with empowering them to help themselves and add to their general public.

Normally, a young adult needs at least 8 hours of sleep for each day. However dominant part of the students are sleepless, as appeared by one research in which 70.6% of the college students revealed sleeping under 8 hours with mean total sleep time being 7.02 hours (Lund, Reider, Whiting & Prichard, 2010). Absence of sleep and sleepiness are exceptionally common among college students. Absence of sleep effects and influences learning, memory and execution and also mental and physiological wellbeing of the students. Studies show that absence of sleep can provoke a absolute reduction in execution of optimal cognitive abilities and psychomotor limits, daytime fatigue, extended rate of driving accidents and decreased academic performances, normally resulting in poor scores (Voelker, 2004).

Lack of sleep can have serious symptoms on the different processes and functioning in our body, including endocrine, immunologic, metabolic and cardiovascular and the force of these impacts rely upon how extreme the lack of sleep is (Teter, McCabe, LaGrange, Cranford & Boyd, 2006; Buboltz, Brown & Soper, 2001). This is on the grounds that the explores have closed and point that nature of sleep is essential in the emotional and physical development of the adolescents which have further impacts in learning, consideration, fixation, and the different intellectual capacities (Friedman, Corley, Hewitt, & Wright, 2009). The expansion in cynicism of state of mind and conduct is established from the absence of sleep which frustrates their possibilities in the capacity to think in lucidity, focus in different exercises and their exhibition in school (Dewald, Meijer, Oort, Kerkhof & Bögels, 2010). Few of the studies on sleep quality have revealed the following. As the internet addiction increased, sleep quality of the female students diminished altogether (D'Souza, Samyukta and Tejaswini, 2018), Deeksha and D'Souza (2018), in their investigation also found that salience and neglect social life aspects of internet addiction anticipated sleep quality of college students. In another study (Mahadevaswamy & D'Souza, 2019) students pursuing non-professional courses had better sleep quality than students pursuing pharmacy courses. Students pursuing pre university courses had better sleep quality than students pursuing undergraduate courses. Students pursuing commerce and arts courses had better sleep quality compared to students pursuing Arts courses (D'Souza, Manish & Deksha, 2018).

In the current study it is expected to look at the sleep quality of college students among Iranian students and Indian students in the city of Mysuru. Because of changes in living style and technological advancement, there is a diminished sleep quality among students.

II. METHOD

Sample

The sample consisted of 388 students of which 195 were Indian and 193 were Iranian students who were randomly selected from few colleges in India and Iran. Of the 195 Indian students there were 95 male and 100 female students, and in Iran there were 98 males and 95 females. The students were studying in various colleges in Mysuru city in India and Sistan and Blouchestan cities of Iran. The sample was selected through stratified random technique.

Tools Used

Demographic Details

Information pertaining to name, age, gender, domicile and level of education was asked from the respondents.

The Pittsburgh Sleep Quality Index (1989)

The Pittsburgh Sleep Quality Index (Buysse, Reynolds, Monk, and Berman PSQI-1989) was used to assess the extent of sleep quality among the sample selected. This scale contains 18-items self-reporting the respondents. The items measure seven components sleep quality, score ranging from 0 (no difficulty) to 3 (severe difficulty) for sleep duration, sleep disturbance, sleep latency, daytime disturbance, habitual sleep efficiency, sleep quality, and use of sleep medications. The total of these provide an index referred to as global sleep quality which ranges from 0 to 21. Reliability measures indicate that the PSQI generally has high internal consistency ($\alpha = .80$ to $.85$) and test-retest reliability ($r = .85$ to $.87$). It also has acceptable concurrent validity; scores on the PSQI are highly correlated with scores on other subjective measures of sleep quality ($r > .69$) too.

Procedure:

After taking the permission from the respective authorities, PSQI was administered to a total of 388 students studying in India and Iran. Before administrating the questionnaire, they were assured of confidentiality. They were asked to answer all the questions. In case of difficulty in understanding the item/s, in order to get good response they were made clear in their local language. Once the data were collected, they were scored and fed to the computer.

