Binge-scrolling behaviour on User-Generated Media based on Uses and Gratification Theory

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Abstract

Recent advances in User-Generated Media (UGM) and short-form video applications (apps) have led to the emergence of a phenomenon known as binge-scrolling. Engaging in long periods of unconscious scrolling through short videos is a common practice that resembles binge-watching series. Uses and Gratification Theory (UGT) is often used to explain the relationships among user motives, needs and gratifications and the consequences of media interactions. Previous research has rarely explored the binge-watching behaviour of users with regard to short videos. The purpose of this study is to investigate the impacts of engagement with UGM (short video platforms such as YouTube, TikTok, and WeChat channels) on binge-scrolling, addiction and mental health. Data (N = 606) were collected using an online survey and analysed using Structural Equation Modelling (SEM). The results show that 1) motivation is positively related to binge-scrolling as an antecedent, which is consistent with UGT, and informational motivation is one of the primary motivations for using UGM; 2) binge-scrolling is positively associated with addiction and mental health; and 3) user engagement has a moderating effect on the relationship between binge-scrolling and problematic binge-scrolling. The findings of this study contribute to UGT research on binge-scrolling with regard to short videos and provide useful information to support the prevention of binge-scrolling addiction and mental health disorders as well as relevant interventions.

Keywords

Binge-scrolling; Uses and gratification theory; User engagement; User-generated media; Motivation; Addiction; Mental health

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Contents

1. Introduction

Since 2013, Netflix, a streaming platform, has adopted the policy of releasing all episodes of a series at once, which allows viewers to watch an entire season of a television show in one sitting (Groshek & Krongard, 2016; Matrix, 2014; PR Newswire, 2013; Pittman, 2015). Since platforms such as Netflix have offered media consumers the capability of watching entire seasons of series in one sitting, people's viewing patterns have changed (Castro et al., 2019; Groshek & Krongard, 2016; Pittman, 2015; Rahman & Arif, 2021; Reisa & Irwansyah, 2021). The behaviour of people who watch multiple episodes of a series continuously in one sitting on a streaming platform is described as binge-watching (Ahmed, 2017; Flayelle et al., 2019; Gangadharbatla, 2019; Ilyas, 2020; Sigre-Leirós et al., 2022).

Due to the emergence of streaming platforms such as YouTube, Amazon Prime, Netflix and Over the Top (OTT), viewership has shifted from a traditional focus on watching at a fixed time to unlimited watching anytime and anywhere (Ahmed, 2017; Cordeiro et al., 2021; De Keere et al., 2020; Kircaburun et al., 2021; Reisa & Irwansyah, 2021). Binge-watching has become a popular trend due to the instant gratification and emotional uplift that continuous watching entails (Boursier et al., 2021; Fernandes & Pinto, 2020; Raza et al., 2021; Rubenking & Bracken, 2018; Shim et al., 2018; Starosta et al., 2020). Watching series has become a preferred leisure time activity (Fernandes & Pinto, 2020; Gabbiadini et al., 2021).

Due to the emergence of short videos on social media such as Vine, Snapchat, Facebook, Instagram, TikTok and YouTube, viewers have also developed a habit of binge-watching short videos (Karunakaran et al., 2022; Zhang et al., 2019). To distinguish this phenomenon from the binge-watching of series, many scholars have described the act of binge-watching short videos as binge-scrolling (Karunakaran et al., 2022; Kendall, 2021; Zhang et al., 2019). Binge-scrolling is similar to binge-watching series in that both phenomena include a pattern of long, unconscious viewing in one sitting.

Since the outbreak of COVID-19, people have spent more time binge-watching and sharing their lives on User-Generated Media (UGM) as an important way of connecting with others (Boursier et al., 2021; Rahman & Arif, 2021; Raza et al., 2021; Sigre-Leirós

et al., 2022; Starosta, Izydorczyk, Sitnik-Warchulska, & Lizinczyk, 2021a; Starosta, Izydorczyk, & Wontorczyk, 2021b). The unique autonomy and innovation provided by UGM promotes people's use of such media (Shao, 2009). The distinctive feature of short videos is their use of User-Generated Content (UGC); therefore, short video applications (apps) are a type of UGM (Karunakaran et al., 2022). The rapid and attention-grabbing character of short videos is consistent with the human brain's constant desire for freshness (Karunakaran et al., 2022). In 2022, videos accounted for 82% of internet traffic (Potashnikov et al., 2022). It has been a mainstream trend for people to use social media to share their lives in the form of videos. According to data reported by ByteDance, the Chinese version of TikTok has 400 billion video plays per month, and TikTok has 1 billion active monthly users worldwide (ByteDance, 2022). Statista reports that approximately 50 billion users use Instagram stories every day (Statista, 2023a). YouTube Shorts surpassed 50 billion daily views in February 2023 (Statista, 2023b).

