

Original Research Article

Study to assess the association between screen time, other life style factors and hair fall

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ABSTRACT

Background: Hair fall is one of the most common cosmetic concerns among young adults and is influenced by genetic, environmental, nutritional, hormonal, and lifestyle factors. With the rapid increase in digital device usage, screen time has emerged as a potential lifestyle factor affecting overall health. The present study aimed to assess the association between screen time, sleep duration, stress levels, and hair fall among young adults.

Methods: A cross-sectional questionnaire-based study was conducted among 300 young adults aged 15-25 years. Data regarding demographic characteristics, average daily screen time, sleep duration, perceived stress, family history of hair fall, medical conditions affecting hair, and hair fall characteristics were collected using a structured online questionnaire. Descriptive statistics were used to summarize the data. Associations between lifestyle factors and hair fall were assessed using Chi-square tests. A p value less than 0.05 was considered statistically significant.

Results: Among 300 participants, 57.3% belonged to the age group of 21-25 years and 66.3% were females. Increased hair fall during the preceding six months was reported by 65.3% of participants. Significant associations were observed between screen time and increased hair fall ($\chi^2=10.624$, $p=0.014$), screen time and hair fall severity ($\chi^2=15.377$, $p=0.018$), and stress levels and increased hair fall ($\chi^2=11.793$, $p=0.019$). No significant association was found between sleep duration and increased hair fall ($\chi^2=3.028$, $p=0.387$).

Conclusions: Higher screen time and elevated stress levels were significantly associated with self-reported hair fall among young adults. These findings highlight the importance of lifestyle modification and stress management in maintaining hair health.

Keywords: Cross-sectional study, Dermatology, Hair fall, Lifestyle factors, Screen time, Stress, Young adults

INTRODUCTION

Hair fall is a common dermatological complaint that affects individuals across all age groups and has substantial psychosocial implications. While physiological shedding of hair is a normal phenomenon, excessive hair loss may result in anxiety, decreased self-esteem, impaired social functioning, and reduced quality of life. Hair disorders account for a considerable proportion of dermatology consultations worldwide, particularly among adolescents and young adults.¹

Hair growth is influenced by multiple factors including genetics, nutrition, endocrine status, environmental exposures, systemic illnesses, and psychological stress.²⁻⁴ In recent years, the widespread use of smart phones, tablets, laptops, and other digital devices has significantly increased screen exposure among young adults. Excessive screen time has been associated with sedentary behavior, sleep disturbances, mental fatigue, increased stress levels, and altered circadian rhythms.⁶⁻¹⁰ These lifestyle changes may indirectly influence hair health.

Psychological stress is a recognized trigger for hair disorders such as telogen effluvium, alopecia areata, and exacerbation of androgenetic alopecia.¹⁻³ Malkud described stress-induced premature transition of hair follicles from the anagen phase to the telogen phase, resulting in diffuse hair shedding.¹ Sleep disturbances have also been linked to impaired physiological recovery and inflammatory changes that may contribute to dermatological disorders.¹¹

Despite growing concern regarding the health consequences of excessive digital device usage, limited studies have explored its relationship with hair fall among young adults. Understanding these associations may help identify modifiable risk factors and facilitate preventive interventions. Therefore, the present study was conducted to assess the association between screen time and other lifestyle factors with hair fall among young adults.

METHODS

A cross-sectional questionnaire-based study was conducted from January 2026 to June 2026 among young adults aged 15-25 years. The study was conducted at Mamata Medical Hospital, Khammam, Telangana, India carried out, where participants were recruited using a structured online questionnaire distributed through digital platforms. The questionnaire collected information regarding demographic characteristics, average daily screen time, sleep duration, perceived stress levels, family history of hair fall, medical conditions affecting hair, and self-reported hair fall characteristics. A total sample size of 300 participants was included in the study after applying the eligibility criteria.

