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A study on the relationship between sleep pattern and psychological well-being among adolescents

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Abstract

The study aimed to assess the relationship between sleep patterns and psychological well-being among adolescents. A total of 240 adolescents (120 girls and 120 boys) in the age group of 16-18 years from 12 private intermediate colleges located under six zones in Hyderabad city of Telangana state were selected as sample through a purposive random sampling method. Data was collected by using a self-developed questionnaire on sleep patterns, which assessed sleep during weekdays and weekends, and the Psychological Well-Being Scale by Carol D. Ryff (1989), which included six dimensions: autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance. An ex-post facto research design was adopted for the study. The SPSS 16.0 package program was used to analyze the data. A correlational analysis using Karl Pearson's product-moment correlation revealed a significant and strong positive correlation ($r = 0.668^{**}$) between weekday sleep patterns and psychological well-being, significant at 0.01 level of probability. In contrast, weekend sleep patterns showed a non-significant relationship ($r = 0.075^{NS}$) with psychological well-being. This means that adolescents with poor weekday sleep reported lower psychological well-being, whereas additional weekend sleep did not contribute meaningfully to their mental wellness. These findings imply that maintaining regular and adequate sleep during weekdays is essential for safeguarding adolescent psychological well-being.

Keywords: Adolescents, teenagers, psychological well-being and sleep pattern

Introduction

Adolescence, spanning the ages of 10 to 19 years (WHO, 2025), is a crucial developmental stage marked by rapid physical, psychological, and social transformations. Growth spurts, sexual maturation, and cognitive advances in reasoning, problem-solving, and emotional regulation are closely linked to hormonal changes requiring careful regulation. Among the biological and environmental factors shaping adolescent development, sleep is one of the most fundamental yet often overlooked. Adequate sleep, recommended at 8-10 hours per night (National Sleep Foundation, 2025) ^[11], supports neural plasticity, synaptic pruning, mood regulation, attention, learning, memory consolidation, metabolic balance, and immune health (Garner *et al.*, 2016) ^[5].

Despite these benefits, adolescents worldwide face rising sleep deprivation, driven by academic pressures, prolonged screen use, irregular schedules, and social demands (Ouellet *et al.*, 2024) ^[12]. Studies reveal that adolescents averaging only 5.7 hours of sleep nightly reported higher stress, hopelessness, and suicidal ideation compared to those meeting recommended sleep duration (Gecker, 2025) ^[6]. Insufficient sleep also impairs academic performance, weakens immunity, and elevates risks for chronic conditions such as obesity, diabetes, and cardiovascular disease (Baum

et al., 2015) ^[3].

These findings highlight that adolescent sleep loss is not a minor concern but a pressing public health issue. It magnifies psychological distress, undermines learning, and jeopardizes long-term health. Addressing this challenge requires not only individual and family awareness but also systemic interventions at school, community, and policy levels. Ensuring adequate and quality sleep must be regarded as a foundation for promoting adolescents' holistic development and well-being.

Review of literature

Simsek and Tekgul (2019) ^[14] assessed sleep quality among 150 adolescents and found that 82% reported poor sleep, with 40% rating it as explicitly poor. The study highlighted a strong association between poor sleep and factors such as frequent bad dreams and the use of electronic devices in the bedroom. This indicates that both psychological disturbances and environmental distractions interfere with adolescents' sleep. The findings are significant as they point to the increasing influence of technology in sleep disruption. Desai *et al.* (2021) ^[4] reported that 38.5% of adolescents experienced disrupted sleep, with 33.9% sleeping six hours or less per night. The study identified several factors contributing to poor sleep, including worry about the

following day (46.3%) and the use of media such as television (35%), mobile phones (34.1%), and video games (33.1%). These findings emphasize how stress and screen-based activities interfere with normal sleep duration and quality. The combined effect of anxiety and technology use creates a cycle of poor rest and reduced well-being.

