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Original Research Article

Binge watching and its impact on depression, anxiety and stress among medical undergraduate students of a tertiary care teaching hospital, Tumkur: a cross-sectional study

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ABSTRACT

Background: Binge-watching has emerged as a dominant media consumption behaviour among young adults, raising concerns about its potential impact on mental health. Medical undergraduate students represent a particularly vulnerable group due to academic stress and irregular lifestyle patterns. This study aimed to estimate the prevalence of binge-watching and examine its association with depression, anxiety, and stress among medical undergraduate students of a tertiary care teaching hospital in South India.

Methods: Authors conducted a cross-sectional study from April to June 2025 among 616 medical undergraduates using universal sampling. Sociodemographic data was collected using a semi-structured questionnaire. Binge-watching behaviour was assessed using the validated Binge-Watching Addiction Questionnaire, and mental health outcomes were measured using the Depression Anxiety Stress Scale–21. Data were analyzed using descriptive statistics and chi-square tests, with odds ratios estimated through univariate and multivariable analyses using SPSS version 28.

Results: Among 616 medical undergraduates, 487 (79.1%) reported non-problematic binge-watching, while 87 (14.1%) and 42 (6.8%) demonstrated moderate and problematic binge-watching, respectively. Moderate to extremely severe depression was observed in 340 students (55.2%), severe or extremely severe anxiety in 272 (44.2%), and moderate to extremely severe stress in 219 (35.6%). Binge-watching was common among medical students, and students with depression, anxiety, and stress had significantly higher odds of binge-watching compared to those without psychological distress. Students who engage in frequent or prolonged binge-watching may report higher levels of stress, disturbed sleep patterns, and reduced academic performance compared to those with controlled viewing habits

Conclusion: Binge-watching was common among medical undergraduates and the study highlights a potential association between binge-watching and increased levels of depression, anxiety, and stress among medical undergraduate students underscoring the need for early identification and targeted mental health interventions in medical colleges.

Keywords: Binge-watching, Medical undergraduate students, Depression, Anxiety, Stress

INTRODUCTION

The rapid expansion of over-the-top (OTT) streaming platforms has fundamentally altered media consumption patterns worldwide, giving rise to binge-watching as a dominant viewing behaviour. Binge-watching is commonly defined as watching multiple episodes of a television series in a single sitting, facilitated by on-demand access, autoplay features, and mobile viewing devices.[1] Global evidence indicates that this behaviour is highly prevalent among young adults, with reports showing that nearly 70–88% of streaming service users

engage in binge-watching, often consuming three or more episodes in one session.[2] While initially framed as a leisure activity, binge-watching is increasingly examined through the lens of behavioural addiction due to emerging evidence of loss of control, compulsive use, and negative health outcomes.[3] International studies consistently demonstrate a high prevalence of binge-watching among emerging adults and university students. Community-based and student-based studies report prevalence ranging from 70% to over 85%, with a substantial proportion exhibiting problematic patterns characterized by dependency and impaired self-regulation.[4-6] Psychological correlates such as stress, anxiety, depression, loneliness, and maladaptive coping strategies have been repeatedly associated with binge-watching behaviour, suggesting that it may function as an emotion-regulation strategy rather than a purely recreational activity.[3-7]

Systematic reviews further highlight conceptual overlap between problematic binge-watching and other behavioural addictions, particularly in terms of craving, tolerance, and continuation despite harm.[3] In the Indian context, the growth of OTT platforms has been particularly rapid, with young adults constituting the majority of users. Studies indicate that nearly half of Indian young adults engage in binge-watching, with average daily viewing times exceeding two hours.[4] Indian literature, though limited compared to Western settings, reports similarly high prevalence rates, often exceeding 80%, in community and college-based samples[6]. Indian college students appear especially vulnerable due to academic stress, easy smartphone access, irregular sleep schedules, and limited structured leisure alternatives.[5-7] Parallel to the rise in binge-watching, mental health problems among Indian college students represent a substantial public health concern. Studies from different regions of India report high levels of depression, anxiety, and stress among undergraduate students, particularly in medical and professional courses.[8] A study from South India documented depression in 34.7%, anxiety in 44%, and stress in 30.3% of medical undergraduate students, underscoring the psychological vulnerability of this population.[8] The co-occurrence of high screen exposure and mental distress raises concern regarding potential bidirectional relationships between binge-watching and mental health outcomes.