Participants aged between 15 and 25 years who voluntarily agreed to participate and completed the questionnaire were included in the study. Individuals who did not provide consent, submitted incomplete questionnaires, or provided inconsistent responses were excluded from the final analysis.

The primary outcome variable was increased hair fall during the preceding six months. Secondary outcome measures included severity of hair fall and average daily hair shedding. Independent variables included screen time, sleep duration, perceived stress levels, family history of hair fall, and relevant medical conditions.

Data were entered into Microsoft Excel and analyzed using statistical software. Categorical variables were expressed as frequencies and percentages. Associations between lifestyle factors and hair fall outcomes were assessed using Chi-square tests. Statistical significance was considered at a p value of less than 0.05.

RESULTS

As shown in Figure 1, Among the 300 participants, 172 (57.3%) belonged to the age group of 21-25 years,

whereas 128 (42.7%) belonged to the age group of 15-20 years.

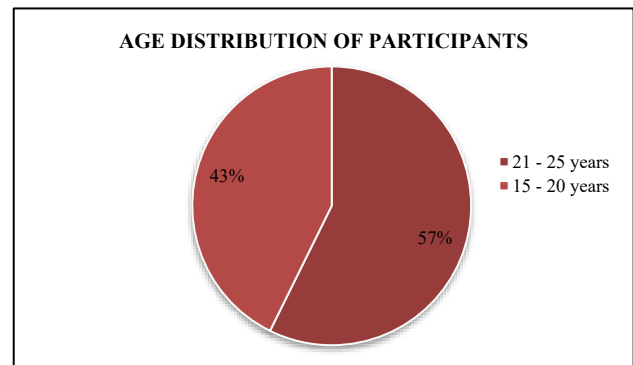


Figure 1: Age distribution of participants.

As shown in Figure 2, females constituted 66.3% (n=199) of the study population, while males accounted for 33.7% (n=101).

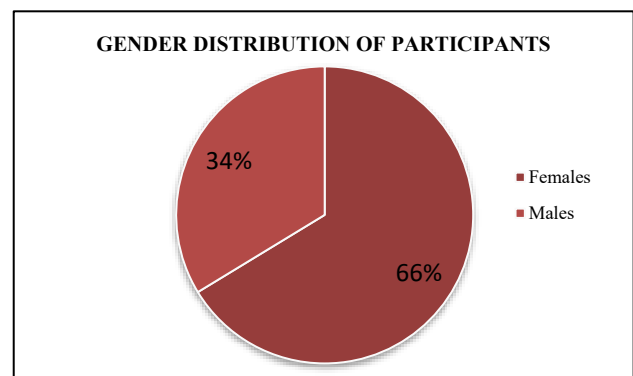


Figure 2: Gender distribution of participants.

Table 1: Socio-demographic characteristics of participants.

Variables	Frequency	Percentage
Age 15-20 years	128	42.7
Age 21-25 years	172	57.3
Male	101	33.7
Female	199	66.3

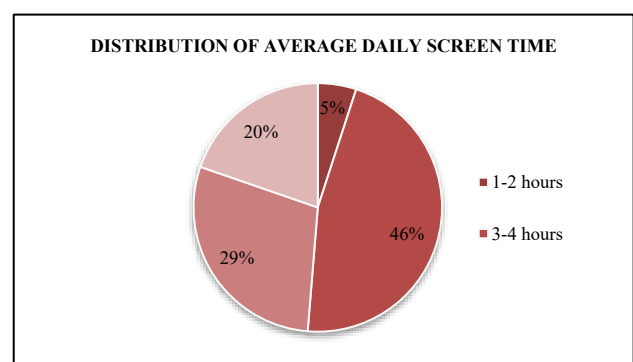


Figure 3: Distribution of average daily screen time.

As shown in Figure 3, the majority of participants reported screen exposure of 3-4 hours per day (46.3%), followed by 5-6 hours (29.0%), more than 6 hours (19.7%), and 1-2 hours (5.0%).

