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Original Research Article

Sleep quality and associated risk factors among youth attending health communication centre of a medical college in a rural area of Ujjain

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ABSTRACT

Background: Sound sleep is extremely important to maintain good health, especially for youth, as it is the most socio-economically productive age group of any community. Evidence suggests that poor sleep is associated with various physical and mental health problems. The present study aims to find out the quality of sleep, sleep disturbances, and associated risk factors among youth in a rural area of Ujjain.
Methods: Pittsburgh's sleep quality index (PSQI) questionnaire was used to assess the sleep quality of young adults in the age group of 18-30 years attending health communication centre of a medical college.
Results: Mean PSQI Score of the study participants was 8.37±5.644. PSQI score for females was higher (7.076±5.49 vs 9.258±5.59) than PSQI Score of males. Majority (68.3%) had poor sleep quality but only few (11. 8%) self-rated their sleep quality as poor. Female gender and mobile phone addiction were the risk factors found significantly associated with poor sleep quality.
Conclusions: Poor sleep quality among youth is an important concern as it has health consequences. Lack of self-awareness regarding sleep quality and mobile phone addiction among youth needs educational intervention.

Keywords: Sleep quality, Youth, Rural area

INTRODUCTION

Youth serve as the biggest asset for the development of any country. India with 600 million people in the age group of 18-35 years has immense potential.[1] If this huge young population is guided appropriately, it will prove as a dividend else a disaster. It is quite challenging for the government and society to address various issues related to youth, such as providing education, employment, and health care. With tremendous rise in competition in every aspect of life, many of them are under stress and their health is usually ignored. To maintain good health, sound sleep is extremely crucial, especially for young adults. Role of good sleep is increasingly recognized for young adults especially with regard to connectivity to electronic devices providing easy and all-time access to internet today. Excessive screen time has been found associated with inadequate and poor sleep quality.[2] Inadequate or poor sleep adversely affect their performance in education and work. Evidences suggest that sleep contributes to growth, learning, cognitive functioning, mood, immunity, repair and restoration of mind and body. Inadequate sleep or poor quality of sleep leads to various physical and mental health problems like cardiovascular diseases, diabetes, obesity, cancer, anxiety, depression, poor academic performance, behavioural problems, accidents, and injuries.[2]

The present young generation has witnessed the COVID-19 pandemic and as a consequence of the pandemic, youth have additional challenges to cope, which have shown disruption of sleep.[3] With rapidly changing lifestyle and challenges of youth, it is imperative to study sleep quality, sleep pattern among youth and to identify the associated risk factors. The present study aims to assess sleep quality among apparently healthy youth

attending health communication centre of a medical college in Ujjain.

METHODS

Study design

Cross-sectional study design was used in this study.

Study setting and study population

The present study was planned and conducted in a rural area of Ujjain district from June 2021 to December 2021. Apparently healthy young adults of both genders in the age group of 18-30 years, visiting the health communication centre of medical college, Ujjain were requested to participate in the study with their consent to participate. Approval was taken from the institutional ethics committee.

Sample size

Estimated minimum sample size calculated was 204 with assumed prevalence of 50%, at 95% confidence limits and precision of 7%. Finally, 208 responses were included for analysis.

Sampling technique

Convenient sampling technique was employed for selection of study participants. All the patients visiting the health communication centre of medical college hospital, Ujjain for various medical issues were approached and those who were in the age group of 18-30 years and giving consent for participation were included in the study. Data was collected until completion of required sample size.

Data collection tools and techniques

Sleep quality was assessed by using PSQI questionnaire. It is a self-rated questionnaire which assesses sleep quality and disturbances over a period of one month time period. Nineteen individual items generate seven components score. These components are subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication and day time dysfunction. Questions are rated 0=no difficulty to 3=severe difficulty. The sum of scores gives one global score ranging from 0-21. A score of >5 is considered as sleep disturbance.[4]

Study participants were interviewed once and responses were recorded as reported by the individual on recall of one month sleep. Data regarding risk factors including age, gender, education, socio-economic status, type of family, living away from family, addiction, and mobile phone use were recorded in a predesigned proforma. Mobile phone addiction was assessed by using a twenty item questions and six-point Likert scale by the Basu et al.[5]

Statistical analysis

Mean and standard deviation was calculated for quantitative data, proportions and chi square test of significance was used for association with the risk factors and sleep quality.

RESULTS

Out of the total 208 study participants, 84 (40.4%) were males and 124 (59.6%) were females. The mean age of study participants was 22.8 years (±2.18). Table 1 shows the distribution of the study participants according to the risk factors including age, gender, education, socioeconomic status, type of family, living away from family and mobile phone use. The mean PSQI was 8.37±5.64 and majority, 142 (68.3%) had poor sleep quality. PSQI score for females was higher (7.076±5.49 vs 9.258±5.59) than PSQI Score of males.

