Research Paper: Netflix is the new Scheherazade!
Exploring the relationships between online binge-watching, self-control, and bedtime procrastination among college students in Iran.

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Abstract

Online binge-watching is a common practice nowadays. It is defined as watching multiple episodes in one sitting. It may seem a new phenomenon, but the same mechanism happened to the Persian King and kept him listening to Scheherazade's stories for 1001 nights, which made him forgot about killing young virgin girls and also delayed his bedtime. This study aims to investigate the relationships between these variables in Iranian college students in Ghazvin with a sample of 133 people between the ages of 19 and 25 using brief self-control scale (BSCS), bedtime procrastination scale (BPS), and binge-watching addiction questionnaire (BWAQ). The research indicates that there is a notable negative correlation between online binge-watching and self-control ($r = -.443$, $p < .001$). Also, a negative relationship between self-control and bedtime procrastination was found ($r = -.360$, $p < .001$). Further, a positive correlation between online binge-watching and bedtime procrastination was detected ($r = .307$, $p < .001$). The problematic binge-watching can be identified by the motives and cognitive processes underlying this phenomenon, such as narrative transportation. Ways to prevent mental illness caused by them and future research paths are discussed.

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1. Introduction

Streaming services have surely changed the media consumption game forever. When Netflix first released the whole season of "The House of Cards" back in 2013, a lot of people binge-watched the entire season, even Barack Obama, former president of the US, tweeted "Tomorrow: @HouseofCards. No spoilers, please." It seemed that a lot of people would binge-watch the whole season of the show. The distribution of TV shows has changed from one episode per week to 13 episodes in one day. This made it easy for viewers to binge-watch. Binge-watching is defined as watching three episodes or more consecutively in one sitting and it was chosen as the word of the year by Collins dictionary in 2015. At the core of this phenomenon lies a cognitive process called "Narrative Transportation", but it is not a new concept.

In the late "One Thousand and One Nights" book, which is set in the Middle Ages and tells the story of Shahryar, the Persian king who got betrayed by his wife and was devastated and angry by this event, decides to kill his wife and every virgin girl in town after sleeping with them every night, for they are all unfaithful. After a while, the vizier runs out of girls to bring to the king, and he has two of his own daughters. His older daughter, Scheherazade, offers herself to the king to put an end to all this madness. After they slept together, Scheherazade asked the king if he would allow her to tell a story to her little sister before she went to sleep, so she began a story and ended it with a cliff-hanger. The king was so eager to know the end of the story that he decided to spare her life until the next day, but she did it again and ended the second night's story the same way. This went on for 1001 nights, hence the name.

Narrative transportation refers to immersing oneself in a story in such a way that viewers have imaginatively left their immediate surroundings behind and entered the narrative world (Green, 2021). Importantly, being transported into a story has strong cognitive and emotional consequences and leaves a viewer susceptible to attitude change from the theme of the story they are experiencing. Levels of transportation into a given story are affected by variables within the story itself, the situation, and the audience. I intend to focus on the individual aspects of this phenomenon, such as self-control and its consequences like bedtime procrastination (Ahmad & Khurshid, 2022).

Bedtime procrastination was first described in 2014 by Dutch social and behavioral scientist Kroese and her team (Kroese et al., 2014). They defined it as "going to bed later than intended while no external circumstances are accountable for doing so" (Kroese et al., 2014). In a meta-analysis (Hill et al., 2022) found that bedtime procrastination had a negative association with sleep quality and sleep duration and also a positive association with daytime fatigue.

(Lades et al., 2022) found that regression analysis shows that participants with higher trait self-control report lower levels of tiredness, boredom, guilt, and sadness when binge-watching compared to less self-controlled participants. These associations are partly explained by binge-watching interfering less with higher-order goals for highly self-controlled participants. Lower levels of trait self-control are also associated with a stronger increase in happiness on initiating binge-watching and increased feelings of guilt after binge-watching.

In 2013 Oxford Advanced learner's dictionaries defined binge-watching as "to watch several episodes (=separate parts) of a television series or program, one after another"(Panda & Pandey, 2017). Binge-watching is a popular practice among teens whose impact on consumers has been

shown to be, at times, both positive and negative.

In a study with 251 participants (Richard & Plante, 2023) assessed the potential impact of binge-watching while taking into account both the viewers' motivational antecedents (i.e., coping, escapism, emotional enhancement) and individual differences (i.e., transportability, self-control, sensation seeking). Results showed that binge-watching's relationship with viewer well-being is contingent upon a complex array of associations between individual and motivational differences and the nature of one's engagement in the activity.

