

ORIGINAL ARTICLE

Sleep Duration and Sleep Hygiene Among Rural and Urban Residents in District Etawah of Uttar Pradesh: A Community Based Comparative Cross-sectional Study

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CITATION

Rao TR, Jain PK, Srivastava DK, Raheja L, Gola MK, Kumar A, Takhelchangbam ND, Devi BPSS. Sleep Duration and Sleep Hygiene Among Rural and Urban Residents in District Etawah of Uttar Pradesh: A Community Based Comparative Cross-sectional Study. Indian J Comm Health. 2024;36(3):368-377.

<https://doi.org/10.47203/IJCH.2024.v36i03.007>

ARTICLE CYCLE

Received: 20/05/2023; Accepted: 16/05/2024; Published: 30/06/2024

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ABSTRACT

Background: Sleep deprivation include physical effects (sleepiness, fatigue) cognitive impairment (deterioration of performance, attention and motivation) and mental health issues. **Objectives:** To assess and compare sleep duration and sleep hygiene with their associated factors among rural and urban residents of a district of Uttar Pradesh. **Material and Methods:** This cross-sectional study was conducted in Etawah district, UP, from January 2022 to June 2022. All residents of rural and urban areas were included using multistage sampling. Study tool included a questionnaire which collected sociodemographic information, sleep duration, and sleep hygienic practices using sleep hygiene index. **Results:** In this study, 240 participants each from the rural and urban areas were included. The mean duration of sleep among the participants in rural and urban areas was 7.40 ± 1.22 and 8.18 ± 1.30 h during the workdays whereas, 7.30 ± 1.30 and 8.11 ± 1.35 h during the weekends respectively. About 40% were having unhygienic sleep practices. Most of the study participants had the history of sleep duration less than 8 hr. among the comparison groups. Graduated participants had the more sleep problems. **Conclusions:** Particularly among the elderly, inadequate sleep duration and differences in sleep rhythm between weekdays and weekends were seen.

KEYWORDS

Sleep Quality, Sleep Hygiene Index, Lifestyle Factors, Public Health.

INTRODUCTION

Sleep is a basic human need and is essential for good health, good quality of life and performing well during the day. Several factors including adequate sleep duration, good

quality sleep, proper sleep timing and regularity, and promoting optimal health. It is recommended adults aged 18 to 60 obtain at least seven hours of sleep per night to promote optimal health. (1) Sleep hygiene has been

defined as those behaviours that are believed to promote improved quantity and quality of sleep. (2) Other sleep hygiene recommendations include decreasing schedule irregularity; night-time exercise; and caffeine, alcohol, and tobacco use. (3) Research in other healthy adult populations shows that evening activities and conditions while falling asleep affect sleep quality. (4) Activities in bed, such as reading or watching television, have also been associated with subjective measurements of poor sleep. (5)

The Sleep Hygiene Index (SHI) is a 13-item self-report measure designed to assess the practice of sleep hygiene behaviours. (6) Increased level of stress compromises the sleep hygiene of an individual by negatively influencing the psycho-physiological components of homeostasis. (7) Knowing about sleep can help promote better sleep practices and reduce sleep problems.

Aim and Objective: 1) To assess and compare sleep duration and Sleep hygiene among Urban and Rural population using Sleep Hygiene Index and 2) To find active factor responsible for it in both the population.

MATERIAL & METHODS

Study type & design: Community based cross-sectional study

Study setting: All eight blocks and 41 urban wards of respective rural and urban areas of district Etawah

Study population: All the residents of the rural and urban populations of District Etawah older than 18 years were considered for the study only after obtaining written consent.

Study duration: The present study was conducted for a period of 6 months from January 2022 to June 2022

Sample size: The sample size was calculated considering a mean (SD) of 5.05 (0.11) and 4.95 (0.50) of urban and rural populations, respectively. [8] Ratio of sample urban to rural was 1. According to the Gaussian criteria, $Z_{1-\alpha/2}$ (constant) is the standard deviation at a 95% confidence interval of 1.96, and $Z_{1-\beta}$ is the standard deviation for $p = 0.05$ and the two-sided hypothesis of 0.84.