Table 2: Lifestyle characteristics of participants.

Variables	Frequency	Percentage
Screen time 1-2 hours	15	5.0
Screen time 3-4 hours	139	46.3
Screen time 5-6 hours	87	29.0
Screen time > 6 hours	59	19.7
Sleep duration < 5 hours	9	3.0
Sleep duration 5-6 hours	149	49.7
Sleep duration 7-8 hours	130	43.3
Sleep duration > 8 hours	12	4.0

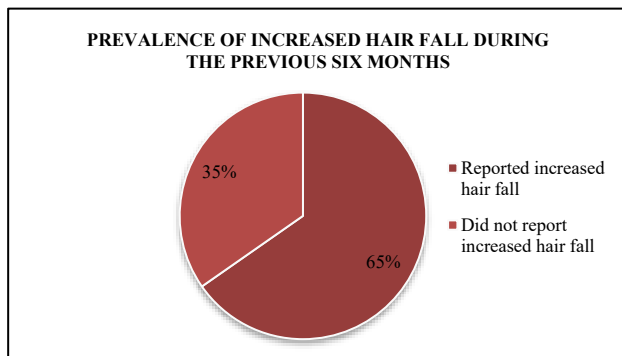


Figure 4: Prevalence of increased hair fall during the previous six months.

As shown in Figure 4, total of 196 participants (65.3%) reported increased hair fall, whereas 104 participants (34.7%) did not report increased hair fall.

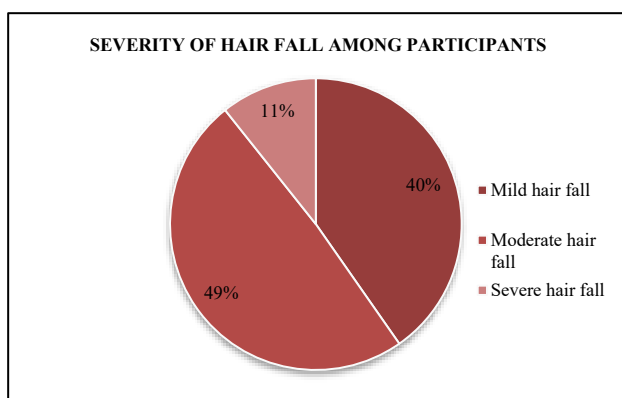


Figure 5: Severity of hair fall among participants.

As shown in Figure 5, moderate hair fall was reported by 49.0% of participants, mild hair fall by 40.3%, and severe hair fall by 10.7%.

Table 3: Hair fall characteristics.

Variables	Frequency	Percentage
Increased hair fall	196	65.3
No increased hair fall	104	34.7
Mild hair fall	121	40.3
Moderate hair fall	147	49.0
Severe hair fall	32	10.7

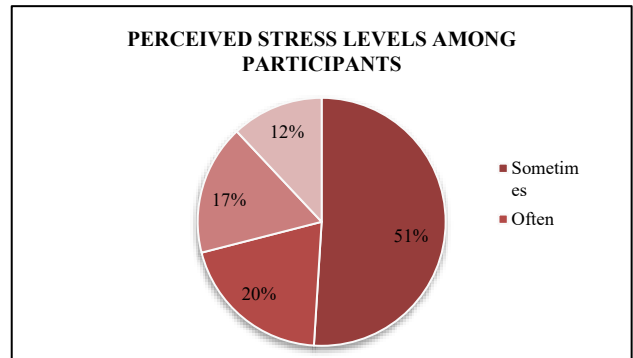


Figure 6: Perceived stress levels among participants.

As shown in Figure 6, most participants reported experiencing stress “sometimes” (51.0%), followed by “often” (20.0%) and “very often” (17.0%).

Table 4: Association between lifestyle factors and hair fall.