The public has become aware that the excessive use of UGM could have negative consequences similar to those of internet addiction and gaming addiction (Zhang et al., 2019). Binge-watching addiction is positively correlated with insomnia and mood disorders (Halsøy et al., 2021; Pallesen et al., 2008). Similar to internet addiction, researchers' focus on binge-watching addiction has helped people become aware of and avoid habits that can lead to addiction (Ferris, Hollenbaugh, & Sommer, 2021; Andreassen, 2012; Forte et al., 2021; Koçak et al., 2021; Ryan, 2014; Young, 1998). Studies have been conducted to explore the addictive factors associated with binge-scrolling short videos based on attachment theory (Zhang et al., 2019). However, research on the consequences of binge-scrolling, such as addiction and mental health, is lacking.

Binge-watching often entails addictive, compulsive viewing because bingeing is characterised by out-of-control behaviour (Forte et al., 2021; Ort et al., 2021; Panda & Pandey, 2017; Riddle et al., 2018). However, other researchers have claimed that the term 'bingeing' does not imply negativity. Some respondents indicated that they dedicate time to bingeing to obtain a more complete sense of satisfaction (Flayelle et al., 2019; De Keere et al., 2020; Rubenking & Bracken, 2018; Boursier et al., 2021; Munawar & Siraj, 2022; Gadino et al., 2023; Pittman & Steiner, 2021). No clear

definition of binge-watching has yet been provided due to the mixed effects of binge behaviour. Fewer studies have focused on binge-scrolling. Therefore, the question of how to define binge-scrolling remains unanswered.

Motivation is a key factor in understanding a behaviour (Starosta et al., 2020; Panda & Pandey, 2017). Different behaviours are dominated by different internal drivers and therefore have different motivations (Castro et al., 2019; Flayelle et al., 2019). Some research has shown that the main motivations for binge-watching series are social interaction, entertainment, relaxation, information, habituation and stress relief (Starosta et al., 2020; Rubenking & Bracken, 2018; Boursier et al., 2021; Gabbiadini et al., 2021; Starosta et al., 2021b; Panda & Pandey, 2017). Karunakaran et al.'s research (2022) showed that the main motivations for binge-scrolling short videos were entertainment, accessibility, short duration, and convenience. Little research has been conducted on the motivations for short video binging, yet the uniqueness of autonomous publishing of short video apps as a motivation has not received much attention.

Previous research has shown a direct or indirect correlation between engagement and addiction. Users who engage in creative behaviour are more likely to be more satisfied than those who only watch short videos, and the former are therefore more likely to become dependent on this behaviour, potentially leading to overuse (Donnelly & Kuss, 2016; Lu & Lin, 2022). However, other researchers have found the opposite result, indicating that interaction- and expression-related activities can provide positive emotions, thereby making addiction less likely (Shao, 2009; Weinstein, 2018). A great deal of research on engagement has focused on social media addiction, but very little research has focused on binge-watching or scrolling through short videos.

Uses and Gratification Theory (UGT) has frequently been used by researchers to understand how people interact with different media (Gan & Li, 2018; Rubin, 2002). People are motivated by their social or psychological needs to find and use media that meet their personal needs (Lu & Lin, 2022). According to most scholars, UGT is composed of three components: antecedents, behaviours, and consequences (Amber L. Ferris et al., 2021; Bahfiarti & Arianto, 2022; Cabeza-Ramírez et al., 2022; Hasan et al., 2018; Liu et al., 2019; Luo et al., 2011; Menon, 2022; Sjöblom & Hamari, 2017). The satisfaction gained from use in turn promotes continued use, thus potentially leading to positive or negative effects (Amber L. Ferris et al., 2021; Bahfiarti & Arianto,

2022). Research on the ability of UGT to explain engagement with UGM (short video apps) is lacking.

Based on UGT, this study aims to examine 1) the primary motivations for binge-scrolling; 2) the impact of binge-scrolling through UGM (short video platforms) on addiction and mental health; and 3) the relationships among user engagement, binge-scrolling and problematic binge-scrolling. We adapt the UGT model to investigate behaviours related to UGM in terms of antecedents (motivation), behaviours (binge-scrolling and user engagement) and consequences (binge-scrolling addiction and mental health) (Amber L. Ferris et al., 2021; Bahfiarti & Arianto, 2022; Cabeza-Ramírez et al., 2022; Hasan et al., 2018; Liu et al., 2019; Luo et al., 2011; Menon, 2022; Sjöblom & Hamari, 2017).

The rest of this chapter is structured as follows. Section 2 presents the theoretical background, literature review and hypotheses, focusing on five aspects: uses and gratification theory; user-created media and user engagement; binge-scrolling and binge-watching; motivation; and addiction and mental health. The third section describes the research methodology. Section 4 includes the data analysis and results. Section 5 discusses the findings of the current research and its limitations and suggests directions for future research. Section 6 concludes the paper.

2. Literature review and hypothesis development

The theories, key variables, research methodology, and hypotheses considered in this study are discussed in the literature review and hypothesis development section.