Sample size calculated using the following formula

$$N = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 (\sigma^2_1 + \sigma^2_2/r)}{(\mu_1 - \mu_2)^2}$$

The minimum sample size was taken to be the final sample size which on calculation came out to be 240 each from rural and urban areas of district Etawah. Total study participants were 480.

Sampling technique: Multistage sampling from blocks and wards in the district Etawah, UP

Inclusion criteria:

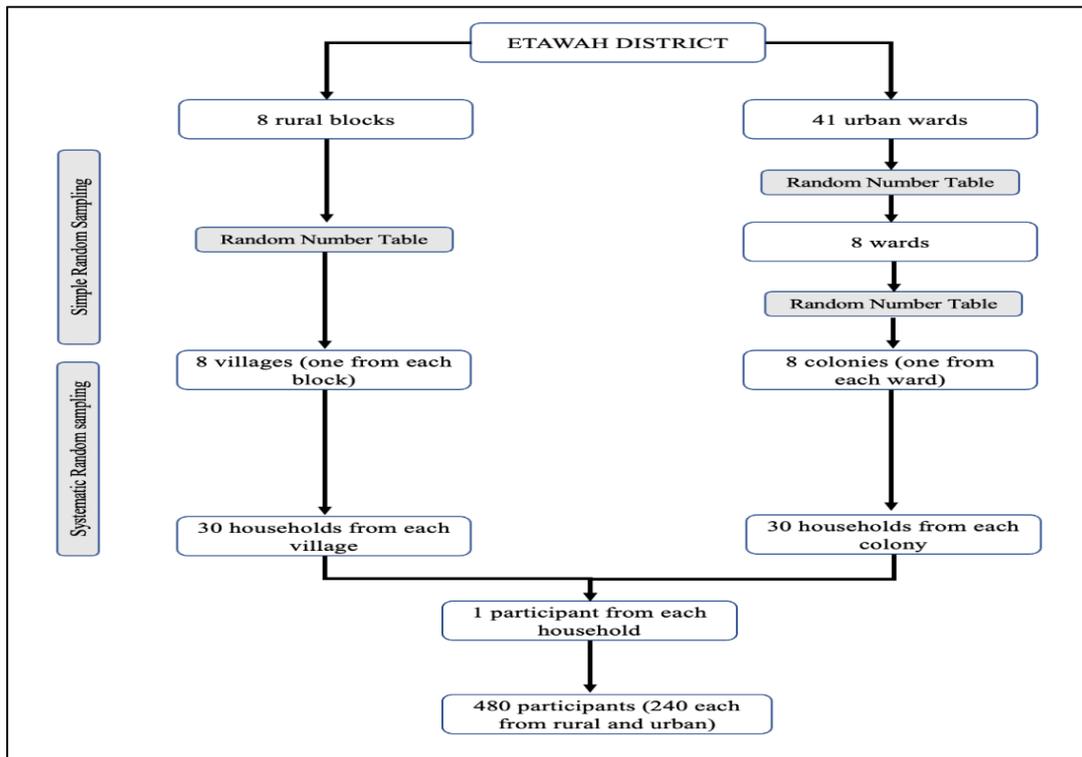
1. Person aged 18 years or above who were the residents of District Etawah
2. Person who gave the written consent for participation in the study.

Exclusion criteria:

1. Person who were on sleep disorder medication
2. Seriously ill patient or bed-ridden patients.

Study tool: A semi-structured pre-validated questionnaire was used for data collection. Information on socio-demographic profile and anthropometric details were obtained. This study used the Sleep Hygiene Index (SHI) which is a 13-item self-report measure designed to assess the practice of sleep hygiene behaviours. Each item is rated on a five-point scale ranging from 0 (never) to 4 (always). Total scores range from 0 to 52, with a higher score representing poor sleep hygiene. A cut-off of 26 points was taken. The higher and lower scores from cut off score of 26 were categorised as good and poor sleep hygiene, respectively. For reliability, the questionnaire was translated to the local dialects of the villages both forward and backward translation technique was for this conversion. To ensure that the tool is internally consistent, the data from the pilot study was subjected to reliability test using Cronbach's alpha. A Cronbach alpha of >0.7 was achieved and hence the tool was accepted. Sleep duration (in 24-h time period) and the usual bedtime and wake-up time were collected separately for weekdays and weekends.