Variables compared	χ^2 value	Df	P value
Screen time versus increased hair fall	10.624	3	0.014
Screen time versus hair fall severity	15.377	6	0.018
Sleep duration versus increased hair fall	3.028	3	0.387
Stress level versus increased hair fall	11.793	4	0.019

A statistically significant association was observed between average daily screen time and increased hair fall during the preceding six months ($\chi^2=10.624$, $p=0.014$). Screen time was also significantly associated with hair fall severity ($\chi^2=15.377$, $p=0.018$). Participants with longer screen exposure reported higher proportions of moderate-to-severe hair fall.

Stress levels demonstrated a statistically significant association with increased hair fall ($\chi^2=11.793$, $p=0.019$). In contrast, sleep duration was not significantly associated with increased hair fall ($\chi^2=3.028$, $p=0.387$).

DISCUSSION

The present study investigated the association between screen time, lifestyle factors, and hair fall among young adults. Approximately two-thirds of participants reported

increased hair fall during the preceding six months, highlighting the substantial burden of hair-related concerns in this age group.

A significant association was observed between screen time and increased hair fall. Participants with longer daily screen exposure demonstrated a higher prevalence of increased hair fall and greater severity of hair shedding. Although direct biological mechanisms remain uncertain, prolonged screen use may indirectly affect hair health through increased psychological stress, sedentary behavior, reduced physical activity, sleep disturbances, and circadian rhythm disruption. Wang et al reported that excessive digital device use is associated with multiple adverse physical and psychological health outcomes that may indirectly influence dermatological well-being.¹² Similarly, Twenge and Campbell demonstrated a relationship between increased media exposure and mental health disturbances among young adults.¹³

Stress emerged as another significant factor associated with hair fall. This finding is consistent with previous literature. Malkud reported that emotional stress is one of the most common precipitating factors for telogen effluvium and may result in premature entry of hair follicles into the telogen phase.¹ Gupta and Gupta emphasized the close relationship between psychological stress and dermatological disorders, noting that stress may influence disease onset, severity, and progression.² The significant association identified in the present study further supports the role of psychological stress as an important contributor to hair fall among young adults.

No statistically significant association was observed between sleep duration and hair fall. This finding differs from some previous studies that have reported associations between poor sleep quality and dermatological conditions.¹¹ However, sleep duration alone may not adequately represent sleep quality, circadian rhythm disturbances, or sleep-related stress. Therefore, future studies should incorporate validated sleep-quality assessment tools and objective sleep measurements.

The predominance of female participants in the present study may reflect greater awareness regarding hair health and cosmetic concerns among women. The high prevalence of self-reported hair fall observed in this study is comparable to findings reported in studies evaluating hair disorders among adolescents and young adults.^{5,8,9}

The findings of the present study emphasize the importance of addressing modifiable lifestyle factors during the assessment of hair fall. Counseling regarding screen-time moderation, stress reduction, healthy sleep habits, and lifestyle modification may contribute to improved hair health and overall well-being.^{7,14}

The present study has several limitations. The cross-sectional design prevents determination of causal

relationships between screen time and hair fall. Hair fall was self-reported rather than clinically diagnosed, introducing the possibility of recall bias and subjective interpretation. Convenience sampling and online data collection may limit the generalizability of findings. Furthermore, potentially important confounding variables such as nutritional deficiencies, serum ferritin levels, thyroid function, hormonal profiles, and dermatological examination findings were not evaluated.

CONCLUSION

The present study demonstrated a high prevalence of self-reported hair fall among young adults and identified significant associations between increased screen time, psychological stress, and hair fall outcomes. These findings suggest that lifestyle-related factors may contribute substantially to hair health and should be considered during clinical evaluation and preventive health interventions. By highlighting the relationship between contemporary digital habits and hair fall, this study adds to the growing body of evidence regarding lifestyle determinants of dermatological health and provides a foundation for future longitudinal studies aimed at establishing causal pathways and preventive strategies.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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