2.1 Uses and gratification theory

Uses and Gratification Theory (UGT) suggests that people are motivated to choose to use a platform or software because the media technology and content meets their needs (Gan & Li, 2018; Rubin, 2002). UGT includes three main aspects, antecedents, behaviours, and consequences, in which context a motivation is an antecedent for behaviour and a consequence is an effect of behaviour (Amber L. Ferris et al., 2021; Bahfiarti & Arianto, 2022; Cabeza-Ramírez et al., 2022; Hasan et al., 2018; Liu et al., 2019; Luo et al., 2011; Menon, 2022; Sjöblom & Hamari, 2017).

Early UGT-based media research showed that people are driven by antecedents (motivations) to engage in web usage and search behaviours that yield the desired results (Khan & Manzoor, 2013). Using streaming platforms and on-demand technology, audiences can watch audiovisual media without time constraints (Chen, 2020). The novelty and prevalence of binge-watching have led scholars to investigate how this mode of viewing differs from traditional media consumption (Yoo et al., 2021).

Short viewing is similar to binge-watching, in which context users watch an entire series edited by other users on User-Generated Media (UGM) (Yoo et al., 2021). As in the case of YouTube, TikTok, Instagram stories, and WeChat channels, UGM combines the features of social media and streaming platforms to offer users the ability to interact with or receive information visually and on their own initiative (Lu & Lin, 2022; Saletti et al., 2023). UGM offers users more autonomy and control, thus making them eager to obtain the satisfaction associated with self-presentation and interaction through the use of UGM (Shao, 2009). Short video apps are an extremely popular type of UGM (Kendall, 2021). Therefore, the question of whether UGT can be used to explain engagement with short video apps in the same manner as other media requires further investigation. To date, no readily accessible research has examined the antecedents and consequences of binge-scrolling behaviour in UGM (short video apps) from the perspective of UGT.

2.2 User generated media and user engagement

In the context of technological advances in consumer media that offer users more usability and autonomy, the tools used for User-Generated Content (UGC) are known as UGM (Shao, 2009). Unlike previous social media Social Networking Services (SNS), UGM emphasises 'media' rather than 'content'. This new type of sharing behaviour is becoming increasingly popular, with users creating media based on their own preferences through new technologies such as video and mobile photography (Shao, 2009).

The different behaviours of users on UGM can be explained by reference to UGT (Muntinga et al., 2015; Shao, 2009). Previous research has shown that users' motivations for using UGM include consuming information and entertainment, social interaction, self-expression, and self-actualisation (Lu & Lin, 2022). Based on these different motivations, users engage with UGM differently, such as by consuming (merely watching), participating (engaging in interaction), and producing (creating and publishing) (Shao, 2009). These different behaviours entail different degrees of gratification. The three different degrees of engagement are interdependent, as they provide gratification for different social and psychological needs, either directly or indirectly (Ellison et al., 2007; Koçak et al., 2021; Shao, 2009). Previous research has found that different levels of user engagement have different effects on emotions. Changes in mood can facilitate behaviour (Lu & Lin, 2022). We would like to investigate the extent to which different degrees of user engagement affect behaviour, i.e., the moderating effect of user engagement on binge-scrolling and problematic binge-scrolling (Fairchild & MacKinnon, 2009).

No studies have yet addressed the relationship between user engagement and binge-scrolling in UGM or answered the question of whether satisfaction differs due to different engagement behaviours. In addition, no studies have investigated the impact of binge-scrolling engagement on addiction and mental health.

2.3 Binge-scrolling and binge-watching

Previous research has shown that the definition of binge-watching continues to undergo a process of continuous improvement (Jani Merikivi, 2020; Liu et al., 2019; Maèva

Flayelle, 2020a; Rubenking et al., 2018). Binge-watching was originally defined by the Oxford Dictionary as watching multiple episodes of a television programme in rapid succession (Oxford, 2013; Kilian et al., 2020). Some scholars have measured binge-watching in terms of the number of episodes watched continuously (Kilian et al., 2020; Munawar & Siraj, 2022; Panda & Pandey, 2017; Reisa & Irwansyah, 2021; Riddle et al., 2018), while others have done so based on the length of continuous watching (Fernandes & Pinto, 2020; Horvath et al., 2017; Sung et al., 2018). The main reason why the definition of binge-watching cannot be standardised is that the different series vary in terms of length. However, common definitions of binge-watching include "in one sitting", "continuously", and "at high frequency" (Da Costa, 2019; Exelmans & Van den Bulck, 2017; Munawar & Siraj, 2022; Panda & Pandey, 2017).