Table 2 reveals that 142 (68.3%) participants had poor sleep quality (PSQI score>5), higher proportion of females had high PSQI as compared to males (59.5% vs 74.2%) and this difference was statistically significant (p=0.026). Only 24 (11.5%) participants self- rated their sleep quality as poor. 17.3% participants had actual sleep duration of less than 6 hours. Sleep initiation (Sleep latency) was delayed (>30 min to fall asleep) among 48 (23.1%), midnight awakening was reported by 40 (19.2%) for various reasons such as for getting-up for urination, bad dreams, pain, and breathing problem. Daytime sleepiness was experienced by 42 (20.2%) of the study participants. Higher proportion of females had bad subjective sleep quality (12.5% vs 9.5%), sleep latency >30 minutes (27.41% vs 16.7%), poor sleep efficiency (35.5% vs 33.3%), frequent sleep disturbances (22.6% vs 14.3%) and more day time sleepiness (25.8% vs 11.9%). Sleep disturbance and daytime sleepiness were found significantly associated with female gender.

Table 3 shows the distribution of poor sleep quality according to the risk factors. Younger age group had poor sleep quality as compared to older age group, (70.2% vs 55.6%). Females had poor quality sleep as compared to males (74.2% vs 59.5%) and Level of education doesn't show much difference (67% vs 69.5). According to socio-economic class the distribution of poor sleep was almost similar (68.8% vs 67.9%) in upper and lower classes. Higher number of study participants were living away from family, and their sleep quality was poor as compared to those living with the family (73.6% vs 62.7%). Almost all 189 (90.86%) had mobile phone addiction and out of those addicted, majority (75.1%) had poor sleep quality. Female gender (p=0.026) and mobile phone addiction (p=0.000) were the risk factors found significantly associated with poor sleep quality.

Table 1: Distribution of study participants according to risk factors.

Risk factors	N	Percentages (%)
Age (In years)		
18-25	181	87.01
25-30	27	12.98
Sex		
Male	84	40.38
Female	124	59.61
Education		
Undergraduate	103	49.51
Graduate and above	105	50.48
Socio-economic status (B.G. Prasad 2019)		
Upper, upper middle, middle class	96	46.15
Lower middle and lower	112	53.85
Type of family		
Nuclear	154	74.04
Joint	54	25.96
Living with family		
Yes	102	49.04
No	106	50.96
Mobile phone addiction		
Yes	189	90.86
No	19	9.14
Total	208	100

Table 2: Sleep quality components among study participants.

Sleep quality	Male, n=84		Female, n=124		Total, n=208		X^2	P value
	N	%	N	%	N	%		
Subjective sleep quality-Bad	8	9.5	16	12.9	24	11.5	1.473	0.479
Sleep latency >30 min	14	16.7	34	27.41	48	23.07	3.262	0.071
Sleep duration <6 hrs	14	16.7	22	17.7	36	17.3	0.40	0.841
Sleep efficiency <85%	28	33.3	44	35.5	72	34.6	0.102	0.749
Frequent sleep disturbance	12	14.3	28	22.6	40	19.2	22.472	0.000*
Daytime sleepiness	10	11.9	32	25.8	42	20.2	6.005	0.014*
Sleep medication	2	2.4	6	4.8	8	3.8	0.818	0.366

*Statistically significant at p value<0.05.

Table 3: Distribution of sleep quality of the study participants according to the risk factors.

Risk factors	N	Poor sleep quality, n (%)	X^2 value	P value
Age (In years)				
18-25	181	127 (70.2)	2.315	0.128
25-30	27	15 (55.6)		
Sex				
Male	84	50 (59.5)	4.975	0.026*
Female	124	92 (74.2)		
Education				
Undergraduate	103	69 (67)	0.154	0.695
Graduate and above	105	73 (69.5)		
Socio-economic status				
Upper, upper middle, middle	96	66 (68.8)	0.019	0.890
Lower middle and lower	112	76 (67.9)		
Type of family				
Nuclear	154	106 (68.8)	0.086	0.769
Joint	54	36 (66.7)		

Continued.

Risk factors	N	Poor sleep quality, n (%)	X^2 value	P value
Living with family				
Yes	102	64 (62.7)	2.820	0.093
No	106	78 (73.6)		
Mobile phone addiction				
Yes	189	142 (75.1)	44.988	0.000*
No	19	0 (0.0)		
Total	208	142 (68.3)		

* Significant at p<0.05.