Bauducco *et.al* (2023) [2] explored the relationship between sleep and mental health and found that changes in mental health symptoms were closely aligned with shifts in sleep. Adolescents who experienced improved sleep quality reported better psychological functioning, while poor sleep predicted worsening mental health symptoms. The findings suggest that sleep acts as a protective factor, buffering adolescents against emotional difficulties. Conversely, inadequate sleep heightens vulnerability to psychological distress.

Anoosha *et.al* (2025) [1] examined adolescent sleep and mental health, reporting that poor sleep was more common among older teens, with 51% of them affected. Nearly half of all participants overall reported poor sleep quality, and this was strongly associated with elevated levels of stress, anxiety, and depression. The findings demonstrate how sleep problems become more pronounced with age during adolescence, possibly due to increasing academic and social demands.

Larsen (2025) [8] studied the relationship between stress, sleep quality, and academic performance in adolescents. The results revealed that poor sleep quality was significantly associated with higher levels of depression, anxiety, and stress. Adolescents who reported worse sleep also perceived their academic performance to be lower, suggesting that psychological health mediates the link between sleep and education. These findings demonstrate a cyclical relationship, where stress reduces sleep quality and poor sleep further impairs coping abilities and academic success.

Lemke *et. al* (2025) [9] investigated the link between sleep and suicidal ideation among adolescents and found that those reporting suicidal thoughts slept, on average, 60 minutes less on weekdays. They also experienced poorer sleep quality than their peers. The study provides compelling evidence that inadequate and disrupted sleep is closely tied to mental health risks, including suicidal

ideation. This relationship suggests that poor sleep may function both as a symptom and as a contributing factor to severe psychological distress.

Thomas *et.al* (2025) [15] examined adolescent sleep hygiene and found that most participants reported irregular sleep patterns. These included late bedtimes, shortened sleep duration, and excessive screen time. Such irregularities disturb circadian rhythms and compromise restorative sleep. The findings reveal that poor sleep hygiene is a widespread issue among adolescents in the digital era. This not only reduces physical and cognitive recovery but also places adolescents at risk of emotional instability and poor academic performance.

Materials and Methods

Location of the study

The present study was aimed to study the sleep pattern among adolescents. The study was carried out in Hyderabad city of Telangana state because the city's ethnography has a diverse demographic population from various parts of Telangana state. The city was divided into six zones and 12 private colleges were randomly selected from these zones.

Sample size

A total of 240 adolescents, comprising 120 boys and 120 girls, were selected as a sample for the study.

Tools used for the study

A questionnaire assessing sleep patterns was developed with two dimensions: weekdays and weekends. The Psychological Well-Being scale, comprising 6 components and 42 statements, was used, including autonomy, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance.

Statistical Analysis

The SPSS 16.0 package program was used to analyze the data. Karl Pearson's product-moment correlation was used to measure the relationship.

Results and Discussion

Table 1: Distribution of adolescents based on their sleeping pattern (n1=120, n2=120, n=240)

Sleeping pattern	Boys (n1)								Girls (n2)								Total (n)							
	<5 hours		5-6 hours		7-8 hours		>8 hours		<5 hours		5-6 hours		7-8 hours		>8 hours		<5 hours		5-6 hours		7-8 hours		>8 hours	
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%	F	%
Weekdays	61	51	49	41	10	8	0	0	49	41	66	55	5	4	0	0	110	46	115	48	15	6	0	0
weekends	14	12	26	22	42	35	38	31	8	7	17	14	43	36	52	43	22	9	43	18	85	35	90	38

The findings from the above table-1 showed that almost half (48%) of the adolescents slept 5-6 hours on weekdays, followed by nearly half (46%) who slept less than 5 hours. A smaller proportion (6%) slept 7-8 hours and no one slept more than 8 hours per night. This indicated that the majority of adolescents slept between 5-6 hours, followed by 5 hours, very few getting the recommended 7-8 hours and none of them had more than 8 hours of sleep. When considering gender differences, it was apparent that more than half of the girls (55%) and over two-fifths of the boys (41%) slept 5-6 hours. In contrast, just over half of the boys (51%) and over two-fifths (41%) of the girls slept less than 5 hours.