Evidence suggests that binge-watching adversely affects both physical and mental health. Physically, prolonged sedentary viewing is associated with disrupted sleep patterns, fatigue, musculoskeletal discomfort, and unhealthy lifestyle behaviours.[6-9] Psychologically, binge-watching has been linked to increased anxiety, depressive symptoms, poor sleep quality, emotional dysregulation, and social withdrawal.[10] Indian observational studies among college students have demonstrated significant associations between binge-watching and anxiety, depression, and sleep disturbances, reinforcing concerns about its health implications.[6] Despite growing evidence, there remains a paucity of region-specific data from South India examining binge-watching in relation to mental health among college students. Most Indian studies are limited by small samples or single outcomes, and few integrate both psychological and behavioural dimensions. Conducting a focused study in South India is therefore warranted to address contextual gaps related to cultural viewing patterns, academic environments, and mental health burden. Such evidence is essential to inform campus-based mental health promotion strategies and guide early identification of problematic digital media use among students. The study intends to estimate binge-watching prevalence and examine its association with depression, anxiety, and stress among medical undergraduates of a tertiary care hospital in South India.

METHODS

Study design and study setting

A cross-sectional observational study was conducted among medical undergraduate students of a tertiary care teaching hospital in Tumkur, Karnataka. The study was carried out over a two-month period from April to June 2025. The institution admits students from diverse sociocultural backgrounds and follows a structured undergraduate medical curriculum, providing a suitable setting to assess binge-watching behaviour and its association with mental health outcomes among young adults in an academic environment.

Study population

The study population comprised undergraduate medical students enrolled in all phases of the MBBS course. Students aged 18 years and above who provided informed consent were included. Students with a previously diagnosed psychiatric disorder, those currently receiving psychiatric treatment, and those unwilling to participate or those who were absent during the data collection or those who submitted incomplete questionnaires were excluded from the study.

Sample size and sampling technique

A total of 616 participants were included in the study. Universal sampling was employed, wherein all eligible medical undergraduate students present during the study period were invited to participate.

Study procedure

After obtaining approval from the Institutional Ethics Committee, the study was conducted in accordance with ethical principles for research involving human participants. Eligible students were approached during academic hours, and the objectives and procedures of the study were explained. Written informed consent was obtained prior to data collection. Participation was voluntary, and confidentiality of responses was assured.

Data was collected using a semi-structured, self-administered questionnaire consisting of four sections. The first section captured sociodemographic details such as age, gender, academic phase, and residence. The exposure variable, binge-watching behaviour, was assessed using the binge-watching addiction questionnaire (BWAQ). The BWAQ is a validated 20-item instrument developed to assess binge-watching as a behavioural addiction. It comprises four domains: craving (9 items), dependency (4 items), anticipation (3 items), and avoidance (4 items). Each item is rated on a 5-point Likert scale ranging from 0 to 4, yielding a total possible score of 0–80. The scale demonstrates high internal consistency, with reported Cronbach's alpha values ranging from 0.75 to 0.91 across domains and 0.89–0.94 for the overall scale. Scores ≤50 indicate non-problematic viewing, scores between 51 and 68 indicate moderate binge-watching, and scores ≥69 indicate problematic binge-watching behaviour. Mental health outcomes were assessed using the depression anxiety stress scale-21 (DASS-21). This is a 21-item self-report scale comprising three domains—depression, anxiety, and stress—with seven items in each domain. Items are rated on a 4-point Likert scale from 0 (never) to 3 (almost always). Domain scores are summed and multiplied by two to obtain final scores corresponding to the original DASS-42. The DASS-21 has demonstrated good internal consistency, with Cronbach's alpha values typically exceeding 0.80 for all subscales. Depression scores were categorized as normal (0–9), mild (10–13), moderate (14–20), severe (21–27), and extremely severe (≥28). Anxiety scores were classified as normal (0–7), mild (8–9), moderate (10–14), severe (15–19), and extremely severe (≥20). Stress scores were interpreted as normal (0–14), mild (15–18), moderate (19–25), severe (26–33), and extremely severe (≥34). Completed questionnaires were checked for completeness before data entry and subsequent analysis.

