



Evaluation of Causes of Sleep Disorder and its Influence on Quality of Life (QoL) of Indian Population: A Questionnaire-Based Survey

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Abstract

A large number of people suffer from sleep problems, which have a negative impact on their ability to perform, socialise, and cope with stress. We tested the hypothesis that sleep and quality of life (QoL) are linked in the Indian population. A questionnaire based on literature was designed and sent through Google Forms to a large working population in India to find out the reasons of sleep disorders and the level of obstruction in quality of life. March 2021 to May 2021 was the time frame for the study. Social demographic data, the Beck Depression Inventory (BDI), the Pittsburgh Sleep Quality Index (PSQI), and the World Health Organization Quality of Life Scale (WHOQoL) were used to collect the data. A total of 271 participants took part in the survey and provided us with their thoughts. There were 120 men and 151 women among the 271 participants. A total of 271 persons, with an average age of 48 and a weight of 90 kilogram, were included in the study. Patients with any chronic condition had considerably higher overall



PSQI and depression ratings, although their WHOQOL scores were significantly lower in physical, mental, and social domains. Sixty-one percent of those who took part in the research said that stress had a significant impact on their ability to sleep, and that their inability to get enough sleep in turn led to even more stress. Stress, anxiety, smoking, alcohol, caffeinated beverages, and underlying medical conditions were the most common sources of sleep disturbances, although these were by no means the only factors to be considered.

Keywords: Sleep, health, habits, alcohol, smoking

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1. Introduction

One-third of the population suffers from sleep disorders, making it an important clinical issue [1-2]. Irritability to sleep, which results in sleep deprivation or a poor night's rest, is the most common definition of insomnia [3]. There are six key categories of sleep disorders in the International Classification of Sleep Disorders (ICSD) guideline including insomnia, sleep-related respiratory disorders, hypersomnias, disorders of the circadian rhythm, parasomnia, and sleep-related movements [4]. Even when there is enough opportunity and support for sleep and it results in some sort of everyday impairment, ICSD-11 describes persistent issues with sleep start, duration, consolidation, or quality. [5].

Sleep problems are becoming more common, and they have been linked to detrimental effects on health. Obstructive sleep apnea (OSA), restless legs syndrome/periodic limb disorder, and circadian rhythm sleep waking disorders are only a few examples of the many distinct forms of sleep disorders. [6]. Sleep disturbance is caused by a variety of factors, including stress, anxiety, drinking and smoking. They are the most popular psychoactive substances in the world. Energy drinks may also harm health through their ability to keep people up at night [7]. Drinking and smoking within four hours of going to bed has been linked to more sleep fragmentation, according to a recent study conducted in the United States on evening alcohol, caffeine, and nicotine consumption [8]

Anxiety is infamous for being elusive in its description. Long-term stress is linked to a wide range of health issues [9]. In addition to raising blood pressure and heart rate unhealthily and increasing blood sugar levels over the normal range, chronic production of stress hormones

increases the chance of developing diabetes and other metabolic diseases. Non-rapid eye movement (NREM) & rapid eye movement (REM) sleep patterns may become unbalanced while you're under stress (REM). Your state of health depends on receiving a decent night's sleep, yet obtaining enough of either kind of sleep can be challenging, if not impossible. Health-related quality of life (HRQOL) is an important component of health evaluation, equally as important as medical indicators in a holistic perspective of health and disease [10]. A positive change in either of the above-mentioned areas is regarded as a successful outcome. There is a well-documented link between health and quality of life. HRQOL assessment is critical in the context of chronic illness, since the return to full efficiency is difficult or impossible to attain.

In addition, QOL assessment is useful in assessing the efficacy of treatment techniques and adjusting them if necessary. The goal of this study was to look at the connection between Indians' quality of life and their sleep. It was hypothesized that poor sleepers will have poorer quality of life (QoL) scores than those who get enough sleep. Previous findings suggested that correlations between parental involvement and non-parental factors would be weaker.

