



BINGE-WATCHING BEHAVIOUR AND ITS ASSOCIATION WITH EXECUTIVE SKILLS AMONG ADOLESCENTS: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Binge-watching, the practice of watching multiple episodes of a television series in one sitting, has become increasingly common among young adults and may adversely affect executive functions such as attention, planning, self-regulation, and decision-making. This study assessed the association between binge-watching addiction and executive functioning among college students.

Materials and Methods: A cross-sectional observational study was conducted among 265 college students aged 17–22 years in Srikakulam after Institutional Human Ethics Committee approval. Data were collected using a structured questionnaire and analyzed using SPSS with descriptive and inferential statistics.

Results: The mean (SD) age was 20 (2) years, and 59.2% were females. Overall, 15.5% exhibited moderate problematic binge-watching, while 27.9% demonstrated relative weakness in executive functioning. Watching more than three consecutive episodes was significantly associated with problematic binge-watching ($p < 0.05$). A significant negative correlation was observed between binge-watching and executive functioning, indicating that higher binge-watching behaviour was associated with poorer executive skills.

Conclusion: Demographic factors were not significantly associated with binge-watching behaviour. However, watching more than three consecutive episodes was a significant predictor of problematic binge-watching, which was associated with weaker executive functioning, particularly in emotional and behavioural regulation. These findings emphasise the need for interventions promoting healthy viewing habits among college students.

Keywords: Binge-Watching, Executive Functions, College Students, Addiction, Cognitive Control.

INTRODUCTION

Binge-watching refers to the act of consuming many episodes of a television program consecutively in a single session. Binge-watching, particularly among the youth, is a relatively new behavioural trend that has gained popularity since the onset of the COVID-19 pandemic. It has now become one of the most favoured ways to spend leisure time.¹



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Undoubtedly, binge-watching has become the favoured and pleasurable approach for the

contemporary public to consume media content, including TV programs. The consumption habits, and quality of media have seen significant transformations in recent years as a result of the advancements and broad use of information and communication technologies (ICTs).² The advancement of personal media devices and dependable Internet connections has enabled individuals to stream and indulge in their preferred TV show episodes online for extended periods, regardless of location or time.² Due to the highly captivating nature of this behaviour, individuals may experience a loss of self-regulation and find themselves engrossed in watching television shows for a far longer duration than initially planned.³ There are other perspectives to consider while analyzing the motivations behind binge-watching. Psychologically, binge behaviour refers to the

excessive consumption of a certain object within a short timeframe as a way to find comfort and avoid facing reality.⁴ Executive functions, also known as executive control or cognitive control, are a set of higher-level cognitive processes that are essential for maintaining focus and attention. They are particularly important in situations where relying solely on instinct or intuition would be inappropriate, insufficient, or impossible.⁵ It is theorized that binge-watching habits can have an impact on these executive functions. This study aims to determine the prevalence of binge-watching addiction among participants and assess its impact on executive skills. Additionally, it seeks to provide insights that can aid in the learning and improvement of individuals affected by this addiction. Several studies from different countries have investigated the relationship between binge-watching habits and various aspects of cognitive functioning and mental health. In India, Sirowa et al. (2023) found a positive correlation between binge-watching and executive skills, which are crucial for goal-directed behavior and self-regulation. However, a study by Nikhil et al. (2020) from Punjab, India, revealed that binge-watching was associated with poor sleep quality and declining mental health, suggesting a potentially detrimental impact.^{6,7} Meanwhile, Uzma Ilyas et al. (2020) from Pakistan discovered a negative correlation between binge-watching and executive functioning among university students. They found that increased binge-watching time was linked to decreased performance in various aspects of executive functioning, such as response inhibition, working memory, emotional control, and task inhibition.⁸ In France, Pauline et al. examined the relationship between negative affect and problematic binge-watching among students. Their results indicated that problematic binge-watching might be a manifestation of maladaptive emotion regulation strategies, potentially affecting cognition and executive skills.⁹

Overall, these studies suggest a complex relationship between binge-watching, cognitive functioning, and mental health. While binge-watching may provide temporary enjoyment, it could also have adverse effects on executive skills, sleep quality, and overall mental well-being, especially when engaged in excessively or problematically.

Aim

To determine the correlation between binge-watching addiction and executive functions among college students.

Objectives

- To determine the prevalence of binge-watching patterns among college students.
- To assess the level of binge-watching addiction.
- To evaluate the behavioural dimensions associated with potential binge-watching

addiction (craving, dependency, anticipation, and avoidance).