Statistical analysis

Data was entered and cleaned in Microsoft Excel and analyzed using IBM SPSS Statistics (version 28). Continuous variables were summarized as means with standard deviations, and categorical variables as frequencies and percentages. Associations between binge-watching and categorical variables was examined using the chi-square test. Unadjusted odds ratios with 95% confidence intervals were estimated using univariate logistic regression, followed by multivariable logistic regression to identify independent correlates. A two-sided p value <0.05 was considered statistically significant.

RESULTS

Authors analyzed data from 616 medical undergraduate students, the majority of whom were aged 20–21 years (274 (44.5%)), followed by those aged 18–19 years (211 (34.3%)). Female students comprised a substantial proportion of the cohort (420 (68.2%)), while males accounted for 196 (31.8%). Participants were represented across all phases of the MBBS course, with the highest representation from Phase 1 (223 (36.2%)) and Phase 3 Part 1 (171 (27.8%)). Nearly the entire cohort was unmarried (613 (99.5%)), reflecting the predominantly young undergraduate population (Table 1). Regarding binge-watching behaviour, most students demonstrated non-problematic viewing patterns (487 79.1%). Moderate binge-watching was observed in 87 students (14.1%), indicating a notable subgroup with elevated viewing intensity. Problematic binge-watching behaviour was identified in 42 students (6.8%), representing a smaller but clinically relevant proportion of medical undergraduates with viewing patterns suggestive of addictive tendencies (Table 2).

Table 1: Sociodemographic characteristics of the study participants (n=616).

Sociodemographic variables	Frequency (N)	Proportion (%)
Age group (in years)		
18–19	211	34.25
20–21	274	44.48
22–23	123	19.97
>24	8	1.3
Gender		
Male	196	31.82
Female	420	68.18
Year of study		
Phase 1	223	36.2
Phase 2	122	19.81
Phase 3–Part 1	171	27.76
Phase 3–Part 2	100	16.23
Marital status		
Single	613	99.51
Married	1	0.16
Divorced	0	0
Others	2	0.32

Table 2: Level of binge watching among study participants (n=616).

Level of binge watching	Frequency (N)	Proportion (%)
Problematic binge watching	42	6.82
Moderate binge watching	87	14.12
Non-problematic binge watching	487	79.06

Table 3: Distribution of depression, anxiety, and stress levels as per DASS-21 scale among the study participants (n=616).

Variables	Frequency (N)	Proportion (%)
Level of depression		
Normal	207	33.6
Mild	69	11.2
Moderate	144	23.38
Severe	61	9.9
Extremely severe	135	21.92
Level of anxiety		
Normal	181	29.38
Mild	63	10.23
Moderate	100	16.23
Severe	55	8.93
Extremely severe	217	35.23
Level of stress		
Normal	347	56.33
Mild	50	8.12
Moderate	74	12.01
Severe	87	14.12
Extremely severe	58	9.42

Table 4: Univariate analysis to find out association between socio-demographic characteristics and mental status with binge watching (n=616).

