



A Cross Sectional Study for Evaluating Sleep Hygiene and Its Importance in Ensuring Community Health Conducted in Ahmedabad City, Gujarat

Vedanti Dave¹, Dr. Dhaval Parekh^{*2, 3}, Tattvam Shah³

^{1,3}MBBS Student BJ Medical College, Ahmedabad

²Senior resident, Department of Community Medicine, BJ Medical College, Ahmedabad

***Corresponding Author:**

Dr. Dhaval Parekh

Senior Resident, Department of Community Medicine, BJ Medical College, Ahmedabad

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Abstract

INTRODUCTION - Sleep is a highly important yet an unattended aspect of our lives. It is one parameter for good health which affects various aspects of our health like emotional, social and even physical wellbeing to name a few.

METHODOLOGY - A cross sectional study was conducted by sending a pre formed questionnaire to 230 people out of whom 208 responded. Analysis of the data was done using Google forms and Microsoft excel.

RESULTS - The study showed a high degree of association of the coping strategies used and the long -term response to sleeplessness between males and females. Significant association was also found between males and females with respect to the various types of activities they performed in the bed. The study highlighted that the majority of the people had sleep duration of 6 hours. A disappointingly lower number of people were aware about the concept of sleep hygiene. Most people experienced a sleep debt of 1-2 hours every day.

CONCLUSION - The study highlighted the occurrence of poor sleep qualities and habits largely due to the lack of awareness about sleep hygiene. This study tries to help people understand the science behind importance of proper undisturbed sleep. It emphasizes on the importance and need of sleep education for everybody to ensure a healthy life and its impact in improving overall community health.

Keywords: Community Health, Learning, Lifestyle, Problem-solving skills, Sleep debt, Sleep hygiene

INTRODUCTION

Sleep is a very important yet highly unattended aspect when one talks about health. It is one parameter for good health which affects various aspects of our health like emotional, social and even physical wellbeing to name a few. Sleep is also affected by tons of aspects of one's current lifestyle like stress, workload, physical exertion, emotional states; sleep environment like lighting, sound and noises, exercise and food intake just before bed time and the list goes on.

Most people have fallen in a vicious cycle of disowning their responsibility to ensure a good quality sleep and rest to their bodies and that in turn has increased the amount of stress, inefficiency at work etc

without them even knowing about it. Thus, it has become very important for each and every one of us to start improving our awareness about sleep and sleep hygiene to target every facet of human health and minimise hindrance due to our lifestyle choices on sleep and fine tuning every aspect of health for the better.

Modern science and research have increasingly started to focus on biohacking as a new emerging way to improve health and fitness and the equally important tool to head towards a healthy and fit life is SLEEP. Science has proved that sleep improves learning and education by facilitating spontaneous associative

retrieval process, long term and declarative memory. [1, 2, 3] Targeted memory reactivation during sleep facilitates problem solving when awake. [4] It further enhances the variability of motor performance. [5]

Increased mental health issues are associated with poor sleep habits and vice versa. [6, 7] It is important to note that sleep has been postulated to be a good marker for mental and physical health in elderly. [8] Sleep problems are common in early infancy and are highly associated with poor maternal health and well-being. [9] Hence it is important that we are aware about good sleep habits and incorporate them into our daily lives.

MATERIALS AND METHODS

A cross sectional study was conducted where a preformed semi structured questionnaire was sent using google forms. A preformed questionnaire was used which was validated with the help of a pilot study. Data was collected to analyse the sleep quality, quantity, habits and awareness about the concept of sleep hygiene. The questionnaire was prepared in English and Informed consent was taken from all respondents. The questionnaire was sent using Whatsapp and e-mail from all the participants thus allowing data capture from various places. Ethical approval was approved for this study. Chi square test was used as a statistical method to establish a significant association amongst various variables

Analysis of all the data collected was done using Microsoft Excel 2019 and Google Forms.

RESULTS

A total of 230 people were sent the forms out of which 208 people responded from which 115 (55.2%) were male and 93 (44.7%) were female.