- To assess executive skills across the domains of plan management, time management, organisation, emotional regulation, and behavioral regulation.
- To examine the association between binge-watching addiction and executive functions among college students.

Study Design and Setting

A cross-sectional observational study was conducted among 265 college students in Srikakulam to assess the association between binge-watching addiction and executive skills.

Study Population

The study included college students aged 17–22 years.

Inclusion Criteria

- College students aged 17–22 years.
- Students who provided written informed consent (and assent where applicable).

Exclusion Criteria

- Students who did not provide consent.
- Students with a known medical history of cognitive function abnormalities.

Sample Size

The sample size was estimated assuming a mild positive correlation ($r = 0.20$) between binge-watching addiction and executive skills. Using a two-sided significance level of 5% ($\alpha = 0.05$) and 90% power ($\beta = 0.10$), the minimum required sample size was calculated to be 259 participants using the following formula:

Where:

- $Z_{\alpha} = 1.96$ (standard normal deviate at 5% level of significance)
- $Z_{\beta} = 1.2816$ (standard normal deviate corresponding to 90% power)
- $C = 0.5 \times \ln\left(\frac{1+r}{1-r}\right) = 0.2027$, where $r = 0.20$

Substituting the values:

$$N = \left(\frac{1.96 + 1.2816}{0.2027} \right)^2 + 3$$

$$N = \left(\frac{3.2416}{0.2027} \right)^2 + 3$$

$$N = (15.992)^2 + 3$$

$$N = 255.74 + 3$$

$$N \approx 259$$

The calculated minimum sample size was 259; therefore, 265 participants were included in the study.

Ethical Considerations

Ethical approval was obtained from the Institutional Human Ethics Committee before commencement of the study. Participants were informed about the objectives and purpose of the study, and written

informed consent (and assent where applicable) was obtained before data collection.

Data Collection

Data were collected using a structured questionnaire comprising the following sections:

1. Sociodemographic characteristics
2. Binge-watching criteria
3. Binge-Watching Addiction Questionnaire
4. Executive Skills Questionnaire

Binge-Watching Addiction Questionnaire

The questionnaire consisted of 20 items grouped into four domains:

- Craving
- Dependency
- Anticipation
- Avoidance

Domain scores were obtained by summing the responses within each domain, and an overall binge-watching score was calculated. Based on the total score, participants were categorised as:

- No problematic binge-watching
- Moderate problematic binge-watching
- Problematic binge-watching

Executive Skills Questionnaire

The Executive Skills Questionnaire comprised 25 items distributed across five domains:

- Plan management
- Time management
- Organization
- Emotional regulation
- Behavioural regulation

The mean score for each domain and an overall executive skills score were calculated. Scores of 0–1 indicated relative strength, whereas scores of 3–4 indicated relative weakness in executive functioning.

Statistical Analysis

The collected data were entered into Microsoft Excel and analyzed using the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics, including mean, standard deviation, frequencies, and percentages, were used to summarize the study variables. Inferential statistics comprised the independent *t*-test, Chi-square test, Fisher's exact test, and Pearson's correlation coefficient to determine associations and

correlations between variables. A *p*-value of <0.05 was considered statistically significant throughout the analysis.

RESULTS

A total of 265 college students participated in the study, with a mean (SD) age of 20 (2) years. Females constituted 59.2% of the participants; 83.8% were first-year students; 90.6% were Hindus; and 53.6% resided in urban areas. Regarding binge-watching behaviour, 62.3% reported spending less than 120 minutes per viewing session, while 46.0% watched more than 3 consecutive episodes. Functional impact related to binge-watching was reported by 42.3%, and 75.5% self-identified as problematic TV series viewers. Based on the binge-watching questionnaire, 15.5% demonstrated moderate problematic binge-watching, with the highest levels of problematic behaviour observed in the avoidance domain. Assessment of executive functioning showed that 72.1% of participants exhibited relative strength overall, whereas 27.9% demonstrated relative weakness. Relative strengths were most evident in plan management (76.2%) and organisation (71.7%), while relative weaknesses were more common in emotional regulation (52.8%) and behavioural regulation (54.7%). Among the factors examined, watching more than three episodes consecutively was the only variable significantly associated with problematic binge-watching ($p < 0.001$). Age, gender, year of study, religion, area of residence, viewing duration, functional impact, and self-identified problematic viewing showed no significant association. In contrast, executive functioning was significantly associated with reported functional impact ($p = 0.010$) and self-identification as a problematic TV series viewer ($p = 0.012$). A moderate positive correlation was observed between binge-watching scores and executive function scores ($r = 0.360$, $p < 0.001$), indicating a significant association between binge-watching behaviour and executive functioning. Considering that higher executive function scores represented poorer executive functioning, greater binge-watching was associated with weaker executive skills.