Variable	Category of response	Absence of binge-watching N (%)	Presence of binge-watching N (%)	Chi-square value	Unadjusted odds ratio (95% CI)	P value
Age category (in years)	18–19	159 (75.36)	52 (24.64)	5.66	1.50 (0.97–2.33)	0.070
	20–21	225 (82.12)	49 (17.88)		1.35 (0.80–2.28)	0.256
	22–23	95 (77.24)	28 (22.76)		Ref	
	≥24	8 (100.00)	0 (0.00)		—	—
Gender	Male	165 (84.18)	31 (15.82)	4.56	Ref	
	Female	322 (76.67)	98 (23.33)		1.62 (1.04–2.53)	0.034
Marital status	Single	484 (78.96)	129 (21.04)	0.8	—	—
	Married or others	3 (100.00)	0 (0.00)		Ref	—
Study phase	Phase 1	165 (73.99)	58 (26.01)	12.5	2.26 (1.33–3.85)	0.003
	Phase 2	101 (82.79)	21 (17.21)		1.34 (0.70–2.55)	0.375
	Phase 3 part 1	148 (86.55)	23 (13.45)		Ref	
	Phase 3 part 2	73 (73.00)	27 (27.00)		2.38 (1.28–4.44)	0.006
Depression	Depression absent	203 (98.07)	4 (1.93)	68.05	Ref	
	Depression present	284 (69.44)	125 (30.56)		22.34 (8.12–61.43)	<0.001
Anxiety	Anxiety absent	176 (97.24)	5 (2.76)	51.16	Ref	
	Anxiety present	311 (71.49)	124 (28.51)		14.03 (5.63–34.97)	<0.001
Stress	Stress absent	331 (95.39)	16 (4.61)	127.99	Ref	
	Stress present	156 (57.99)	113 (42.01)		14.99 (8.58–26.16)	<0.001

Table 5: Multivariate analysis for associated variables with binge watching (n=616).

Variable	Category of response	Unadjusted odds ratio (95% CI)	P value
Gender	Male	Ref	—
	Female	1.62 (1.04–2.53)	0.034
Study phase	Phase 3 part 1	Ref	—
	Phase 1	2.26 (1.33–3.85)	0.003
	Phase 2	1.34 (0.70–2.55)	0.375
	Phase 3 part 2	2.38 (1.28–4.44)	0.006
Depression	Depression absent	Ref	—
	Depression present	22.34 (8.12–61.43)	<0.001
Anxiety	Anxiety absent	Ref	—
	Anxiety present	14.03 (5.63–34.97)	<0.001
Stress	Stress absent	Ref	—
	Stress present	14.99 (8.58–26.16)	<0.001

Depressive and anxiety symptoms were common in the cohort. Only 207 students (33.6%) had normal depression scores, while 340 (55.2%) reported moderate to extremely severe depressive symptoms, including 135 (21.9%) with extremely severe depression. Anxiety was more pronounced, with 181 students (29.4%) in the normal range and 272 (44.2%) experiencing severe or extremely severe anxiety. Stress levels were relatively lower but remained substantial. More than half of participants were classified as normal (347 (56.3%)); however, 219 students (35.6%) reported moderate to extremely severe stress, including 145 (23.5%) with severe or extremely severe stress. Binge-watching behaviour showed meaningful variation across selected sociodemographic and academic characteristics. Although age was not significantly associated with binge-watching, students aged 18–19 years demonstrated a higher, though non-significant, likelihood of binge-watching compared with those aged 22–23 years (OR, 1.50; 95% CI, 0.97–2.33). Female students were more likely to engage in binge-watching than male students (OR, 1.62; 95% CI, 1.04–2.53).

Academic phase was an important determinant, with students in phase 1 (OR, 2.26; 95% CI, 1.33–3.85) and phase 3 part 2 (OR, 2.38; 95% CI, 1.28–4.44) having higher odds of binge-watching compared with those in phase 3 part 1, while no significant association was observed for Phase 2 students. These findings suggest that earlier and transition phases of medical training may be associated with higher engagement in binge-watching behaviour. Mental health status demonstrated the strongest association with binge-watching behaviour. In univariate and multivariable analyses, depressive symptoms were associated with markedly higher odds of binge-watching (OR, 22.34; 95% CI, 8.12–61.43), indicating a robust relationship between depression and excessive viewing patterns. Similarly, students with anxiety symptoms (OR, 14.03; 95% CI, 5.63–34.97) and those experiencing stress (OR, 14.99; 95% CI, 8.58–26.16) had substantially elevated odds of binge-watching compared with their respective reference groups. These associations remained statistically significant after adjustment for other variables that were associated in univariate analysis.