Very few boys (8%) and girls (4%) slept for 7-8 hours. None of the adolescents had >8 hours of sleep. These findings suggested that girls were slightly more likely to get moderate sleep, while boys were more represented in moderate to low sleep.

On weekends, adolescents sleep duration improved slightly. The data showed that almost two-fifths (38%) of adolescents slept for >8 hours, followed closely by one-third (35%) who slept for 7-8 hours and 18 per cent who slept for 5-6 hours. Only 9 per cent slept less than 5 hours, indicating a healthier sleep distribution compared to weekdays. When comparing gender differences, just over two-fifths (43%) of

girls and almost one-third of boys (31%) slept more than 8 hours of sleep. About 36 per cent of girls and 35 per cent of boys had about 7-8 hours of sleep. Just over one-fifth (22%) of the boys and one-seventh (14%) of the girls slept for 5-6 hours. Only one-eighth (12%) of boys and 7 per cent of girls had less than five hours of sleep during weekends. This showed that weekend sleep patterns were more balanced, with girls more likely to get longer sleep than boys.

On weekdays, nearly half (48%) of adolescents slept 5-6 hours, whereas this dropped slightly to one-third (18%) on weekends. About one-half (46%) of adolescents slept less than 5 hours on weekdays, but only around 9 per cent on weekends. Only about 6 per cent slept 7-8 hours on weekdays, while this has tripled to 35 per cent on weekends. The data indicated that adolescents generally had longer sleep duration i.e., >8 hours (38%) on weekends compared to weekdays.

According to the National Sleep Foundation (2025) ^[11], adolescents should have 8 to 10 hours of sleep per night for optimal health and well-being but most of the adolescents had 5-6 hours of sleep because of extensive time on early classes, preparation for exams, screen usage and inconsistent bedtime routines. During weekends, they had more than 8 hours of sleep as they felt it was catch-up sleep to compensate for weekday sleep deficits.

Table 2: Distribution of adolescents based on their overall psychological well-being (n1=120, n2=120, n=240)

S. No	Psychological well-being levels	Boys (n1)		Girls (n2)		Total (n)	
		F	%	F	%	F	%
1.	High	14	12	17	14	31	13
2.	Moderate	30	25	25	21	55	23
3.	Low	76	63	78	65	154	64
Total		120	100	120	100	240	100

Note: 'F' represents frequency and '%' represents percentage

It was apparent from the above Table-2 that majority of adolescents (64%) fell under the low level of overall psychological well-being, followed by one-quarter (23%) at the moderate level, and only 13 per cent at the high level. This indicated that a significant proportion of adolescents are experiencing psychological challenges, with very few reporting a strong sense of well-being. The data suggested that the teenagers lacked independence, skills of managing surroundings, handling relationships, accepting their strengths and experienced a moderate sense of direction in life. This might be because of hormonal changes, identity issues, increased vulnerability to stress, and being in a transitional academic phase, which decides most of the future events. These findings align with a study conducted by Arya and Sangwan (2018), which stated that teenagers overall psychological well-being was limited and they felt limited in independence, control over surroundings and self-regard.

When the data was examined by gender, two-thirds of girls (65%) and boys (63%) were found to have low psychological well-being, indicating that both genders were similarly affected. One-quarter (25%) of boys and one-fifth (21%) of girls were under moderate psychological well-being. Conversely, high levels were reported by only 12 per cent of boys and 14 per cent of girls. Overall, the findings suggested that low psychological well-being was prevalent

among both boys and girls, with only a small fraction of difference, girls exhibited high levels. Female adolescents were better regarding the issues of autonomy and having a purpose in life, whereas boys were better at environmental mastery, personal growth, self-acceptance and maintaining positive relations. This could be because of deeper socio-cultural expectations, where girls are directed to achieve academically and maintain a purposeful planning for the future, while boys are guided towards being bold and assertive. These lines were on par with a study conducted by Maurya and Ojha (2017), which revealed that male adolescents were found to have higher psychological well-being compared to female adolescents.