Figure 1: Flowchart showing selection of study participants for collecting data from rural and urban areas of district Etawah



Strategy for data collection: Eight community developmental blocks in the rural area and 41 wards in the urban area. One village was randomly selected from each block by using random number table method. From each selected village, by means of systematic random sampling, 30 households were included. First household was selected based on the landmarks of the villages like overhead water tank, Panchayat Bhawan, Pradhan’s house or any other building of public importance and left to the landmarks based on convenient at the time of data collection (Figure 1). List of the households taken from the local administration of the village. For each village we calculated sampling interval (9) by dividing total population by 30. First sampling was selected by using random number table having value less than the sampling interval and second house was selected by adding sampling interval to the list. From the urban area, eight wards were randomly selected by random number table. From the selected wards, eight colonies were randomly selected by using random number table. Then participants were recruited likewise in rural areas desired sample size of 30 was obtained

from each colony. Survey was done and study participants were recruited after applying inclusion and exclusion criteria. They were informed about the purpose of the study and informed written consent was obtained from willing persons before inclusion in the study. Face to face interview was conducted and data were collected using the pre-structured, pretested schedule. Participants’ privacy and confidentiality were maintained. After visiting all the selected houses in the village, if a participant was not present during the visit, two additional visits were done for the same participant. If there was more than one eligible participant in the house, then the lottery method was done and only one was interviewed using the questionnaire.

Working definition:

Sleep Hygiene Education: Patients learn about healthy sleep habits and are encouraged to follow a set of recommendations to improve their sleep (e.g., avoid caffeine, exercise regularly, eliminate noise from the sleeping environment, maintain a regular sleep schedule).

Ethical issues: The study was accorded ethical committee approval vide Ethics Committee

(Uttar Pradesh University of Medical Sciences, Saifai, Etawah) No.170/2020-21 dated 21/06/2021.

Informed consent: Written informed consent was taken from all the participants. The study was carried out in accordance with the principles as enunciated in the declaration of Helsinki.

Statistical analysis: The collected data were entered in Excel, and statistical analysis was performed using SPSS Version 24.0, IBM Inc. Chicago, USA software was used to code and analyse the data. Chi square test for categorical variables and independent t-test to compare means were used. A p value of <0.05 at 95% confidence interval was considered statistically significant.

RESULTS

The present study was conducted in the Etawah district, 240 each from the Rural and Urbans areas with mean age (\pm SD) of 39.2 \pm 14.9 and 34.2 \pm 12.7 years in both the areas respectively. More than 50% females who were homemakers and majority study participants were educated up to primary school in the Urban areas. Majority of the

study population in Rural areas were from lower middle class and Urban areas were from Upper class (Table 1). In comparison groups, all the socio-demographic variables demonstrates statistical significance among hygienic group while only socio-economic status showed statistical significance ($p < 0.05$) among unhygienic group (Table 2). In comparison groups, duration of sleep in workdays and non-workdays demonstrates statistical significance in both the Rural and Urban areas ($p = 0.001$) (Table 3). There was statistical significance among rural and urban residents who had the habit of taking naps during the daytime (item 1), stayed in bed longer for 2 or 3 times a week (item 5), and used alcohol, tobacco, or caffeine within 4 hours before going to bed (item 6) (Table 4). Those who were educated up to graduation or more and residing in urban areas had a history of less than 8 h of sleep and showed statistical significance ($p = 0.02$) between educational status and sleep duration among rural and urban areas. Socioeconomic and BMI status had statistical significance ($p < 0.001$) with sleep duration less than 8 hours among rural and urban residents (Table 5).