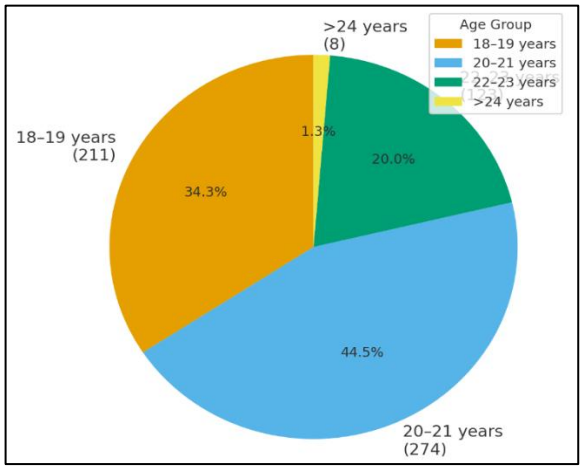

Figure 1: Pie chart depicting the age distribution of the study participants (n=616).

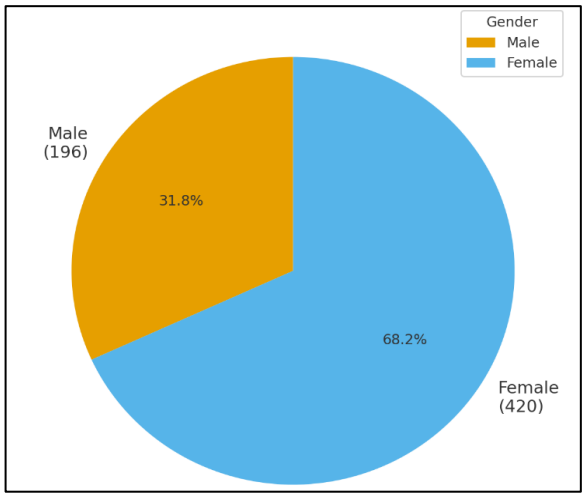

Figure 2: Pie chart depicting the gender distribution of the study participants (n=616).

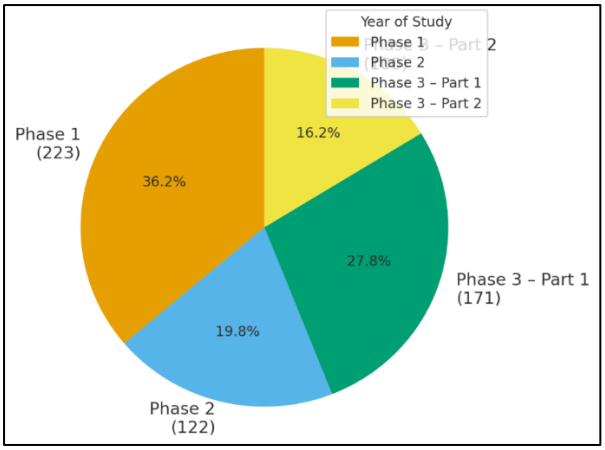

Figure 3: Pie chart depicting the study year distribution of the study participants (n=616).

DISCUSSION

In this study, we evaluated binge-watching behaviour and its association with mental health outcomes among 616 medical undergraduate students. The study population was predominantly young, female, and unmarried, with representation across all phases of the MBBS course. Most participants reported non-problematic binge-watching; however, nearly one in five students demonstrated moderate to problematic binge-watching behaviour, highlighting the presence of a sizable subgroup with elevated viewing intensity. Symptoms of depression and anxiety were highly prevalent, with more than half of the cohort reporting moderate to extremely severe depressive symptoms and nearly half experiencing severe or extremely severe anxiety. Although stress levels were comparatively lower, more than one-third of students reported moderate to extremely severe stress, underscoring a substantial burden of psychological distress within this academic population. Authors further observed that binge-watching behaviour varied across selected sociodemographic and academic characteristics, with higher odds among female students and those in earlier or transitional phases of medical training. Most notably, mental health status emerged as the strongest correlate of binge-watching behaviour. Students with depressive symptoms, anxiety, or stress had markedly higher odds of engaging in binge-watching, and these associations persisted after adjustment for relevant covariates.