Many scholars have used UGT to explain binge-watching behaviour (Amber L. Ferris et al., 2021; Fernandes & Pinto, 2020; Menon, 2022; Munawar & Siraj, 2022; Shao, 2009; Steiner & Xu, 2018). UGT argues that it is the viewer's responsibility to choose media that can satisfy their wants and needs with the goal of achieving gratification (Fernandes & Pinto, 2020). Motivations for users' choice to engage in binge-watching either on streaming platforms or online include coping/escapism, enrichment, emotional enhancement, and social interaction (Flayelle et al., 2019). Some studies have shown that binge-watching patterns lead to a more complete sense of satisfaction, which in turn increases emotional well-being (Boursier et al., 2021; Gabbiadini et al., 2021; Munawar & Siraj, 2022; Rubenking & Bracken, 2018; Starosta et al., 2021a).

The prevalence of binge-watching behaviour has led to research ranging beyond the behaviour associated with binge-watching TV series. Yoo et al.'s study (2021) focused on short watching, which refers to the continuous watching of a shortened version of an edited TV series or movie. In media studies, researchers have extended the notion of binge-watching to encompass binge-scrolling, as in Kendall's study on TikTok (Kendall, 2021). Karunakaran et al.'s research (2022) focused on the various influences that lead to short video binge-scrolling in apps. Developments in consumer media technology have offered users autonomy and ease of use (Shao, 2009). In terms of novelty and timeliness, exploration of binge-scrolling behaviour in the context of more convenient UGM is lacking.

2.4 Motivation

Motivation is a key factor in understanding the range of behaviours and emotions that influence individuals (Panda & Pandey, 2017; Shim & Kim, 2018; Starosta et al., 2020; Sung et al., 2018; Wongpakaran et al., 2021; Yoo et al., 2021). Motivation induces and guides behaviour; thus, scholars often start with motivation when trying to identify and understand a new behaviour (Sung et al., 2018). Previous explorations of the motivations for binge-watching have mainly been based on UGT (Panda & Pandey, 2017; Sung et al., 2018). The motivations that have been widely identified include escape, hedonism, mood elevation, socialisation, relaxation, stress relief, and overcoming loneliness (Castro et al., 2019; Flayelle et al., 2019; Munawar & Siraj, 2022; Ort et al., 2021; Podgorelec, 2020; Starosta et al., 2020; Starosta et al., 2021a; Yoo et al., 2021).

Shao's research (2009) showed that in the context of UGM, different motives for use lead to different behaviours: consuming information and entertainment motivate users to watch UGC; engaging in social interaction and community development motivates users to interact with others through such content; and self-expression and self-actualisation motivate users to produce and publish their own content on the site.

Binge-scrolling through UGM is already prevalent, but fewer studies have focused on binge-scrolling behaviours in the context of UGM; our research focuses on specific UGM (i.e., short-video apps) and explores the motivations that underlie this behaviour.

2.5 Addiction and mental health

As in the case of other forms of excessive media consumption (such as internet addiction, video games, or mobile phone use), the physical damage and potential negative psychological problems caused by binge-watching have frequently been discussed (e.g., a withdrawn or sedentary state, poor sleep quality, or emotional instability) (Anghelcev et al., 2022; Exelmans & Van den Bulck, 2017; Ilyas, 2020; Raza et al., 2021; Starosta et al., 2020).

Since binge-watching is characterised by certain excesses that are often unrecognisable, some researchers have viewed such behaviour as an addiction (Forte et al., 2021; Koçak et al., 2021; Lortie & Guitton, 2013). A common explanation for addiction proposed by

researchers is “an individual’s uncontrollable and repeated craving for a substance or activity that he or she cannot control, despite knowing that it will have negative consequences for him or her” (Amber L. Ferris et al., 2021; Andreassen, 2012; Pontes, 2015; Starcevic, 2016; Young, 1998). Binge-watching addiction has been assessed, and scales for binge-watching addiction have been developed, mostly by reference to UGT (Fino et al., 2022; Flayelle et al., 2019; Forte et al., 2021; Orosz et al., 2016; Toth-Kiraly et al., 2017; Viens & Farrar, 2021).

Previous studies have focused on binge-watching addiction on streaming platforms, and few studies have focused on binge-scrolling addiction in the context of UGM (short video apps). For this reason, our study focuses on the behaviours associated with short video binge-scrolling addiction and the potential of such addiction to cause insomnia, depression, and anxiety.

In summary, people may binge-scroll through short videos on UGM to escape from the real difficulties they face, enrich their knowledge, receive emotional stimulation or engage in social interaction. According to UGT, these motivations (antecedents) overlap with those that have been reported in the literature on viewing behaviour in general. However, additional evidence is necessary to substantiate these findings. Hitherto, the effects of different types of user engagement on the degree of binge-scrolling (behaviours) in the context of UGM have not been investigated. Addictiveness and mental health remain under researched (consequences) in the context of the ability of UGM to offer specific autonomous creation and interaction techniques. Thus, the following research hypotheses are proposed in this study, as shown in Figure 1:

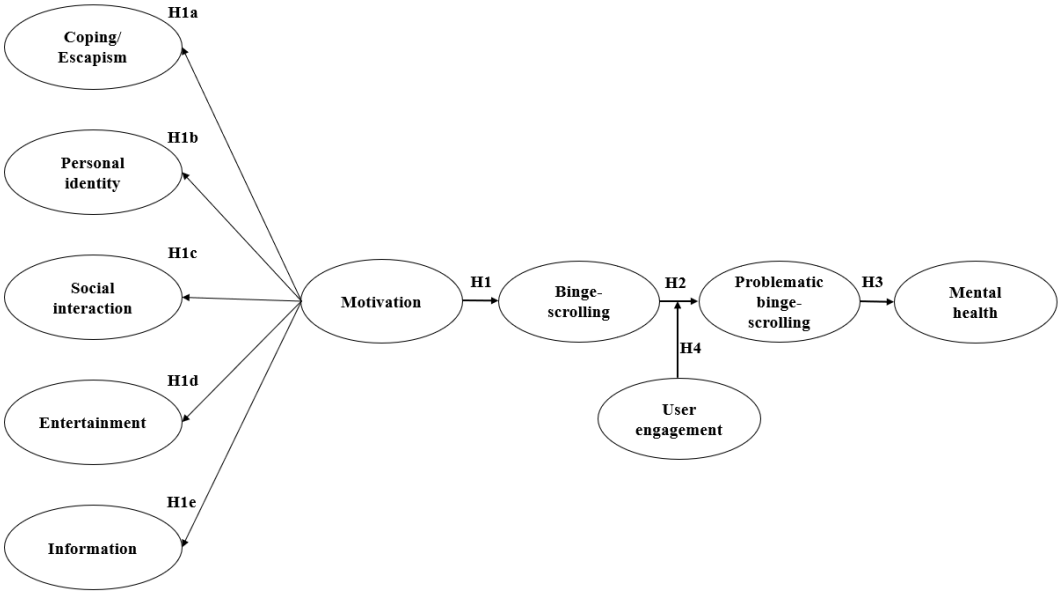
H1: Motivation is positively correlated with binge-scrolling, and the main motivations for binge-scrolling are a) coping/escapism, b) self-presentation, c) social interaction, d) emotional enhancement, and e) information.

H2: When binge-scrolling through UGM (short video apps), the degree of binge-scrolling (in terms of both single-instance duration and frequency) is positively correlated with problematic binge-scrolling (addiction).

H3: Problematic binge-scrolling through UGM is positively associated with mental health issues (insomnia, depression, and anxiety).

H4: User engagement moderates the relationship between binge-scrolling and problematic binge-scrolling. The interaction term between binge-scrolling and user engagement is significant.

Fig. 1. Hypothesized model.



3. Methodology

The procedures utilised in this investigation are described in the methodology section. Additionally, this section introduces the study populations and sample, processes, and analysis as well as the research design and data-gathering instruments.

3.1 Sample and procedure

Our study employed a cross-sectional design. The survey was administered online via Wenjuanxing, a professional online questionnaire collection platform in China. As Munawar and Rubenking et al. have shown, college students are the largest group of users of short-form video apps (Munawar & Siraj, 2022; Rubenking & Bracken, 2018). Our study recruited participants by posting questionnaire links to college students' WeChat groups, TikTok groups and Weibo Super Talk communities. In the second step, we posted a link to the questionnaire online and recruited participants from a more comprehensive age range than that of university students.

Participants were informed that their participation in the survey was voluntary and could be terminated at any time and that their answers would remain strictly anonymous and confidential. Participants were first asked whether they were over 18 years old and whether they had watched short videos before; if they replied the affirmatively, they were able to proceed with the survey.

A total of 856 individuals responded to the survey, and 829 people completed the full questionnaire. We excluded 223 responses from our database because 1) the respondents selected all the same options in the questionnaire very quickly; 2) the respondents did not select the correct option for the trap question; or 3) the respondents selected the exact opposite options for similar questions, which appeared to be self-contradictory. Ultimately, 606 responses (43.23% female) were retained for data analysis.

3.2 Measures

In this study, participants were tested using a questionnaire that featured five main sections: motivation, problematic binge-scrolling, user engagement, binge-scrolling and mental health. The process of designing the questionnaire and full references for each section are provided below.

3.2.1 Motivation

No specific validated scales have been developed to measure motivation in the context of binge-scrolling on short video apps, although related studies have focused on binge-watching in the context of TV series. Self-presentation is an essential motivating factor due to the fact that short video apps offer users the unique ability to create and post content (Jarman et al., 2021; Lu & Lin, 2022; Weinstein, 2018). Thus, it is necessary to use the Watching Television Series Motivation Questionnaire (WTSMQ) (Flayelle et al., 2019) in combination with personal performance factors (Rodgers, 2017) to assess users' motivation for binge-scrolling short videos. The WTSMQ contains four dimensions, i.e., coping/escapism, enrichment, emotional, and enhancement, which measure the degree of self-reported different motivations for binge-watching (Panda & Pandey, 2017; Sung et al., 2018; Yoo et al., 2021). The WTSMQ is the most frequently used and validated scale for assessing binge-watching motivation and has been

validated in nine languages (Flayelle et al., 2020a). This scale has good global consistency and has been cited as the basis for the development of many other scales (Fernandes et al., 2021; Saletti et al., 2023).