Table 1 Comparison of socio-demographic variables among the Rural (n= 240) and Urban residents (n= 240) of the study population

Variables	Categories	Rural n (%)	Urban n (%)
Age (years)	≤ 25	49 (20.4)	76 (31.7)
	26-35	73 (30.4)	82 (34.2)
	36-45	45 (18.8)	37 (15.4)
	46-55	29 (12.1)	22 (9.2)
	56-65	34 (14.2)	17 (7.1)
	>65	10 (4.2)	6 (2.5)
Age (years) mean \pm SD		39.2 \pm 14.9	34.2 \pm 12.7
Gender	Male	106 (44.2)	81 (33.8)
	Female	134 (55.8)	159 (66.3)
Educational status	Illiterate	77 (32.1)	29 (12.1)
	Primary school	47 (19.6)	70 (29.2)
	Middle school	38 (15.8)	47 (19.6)
	High school	30 (12.5)	37 (15.4)
	Intermediate	40 (16.7)	34 (14.1)
	Graduate or more	8 (3.3)	23 (9.6)
Occupation	Housewife	102 (42.5)	133 (55.4)
	Unskilled	49 (20.4)	30 (12.5)
	Semiskilled	22 (9.2)	31 (12.9)
	Skilled	39 (16.3)	19 (7.9)
	Semi-professional/ Professional	9 (3.8)	5 (2.1)
	Retired	19 (7.9)	22 (9.2)
Socioeconomic status*	Upper class	14 (5.8)	95 (39.6)

Variables	Categories	Rural n (%)	Urban n (%)
	Upper middle class	47 (19.6)	63 (26.3)
	Middle class	38 (15.8)	33 (13.8)
	Lower middle class	74 (30.8)	29 (12.1)
	Lower class	67 (27.9)	20 (8.3)

* Modified BG Prasad's Classification as per AICPI Jan 2022

Table 2 Comparison of study participants according to their Sleep Hygiene Index with various demographic variables in Rural (n=240) and Urban (n=240) areas

Variables	Hygienic		Unhygienic	
	Rural n (%)	Urban n (%)	Rural n (%)	Urban n (%)
Age (in years)				
≤ 25	49 (20.9)	74 (31.8)	0 (0.0)	2 (28.6)
26-35	73 (31.1)	79 (33.9)	0 (0.0)	3 (42.9)
36-45	44 (18.7)	36 (15.5)	1 (20.0)	1 (14.3)
46-55	27 (11.5)	21 (9.0)	2 (40.0)	1 (14.3)
56-65	33 (14.0)	17 (7.3)	1 (20.0)	0 (0.0)
>65	9 (3.8)	6 (2.6)	1 (20.0)	0 (0.0)
Statistical interpretation*	χ ² =12.58;df=5;p=0.03		χ ² =7.20;df=5;p=0.21	
Gender				
Male	102(43.4)	79 (33.9)	4 (80.0)	2 (28.6)
Female	133(56.6)	154(66.1)	1 (20.0)	5 (71.4)
Statistical interpretation*	χ ² =4.45;df=1;p=0.03		χ ² =3.09;df=1;p=0.08	
Religion				
Hindu	211(89.8)	178(76.4)	5 (100.0)	5 (71.4)
Muslim	22 (9.4)	55 (23.6)	0 (0.0)	2 (28.6)
Others†	2 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)
Statistical interpretation*	χ ² =18.93;df=2;p<0.001		χ ² =1.71;df=1;p=0.19	
Caste				
General	111(47.2)	96 (41.2)	0 (0.0)	3 (42.9)
OBC	89 (37.9)	92 (39.5)	4 (80.0)	2 (28.6)
SC/ST	35 (14.9)	45 (19.3)	1 (20.0)	2 (28.6)
Statistical interpretation*	χ ² =2.38;df=2;p=0.304		χ ² =3.77;df=2;p=0.15	
Type of family				
Nuclear	126(53.6)	115(49.4)	2 (40.0)	5 (71.4)
Joint	93 (39.6)	99 (42.5)	3 (60.0)	1 (14.3)
Three generation family	16 (6.8)	19 (8.2)	0 (0.0)	1 (14.3)
Statistical interpretation*	χ ² =0.94;df=2;p=0.63		χ ² =3.04;df=2;p=0.22	
Occupation				
Housewife	100(42.6)	130(55.8)	2 (40.0)	3 (42.9)
Unskilled	47 (19.9)	30 (12.9)	2 (40.0)	0 (0.0)
Semiskilled	22 (9.4)	30 (12.9)	0 (0.0)	1 (14.3)
Skilled	38 (16.2)	18 (7.7)	1 (20.0)	1 (14.3)
Semi-professional/Professional	9 (3.8)	5 (2.1)	0 (0.0)	0 (0.0)
Retired	19 (8.1)	20 (8.6)	0 (0.0)	2 (28.6)
Statistical interpretation*	χ ² =17.2;df=5;p=0.004		χ ² =5.00;df=4;p=0.29	
Marital status				
Unmarried	34 (14.5)	30 (12.9)	1 (20.0)	2 (28.6)
Married	179(76.2)	198(85.0)	4 (80.0)	5 (71.4)
Others‡	22 (9.3)	5 (2.1)	0 (0.0)	0 (0.0)
Statistical interpretation*	χ ² =11.90;df=2;p=0.003		χ ² =0.11;df=1;p=0.73	
Educational status				
Illiterate	57 (24.3)	60 (25.8)	3 (60.0)	1 (14.3)
Primary school	39 (16.6)	23 (9.9)	0 (0.0)	1 (14.3)
Middle school	31 (13.2)	28 (12.0)	1 (20.0)	0 (0.0)