Table 1. Sociodemographic Characteristics of the Participants (N = 265)

Variable	Category	n (%)
Age (years)	Mean ± SD	20 ± 2
Gender	Male	108 (40.8)
	Female	157 (59.2)
Year of study	1st year	222 (83.8)
	3rd year	33 (12.5)
	4th year	10 (3.8)
Religion	Hindu	240 (90.6)
	Christian	22 (8.3)
	Muslim	3 (1.1)

Area of residence	Rural	123 (46.4)
	Urban	142 (53.6)

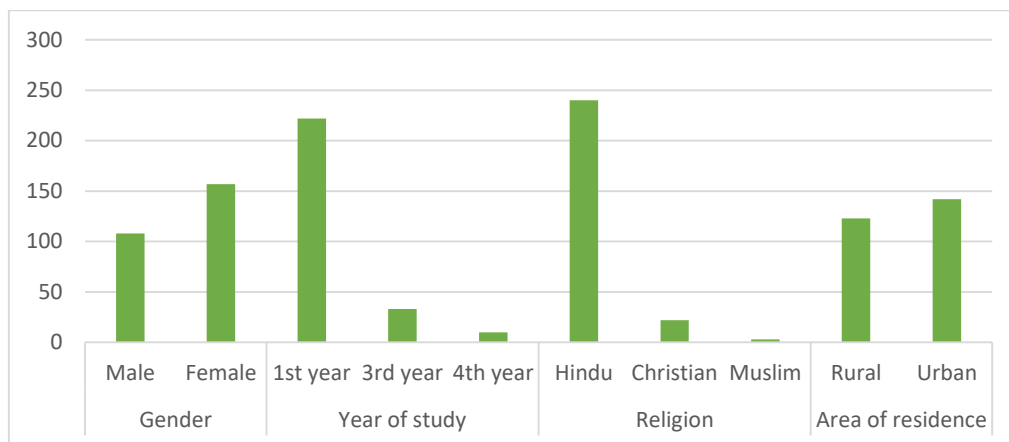


Table 2. Binge-Watching Characteristics of the Participants (N = 265)

Variable	Category	n (%)
Time spent per viewing session	<120 minutes	165 (62.3)
	≥120 minutes	100 (37.7)
Episodes watched consecutively	<3 episodes	143 (54.0)
	≥3 episodes	122 (46.0)
Reported functional impact	Yes	112 (42.3)
	No	153 (57.7)
Self-identified problematic TV series viewer	Yes	200 (75.5)
	No	65 (24.5)

