

IMPACT OF SCREEN TIME ON SLEEP PATTERNS AND MENTAL WELL-BEING: A DESCRIPTIVE STUDY

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ABSTRACT:

Sleep plays a vital role in maintaining overall well-being, influencing physical health, cognitive performance, and emotional stability. This study explores the relationship between screen time and sleep patterns, emphasizing the effects of prolonged screen exposure on sleep quality, mental health, and daily routines. Using a descriptive research design and convenience sampling, data were collected through an online survey from 76 participants—19 males (25%) and 57 females (75%). Age distribution showed 10.5% were 15–20 years old, 32.9% were 21–25, 19.8% were 26–30, and 36.8% were above 30. Findings revealed notable gender differences in sleep quality: 52.63% of males rated their sleep as "fair" and 47.36% as "good", while females reported poorer sleep, with 36.8% indicating "fair", 39.66% "good", and 17.54% "poor" or "very poor". A negative correlation was identified between screen time and sleep quality, with difficulties in falling and staying asleep. Specifically, 30.2% sometimes struggled to fall asleep, and 23.7% rarely did. Difficulty staying asleep was reported as "rarely" (25%), "sometimes" (23.7%), and "occasionally" (22.4%), while early morning awakenings occurred "rarely" among 25%, 22.4% had "sometimes", and 18.4% was "almost always" category. Daytime sleepiness was prevalent, especially while reading (59.2% "sometimes"), during long rides (32.9% "sometimes", 31.6% "never", and while watching TV (30.3% "sometimes" or "rarely"). A small proportion (3.9%) reported high levels of sleepiness. These findings underscore the negative impact of excessive screen use on sleep health, particularly among females. The study highlights the importance of raising awareness about responsible screen usage, especially at night, and promoting strategies such as digital detoxes and regular sleep schedules. Further research is recommended to develop effective interventions that support improved sleep hygiene and mitigate screen-related sleep disturbances.

INTRODUCTION

The human body alternates between two main stages of sleep: Rapid Eye Movement (REM) and Non-Rapid Eye Movement (NREM). The three stages of NREM sleep - N1, N2 and N3 are identified by distinct changes in muscle tone, brain wave activity and eye movements. The normal night lasts 90 minutes, during which the body cycles through all the stages of sleep four or six times (Memar and Faradji, 2018).

Sleep Requirements Across Life Stages:

- **Early Childhood (1-9 years):** As children grow from toddlers to older kids, their daily sleep needs a decrease. Between ages 2 and 5, they typically need about 11 hours of sleep, down from 13. By the time they reach six, their internal body clock becomes more defined, leading them to become either "morning larks" or "night owls." Research indicates that young children tend to take longer to enter REM sleep and spend more time in deep sleep compared to teenagers (Gaudreau *et al.*, 2001).
- **Adolescence (10-18 years):** Teenagers require around 9 to 10 hours of sleep each night. The hormonal changes brought on by puberty affect their sleep habits, causing them to sleep less deeply, fall asleep more slowly, and spend more time in the second stage of NREM sleep. There is an increase in daytime sleepiness throughout mid-puberty (George and Davis, 2013).
- **Adulthood (18+ years):** Adults may sleep less frequently and usually go to bed and wake up earlier. Older folks (65+) often get up 1.5 hours earlier and go to bed an hour earlier than younger people (20–30) (chaput *et al.*, 2020).

Sleep Differences Between Genders:

- Men are more likely to wake up throughout the night and spend more time in light sleep, which can make them more drowsy during the day.
- Women tend to have longer periods of deep sleep and are more likely to report having trouble falling asleep. Pregnancy and the initial postpartum period are also associated with increased daytime sleepiness in women (Krishnan and Collop, 2006).

The Impact of Technology on Sleep:

- Modern technology provides readily accessible, fast-paced stimulation through mobile devices, tempting people of all ages to exceed recommended screen time limits.