Variables	Hygienic		Unhygienic	
	Rural n (%)	Urban n (%)	Rural n (%)	Urban n (%)
High school	29 (12.3)	28 (12.0)	0 (0.0)	0 (0.0)
Intermediate	24 (10.2)	25 (10.7)	1 (20.0)	2 (28.6)
Graduate or more	55 (23.4)	69 (29.6)	0 (0.0)	3 (42.9)
Statistical interpretation*	$\chi^2=5.97;df=5;p=0.31$		$\chi^2=6.17;df=4;p=0.19$	
Socioeconomic status§				
Upper class	14 (6.0)	89 (38.2)	0 (0.0)	6 (85.7)
Upper middle class	44 (18.7)	62 (26.6)	3 (60.0)	1 (14.3)
Middle class	37 (15.7)	33 (14.2)	1 (20.0)	0 (0.0)
Lower middle class	74 (31.5)	29 (12.4)	0 (0.0)	0 (0.0)
Lower class	66 (28.1)	20 (8.6)	1 (20.0)	0 (0.0)
Statistical interpretation*	$\chi^2=102.2;df=4;p<0.001$		$\chi^2=8.91;df=3;p=0.03$	
BMI (Kg/m2)				
<18.5	21 (8.9)	54 (23.2)	0 (0.0)	3 (42.9)
18.5-22.9	118(50.2)	103(44.2)	3 (60.0)	1 (14.3)
23-24.9	45 (19.1)	29 (12.4)	1 (20.0)	1 (14.3)
25-29.9	45 (19.1)	40 (17.2)	1 (20.0)	2 (28.6)
≥30	6 (2.6)	7 (3.0)	0 (0.0)	0 (0.0)
Statistical interpretation*	$\chi^2=19.36;df=4;p=0.001$		$\chi^2=4.11;df=3;p=0.25$	

* Chi Square test applied, $p<0.05$ was statistically significant; † Others include Sikh, Christian, ‡Others include widow/widower, separate and divorced; §Modified BG Prasad’s Classification as per AICPI 2021

Table 3 Comparison of study participants according to their sleep duration, bedtime and woke up time on workdays (weekdays) and non-workdays (weekend) in rural (n=240) and urban areas (n=240)