2. Material and methods

2.1 Type of study

Using PubMed, NCBI (National Center for Biotechnology Information), and World Health Organization (WHO), a literature review was conducted before beginning a survey-based study. A total of 100 papers were screened for a study on the causes of sleep problems and their impact on quality of life. Only those studies that focused on the causes and quality of life were taken into consideration. These articles were



used to create a google form, which was then sent out to our 271-person sample size. March

2021 to May 2021 was the time period for the study.

2.2 Sample size formula

$$x = Z^2 / 100 \cdot r(100-r)$$

$$n = N \cdot x / ((N-1)E^2 + x)$$

$$E = \text{Sqrt}[(N-n)x / n(N-1)]$$

After the institutional research and ethics commission has approved the study, the period of study will be 6 months.

Data collection tools

Pittsburgh Sleep Quality Index (PSQI) and WHO Quality of Life (WHOQOL) Scale sociodemographic data were used in this study. The head of the pharmacy practise department at TeerthankarMahaveer Tertiary Care Hospital, Moradabad, obtained the necessary organisational consent and informed consent from the study participants.

Pittsburgh Sleep Quality Index (PSQI)

The PSQI is a 19-item self-report questionnaire used to gauge a person's overall sleep health and any recent sleep problems. 19 questions are self-assessed and 5 questions must be rated by a roommate or sleeping partner. Only seven factors were taken into account in the scoring: sleep latency, sleep quality, sleep length, restlessness and daytime dysfunction as well as the use of sedatives or hypnotics. Components are scored on a scale of 0 to 3. The global PSQI score is the sum of the scores of seven components. The worldwide PSQI score is between 0 and 21. A "poor sleep quality" is indicated by a global score greater than 5 [11].

World Health Organization Quality of Life Scale (WHOQOL)

Individuals in India can take the WHOQOL, a questionnaire that measures how they view their quality of life. Positive and negative aspects of quality of life are outlined in this section of the document. The total number of questions is 27. They ask about the last 15 days. All save the first two generic questions can be answered in terms

of physical, psychological, social, environmental, and national environment. These are ordinal rating scale questions with an usual Likert scale of five levels. To put it another way: Quality of life improves as the scores climb in the five categories graded between zero and twenty points.

Statistical analysis

SPSS 17.0 was utilized to analyze the data (SPSS Inc., Chicago, IL, USA). After a normal distribution test, constant variables were evaluated using parametric and nonparametric tests. To compare more than two groups, we used Kruskal-Wallis variant analysis (Dunn's technique), and to compare categorical variables, we used the Student's t for independent groups. It was noteworthy at P0.05.

3. Results

Following the distribution of our questionnaire using Google Forms, we discovered that a total of 271 individuals took part in the study. For the purpose of finding out the causes of sleep disorders and how much they affect quality of life, we created a questionnaire. There were 120 men and 151 women among the 271 participants. The mean average of patients age was 48 ranged from 19-72. Patients were on the heavier side, averaging around 90 Kg. Those with poor sleep quality on average were much older than patients with high sleep quality. Patients who were married, jobless, chronically unwell, or sad had lower sleep. Good sleepers scored higher on all measures of quality of life (p 0.05). (Table 1). Scores on the WHOQOL life quality sub-scale, the PSQI, and the BDI had negative correlations (p0.05). PSQI and BDI scores correlated positively.



The WHOQOL life quality subscales had a positive connection ($p < 0.05$) (Table 1).

In order to figure out what's causing the poor quality of sleep, researchers devised a questionnaire (Table 2). Sixty-one percent of those who took part in the research said that stress had a significant impact on their ability to sleep, and that their inability to get enough sleep in turn led to even more stress. Of those surveyed, 59.8% said that their daily routines were disrupted as a result of poor sleep cycles, which could lead to stress and lower quality of life. 60.1% of those polled reported feeling clumsy, uninterested, and annoyed the day following a sleepless night. Sixty-three percent of respondents said that sleep problems had an impact on both their personal and professional lives. After a sleepless night, 65.7 percent of people found it difficult to focus on a specific task, which has a negative impact on their quality of life. After a sleepless night, 67.2% reported

feeling unhappy and anxious. After a sleepless night, 61.3% of respondents reported feeling drowsy. Consuming more than average caffeinated products may be a contributing factor to a lack of sleep in people, according to a new study (Figure 1). According to the pie chart in Figure 2, 25.8% of respondents believe their alcohol consumption should be reduced because it disrupts their sleep patterns. People with underlying health conditions, such as discomfort, breathing difficulties, acid reflux, or nighttime cough, reported trouble sleeping in 72% of the cases studied. 67.5% of those polled stated that stress was the primary cause of their insomnia. There were 74.2% of people who admitted to smoking as a contributing factor because smoking interferes with sleep. These problems were blamed by 65.7% of patients on an inconsistent sleep schedule. Some 77.5% of those surveyed have a hereditary condition that can lead to sleep problems.