The findings on the prevalence of binge-watching align with the growing body of literature describing binge-watching as a common but heterogeneous behaviour among university students. In our cohort, nearly four in five students reported non-problematic viewing, while approximately one in five exhibited moderate to problematic binge-watching. Similar prevalence patterns have been reported among college and university students in other settings, where binge-watching is widespread but only a smaller subset meets criteria suggestive of problematic or addictive use.[11] Systematic reviews and meta-analyses indicate that while binge-watching is often normalized in young adults, a clinically meaningful proportion demonstrates loss of control, compulsive viewing, and functional impairment[12]. Studies from South Asia and neighboring regions, including Pakistan, have also documented moderate levels of problematic binge-watching among university students, reinforcing the cross-cultural relevance of our estimates.[13] The high burden of depression, anxiety, and stress observed in our study is consistent with prior research among medical and non-medical student populations. Indian and international studies have repeatedly shown that medical undergraduates experience higher levels of psychological distress compared with the general population, driven by academic pressure, competitive environments, and transition-related stressors.[14] The observation that more than half of participants reported moderate to extremely severe depressive symptoms and that anxiety was even more prevalent mirrors findings from studies among emerging adults and college students, where anxiety often exceeds depression in prevalence[11],[15]. Comparable Indian studies have similarly reported substantial levels of depression, anxiety, and poor sleep quality among college students who engage in binge-watching.[16]

The association between binge-watching and adverse mental health outcomes in the study closely parallels earlier empirical evidence. Multiple cross-sectional studies and systematic reviews have demonstrated strong positive associations between problematic binge-watching and symptoms of depression, anxiety, and psychological distress.[12,17] The magnitude of association observed in the analysis, particularly for depression, anxiety, and stress, is comparable to that reported in studies from China and Taiwan, where problematic binge-watching scores were independently associated with higher depression and anxiety scores after adjustment for sociodemographic factors.[18] Qualitative and quantitative evidence suggests that binge-watching may serve as an emotion-focused coping strategy, used to escape negative affect, loneliness, or academic stress, which may explain the robust associations observed across studies.[11,17] Gender differences identified in the study, with higher odds of binge-watching among female students, are also supported by earlier literature. Several studies report greater engagement and higher problematic scores among women, possibly reflecting differences in media consumption patterns, emotional regulation strategies, and genre preferences.[13,18] Similarly, the higher odds of binge-watching among students in earlier and transition phases of medical training observed in our study resonate with evidence that academic transitions are periods of heightened vulnerability to maladaptive coping behaviours, including excessive screen use.[14,16]

The study has several strengths. Authors included a large sample of medical undergraduate students across all phases of training using universal sampling, which enhanced internal validity and reduced selection bias. The use of standardized, validated instruments which

strengthened the reliability and comparability of our findings. Conducting the study in a tertiary care teaching hospital allowed us to capture binge-watching behaviour and mental health outcomes in a high-stress academic environment that is under-represented in Indian literature, thereby adding region-specific evidence from South India.

However, the study also has limitations. The cross-sectional design precludes causal inference, and the observed associations cannot establish temporal directionality between binge-watching and mental health outcomes. Data were based on self-reported questionnaires, which may be subject to recall bias and social desirability bias. Authors did not assess academic performance, sleep duration, or screen-time objectively, which could have provided additional context.

CONCLUSION

In this cross-sectional study, authors found that binge-watching was common among medical undergraduate students, with a clinically relevant proportion exhibiting moderate to problematic viewing patterns. Psychological distress was highly prevalent, and depressive symptoms, anxiety, and stress showed strong and independent associations with binge-watching behaviour. These findings suggest that binge-watching may function as a maladaptive coping strategy in the context of academic stress and emotional burden among medical students. The results highlight the need for institutional awareness programs focusing on balanced screen use, early identification of psychological distress, and promotion of healthier coping strategies within medical colleges.

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