Subgroups	Rural (Mean±SD)	Urban (Mean±SD)	Statistical interpretation*
Workdays			
Bedtime (pm)	9:50 ± 0:57	10:06 ±1:00	t= 2.98;df= 478;p= 0.003
Woke up time (am)	5:29 ± 1:13	6:12 ± 1:18	t= 6.17;df= 478;p<0.001
Duration of sleep-in workdays (hurs)	7.40 ± 1.22	8.18 ± 1.30	t= 6.78;df= 478; p<0.001
Non-workdays			
Bedtime (pm)	9:53 ± 0:56	10:09 ± 0:57	t= 3.09;df= 478;p= 0.002
Woke up time (am)	5:38 ± 1:23	6:20 ± 1:29	t= 5.37;df= 478;p<0.001
Duration of sleep-in non-workdays (hours)	7.30 ± 1.30	8.11 ± 1.35	t= 6.695;df= 478;p<0.001

*Student’s unpaired t test applied, $p<0.05$ was statistically significant

Table 4 Comparison of study participants according to their item wise score# in sleep hygiene practices in rural and urban areas

Pattern of sleep hygiene	Rural Mean ± SD (95% CI)	Urban Mean ± SD (95% CI)	Statistical interpretation*
Took naps during daytime	1.44 ± 1.00 (1.31-1.57)	1.17 ± 0.91 (1.06-1.29)	t= 3.09; df= 478 p= 0.002
Went to bed at different times from day to day	1.09 ± 0.92 (0.98-1.21)	1.14 ± 0.82 (1.03-1.24)	t= 0.63 ; df= 478 p= 0.53
Got out of bed at different times from day to day	1.02 ± 0.85 (0.91-1.13)	1.09 ± 1.60 (0.88-1.29)	t= 0.598;df= 478 p= 0.55
Exercise to the pointed of sweating within 1 hour of gone to bed	0.65 ± 0.87 (0.54-0.76)	0.74 ± 0.82 (0.63-0.84)	t= 1.17 ;df= 478 p= 0.24

Pattern of sleep hygiene	Rural Mean ± SD (95% CI)	Urban Mean ± SD (95% CI)	Statistical interpretation*
Stayed in bed longer for 2 or 3 times a week	1.13 ± 0.99 (1.01-1.26)	0.95 ± 0.85 (0.84-1.06)	t= 2.14;df= 478 p= 0.03
Used alcohol, tobacco, or caffeine within 4hrs before gone to bed	0.56 ± 0.87 (0.45-0.67)	0.75 ± 0.75 (0.66-0.84)	t= 2.56;df= 478 p= 0.01
Doing something that may woke up before bedtime	0.68 ± 0.90 (0.56-0.79)	0.69 ± 0.73 (0.59-0.78)	t= 0.13;df= 478 p= 0.89
Went to bed feeling stressed, angry, upset, or nervous	0.73 ± 0.83 (0.62-0.83)	0.70 ± 0.75 (0.60-0.79)	t= 0.42;df= 478 p= 0.68
Used bed for things other than sleeping or sex	0.86 ± 0.98 (0.74-0.99)	0.80 ± 0.97 (0.68-0.92)	t= 0.67;df= 478 p= 0.50
Slept on an uncomfortable bed	0.93 ± 0.97 (0.81-1.05)	0.92 ± 0.91 (0.80-1.04)	t= 0.12;df= 478 p= 0.91
Slept in an uncomfortable bedroom	0.85 ± 0.98 (0.73-0.97)	0.77 ± 0.81 (0.66-0.87)	t= 0.97;df= 478 p= 0.33
Did important worked before	0.69 ± 0.89 (0.57-0.80)	0.70 ± 0.89 (0.58-0.81)	t= 0.12;df= 478 p= 0.90
Thought, planned, or worry when you were in bed	0.82 ± 0.96 (0.70-0.94)	0.70 ± 0.92 (0.58-0.82)	t= 1.398;df= 478 p= 0.16