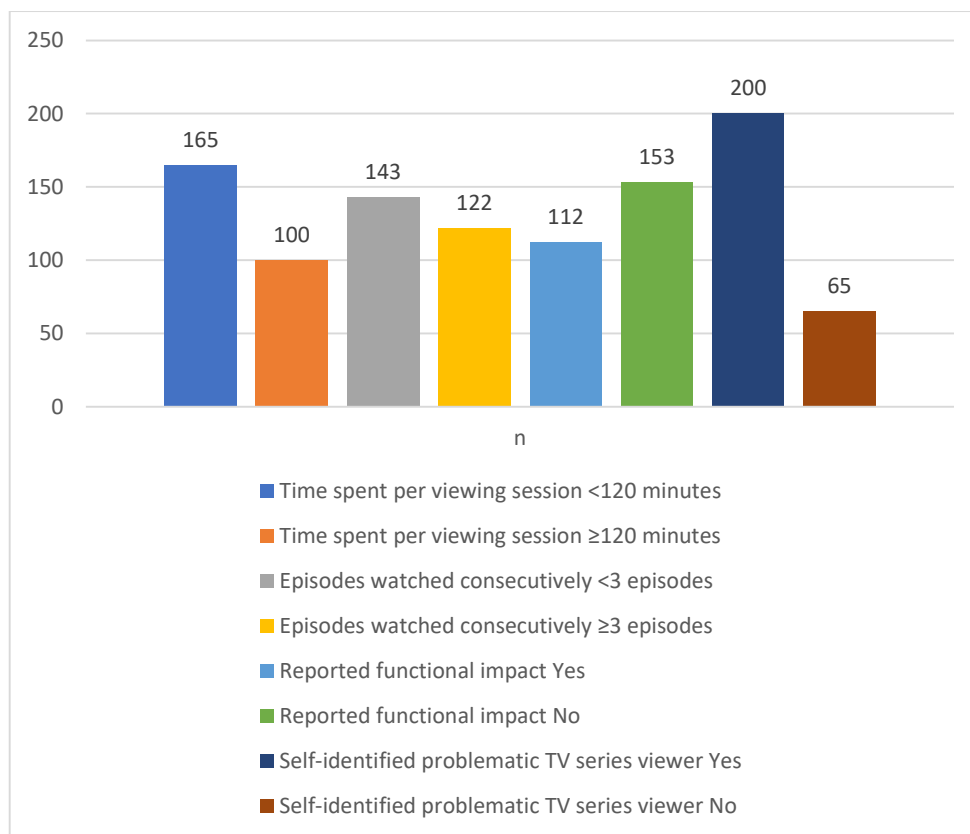


Table 3. Domain-wise Distribution of Binge-Watching Addiction (N = 265)

Domain	Category	n (%)
Craving	Problematic	0 (0.0)
	Moderate problematic	15 (5.7)
	No problematic	250 (94.3)
Dependency	Problematic	3 (1.1)
	Moderate problematic	23 (8.7)
	No problematic	239 (90.2)
Anticipation	Problematic	19 (7.2)
	Moderate problematic	27 (10.2)
	No problematic	219 (82.6)
Avoidance	Problematic	89 (33.6)
	Moderate problematic	91 (34.3)
	No problematic	85 (32.1)
Overall binge-watching	Problematic	0 (0.0)
	Moderate problematic	41 (15.5)
	No problematic	224 (84.5)

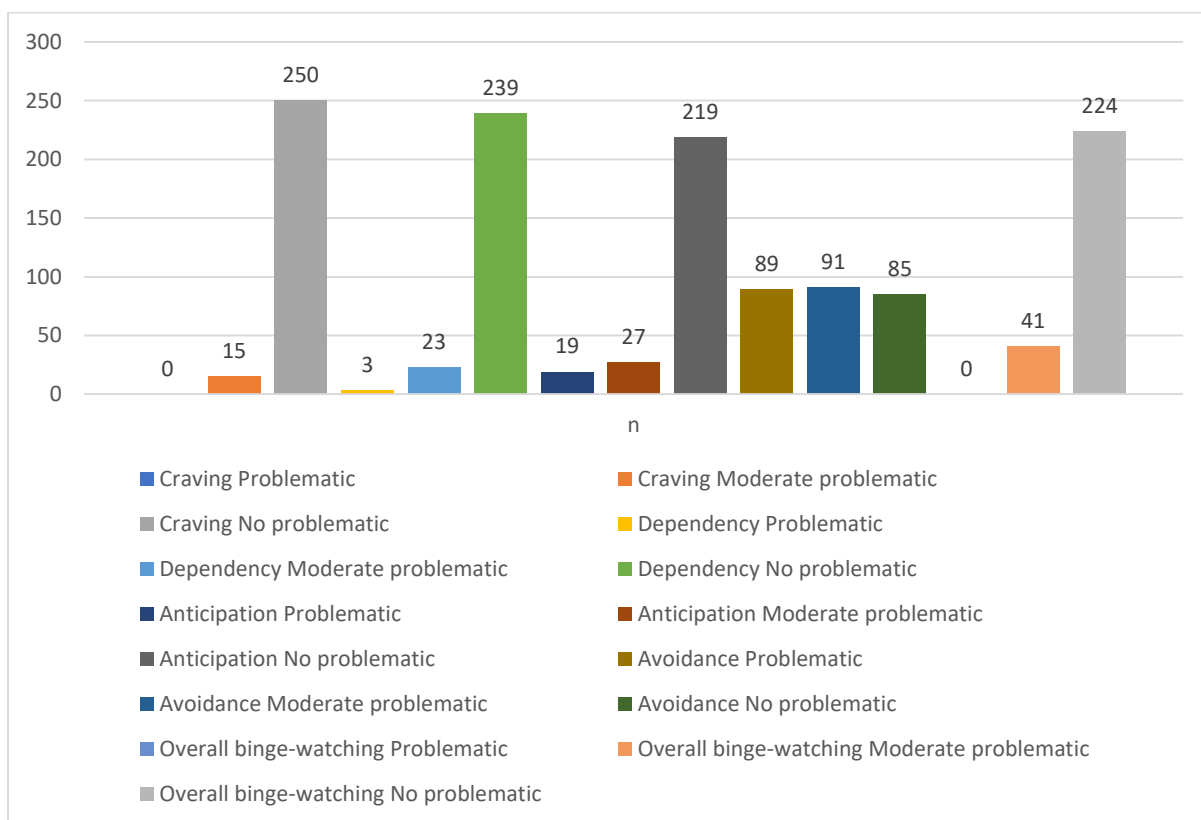


Table 4. Executive Skills of the Participants (N = 265)