In a study by my fellow Iranian scientists (Alimoradi et al., 2022), their aim was to investigate the associations between binge-watching and five mental health concerns, Including depression, loneliness, sleep problems, and anxiety and stress. Results showed that binge-watching was significantly associated with the five types of mental health concerns, with the most robust correlations found with stress (0.32) and anxiety (0.25).

When COVID-19 hit and people were advised to stay at home in ads like "Our grandparents were called to war and we're being called to sit on the couch, we can do this", people turned to binge-watching to pass the time.

(Sigre-Leirós et al., 2023) conducted a longitudinal study to assess changes in TV series viewing patterns during the first COVID-19 lockdown. Results from the longitudinal analysis principally showed that male gender and social motives for TV series watching predicted a decrease in negative affect levels. A problematic binge-watching pattern characterized by loss of control was the single predictor of an increase in negative affect over time. These findings suggest that TV series watching patterns effectively increased during the first COVID-19 lockdown. Watching TV

series for social motives emerged as a protective factor, whereas problematic binge-watching seemed to act as a maladaptive emotion regulation strategy throughout these unprecedented circumstances.

Bedtime procrastination (BP) is defined as the behavior of going to bed later than intended, without having external reasons for doing so (Kroese 2014).

According to (Zhang et al., 2023), who conducted a study with 718 participants, trait anxiety independently predicted bedtime procrastination while controlling for demographic characteristics. Correlation analysis showed that BP was positively correlated with trait anxiety, but negatively related to self-control. A mediating role of self-control in the relationship between trait anxiety and bedtime procrastination was also revealed in this study.

A study was conducted during the COVID-19 outbreak with 881 participants by (Huang et al., 2023) for the purpose of investigating the associations between mobile phone dependency, bedtime procrastination, FOMO (fear of missing out), and sleep quality among college students. The correlation analysis indicated that mobile phone dependency was positively associated with fear of missing out, bedtime procrastination, and poor sleep quality among college students. The structural equation modeling analysis revealed that mobile phone dependency had significant indirect effects on sleep quality through bedtime procrastination and fear of missing out.

We ordinarily use the term "self-control" to describe decisions between alternatives arriving at different times. Psychologists studying self-control have long noticed that self-control is a "now" versus "later" issue. Their subjects show self-control when they prefer large rewards in the future to smaller rewards in the

present or, symmetrically, avoid greater pain in the future in return for lesser pain (Rachlin, 1974). Self-control is a central function of the self and an important key to success in life (Baumeister et al., 2007) .Research has found that individuals who are lower in self-control strength because of previous self-control exertions perform more poorly on subsequent tests of self-control (Muraven & Slessareva, 2003).

The study by (Cobb-Clark et al., 2022) investigated the predictive power of self-control for individuals and their children using population representative data. They used the well-established BSCS (Brief Self-Control Scale) to demonstrate that people's trait self-control is highly predictive of their life outcomes. Higher self-control is associated with better health, education, and employment outcomes as well as greater financial and overall well-being. The self-control of children is correlated with that of their parents while higher parental self-control is also linked to fewer behavioral problems among children.

(Cao & Li, 2022) designed an experiment to understand the relation between self-control and COVID-19 vaccine acceptance. They found that students scoring high on trait self-control expressed less vaccine hesitancy than students scoring low on self-control and also, that non-student adults with higher self-control strength levels were more likely to accept vaccine appointment opportunities than those with lower self-control strength levels.

From ancient tales to contemporary TV series, entertainment and education often rely on the art of storytelling. The most effective stories are those that fully engage the audience, allowing them to escape from reality and enter the realm crafted by the creators. When people are transported into these narrative worlds and become absorbed, they can experience intense emotions and vivid mental imagery. They may not notice their immediate surroundings or the passage of time. This feeling of being "lost in a story" is the core of narrative transportation theory. Narrative transportation has been defined as a combination of attention, imagery, and feeling in which an individual becomes immersed in a narrative world (Green, 2021).

(Isakoglou et al., 2021) started an investigation to examine the relationship between genre and narrative transportation, while measuring baseline trait empathy and assessing the mediating role of affective on the relationship between genre and narrative transportation. Empathy was positively correlated with narrative transportation (r=0.39, p<0.001). Narrative transportation was higher for participants who read challenging fiction and non-fiction than for participants who read easy fiction. Positive affect, but not negative affect, mediated the effect of challenging versus easy text conditions on narrative transportation. These findings suggest that narrative transportation may not be dependent on story genre, but rather on a given text's difficulty level and the positive emotions experienced while reading.