The adapted version of the questionnaire consists of five factors: coping/escapism, self-presentation, social interaction, emotional enhancement, and information (Flayelle et al., 2019; Panda & Pandey, 2017; Rodgers, 2017; Sung et al., 2018; Yoo et al., 2021). The adapted scale consists of 16 items, which are rated from 1 (strongly disagree) to 5 (strongly agree) on a Likert-type scale. The term 'short videos' was used instead of 'TV series' (e.g., "I watch short videos to overcome loneliness"). The term user-generated media (UGM) was used instead of "internet" or "social media" (for example, "I can make a good impression on others by using user-generated media"). This project has been modified to suit the content of short video binge-scrolling. In the present study, a Cronbach's alpha of 0.932 was found, thus indicating an excellent level of internal consistency.

3.2.2 Binge-scrolling

The extent of binge-scrolling was assessed by surveying participants regarding the duration and frequency of their individual viewing sessions per week. No clear measurement or definition of binge-watching is available in the extant research (Cordeiro et al., 2021; Panda & Pandey, 2017; Pittman, 2015; Shim & Kim, 2018; Shim et al., 2018; Sung et al., 2018; Viens & Farrar, 2021). By focusing on commonalities, researchers have defined binge-watching convergence as watching behaviour over a long duration in a single session or with a high frequency (Da Costa, 2019; Erickson et al., 2019; Gabbiadini et al., 2021; Kilian et al., 2020; Munawar & Siraj, 2022; Ort et al., 2021; Panda & Pandey, 2017; Riddle et al., 2018; Tefertiller & Maxwell, 2018; Viens & Farrar, 2021). Since no studies have investigated the extent of binge-scrolling, we defined binge-scrolling behaviour by reference to the convergent definitions used in previous studies of binge-watching.

We classified participants in our study as exhibiting binge-scrolling behaviour if they watched more than two consecutive hours of videos in a single session and watched such videos more than two days per week. The section of our study regarding the extent of binge-scrolling focused on the number of hours of continuous watching in a day and

the frequency of weekly watching behaviour on the part of the participants. (i.e., “How much time do you spend watching short videos continuously every day?”, and “How many days of the week do you use user-generated media?”).

3.2.3 User engagement

User engagement was assessed using Shao’s theoretical structure (2009), which divides different user behaviours in the context of UGM into three categories (Lu & Lin, 2022). Our study focused on a specific UGM (i.e., a short video platform) to establish a more appropriate contextual relationship. User engagement on short video apps is structured in terms of consumption (e.g., watching), participation (e.g., commenting, liking), and production (e.g., creating, posting) (Lu & Lin, 2022; Muntinga et al., 2015; Shao, 2009). Although our study also used a five-point Likert scale (from never to always) in the user engagement section, our focus was on categorising participants’ behaviour when using short video apps in terms of three categories: consumption only (merely watching), consumption and participation (watching and interacting), and consumption, interaction and production (watching and interacting with others and creating their own content).

The categorisation was performed based on the following three items: “In the past week, how often on average did you use user-generated media by watching others’ short videos and comments (such as YouTube, TikTok, and WeChat channels)”, “In the past week, how often on average did you reply to others’ short videos or click the button to like/support others’ short videos?”, and “In the past week, how often on average did you create and post your own short videos?”.

3.2.4 Problematic binge-scrolling

In this study, the items used to measure binge-scrolling addiction were mainly adapted from previous studies and modified for use in the context of UGM (Orosz et al., 2016). The Problematic Series Watching Scale (PSWS) was used to measure problematic series watching (Orosz et al., 2016). Research has shown that the PSWS exhibits good psychometric properties (Boursier et al., 2021; Chang & Peng, 2022; Fino et al., 2022; Ort et al., 2021; Paschke et al., 2023; Raza et al., 2021; Starosta et al., 2021b; Starosta et al., 2021; Yang et al., 2021). The term ‘short videos’ was used instead of ‘series’ (e.g.,

"Spent much more time watching short videos than you initially intended?"). Each item was measured on a five-point Likert scale, with responses ranging from never (1) to always (5). In previous studies, the Cronbach's alpha of this scale was 0.880, indicating that the scale has good internal consistency.