People from a wide spectrum of age groups participated in the study. Majority, that is 83 (39.9%) were in age group of 10-20 years, followed by 47 (22.6%) in the age group of 41-50 years. Mean age group of the respondents was 34.31 years and the median age was 27.5 years (Table 1).

The respondents rated their sleep quality which ranged from very poor (1) to excellent (5). 93 (44.7 %) people reported a sleep quality of Good (4) while 2 (1%) people had a sleep quality of Very poor (1) (Figure 2). Sleeplessness was experienced by 58 (27.9%) respondents very frequently while 105 (50.5 %) had never experienced it (Table 2). 107 (51.4 %)

respondents had felt sleepy and tired on at least 2 days in a week (Table 2).

The most common immediate response to sleeplessness was staying in bed and trying to sleep used by 118 (56.7%) respondents. Coping strategies to tiredness in the daytime which were used most often was taking a nap by 94 (45.2%) respondents, while the most used strategy to counter lack of sleep in the long term was to avoid using bright screens and gadgets at least 2-3 hours before bedtime according to 79 (37.8 %) respondents. A significant association was found between the various coping strategies used for sleeplessness as well as the long-term response to sleeplessness between males and females ($p < 0.05$) (Table 3). A significant association was found between the types of activities performed in bed apart from sleeping between males and females ($p < 0.05$) (Table 4).

The average undisturbed sleep time on a week day (Sleep Duration) ranged from a minimum of 5 hours to 11 hours. 119 (57.2%) respondents slept for 5-7 hours, 85 (41%) slept for 8-9 hours, 4 (1.8%) slept for 10-11 hours. The number of additional hours of sleep they need in a day (Sleep Debt) ranged from 0 hours to 4 hours. 17 (8.1%) people had 0 hours of sleep debt, 126 (60.5%) had a sleep debt of 30 minutes to 1.5 hours, 63 (30.1%) had 1.5-3 hours of sleep debt and 2 (1.3%) required 3-4 hours of additional sleep.

The most common activity done in bed apart from sleeping was reading books, magazines etc by 110 (54.8%) of the respondents (Table 4). The most appreciated sleep environment was a quiet/silent and calm one which was used by 163 (78.4%) of respondents. 100 (47.9%) of the respondents strongly agreed that sleep was very important to them and that it largely impacted their health and work lives while only 6 (2.8%) of them disagreed to this fact (Figure 2).

98 (47.3%) of the respondents were very confident about their knowledge about sleep hygiene, 61 (29.3%) had no knowledge at all and 59 (28.4%) were not very confident but knew something about the topic. The most well-known fact about sleep hygiene was fixing a particular bed time for everyday [147 (70.7%) respondents knew about it] while the least known fact was avoiding exercise at least 1-2 hours before bed time [only 61 (29.3%) respondents knew about it].

DISCUSSION

The results of the survey have highlighted that a huge number of people have sleep duration of less than 6 hours. Whereas according to a study conducted by The National Sleep Foundation in 2015 across a wide range of age-groups the minimum adequate undisturbed sleep of at least 7-9 hours in young adults and 6-8 hours in older adults has been recommended by most health experts at School of Medicine, Stanford University, Stanford, CA, USA. ^[10] It also showed that a large number of people felt that they have a sleep debt of average 30-60 minutes a day and a feeling of tiredness at least 2-3 days a week. There are numerous studies with similar results which state that current sleep habits seemed to be detrimental in the long run leading to a lot of lifestyle diseases. While on the contrary enhancement in states of health and fitness are seen in people with better sleep hygiene habits as per the studies conducted in the USA. ^[11, 12, 13]

It could be evidently appreciated that most people did engage in various activities apart from resting and sleeping on the bed all through the day. Many people had bright lights and noises in and around their sleep environments, habits of eating, exercising or consumption of caffeine rich substances like coffee just before bed time. Studies have proven that a simple behavioural modification like not using the bed for any other work apart from sleeping helps an insomniac patient to sleep better because the brain starts to associate the bed and the surrounding environment strictly with sleep. It has been researched upon and proven that keeping away from bright lights, noises, avoiding meals and caffeine consumption, exercising before bed time helps to sleep better. Other behavioural modifications like taking a shower, meditation etc enhances the quality of one's sleep according to study conducted in India and another in Chicago. ^[14, 15]