In this study we'll be discovering relationships between online binge-watching and bedtime procrastination, self-control and online binge-watching, and self-control and bedtime procrastination. Thus the purpose of this research is to investigate the relationship between binge-watching, self-control, and bedtime procrastination among college students in Iran. My aim is to shed light on the potential correlations between these variables in the context of this specific population.

2. Method
The survey was conducted using the "Porsline" platform (an online questionnaire distributor) among undergraduates in Ghazvin. Participants were provided with study instructions and were thanked for their involvement in the

research. Standardized scales were used for conducting the assessments.

2.1 Instruments

Brief Self-Control Scale (BSCS): The scale developed by (Tangney et al., 2004) consists of 13 items and each statement has a rating from 1 (not like me) to 5 (very much like me). Content validity was used for this questionnaire and Cronbach's alpha method for reliability (0.818).

Bedtime Procrastination Scale (BPS): The scale developed by (Kroese et al., 2014) consists of 9 items and each question is rated from 1 (almost never) to 5 (almost always). The total BPS score is computed by averaging responses to all individual items. The total score reflects the extent to which people unnecessarily delay going to bed, with higher scores indicating more bedtime procrastination. To ensure the accuracy and relevance of the questions in this questionnaire, content validity was utilized. Cronbach's alpha was also employed as a method to measure reliability (0.875).

Binge-Watching Addiction Questionnaire (BWAQ): Developed by (Forte et al., 2021), consists of 20 items, each question rated on a five-point Likert scale from "never" to "always". The overall score for the BWAQ is obtained by calculating the average of all individual responses. A higher total score indicates that a person tends to watch more episodes of a show in one sitting, as this scale measures the degree to which individuals engage in binge-watching behavior. To guarantee the precision and significance of the questions in this questionnaire, content validity was implemented. Additionally, Cronbach's alpha was utilized as a means to assess reliability (0.891).

In this study data were analyzed using descriptive statistics (Mean and Standard Deviation), and the collected information was analyzed by descriptive and inferential statistics (Spearman Correlation). R programming and IBM SPSS 27 were used for data analysis.

3. Results

Table 1 illustrates the number of participants, mean and standard deviation

Table 1:

	N	Mean	S.D
Online Binge-Watching	133	50.89	13.41
Self-Control	133	37.99	4.74
Bedtime Procrastination	133	27.14	3.54

Table 2 shows Correlations between online binge-watching, self-control, and bedtime procrastination

Table 2:

	Online Binge-Watching	Self-Control	Bedtime Procrastination
Online Binge-Watching	1		
Self-Control	- .44	1	
Bedtime Procrastination	.30	-.36	1

Note: $p < .001$

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As can be seen in Table 2, there is a negative relationship between online binge watching and self-control, and there is a positive relationship between online binge watching and bedtime Procrastination (p<.001). Also, there is a negative relationship between bedtime Procrastination and self-control (p<.001).

4. Discussion
The study confirmed that online binge-watching and bedtime procrastination are strongly and positively related and it was consistence with the findings of (Srinivasan, Edward, & Eashwar, 2021) that subjective sleep quality, sleep latency, habitual sleep efficiency and daytime dysfunction had statistical significance association with binge-watching.. The results also found that online binge-watching and self-control have a negative and strong relationship and there was consistency with the findings of (Lades et al., 2022) that shows binge-watching is the result of a self-control failure where the person acknowledges that the short-term desire to binge-watch interferes with other important long-term goals. High levels of trait self-control are considered key to resolving such vice-virtue conflicts in favor of the virtuous activity. Similarly, it is revealed that self-control and bedtime procrastination have a moderate negative correlation between them, as (Ahmad & Khurshid, 2022) suggested that when self-control is high, sleep quality is better with lower Bedtime Procrastination and when Bedtime Procrastination is high, sleep quality is lower, and self-control is worse . According to (Ling et al., 2023), a study was conducted on 763 Chinese college students with self-reported questionnaires and using standardized scales. The results indicated that both self-control and bedtime procrastination mediated the relationship between mindfulness and sleep quality, hence the effectiveness of mindfulness to provide a set of useful recommendations for strategies and interventions that could help students improve their sleep quality.

5. Conclusion
This research explores the relationship between online binge-watching, self-control, and bedtime procrastination in Iranian college students. As mentioned earlier, there is a significant positive correlation between online binge-watching and bedtime procrastination. A negative correlation occurred between self-control and online binge-watching. The same negative correlation was seen between self-control and bedtime procrastination. Research shows that motives are important for distinguishing the problematic side of this behavior from the enjoyment-seeking side. Through empirical research conducted around the world, we can get to know this behavior better and prevent mental health issues caused by it. The practice of mindfulness, building a routine bedtime, and practicing self-control can contribute to this matter a lot.

Conflict of interests
The Author declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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