Tables 1 and 2 present results of 2-way ANOVA

III. RESULTS

Table 1: Mean scores of male and female Indian and Iranian students on various components components and total PSQI and results of 2-way ANOVA

Country	Gender	Components of PSQI			
		Total		C1: Subjective sleep quality	
		Mean	S.D	Mean	S.D
India	Male	6.09	2.64	0.89	0.89
	Female	6.16	2.40	1.12	0.82

	Total	6.13	2.52	1.01	0.86
Iran	Male	5.29	2.81	0.81	0.76
	Female	5.56	1.64	0.59	0.52
	Total	5.42	2.30	0.70	0.66
Total	Male	5.68	2.75	0.85	0.82
	Female	5.87	2.08	0.86	0.74
	Total	5.78	2.44	0.86	0.78
F (Country) _{1, 384}		F=8.263; p=.004		F=16.085; p=.001	
F (Gender) _{1, 384}		F=0.473; p=.492		F=0.003; p=.956	
F (Interaction) _{1, 384}		F=0.178; p=.674		F=8.194; p=.004	
Country	Gender	Components of PSQI			
		C2: Sleep latency		C3: Sleep duration	
		Mean	S.D	Mean	S.D
India	Male	0.91	0.74	0.95	0.87
	Female	1.11	0.78	0.78	0.81
	Total	1.01	0.77	0.86	0.84
Iran	Male	1.30	0.93	0.79	0.94
	Female	1.42	0.68	0.65	0.82
	Total	1.36	0.82	0.72	0.89
Total	Male	1.10	0.87	0.87	0.91
	Female	1.26	0.74	0.72	0.82
	Total	1.18	0.81	0.79	0.87
F (Country) _{1, 384}		F=19.135; p=.001		F=2.719; p=.100	
F (Gender) _{1, 384}		F=4.229; p=.040		F=2.938; p=.087	
F (Interaction) _{1, 384}		F=0.246; p=.620		F=0.038; p=.845	

Table 2: cont'd Mean scores of male and female Indian and Iranian students on various components components and total PSQI and results of 2-way ANOVA

Country	Gender	Components of PSQI			
		C4: Sleep efficiency		C5: Sleep disturbance	
		Mean	S.D	Mean	S.D
India	Male	0.28	0.61	1.31	0.60
	Female	0.32	0.63	1.15	0.58
	Total	0.30	0.62	1.23	0.59
Iran	Male	0.23	0.59	1.09	0.73
	Female	0.80	0.82	0.85	0.56
	Total	0.51	0.76	0.97	0.66

Total	Male	0.26	0.60	1.20	0.68
	Female	0.55	0.77	1.01	0.59
	Total	0.41	0.70	1.10	0.64
F (Country) _{1, 384}		F=10.035; p=.002		F=16.297; p=.001	
F (Gender) _{1, 384}		F=19.565; p=.001		F=9.72; p=.002	
F (Interaction) _{1, 384}		F=15.183; p=.001		F=0.44; p=.507	
Country	Gender	Components of PSQI			
		C6: Use of sleep medication		C7: Daytime dysfunction	
		Mean	S.D	Mean	S.D
India	Male	0.67	0.87	1.08	0.91
	Female	0.58	0.89	1.10	0.85
	Total	0.63	0.88	1.09	0.87
Iran	Male	0.41	0.74	0.66	0.77
	Female	0.75	0.50	0.49	0.62
	Total	0.58	0.66	0.58	0.70
Total	Male	0.54	0.82	0.87	0.87
	Female	0.66	0.73	0.81	0.80
	Total	0.60	0.78	0.84	0.83
F (Country) _{1, 384}		F=0.395; p=.530		F=40.510; p=.001	
F (Gender) _{1, 384}		F=2.473; p=.117		F=0.897; p=.344	
F (Interaction) _{1, 384}		F=7.689; p=.006		F=1.307; p=.254	

Country and Sleep quality:

On an average, both Indian and Iranian students had poor sleep quality as the mean total sleep quality scores of Indian and Iranian students were 6.13 and 5.42 respectively, as both the mean values exceeded the cut off value of 4.0 as unhealthy sleep quality. Further, Indian students had more poor sleep quality compared to Iranian students (F=8.263; p=.004). Components wise comparison revealed that out of 7 components, in 5 components ANOVA revealed significant mean differences between Indian and Iranian students; i.e. in Subjective sleep quality (F=16.085; p=.001), Sleep latency (F=19.135; p=.001), Sleep efficiency (F=10.035; p=.002), Sleep disturbance (F=16.297; p=.001) and in Daytime dysfunction (F=40.510; p=.001), ANOVA revealed significant mean difference between Indian and Iranian students. However, in two of the components of PSQI, i.e. in Sleep duration and use of sleep medication, there were no significant mean differences between Indian and Iranian students.

Gender and sleep quality:

Male and female students did not differ significantly in their total sleep quality scores. However, in components of sleep latency (F=4.229; p=.040), sleep efficiency (F=19.565; p=.001) and in sleep disturbance (F=9.72; p=.002) male and female students differed significantly, where we find that sleep latency scores and sleep efficiency was higher for female students and sleep disturbance was it was higher for male students. In rest of the components-

subjective sleep quality, sleep duration, use of sleep medication and day time dysfunction, male and female students did not differ significantly in their mean scores.

Country, Gender and sleep quality:

While interaction effects were analysed, in three components of sleep quality were found to be significant. In the case of Subjective sleep quality ($F=8.194$; $p=.004$), female students of India had higher scores than male students, where as in Iran, male students had higher scores than female students, in sleep efficiency female students of Iran had higher scores compared to any other groups ($F=15.183$; $p=.001$), and lastly in use of sleep medication component male students of India had higher scores than female students, where as in Iran, female students had higher scores than male students ($F=7.689$; $p=.006$). Rest of the interaction effects were found to be non-significant, indicating that the pattern of sleep quality for male and female students was same irrespective of the country they belong to.

IV. DISCUSSION

Major findings of the study

- Indian students had poorer sleep quality than Iranian students, more so in the case of subjective sleep quality and sleep disturbance
- Gender comparison revealed that sleep latency scores and sleep efficiency was poorer for female students and sleep disturbance was poorer for male students
- Female students of India had poor subjective sleep quality, Iranian female students had poorer sleep efficiency and more use of sleep medication.

From the above findings by the researchers, it is clear that Indian students have poorer sleep quality than Iranian students. India being young country, there is increasing internet penetration over the recent years, resulted in the country's digital population amounting to approximately 688 million active users as of January 2020. The traffic in the world's second largest internet market at this stage was largely dominated by mobile internet users. This leads to a higher percentage of social communication through the various social media platforms, which affects sleep quality badly compared to Iranian students. In international scenario, an investigation in Brazil found that 95.3% of the college students sample examined had poor sleep quality (Araújo, et al, 2013) and in Florida, 27% of all college students are at risk of at least one sleepdisorder (Gaultney, 2010).

The reasons incorporate decreased or dispensed with parental impact and the opportunity to self-select sleep time, expanded academic demand, financial burdens, and the increased number of hours spent working as well as enjoyed extracurricular exercises (Millman, 2005). From a research report led by Samyukta and D'Souza (2018), it was discovered that the 74.8% of the selected students were experiencing absence of quality sleep, and the respondents from the urban region had poorer sleep than the respondents from rural and semi-urban regions. The investigation additionally discovered that the respondents who remained awake till 00:00 hours were more influenced with poor sleep quality than the respondents who slept early. Such respondents moreover experience the ill effects of differed negative reactions, for example, their mind-set, alertness, cognitive abilities and their neuro-motor activity. Indeed, even among students pursuing dental education, it was discovered that 43.3% of the

students had poor sleep quality (D'Souza & Meenakshi, 2018). In an investigation made on the Croatian young adults, the outcomes show that poor sleep quality is related with lacking physical action (Štefan et al, 2018). At the point when the parental impact diminishes, there is unexpected opportunity to assume control over the consequences of one's own life. This may incorporate viewing a late night film or to social media the entire night until they finally sleep. Further, in adolescence, the environmental factors and stress experienced may change the regulation and circadian rhythm sleep (Brand, Markus, Martin, Beck & Trachsler, 2009).