*Student's unpaired t test applied, p<0.05 was statistically significant; #Shapiro-Wilk Test is used for Normality testing

Table-5 Comparison of the study participants according to their sleep duration < 8 hours among rural (n=124) and urban residents (n=103) with their associated factors

S No.	Variables	< 8 hours		Statistical interpretation*
		Rural n (%)	Urban n (%)	
	Age (years)			
	≤ 25	17 (13.7)	30 (29.1)	χ ² = 18.102
	26-35	32 (25.8)	38 (36.9)	df= 5
	36-45	25 (20.2)	12 (11.6)	p= 0.03
	46-55	17 (13.7)	5 (4.9)	
	56-65	26 (21.0)	13 (12.6)	
	>65	7 (5.6)	5 (4.9)	
	Gender			
	Male	51 (41.1)	30 (29.1)	χ ² = 3.53
	Female	73 (58.9)	73 (70.9)	df= 1 p= 0.06
	Religion			
	Hindu	117 (94.4)	75 (72.8)	χ ² = 22.67
	Muslim	6 (4.8)	28 (27.2)	df= 2
	Others†	1 (0.8)	0 (0.0)	p< 0.001
	Caste			
	General	60 (48.4)	38 (36.9)	χ ² = 3.15
	OBC	47 (37.9)	46 (44.7)	df= 2
	SC/ST	17 (13.7)	19 (18.4)	p= 0.21
	Type of family			
	Nuclear	66 (53.3)	55 (53.4)	χ ² = 3.47
	Joint	54 (43.5)	41 (39.8)	df= 2
	Three generation family	4 (3.2)	7 (6.8)	p= 0.33
	Occupation			
	Housewife	61 (49.2)	68 (66.0)	χ ² = 13.86
	Unskilled	26 (21.0)	13 (12.6)	df= 5
	Semiskilled	11 (8.9)	9 (8.7)	p= 0.03

S No.	Variables	< 8 hours		Statistical interpretation*
		Rural n (%)	Urban n (%)	
	Skilled	19 (15.3)	5 (4.9)	
	Semi-professional/Professional	2 (1.6)	1 (1.0)	
	Retired	5 (4.0)	7 (6.8)	
	Marital status			
	Unmarried	11 (8.9)	6 (5.8)	$\chi^2= 4.59$
	Married	100 (80.6)	93 (90.3)	df=2
	Others†	13 (10.5)	4 (3.9)	p= 0.10
	Educational status			
	Illiterate	35 (28.2)	26 (25.2)	$\chi^2= 13.86$
	Primary school	23 (18.6)	10 (9.7)	df= 5
	Middle school	20 (16.1)	8 (7.8)	p= 0.02
	High school	15 (12.1)	12 (11.7)	
	Intermediate	13 (10.5)	16 (15.5)	
	Graduate or more	18 (14.5)	31 (30.1)	
	Socioeconomic status§			
	Upper class	6 (4.8)	31 (30.1)	$\chi^2= 39.74$
	Upper middle class	19 (15.3)	27 (26.2)	df=4
	Middle class	23 (18.5)	17 (16.5)	p< 0.001
	Lower middle class	40 (32.3)	15 (14.6)	
	Lower class	36 (29.1)	13 (12.6)	
	BMI (Kg/m ²)			
	<18.5	9 (7.3)	27 (26.2)	$\chi^2= 20.49$
	18.5-22.9	63 (50.8)	48 (46.6)	df= 4
	23-24.9	16 (12.9)	11 (10.6)	p< 0.001
	25-29.9	33 (26.6)	12 (11.7)	
	≥30	3 (2.4)	5 (4.9)	

* Chi Square test applied, $p<0.05$ was statistically significant; † Others include Sikh, Christian, ‡Others include widow/widower, separate and divorced, §Modified BG Prasad's Classification as per AICPI 2021