It was also seen that the amount of awareness regarding sleep hygiene was seen in a disappointingly small number of participants. Studies have shown that when people of any age group were educated and made aware of the concept of sleep hygiene and when they sought to maintain sleep hygiene they benefitted in various aspects of their life ranging from a better emotional and mental well-being to increased memory, problem solving capabilities and fine-tuned

motor and physical skills according to various studies. ^[1, 2, 3, 4, 5, 16, 17]

CONCLUSION AND RECOMMENDATIONS

The data from this study has evidently shown the occurrence of poor sleep quality and quantity primarily due to the lack of awareness with respect to the concept of sleep hygiene and its importance. It has also tried to establish a link between poor efficiency and energy throughout the day with the poor quality of sleep among the participants. It has shown that most people disregard their sleep and do not think it is as important in today's busy and stressful lifestyle.

This study aims at emphasising the need and importance of high-quality sleep education to each and every individual to ensure good physical, mental, emotional health. That also leads to having a better quality of life, clarity of mind, boosted memory retention and learning capabilities, and enhanced motor and problem-solving skills.

In reality sleep just like every other lifestyle factor impacts every aspect of our life in the most significant way but we fail to realise it because the consequences of sleep quality are not felt immediately. There is an alarming need for us to honour our body's sleep requirements to heal from the environment-imposed stressors. This ensures a smooth, healthy and physiologically sound, functioning body full of energy and free from chronic lifestyle diseases as we age.

This study helps the people understand the science behind the importance of sleep and thus it helps people take their sleep seriously. It can give the people a much-required practical framework to enhance their sleep by incorporating Sleep Hygiene as a habit.

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TABLES AND GRAPHS

Table 1: Age and Sex distribution of the respondents.

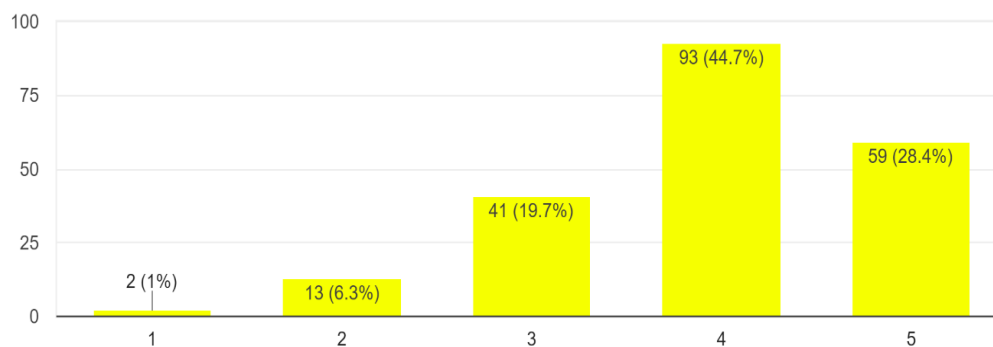
AGE-GROUPS	MALES (%)	FEMALES (%)	TOTAL (%)
10-20 Years	42 (20.1%)	41 (19.7%)	83 (39.9%)
21-30 Years	15 (7.4%)	13 (6.3%)	28 (13.5%)
31-40 Years	12 (5.8%)	3 (1.5%)	15 (7.3%)
41-50 Years	29 (13.9%)	18 (8.6%)	47 (22.6%)
51-60 Years	8 (3.8%)	4 (1.9%)	12 (5.7%)
61-70 Years	8 (3.8%)	14 (6.7%)	22 (10.6%)
71-80 Years	1 (0.5%)	0 (0%)	1 (0.4%)
TOTAL	115 (55.3%)	93 (44.7%)	208 (100%)