Numerous studies have discovered that internet addiction is a significant problem in the present generation. Ko et al. (2005) announced that roughly 20% of adolescents are internet addicts, parental perception on elementary and middle school students uncovered that about 45% of them have a sleep disorders (Gau, 2006). Fineberg et al (2013) opined that "Addiction-related sleep problems and addiction are prevalent, and contribute to a notable fraction of the disease burden in mental and neurological disorders in established market economies". Subsequently, confirming the drawn out relationship between sleep disorders and internet addiction may prompt to form prevention and treatment procedures for improving sleep quality and decrease of internet addiction. Other than the academic pressure and new way of life changes that can influence sleep, a study made on Japanese students additionally recommended that sleep and dietary practices influenced each other (Otsuka et al, 2018). In a recent study on students pursuing speech and hearing courses, it was found that Instagram addiction affected sleep quality negatively (D'Souza & Negahban, 2019).

Students experience a few significant developments when beginning at college. They need to adapt to "leaving home, increased independence, changes in peer groups, new social situations, maintenance of academic responsibilities and increased access to alcohol or drugs" (Taylor et al, 2013). Elements like limited utilization of the internet, being under parents' influence, enrolment in sports and co-curricular exercises may be the explanation for the difference. Sleep disorder may bring about exhaustion, fatigue, depression and issues in daytime working. Unquestionably, the discoveries of the present study are very disturbing and educationists, therapists and policy makers should investigate these genuine aspects and come out with solid strategies to improve the sleep quality of the students.

REFERENCES

1. Araújo, Márcio Flávio Moura de, Lima, Adman Câmara Soares, Alencar, Ana Maria Parente, Araújo, Thiago Moura de, Fragoaso, Luciana Vlândia Carvalhêdo, & Damasceno, Marta Maria Coelho. (2013). Sleep quality assessment in college students from Fortaleza-CE. *Texto & Contexto - Enfermagem*, 22(2), 352-360. <https://dx.doi.org/10.1590/S0104-07072013000200011>
2. Brand S, Markus G, Martin H, Beck J, Trachsler E.H. (2009). Evidence for similarities between adolescents and parents in sleep patterns. *Sleep Med*, 10, 1124-1131.
3. Brain Basics: Understanding Sleep, 2017. <https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Understanding-Sleep>. Office of Communications and Public Liaison, National Institute of Neurological Disorders and Stroke, US National Institutes of Health, Bethesda, MD. 2017.
4. Buboltz C.W, Brown F, & Soper B, (2001). Sleep Habits & Patterns of College Students. *Journal of American College Health*, 50(3):131-135.