- Problematic internet use is a growing global health issue with negative consequences for sleep, mood, and social connections. It reduces face-to-face interaction, impacting the release of essential feel-good hormones (Lissak, 2018).
- Teenagers who are frequent internet users tend to sleep less, go to bed and get up later, and experience more daytime fatigue (Woods and Scott, 2016).
- Socialmedia usage at night, especially with emotional engagement, is linked to poorer sleep. The stimulating effect of bright screens and engaging content can increase physiological arousal and disrupt sleep (Lissak, 2018).
- The high percentage of teenagers keeping phones in their bedrooms makes them vulnerable to sleep disruption from nighttime notifications. Social media use is also reported to cause awakenings and difficulty achieving sound sleep (Johnson *et al.*, 2006).
- The connection between poor sleep and emotional involvement on social media suggests that worry about missing out and difficulty relaxing contribute to problems winding down before bed.

OBJECTIVES

- To investigate the relationship between screen time and sleep patterns

METHODOLOGY

SELECTION OF SUBJECT

The male and female participants belonging to adolescence and adult were selected for the age group. The subjects were selected based on the impact of screen time on sleep patterns and mental well-being.

DATA COLLECTION METHOD

This survey employed an online data collection approach using Google Sheets. A survey link was disseminated via WhatsApp to a convenience sample of students and acquaintances, who subsequently provided their responses online. This methodology facilitated efficient data collection on sleep cycle patterns and daily screen time and their consequences. The data was collected from 76 participants.

RESEARCH DESIGN

A descriptive design is a research design that aims to describe and summarize the characteristics of a phenomenon, population, or situation, without attempting to explain or predict relationships between

variables. It provides a snapshot of the current situation, identifying trends, patterns, and characteristics, often using surveys, observations, or case studies (Kothari, 2023). This study employed a descriptive design, which aimed to describe sleep cycle patterns and daily screen time among respondents.

A snowball sampling design is a non-probability sampling method where current participants find potential new recruits among their friends, or family members, resulting in a growing sample size through referral and word-of-mouth. (Kothari, 2023). Snowball sampling was used in the present study.

STATISTICAL TEST

The data were tested using commonly used statistical percentages. It is used to represent a part or whole of a relationship. In the present study male and female were represented in percentage.

Results and discussion

Sleep quality of subjects

Sleep quality refers to how well one sleeps, encompassing aspects such as how quickly a person falls asleep (sleep latency), how often they wake up during the night, how easily they can return to sleep, and how rested they feel upon waking. Good sleep quality is not only about the number of hours slept but also about experiencing uninterrupted, restorative sleep that supports optimal functioning. (Şimşek and Tekgöl, 2019). Table 1 shows the sleep quality of subjects.

Table 1 : Sleep Quality of Subjects

Variables	MALE		FEMALE	
Participants' Self-Reported Rating of Sleep Quality During the Past Month	NO	%	NO	%
Excellent	-	-	3	5.17
Good	9	47.36	23	39.66
Fair	10	52.63	21	36.8
Poor	-	-	8	14.04
Very poor	-	--	2	3.5

TheTable1shows the knowledge regarding sleep quality. The survey results shows that 52.63% of male says fair and 47.36% says good, in female 39.66% says good, 36.8% says fair, 14.04% says poor, 5.17% says excellent and 3.5 % says very poor. Assessing and improving high-quality sleep is not merely beneficial but biologically essential. Adequate restorative rest serves as a foundational component of their overall health, supporting physical growth, strengthening emotional well-being, and enhancing cognitive function and academic performance(Johri et al., 2025; Alexopoulou et al., 2024). Thus the study found sleep quality was average among women when compared to men.

Sleep disturbance

Sleep disturbances are increasingly common in today's fast-paced lifestyle, affecting physical, emotional, and cognitive well-being. They include issues like insomnia, frequent night awakenings, difficulty falling asleep, and poor sleep quality. Understanding the implications of sleep disturbance is essential for both personal health and public health planning. Sleep-deprived individuals often experience reduced workplace performance, higher absenteeism, and increased likelihood of accidents (Hafner et al., 2016). Table 2 shows the sleep disturbance pattern of subjects.