3.2.5 Mental health

The mental health section of our study investigates whether participants experience mental health issues such as insomnia, depression, and anxiety. Insomnia was assessed using the Bergen Insomnia Scale (BIS) (Pallesen et al., 2008). The BIS consists of six items that calculate participants' degree of insomnia by measuring the number of days on which participants lost sleep during the past month. Participants were asked to choose a number between 0-7 to indicate the number of days on which they had experienced insomnia, with 0 being 0 days per week over the last month and 7 being nearly every day during the last month. The scale employs clinical diagnostic criteria and exhibits good psychometric properties, and it has been used as the basis for many previous studies (Halsøy et al., 2021; Hiestand et al., 2023; Joakim et al., 2021).

The Patient Health Questionnaire-4 (PHQ-4) was used for the anxiety and depression sections (Kroenke et al., 2009; Raza et al., 2021). The PHQ-4 scale is brief and exhibits good psychometric effects. The Cronbach's alpha (α) for mental health in this study was 0.90. The scale consists of four items, including two PHQ-2 measures of depression and two anxiety measures pertaining to the core criteria for Generalised Anxiety Disorder (GAD-2).

3.3 Data analysis

In the current study, we used SPSS statistical software for the statistical analysis (Corp, 2016). First, descriptive statistics were calculated based on sociodemographic characteristics (Flayelle et al., 2019; Flayelle et al., 2020a; Flayelle et al., 2020b). Then, the factor structure of the scale was tested using validated factor analysis. Structural equation modelling (SEM) was used to test the hypotheses with the help of Mplus software (Raza et al., 2021; Riddle et al., 2018; Srinivasan et al., 2022). SEM is a multivariate statistical technique that incorporates factor analysis and path analysis (Da Costa, 2019; Flayelle et al., 2019; Rahman & Arif, 2021; Steiner & Xu, 2018).

Cronbach's alpha coefficients, which have values near to 1 and indicate strong homogeneity among the items (a value of 0.70 is acceptable and a value of 0.80 is good), were used to test internal consistency. Three widely used indices were employed in the present study to determine the acceptability of model fit: (1) the standardised root-mean-square residual (SRMR, an absolute index of fit that is less affected by sample size and model complexity; values lower than 0.08 suggest acceptable fit); (2) Bentler's comparative fit index (CFI, a fit index that is based on the noncentrality parameter; values above 0.90 suggest acceptable fit); and (3) the root-mean-square error of approximation (RMSEA, an absolute measure of fit that is based on the noncentrality parameter; values lower than 0.07 indicate acceptable fit) (Flayelle et al., 2019).

In our study, pretests were used to ensure that the three scales exhibited good reliability and validity. The Cronbach's alpha (CA) for the participant's motivation item was 0.936. The CA for the participant's binge-scrolling addiction item was 0.872. The CA for the participant's mental health involvement item was 0.947. The results showed that the CA values were all greater than 0.8; therefore, the reliability of these scales was excellent (de Bérail et al., 2019). Subsequently, the Kaiser–Meyer–Olkin (KMO) values for these scales all exceeded 0.7 with a p value of <0.001, as indicated in Table 1, allowing a factor analysis to be performed (Dziuban & Shirkey, 1974; Field, 2009). The reliability of the constructs was then evaluated using composite reliability (CR), which was calculated using average variance extraction (AVE) (Field, 2009). With the help of SPSS, AVE was used to examine convergent and discriminant validity, while CR was utilized to evaluate construct reliability. The results of the confirmatory factor analysis (CFA) indicated adequate fit to the data, in which context the results for motivation, problematic binge-scrolling, and mental health were as follows (Harrington, 2009): $\chi 2/df$ = 1.974; 1.356; 2.911; root mean squared error of approximation (RMSEA) = 0.070; 0.042; 0.098; comparative fit index (CFI) = 0.949; 0.998; 0.969; Tucker–Lewis index (TLI) = 0.935; 0.991; 0.958; and standardised root mean square residual (SRMR) = 0.046; 0.021; 0.029. The CR for each construct ranged from 0.795 to 0.960, all of which were above the recommended threshold of 0.60 (Harrington, 2009), and the AVE values ranged from 0.521 to 0.708 for each component, all of which were also above the recommended threshold of 0.50. All of these results indicate satisfactory reliability and validity, as shown in Table 2.

Table 1. Instrument validity and reliability (pretest).

Factor		Number of items	Cronbach's alpha	KMO	Factor loading	AVE	CR
Motivation	Coping/ Escapism	3	0.936	0.937***	0.678-0.854	0.567	0.795
	Personal identity	3			0.725-0.840	0.644	0.844
	Social interaction	3			0.728-0.779	0.578	0.804
	Entertainment	4			0.703-0.756	0.521	0.813
	Information	3			0.746-0.813	0.601	0.819
Problematic binge-scrolling		6	0.872	0.833***	0.677-0.866	0.561	0.884
Mental health		10	0.947	0.942***	0.774-0.900	0.708	0.960

*Notes. N = 200. ***p <0.001; **p <0.01; *p <0.05.*

Table 2. Confirmatory factor analysis.