Domain	Category	n (%)
Plan management	Relative strength	202 (76.2)
	Relative weakness	63 (23.8)
Time management	Relative strength	151 (57.0)
	Relative weakness	114 (43.0)
Organization	Relative strength	190 (71.7)
	Relative weakness	75 (28.3)
Emotional regulation	Relative strength	125 (47.2)
	Relative weakness	140 (52.8)
Behavioural regulation	Relative strength	120 (45.3)
	Relative weakness	145 (54.7)
Overall executive skills	Relative strength	191 (72.1)

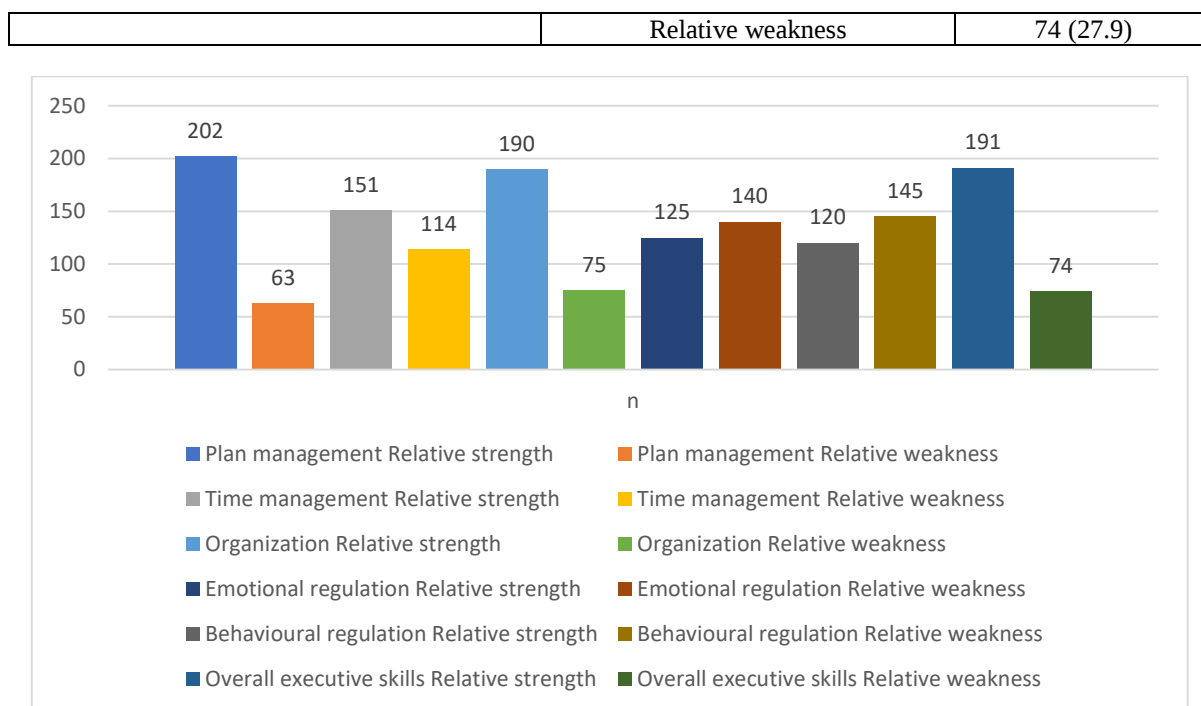


Table 5. Factors Associated with Problematic Binge-Watching

Variable	Category	Moderate Problematic n (%)	No Problematic n (%)	p value
Age	Mean	19.5 years	19.5 years	0.996
Gender	Male	16 (14.8)	92 (85.2)	0.800
	Female	25 (15.9)	132 (84.1)	
Year of study	1st year	36 (16.2)	186 (83.8)	0.930
	3rd year	4 (12.1)	29 (87.9)	
	4th year	1 (10.0)	9 (90.0)	
Religion	Hindu	36 (15.0)	204 (85.0)	0.440
	Christian	4 (18.2)	18 (81.8)	
	Muslim	1 (33.3)	2 (66.7)	
Area of residence	Rural	15 (12.2)	108 (87.8)	0.170
	Urban	26 (18.3)	116 (81.7)	
Time per viewing session	<120 min	22 (13.3)	143 (86.7)	0.210
	≥120 min	19 (19.0)	81 (81.0)	
Episodes watched consecutively	<3 episodes	10 (7.0)	133 (93.0)	<0.001*
	≥3 episodes	31 (25.4)	91 (74.6)	
Reported functional impact	Yes	14 (12.5)	98 (87.5)	0.250
	No	27 (17.6)	126 (82.4)	
Self-identified problematic viewer	Yes	32 (16.0)	168 (84.0)	0.677
	No	9 (13.8)	56 (86.2)	

Chi-square test/Fisher's exact test/Independent t-test as appropriate.