Table 2 :Sleep Disturbance Pattern of Subjects

	NEVER		RARELY		OCCASIONALL Y		SOME TIMES		OFTEN		ALMOST	
	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%
How often do you experience difficulty in falling asleep	11	14.5	18	23.7	12	15.8	23	30.2	6	7.9	6	7.9
How often do you experience difficulty in staying asleep	9	11.8	19	25	17	22.4	18	23.7	8	10.5	5	6.6
How often do you experience early morning awakening	7	9.2	19	25	10	13.2	17	22.4	9	11.8	14	18.4

A significant portion of respondents (30.2%) reported sometimes experiencing difficulty falling asleep. 23.7% said they rarely have trouble, while 15.8% experience it occasionally. Only 14.5% stated they never have this problem. Notably, 7.9% each reported experiencing it often or almost always. The data of

difficulty in staying asleep shows that the most common response was rarely (25%), followed by sometimes (23.7%) and occasionally (22.4%). A smaller portion (11.8%) said they never have this issue. 10.5% reported often experiencing it, while 6.6% said almost always. Early Morning Awakening with the highest percentage (18.4%) reporting it happens almost always. Rarely (25%) and sometimes (22.4%) were also common responses. Only 9.2% said they never wake up early, indicating this is a more frequent issue compared to the other two sleep problems, 13.2% face it occasionally, and 11.8% often. Lack, Mercer and Wright, 1996 found that circadian rhythm plays a role in the sleep pattern.

Epworth sleep scale of subject

This scale was recently developed which is a simple and self-administered questionnaire. It is used to measure daytime sleepiness. (Gonçalves, 2023). The table 3 displays the Epworth sleep scale of Subject.

TABLE: 3 Epworth Sleep Scale of Subject

How likely are you to doze off or fall asleep during the following activity	Never		Rarely		Sometimes		Often		Highly	
	NO	%	NO	%	NO	%	NO	%	NO	%
Sitting and reading	16	21.1	7	9.2	45	59.2	4	5.3	4	5.3
Watching TV	19	25	23	30.3	23	30.3	8	10.5	3	3.9
Sitting inactive in public	27	35.5	18	23.7	23	30.3	5	6.6	3	3.9
Riding as a passenger for an hour	24	31.6	16	21.1	25	32.9	8	10.5	3	3.9

The majority of respondents (59.2%) reported that they sometimes doze off while reading, only 21.1% said they never fall asleep while reading, while a smaller portion (5.3%) reported doing so often or highly. While 30.3% saying they rarely or sometimes fall asleep during this activity. Interestingly, 25% reported never dozing off, while 14.4% (combined often and highly) show a higher tendency to fall asleep. This activity yielded the highest percentage (35.5%) of respondents who claimed they never fall asleep, still, 30.3% said they sometimes do, and 23.7% rarely fall asleep in such conditions. Here, 32.9% of respondents reported sometimes falling asleep, and 31.6% never do so. Notably, 21.1% said they rarely fall asleep, while 14.4% (often and highly) show that this relaxed setting can lead to dozing off for a significant minority. Excessive daytime sleepiness is a risk factor for obesity, depression, psychiatric, snoring, neurological disorders, snoring, cardiac condition and pulmonary conditions (Gonçalves, 2023).

CONCLUSION

The findings of this study underscore the significant impact of screen time on sleep patterns, particularly highlighting gender differences where females reported more sleep disturbances. Increased screen exposure was associated with poorer sleep quality and difficulties in falling and staying asleep. Daytime sleepiness was also prevalent across various sedentary activities. These results emphasize the need for creating awareness and strategies for responsible screen use. In an increasingly digitalized world, interventions aimed at reducing nighttime screen exposure, establishing consistent sleep routines, and encouraging digital detox practices are crucial. Future research should focus on developing and evaluating interventions to improve sleep hygiene and reduce screen-related sleep disruptions in diverse populations.

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