Table 1 Distribution of the polysomnography patients according to their demographic-socio-cultural backgrounds and analysis of sleep quality

Variable	Number	PSQI		P-value
		Good (n)	Bad (n)	
Age	48 (19-72)	91	180	0.001
Gender				
Male	120	52	68	0.032
Female	151	69	82	0.05
Educational status				
Illiterate-Literate	19	5	14	0.001
Primary school	50	26	24	0.031
High school	124	50	74	0.012
University	80	21	59	0.022
Marital status				
Single	21	17	5	0.05



Married	250	71	179	0.01
Resident in				
City	236	102	134	0.002
Village	35	11	24	0.001
Employment				
Yes	164	72	92	0.05
No	107	40	67	0.032
Profession				
Worker	84	43	41	0.01
Government employee	77	32	45	0.024
House wife	60	15	45	0.05
Self employed	40	17	23	0.001
Other (Student, farmer)	10	6	4	0.05
Smoking				
Yes	71	32	39	0.001
No	200	112	88	0.043
Alcohol				
Yes	18	6	12	0.05
No	253	124	129	0.05
Chronic disease				
Yes	111	30	81	0.001
No	160	78	82	0.021
Depressive symptom level				
None	50	38	12	0.05
Mild	80	38	42	0.001
Moderate	93	13	80	0.05
Severe	48	0	48	0.05
WOQOL				

Physical field	56.1	15.7±1.1	12.8±1.2	0.001
Mental field	53.3	12.3±0.8	11.4±1.1	0.05
Social field	58.4	13.8±1.2	12.9±1.3	0.018
Environmental field	62.2	14.2±1.2	13.8±0.8	0.013

Values are represented as mean±SD. PSQI - Pittsburgh Sleep Quality Index, BDI - Beck Depression Inventory, WOQOL- World Health Organization Quality of Life Scale.

Table 2 Questionnaire to evaluate cause of sleep disturbance that influence health and quality of life

S. No.	Questionnaire	Yes (%)	No (%)
1	Does poor sleep cycle disturb your daily routine?	59.8	40.2
2	Do you feel clumsy, disinterested, irritated after a sleepless night?	60.1	39.9
3	Is your performance in your professional and personal life affected due to sleep issues?	63.1	36.9
4	Do you find difficulty in concentrating on a particular thing?	65.7	34.3
5	Do you feel depressed or have anxiety after a sleepless night?	67.2	32.8
6	Do you feel your energy levels are low after a sleepless night?	61.3	38.7
7	Do you have any significant health problems that affect your ability to sleep well such as pain, breathing difficulty, acid reflux, or night cough?	72	28
8	Do you ever feel that stress is a reason for your lack of sleep?	67.5	32.5
9	Is your sleep schedule irregular?	65.7	34.3
10	Do you have any kind of genetic disorder?	77.5	22.5

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Discussion

Our bodily well-being suffers as well as our emotional well-being when we suffer from sleep disturbances. Sleep disorders are prevalent in Indians today, and our study helped us uncover their underlying causes and the impact they have on people's overall well-being. It is time for us to focus our attention on these challenges in a country like India, where mental health is not given much consideration. There is a noticeable difference in how young individuals perceive the physical and mental world compared to how

those over the age of 50 perceive the same world. According to the authors of the study titled "Sleep and Aging - Interactions and Consequences," S. R. Iyer and R. R. Iyer have found that as people get older, their sleep patterns undergo both subjective and polysomnographic changes [12].