It can be concluded that teenagers had low psychological well-being, marked by increased life dissatisfaction. This can be largely due to social comparisons, academic pressures and familial issues. To enhance psychological well-being, teenagers should be introduced to emotional education, self-care techniques, peer support groups and mentoring programs. Combining emotional skill-building, social support and accessible mental health resources can significantly uplift adolescents' psychological well-being.

Table 3: Relationship between Sleep patterns and psychological well-being

S. No	Independent variables	Psychological well-being (r = value)
1.	Sleep pattern - weekdays	0.668**
2.	Sleep pattern - weekends	0.075NS

Note: **p=0.01 level of significance

Relationship between sleep pattern - weekdays and psychological well-being

The observation from the above table indicated that sleep pattern during weekdays was positively and significantly related ($r=0.668^{**}$) to psychological well-being at 1% level. It indicates that poorer sleep during weekdays, in terms of shorter duration and lower quality, was strongly associated with lower psychological well-being. Teenagers who experienced insufficient or disrupted sleep on working days were reported to have emotional distress, reduced attention and lower mood stability.

The findings were consistent with a study conducted by Li *et al.* (2025) ^[10] revealed majority of teenagers obtained less than eight hours of sleep on weekdays, far below the recommended range of 8-10 hours. Their study further demonstrated that short weekday sleep was strongly associated with a spectrum of psychological difficulties, including heightened anxiety, symptoms of depression, and even psychotic-like experiences. Moreover, adolescents with insufficient weekday sleep were found to be at greater risk of developing broader mental health problems. The findings highlight the critical role of weekday sleep patterns in safeguarding adolescent psychological well-being and emphasize the urgent need to promote healthier sleep practices during this developmental stage.

Relationship between sleep pattern - weekends and psychological well-being

The component, sleep pattern during weekends, was positively and non-significantly related ($r=0.075NS$) to psychological well-being. This shows that extra hours of

sleep during weekends did not have a meaningful impact on their psychological well-being. This could be the reason that sleeping for extra hours during weekends may not contribute to improve the mental wellness and weekend catch-up sleep is insufficient to fully recover cognitive and emotional functioning.

The above findings align with a study conducted by Tonetti *et al.* (2022) [16] described that additional weekend sleep did not significantly influence adolescents' psychological well-being. Their results indicated that extending sleep on weekends showed no clear protective effect against stress, mood disturbances, or broader mental health difficulties. This evidence highlights that irregular sleep schedules and reliance on weekend recovery sleep are not viable substitutes for consistent, adequate rest throughout the week. Instead, it reinforces the importance of maintaining healthy and regular sleep patterns across both weekdays and weekends to support stable psychological functioning.

Conclusion

The study can be concluded that sleep patterns had a significant relationship with psychological well-being among adolescents. Poor and irregular sleep during weekdays was strongly linked to vulnerability to stress, anxiety, depression, and emotional instability. Weekend catch-up sleep, however, showed no meaningful impact, indicating that irregular and compensatory sleep schedules cannot restore well-being. Poor sleep not only hampers daily functioning and academic performance but also heightens the risk of long-term psychological difficulties. Therefore, ensuring healthy sleep practices is essential. Promoting regular sleep hygiene in both home and educational environments must be prioritized to safeguard adolescents' overall well-being and healthy development.

Future scope

This study highlights the importance of recognizing sleep as a vital determinant of adolescents' psychological well-being. Greater awareness among parents, educators, and policymakers about the harmful effects of poor sleep patterns is essential. Future research should focus on examining adolescent sleep across diverse cultural, socio-economic, and educational contexts to capture broader variations in sleep behaviors. Longitudinal studies are needed to understand the long-term consequences of chronic sleep deprivation on mental health and academic outcomes. Additionally, intervention-based research can provide evidence for effective strategies such as promoting sleep hygiene, regulating screen time, and introducing school-based sleep awareness programs.

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Conflict of Interest

None.

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