5. Buysse D.J., Reynolds C.F., Monk T.H., & Berman S.R. (1989). The Pittsburgh SleepQuality Index: A new instrument for psychiatric practice and research. *Psychiatry Res.* 28, 193–213.
6. D’Souza, L. &Meenakshi, S., (2018).Relationship between Instagram Addiction and SleepQuality among Dental Students. *International Journal of Research in Engineering, IT and Social Sciences*, 08 (10), 103-108.
7. D’Souza, L &Negahban, M.B.. (2019). Instagram Virtual Network Addiction and Sleep Quality Among Students Pursuing a Speech and Hearing Course. *Interdisciplinary Journal of Virtual Learning in Medical Sciences*.10(1), 1-10.
8. D’Souza. L, Manish. S, &Deeksha. S. (2018).Comparative Study of Sleep Quality betweenPre University and Undergraduate Students: Influence of Select Demographic Factors.*International Journal of Indian Psychology*, 6(4), 44-52. DIP:18.01.065/20180604, DOI:10.25215/0604.065
9. D’Souza L, Samyukta A &Tejaswini S.M (2018). Relationship between Internet Addictionand Sleep Quality among Female Students. *International Journal of Indian Psychology*, 6, (1), DIP: 18.01.088/20180601, DOI: 10.25215/0601.088
10. Deeksha, S., & D’Souza, L. (2018).Does Internet Addiction Affects Sleep Quality Of Pre-University Stdents?*International journal of Indian Psychology*, 6(4), 94-100
11. Dewald, J. F., Meijer, A. M., Oort, F. J., Kerkhof, G. A., &Bögels, S. M. (2010). Theinfluence of sleep quality, sleep duration and sleepiness on school performance inchildren and adolescents: A meta-analytic review. *Sleep Medicine Reviews*, 14,179–189.
12. Fineberg N.A, Haddad P.M, Carpenter L, Gannon B, Sharpe R, Young A.H, Joyce E, RoweJ, Wellsted D, Nutt D.J, &Sahakian B.J.(2013).The size, burden and cost of disordersof the brain in the UK. *J Psychopharmacol.*,27(9):761-70.
13. Friedman, N.P., Corley, R.P., Hewitt, J.K., & Wright K.P. Jr. (2009). Individual differencesin childhood sleep problems predict later cognitive executive control, *Sleep*, 32 (3),323-333.
14. Gau, S.S. (2006). Prevalence of sleep problems and their association withinattention/hyperactivity among children aged 6-15 in Taiwan. *J Sleep Res.* 15 (4),403-414
15. Gaultney J.F (2010). The prevalence of sleep disorders in college students: impact onacademic performance. *J Am Coll Health.* 59(2), 91–97.
16. Ko CH, Yen, J.Y., Chen, C.C., Chen, S.H., &Yen, C.F. (2005). Proposed criteria of internetaddiction for adolescents. *J NervMent Dis*, 193 (11), 728-733.
17. Lund, H.G., Reider, B.D., Whiting, A.B&Prichard, J.R. (2010).“Sleep Patterns andPredictors of Disturbed Sleep in a Large Population of College Students,” *Journal of Adolescent Health*, 46 (2), 124-132. doi:10.1016/j.jadohealth.2009.06.01
18. Mahadevaswamy, P., & D’Souza, L (2019). Assessment of sleep quality between students pursuing pharmacy and non-professional courses: a comparative study, *Shanlax International Journal of Arts, Science and Humanities*, 9 (spl issue, 2), 203-210
19. Millman R.P (2005), Working Group on Sleepiness in Adolescents/Young Adults., AAP Committeeon Adolescence.*Paediatrics*. 115(6), 1774-1786.
20. Otsuka, Y., Kaneita, Y., Itani, O. et al.(2018).*Sleep Biol. Rhythms* <https://doi.org/10.1007/s41105-018-0193-3>

21. Rocha, C.R., Rossini, S & Reimao, R. (2010). Sleep disorders in high school and pre-university students. *Arq Neuropsiquiatr.* 68(6), 903-907.
22. Samyukta A, & D'Souza, L (2018). Assessment of Sleep Quality among College Students: Influence of Select Demographic Factors. *International Journal of Indian Psychology*, 6(3), 178-185. DIP:18.01.039/20180603, DOI:10.25215/0603.039.
23. Štefan L, Sporiš G, Krističević T, et al. (2018). Associations between sleep quality and its domains and insufficient physical activity in a large sample of Croatian young adults: a cross-sectional study, *BMJ Open*, 8:e021902. doi:10.1136/bmjopen-2018-021902
24. Taylor D.J, Bramoweth A.D, Grieser E.A, Tatum J.I, & Roane B.M. (2013). Epidemiology of insomnia in college students: relationship with mental health, quality of life, and substance use difficulties. *Behav Ther.* 44(3), 339–348.
25. Teter C.J, McCabe Se, LaGrange K, Cranford J.A, & Boyd C.J, (2006). Illicit use of specific prescription stimulants among college students: prevalence, motives, and routes of administration. *National Institutes of Health, Pharmacotherapy*, 26, 1501-1510.
26. Voelker R. (2004). Stress, sleep loss, and substance abuse create potent recipe for college depression. *JAMA*. 291(18), 2177-2179. doi: 10.1001/jama.291.18.2177.
27. Watson N.F, Badr M.S, Belenky G, et al (2015). Recommended amount of sleep for a healthy adult: a joint consensus statement of the American Academy of Sleep Medicine and Sleep Research Society. *Sleep*. 38(6), 843–844.