According to the findings, patients with poorer sleep quality were substantially older on average than those with better sleep quality. Adults over the age of 60 are more likely to experience sleep issues [13]. Having a lot of medical difficulties,



psychological stressors, retirement, being at home, and other similar social position and age-related activities, we hypothesise that sleep deprivation and degradation with ageing may be linked. This study found that married patients had considerably worse sleep quality than unmarried patients. For example, Senol et al. observed that married adults had more serious issues with sleep quality than unmarried participants did. There is no one-size-fits-all explanation for poor sleep quality.

Patients who were unemployed had lower sleep quality than those who were working. During their studies, Saygili et al., 2011 found no difference in sleep quality between employed and jobless students [14]. Elderly individuals who live in cities are more likely to have poor sleep quality, according to a new study. Employed patients are anticipated to have a good night's sleep. Patients who were out of work had significantly higher PSQI global and depression scores, while their WHOQOL scores in physical, mental, and environmental categories were significantly lower. Patients with a long-term medical condition were shown to have a considerably lower quality of sleep in this study. Sleep quality was considerably lower in individuals with chronic disease who had higher PSQI global scores, according to studies by Senol et al., 2013 [15]. These include depression, cardiovascular illness, and cerebrovascular disease in persons with a sleep disturbance." Depressed and severely depressed patients were shown to have lower sleep quality in the research. Sleep deprivation has been linked most closely to depression [16]. As a result, it is critical to monitor and manage the mental and sleep issues of the elderly and those with chronic medical conditions in particular.

There were 60.1% of respondents in this study who were disturbed by stress, which causes them to not get enough sleep. The findings of Gualano et al., 2020, were in agreement with this study [17]. 42.2 percent of the participants in the Italian study had sleep difficulties, with 17.4 percent reporting moderate/severe insomnia, according to the researcher. They opined that the way we live has a direct impact on our health, and that we must take steps to better control and

improve it. Patients with sleep disturbances should get treatment from a licenced medical professional as soon as possible. Smoking and drinking alcohol had a negative impact on sleep quality in this study. Non-modifiable factors like age, which increase the risk of diseases with age, have a negative impact on the quality of life for those who smoke [18]. In this study, 72% of participants reported trouble sleeping due to underlying illnesses such as discomfort, breathing difficulties, acid reflux, or a nighttime cough. Researchers found that asthmatics had more frequent and more severe symptoms of reflux during the day and night, as well as more nocturnal awakenings from sleep caused by reflux than non-asthmatics did [19-20].

Disrupted sleep is a common condition, and it can be caused by a variety of things, including a person's lifestyle, their surroundings, their mental health, and even medical interventions. In those who are otherwise healthy or have a medical condition, sleep disruption can have a short-term effect on quality of life (QoL). Hypertension, dyslipidemia, cardiovascular disease (CVD), obesity, the metabolic syndrome, and type 2 diabetes (T2DM) are long-term implications for otherwise healthy people [21]. Depression and anxiety are common symptoms of mental illness. Stress can be alleviated by managing your emotions and surrounding yourself with people who are happy and healthy.

According to our findings, the WHOQOL life quality subscales, BDI and PSQI had a strong negative connection. Patients with serious sleep disorders, according to Schuilting et al., 2005 had significantly worse sleep quality [22]. As a result, working on all of these issues at once is more effective than doing so one at a time.

Conclusion

Finally, we found that the quality of sleep was much lower among people who were elderly, wedded, jobless, and experiencing severe depressive symptoms. Life quality, depression, and sleep quality all showed a strong inverse relationship, whereas sleep quality showed a strong inverse relationship. One's personal and professional health might be negatively affected



by sleep difficulties caused by excessive use of caffeinated beverages, as well as stress, which can affect their capacity to perform at their best. As people's quality of life declines, stress levels rise, which in turn contributes to sleep difficulties. In addition, as sleep difficulties may contribute to both a decline in quality of life and a more severe form of depression, it is critical to consider both these aspects when developing prevention and treatment strategies for sleep problems.

Declaration

The authors declared no conflict of interest.

Legends to Figures

Figure 1 Frequency of consuming caffeinated beverages (Coffee, cola, etc.) per day

Figure 2 People ever feel to cut down the amount of alcohol they drink

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