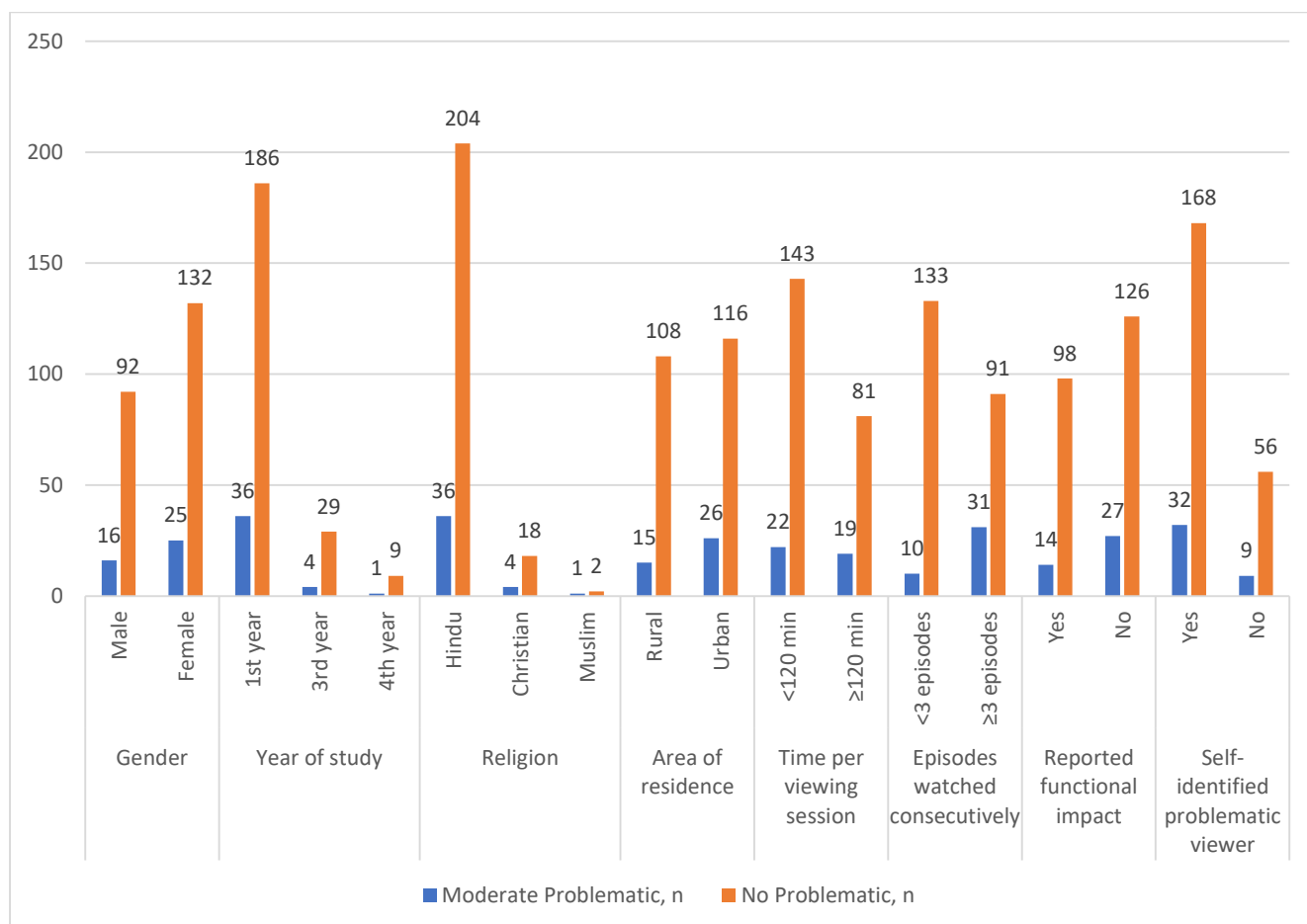


Table 6. Factors Associated with Executive Skills

Variable	Category	Relative Strength n (%)	Relative Weakness n (%)	p value
Age	Mean	19.4 years	19.8 years	0.068
Gender	Male	73 (67.6)	35 (32.4)	0.117
	Female	118 (75.2)	39 (24.8)	
Year of study	1st year	155 (69.8)	67 (30.2)	0.170
	3rd year	28 (84.8)	5 (15.2)	
	4th year	8 (80.0)	2 (20.0)	
Religion	Hindu	177 (73.8)	63 (26.3)	0.080
	Christian	13 (59.1)	9 (40.9)	
	Muslim	1 (33.3)	2 (66.7)	
Area of residence	Rural	94 (76.4)	29 (23.6)	0.140
	Urban	97 (68.3)	45 (31.7)	
Time per viewing session	<120 min	123 (74.5)	42 (25.5)	0.250