DISCUSSION

Adequate sleep of good quality is an important need to maintain health in all ages. The present study conducted in a rural area of Ujjain district, revealed that majority of the participants (68.3%) had poor sleep quality with mean PSQI score of 8.37±5.64. Other studies have reported poor sleep quality in a wide range of 6% to 78% in varied group of study participants. Jain et al reported poor sleep quality among 77.4% with mean PSQI score of 7.9 among hypertensive, Gargi mondal et al [7] reported 78.4% participants with poor sleep quality and mean PSQI score of 9.65 among patients in psychiatry OPD.[6] Banthiya et al in their study reported 57.2% of general population with poor sleep quality and mean PSQI score of 6.78.[8] Mishra et al in their study on medical undergraduates reported 45% with poor sleep quality.[9] Even adolescents and children have been reported with poor sleep quality such as in a study by Thomas A et al in their study on sleep disorders found 59% of the study participants with sleep disorders and poor sleep quality.[10] A study from south Indian rural area reported poor sleep quality among 36.3% study participants.[11] Yardi and Adsule reported a prevalence of 13.8% among young corporate employees.[12] A study by Panda et al conducted among healthy individuals visiting a tertiary care health centre reported 6% prevalence of poor sleep quality.[13] The difference in the prevalence of poor sleep quality is due to various methodological criteria including study settings either hospital based or community based, study timings, age groups, tools for assessment, analysis and underlying health conditions. The studies on sleep quality during COVID-19 pandemic have reported higher prevalence of poor sleep quality and its measures.[8,9,14,15] The present study was also conducted just after the pandemic where various challenges during covid continued and added to the stress of the young adults resulting in poor sleep quality.

Subjective sleep quality is the self-awareness of the quality of the sleep. In the present study only 24 (11.5%) of the study participants reported subjective sleep quality as “poor”. Subjective quality of sleep in a study by Banthiya was reported as fairly bad by 20.3% study participants.[8] Lack of self-awareness of poor sleep quality indicates that sleep is neglected and thus no effort towards improving it. Evidences suggest that subjective sleep disturbances are associated with reported health and overall quality of life. [16] This suggests the need for sleep quality awareness among people.

Sleep latency, that is, the time taken to fall asleep >30 minutes was found among 23.1% of the study subjects. Sleep latency was reported 18% in a study by Ramaswamy.[11]

Minimum 7 hours of sleep is required for an adult to maintain good physical and mental health. In the present study the sleep duration was less than 6 hours among 17.3% young adults which is nearly similar to the study by Ramaswamy (18.4%) among study subjects from Rural south India.[11] Giri et al reported sleep duration less than 6 hours among 30% postgraduate medical students with mean PSQI 7.8 and 16 % among undergraduate medical students with mean PSQI score 5.76.[17] Daytime sleepiness reflects sleep disturbances in night due to various reasons like for urination, breathing problem, snoring, coughing, feeling cold or hot, bad dreams, pain etc. Daytime sleepiness was found in 20% of study participants which is nearly similar to study by Giri et al (17.3%) among medical students, and lower than reported by Banthiya et al, 42.5% in general population during covid pandemic and by Mishra et al 73% in medical students.[8,9,17] Daytime sleepiness and sleep disturbances were significantly associated with female gender in the present study which is quite obvious as overall poor sleep quality is more prevalent among females and disturbed sleep resulting in to daytime sleepiness among females. Female gender was found associated with poor sleep quality in studies by Maurya, Ramaswamy, Mishra, while Giri reported better sleep quality in females.[9,11,17,18] Daytime sleepiness may affect active participation of an individual in various personal and professional activities. This may prove very dangerous if the activity requires high attention and prompt actions failing which may lead to serious accidents and even death. Youngsters live away from home for reasons like education and work this may cause emotional disturbances leading to poor sleep. The present study found that those living away from family reported poor quality of sleep-in higher proportion (73.6%).

Mobile phone addiction was very high in the present study population (90.86%). A mixed method review study reported that smart phone addiction in India ranges from 39% to 44%.[19] This is most likely due to COVID pandemic. To control the pandemic, lockdown and social distancing were imposed which compelled people to use these electronic gadgets for disproportionately longer duration for entertainment and to communicate. Young adults excessively used mobile phone for online

education, for online working and entertainment. The present study revealed a very strong association of mobile phone addiction and poor sleep quality as majority (75%) participants with mobile phone addiction had poor sleep quality. Evidences suggest that excessive use of electronic media with gadgets like mobile phone, laptop, computer, and television are associated with poor sleep quality and poor health.[11,18,20]

There is often a bidirectional relationship between sleep and health. Disturbed sleep may lead to health consequences and health conditions may affect sleep quality. Sleep quality is determined by multiple factors like age, gender, working conditions, type of occupation, living conditions, environmental factors, stress, dietary habits, addiction, physical activity and underlying morbidities.

Limitation

Study was done on young adults in a hospital setting only. A broad community-based study maybe required to assess the sleep quality and its association in the general public for better representativeness. Secondly, limited factors were considered in this study which affects sleep quality in an individual. There may be other factors that need to be explored through a qualitative study.

CONCLUSION

Young adults are the healthiest group of community and expected to bear maximum responsibilities but quite vulnerable to undergo stress in their personal and professional life. This period of life is also more open to adopt new lifestyle including technologies, addictions and behaviours to match with their peers. All these factors affect their health and sleep. Findings of the present study suggest that poor sleep quality among youth is a serious health concern and they are unaware of their poor sleep quality. Excessive mobile phone use by young adults has badly affected sleep quality in recent times. Females were more affected by sleep disturbances. Urgent gender sensitive educational interventions are needed to improve the awareness and behaviour of youth especially excessive use of mobile phone which would eventually improve the quality of sleep.

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