DISCUSSION

The study describes sleep hygiene and sleep duration with their associated factors among 240 participants from rural and urban areas of district Etawah. Nearly 50% and 40% of rural and urban populations were sleeping for a period of <8 h, with a mean duration of 6.33 ± 0.38 h and 6.44 ± 0.35 h, respectively. Similar results were found in the study conducted by Mathew Get al., where 60% of the adolescents were sleeping for a period of <8 h with a mean duration of 7.2 ± 1.26 h. (10) Nearly 70% females of urban population had history of inadequate sleep, similar findings were observed in Maslowsky et al., which was done among adolescents. (11) Among the Urban study participants who had poor sleep hygienic practices majority were among young adults, housewives and nuclear families. About 85% and 60% were of the urban areas and rural areas belongs to upper class and upper middle class respectively. Poor sleep hygiene was also

more common in housewives, unskilled workers in the rural areas whereas different findings were seen in Kaur G et.al., i.e., professional and science stream students. (12) In the present study, we found that there was statistical significance among the rural and urban population with respect to abuse of alcohol or tobacco, consuming coffee or tea before going to sleep at night, taking naps during the daytime, and staying on the bed for longer durations, at least two to three times in a week, whereas Kaur et al.'s study found a high item score, i.e., those who go to bed at different times from day to day, using their bed for doing things other than sleeping and thinking, planning, or worrying when they are on bed. (12) To the best of my knowledge, this study is the only one of its kind in Uttar Pradesh involving and assessing comparison among the rural and urban areas.

CONCLUSION

The Sleep Hygiene Index can function as an inexpensive and accessible baseline assessment in the identification and overall management of poor sleep quality in both the rural and urban areas. In the present study, majority of the Rural residents during both weekdays and weekends had sleep duration less than 8 hours whereas, the Urban residents had more than 8 hours. Most of the study participants were females, this may be due to availability of more females at the home during the time of data collection. Very few participants were found to have unhygienic sleep practices, this may be due to inclusion of small sample size for the data collection.

RECOMMENDATION

1. Implement public health campaigns to raise awareness about the importance of adequate sleep and proper sleep hygiene
2. Develop and integrate sleep education programs in schools, workplaces, and community centers
3. Train healthcare providers to recognize and address sleep-related issues
4. Advocate for policies that promote healthier sleep environments, such as regulations on noise and light pollution in residential areas
5. Establish ongoing research and monitoring programs to track sleep patterns and hygiene practices in rural and urban populations.

LIMITATION OF THE STUDY

1. As a cross-sectional study, it captures data at a single point in time, making it difficult to establish causality or track changes in sleep patterns and hygiene over time
2. The study relies on self-reported measures of sleep duration and sleep hygiene, which can be subject to recall bias, social desirability bias, and inaccuracies in reporting
3. The findings may not be generalizable to all rural and urban residents of Etawah district or other regions, as the sample may not fully represent the diverse population
4. Uncontrolled environmental variables, such as seasonal changes, weather conditions, and local events, could

influence sleep patterns and hygiene but are not accounted for in the study

5. Other health conditions, lifestyle factors, and socioeconomic status, which can impact sleep, might not be fully controlled or accounted for, potentially confounding the results
6. Sleep patterns and hygiene can be influenced by temporal factors such as changes in work schedules, school timings, or public health initiatives that occur after data collection, limiting the study's applicability over time.

RELEVANCE OF THE STUDY

1. The current study provides valuable insights into the sleep duration and sleep hygiene practices among rural and urban residents in Etawah, highlighting regional differences that can inform localized public health strategies
2. The findings can help policymakers develop tailored public health campaigns and policies aimed at improving sleep hygiene and duration, particularly in under-resourced rural areas.

AUTHORS CONTRIBUTION

All authors have contributed equally

FINANCIAL SUPPORT AND SPONSORSHIP

Nil

CONFLICT OF INTEREST

There are no conflicts of interest.

ACKNOWLEDGEMENT

The authors are thankful to Uttar Pradesh University of Medical Sciences, Saifai, Etawah for enabling us to carry out the study.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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