	≥120 min	68 (68.0)	32 (32.0)	
Episodes watched consecutively	<3 episodes	105 (73.4)	38 (26.6)	0.590
	≥3 episodes	86 (70.5)	36 (29.5)	
Reported functional impact	Yes	101 (66.0)	52 (34.0)	0.010*
	No	90 (80.4)	22 (19.6)	
Self-identified problematic viewer	Yes	39 (60.0)	26 (40.0)	0.012*
	No	152 (76.0)	48 (24.0)	

Chi-square test/Fisher's exact test/Independent t-test as appropriate.

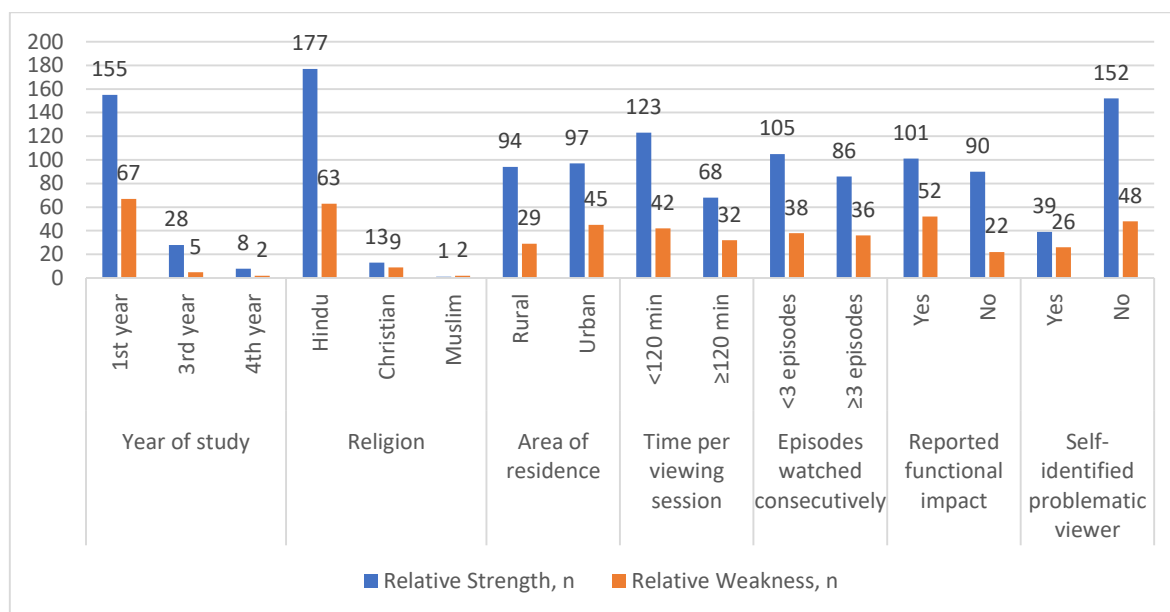


Table 7. Correlation Between Binge-Watching and Executive Skills

Variables	Pearson's correlation (r)	p value
Binge-watching vs. Executive skills	0.360	<0.001

Pearson correlation test.