Figure 1: Distribution of the respondents on the basis of their quality of sleep

1 – Worse, 2 – Poor, 3 – Average, 4 – Good, 5 – Excellent

Rate the quality of your sleep

208 responses

**Table 2 :** Distribution of respondents on the based-on lack of sleep.

RESPONSE SCALE	NO. OF RESPONDENTS WITH FREQUENCY OF FEELING SLEEPY/TIRED AT WORK (%)	NO. OF RESPONDENTS FREQUENCY OF SLEEPLESSNESS FOR A FEW DAYS IN A ROW (%)
Never	41 (19.7%)	105 (50.5%)
(<1 days/week)		
Sometimes	107 (51.4%)	1 (0.4%)
(1-2 days/week)		

Often (3-4 days/week)	33 (15.9%)	45 (21.2%)
Very often (>4 days/week)	27 (13%)	57 (27.9%)

Table 3: Coping strategies used by the respondents in response to lack of sleep.

CRITERIA	RESPONSE	NO. OF RESPONDENTS (%)		P Value
		MALES	FEMALES	
	GET SOME SLEEP	53 (25.4%)	41 (19.7%)	0.64067
	HAVE TEA/COFFEE/BEVERAGE TO FRESHEN UP	47 (22.4%)	33 (15.7%)	
COPING STRATEGY FOR SLEEPINESS AT WORK.	EXERCISE	11 (5.3%)	6 (2.9%)	
	OTHERS	8 (3.7%)	10 (4.6%)	
	(Washing face, listening to music, sleeping pills etc)			
				0.032613*
	STAY IN BED AND TRY TO SLEEP	75 (36%)	43 (20.6%)	
	GET SOME WORK DONE IN OR OUTSIDE OF THE BED	31 (14.9%)	26 (12.5%)	

COPING STRATEGIES FOR SLEEPLESSNESS AT NIGHT TIME.	EAT SOMETHING	13 (6.2%)	4 (1.9%)	
	OTHERS	5 (2.4%)	11 (5.3%)	
	(Read books, meditate, use phone etc)			
	ADJUST SLEEP TIME	15 (7.2%)	49 (23.5)	0.003631*
	AVOID EATING 2-3 HOURS BEFORE BEDTIME	6 (2.9%)	7 (3.3%)	
LONG-TERM RESPONSE TO SLEEPLESSNESS	AVOID EXERCISE 2 HOURS BEFORE BEDTIME	2 (1.2%)	1 (0.6%)	
	AVOID USING SCREENS 2-3 HOURS BEFORE BEDTIME	38 (18.2%)	41 (19.6%)	

	DID NOTHING ABOUT IT	28 (13.4%)	21 (10.1%)	
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*INDICATES SIGNIFICANT ASSOCIATION ($p < 0.05$)

Table 4: Distribution of respondents according to what activities they do in their bed and their sleep environments

CRITERIA	RESPONSE	NO. OF RESPONDENTS (%)		P value
		MALES	FEMALES	
	READ BOOKS, MAGAZINES, NEWSPAPERS	87 (43.3%)	23 (11.4%)	0.00001*
	OR STUDY			
ACTIVITIES DONE IN THE BED				
(Multiple options could be selected by the respondent)	WORK ON PHONES/LAPTOP OR OTHERWISE	16 (7.7%)	19 (9.1%)	
	EAT/DRINK BEVERAGES	22 (10.6%)	5 (2.4%)	
	WATCH TV	59 (28.3%)	18 (8.6%)	
	OTHERS	9 (4.3%)	26 (12.5%)	
	(Use phones, Pray etc)			
	COOL ENVIRONMENT	57 (27.4%)	43 (20.6%)	0.17535
SLEEP	DIM LIGHTS (NO BRIGHT LIGHT PRESENT)	37 (17.8%)	52 (25%)	
ENVIRONMENT	SILENT/QUIET ENVIRONMENT	87 (41.8%)	76 (36.5%)	
(Multiple options could be selected by the respondent)	OTHERS	1 (0.5%)	1 (0.5%)	

	(Soft music, Particular type of blanket or bed etc)			
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*INDICATES SIGNIFICANT ASSOCIATION ($p < 0.05$)

Figure 2: Distribution of respondents on the basis of their beliefs on the following statement.

Count of Sleep is very important to me and it impacts my health and work in a huge way.