DISCUSSION

The study was conducted among 265 participants. The mean (SD) age of the study participants is 20 years (2 years). Most of them are females (59.2%). Most of them are 1st year (83.8%), followed by 3rd year (12.5%) and 4th year (3.8%). About 90.6% are Hindus, 8.3% were Christians and 1.1% are Muslims. About 53.6% are in urban and 46.4% are in rural areas. These findings align with studies by Sirowa et al.,⁶ Nikhil Reddy et al.,⁷ Uzma Ilyas et al.,⁸ and Pauline et al.,⁹ demonstrating similar demographic patterns. The mean age of 21.5 years by Sirowa et al.,⁶ About 62.3% had less than 120 minutes spent watching per viewing session, and 37.7% had more than 120 minutes of time spent watching per viewing session. About 54% had the habit of watching less than 3 episodes in a row, and 46% were watching more than 3 episodes in a row. About 57.7% reported functional impact, and 42.3% had no functional impact. About 24.5% had self-identified as problematic TV series viewers, and 75.5% said they are not problematic TV series viewers. These findings align with studies by Sirowa et al.,⁶ Nikhil Reddy et al.,⁷ Uzma Ilyas et al.,⁸ and Pauline et al.,⁹ suggesting consistent viewing habits and associated impacts across different populations. The binge-watching questionnaire has 4 domains. In the craving domain, 5.7% had moderate problematic binge-watching. In dependency, 1.1% had problematic binge-watching and 8.7% had moderate problematic binge-watching. In anticipation, 7.2% had problematic binge-watching and 10.2% had moderate problematic binge-watching. In

avoidance, 33.6% had problematic binge-watching and 34.3% had moderate problematic binge-watching. In overall binge-watching, 15.5% had moderate problematic binge-watching. These findings are consistent with studies by Sirowa et al.,⁶ Nikhil Reddy et al.,⁷ Uzma Ilyas et al.,⁸ and Pauline et al.,⁹ indicating similar patterns of binge-watching behaviour and its impact across various populations. The executive skills questionnaire has 5 domains. In the plan management domain, 76.2% had relative strength and 23.8% had relative weakness. In the time management domain, 57% had relative strength and 43% had relative weakness. In the organisation domain, 71.7% had relative strength and 28.3% had relative weakness. In the emotional regulation domain, 47.2% had relative strength and 52.8% had relative weakness. In the behavioural regulation domain, 45.3% had relative strength and 54.7% had relative weakness. In overall executive skills, 72.1% had relative strength and 27.9% had relative weakness. These findings align with studies by Sirowa et al.,⁶ Nikhil Reddy et al.,⁷ Uzma Ilyas et al.,⁸ and Pauline et al.,⁹ indicating consistent patterns in executive skill strengths and weaknesses across different groups. The factors like age, gender, year of study, religion, area of residence, time spent watching per viewing session, reported functional impact, self-identified as a problematic TV series viewer were not associated with binge-watching. Watching more than 3 episodes in a row is associated with binge-watching. The factors like age, gender, year of study, religion, area of residence, time spent watching per viewing session, and watching more

episodes in a row were not associated with binge-watching. Not reporting functional impact and not self-identifying as a problematic TV series viewer was associated with binge-watching. The correlation between binge-watching and executive skills is statistically significant. These results are consistent with findings from studies Sirowa et al.,⁶ Nikhil Reddy et al.,⁷ Uzma Ilyas et al.,⁸ and Pauline et al.,⁹ suggesting similar patterns in binge-watching behaviour and its impact on executive skills across different populations. The correlation between binge-watching and executive skills are explained in a study by Sirowa et al.,⁶.

Recommendations

1. Educational Workshops and Campaigns: Educational institutions should consider implementing workshops or awareness campaigns that address time management and the potential impacts of binge-watching. These programs could focus on developing healthier viewing habits and improving emotional and behavioural self-regulation among students.
2. Counselling and Support Services: Establish accessible counselling and support services geared towards students who exhibit signs of problematic viewing behaviours. These services can provide strategies for managing and balancing screen time with other academic and personal responsibilities.
3. Further Research: Additional research should be conducted to explore the underlying causes of binge-watching, particularly in relation to emotional and behavioural regulation. Longitudinal studies could also help determine the long-term effects of binge-watching on academic performance and psychological well-being.
4. Policy Development: Institutions should consider developing policies that encourage balanced media consumption and promote digital wellness. This could include guidelines for recommended screen time and breaks during prolonged periods of digital consumption.
5. Parental and Guardian Involvement: Engage parents and guardians in understanding the impact of excessive media consumption and encourage them to participate in setting reasonable viewing limits and discussing the content with their children.

CONCLUSION

The present study found that while most participants demonstrated relatively strong executive functioning, emotional and behavioral regulation emerged as areas of relative weakness. Demographic factors, including age, gender, year of study, religion, and place of residence, were not significantly associated with binge-watching behavior. However, watching more than three

consecutive episodes was a significant predictor of problematic binge-watching and was associated with poorer executive functioning, particularly in emotional and behavioral regulation. These findings suggest that prolonged binge-watching may contribute to impaired self-regulation, highlighting the need for interventions promoting healthy viewing habits among young adults.

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