Model	χ^2	*df*	χ^2/df	RMSEA	CFI	TLI	SRMR
Motivation	185.521	94	1.974	0.070	0.949	0.935	0.046
Problematic binge-scrolling	5.426	4	1.356	0.042	0.998	0.991	0.021
Mental health	98.980	34	2.911	0.098	0.969	0.958	0.029
Acceptable range			< 3	< 0.1	> 0.9	> 0.9	< 0.1

4. Results

First, in order to comprehend the connection between the study's key variables, we performed a correlation analysis. Additionally, we used the CFA method to assess the instruments' efficacy. In order to validate the study hypothesis, we lastly developed and evaluated measurement models based on the research hypotheses.

4.1 Descriptive statistics

The final sample consisted of 606 participants, of whom 339 (55.9%) were male and 262 (43.2%) were female; five participants did not wish to disclose their gender. The largest proportion of respondents were aged between 18-28 (49.34%), 29-39 (36.96%), and 40-50 (13.37); one participant was over 50, and one preferred not to provide this information. As many as 47.52% of participants reported watching short videos every day during the last week, and 72.94% of participants reported using UGM to watch short videos for more than two hours in a day. The demographic characteristics of participants are shown in Table 3.

Table 3. Demographic profiles of participants.

Variables	Category	Number	%
Age	18~28	299	49.34
	29~39	224	36.96
	40~50	81	13.37
	50 years old and older	1	0.17
	Others/Prefer not to say	1	0.17
	Total	606	100
Gender	Male	339	55.94
	Female	262	43.23
	Others/Prefer not to say	5	0.83
	Total	606	100
Education background	High school and below	26	4.29
	College Education	84	13.86
	Undergraduate education	451	74.42
	Postgraduate education	40	6.60

Variables	Category	Number	%
	Others /Prefer not to say	5	0.83
	Total	606	100
Amount of time watchers spent using user-generated media (UGM) over the course of a day	less than 1 hour	14	2.31
	1 hour to 2 hours	150	24.75
	2 hours to 3 hours	265	43.73
	3 hours to 4 hours	62	10.23
	more than 4 hours	115	18.98
	Total	606	100
The frequency at which watchers watched short videos in the context of user-generated media (UGM) over the course of a week	less than 1 day	4	0.66
	1 or 2 days	120	19.80
	3 or 4 days	136	22.44
	5 or 6 days	58	9.57
	Every day	288	47.52
	Total	606	100
The frequency at which watchers watched others' short videos in the context of user-generated media (UGM) over the course of a week	Never	0	0
	Rarely	95	15.68
	Sometimes	112	18.48
	Often	136	22.44
	Always	263	43.40
	Total	606	100
The frequency at which watchers interacted with others via user-generated media (UGM) over the course of a week	Never	24	3.96
	Rarely	120	19.80
	Sometimes	149	24.59
	Often	197	32.51
	Always	116	19.14
	Total	606	100
The frequency at which watchers created and posted short videos via user-generated media (UGM) over the course of a week	Never	84	13.86
	Rarely	133	21.95
	Sometimes	126	20.79
	Often	203	33.50
	Always	60	9.90
	Total	606	100

4.2 Bivariate correlation

The averages, standard deviations, and correlations for the UGM user measures used in this study are presented in Table 4. The goal of calculating these values is to provide a more thorough description of user replies to each survey variable and to identify how the various survey variables relate to one another.

Table 4. Means, standard deviations, and Pearson correlations for all study variables. (n=606)

	Mean	*SD*	1	2	3	4
1. Motivation	4.294	0.575	-			
2. Mental health	4.843	1.346	0.529**	-		
3. Problematic binge-scrolling	4.034	0.801	0.694**	0.765**	-	
4. Binge-scrolling	3.518	0.991	0.325**	0.215**	0.295**	-
5. User engagement	3.436	0.845	0.402**	0.256**	0.341**	0.565**

* *p<0.05 ** p<0.01

The p-values for the relationships between motivation and binge-scrolling, user engagement, problematic binge-scrolling, and mental health were all less than 0.01, and all of these relationships were significant. The correlation coefficients between motivation and binge-scrolling as well as user engagement were 0.325 and 0.402, respectively, thus indicating general positive correlations between motivation and both binge-scrolling and user engagement. The correlation coefficients between motivation and problematic binge-scrolling as well as mental health were 0.694 and 0.529, respectively, thus indicating strong positive relationships between motivation and both problematic binge-scrolling and mental health.

The p-values for the relationships between binge-scrolling and user engagement, problematic binge-scrolling, and mental health were all less than 0.01, and all of these relationships were significant. The correlation coefficient between binge-scrolling and user engagement was 0.565, thus indicating a strong positive relationship between binge-scrolling and user engagement. The correlation coefficient between binge-scrolling and mental health was 0.215, thus indicating only a weak linear correlation

between binge-scrolling and mental health.

The p-values for the relationships between user engagement and both problematic binge-scrolling and mental health were all less than 0.01, and all of these relationships were significant. The correlation coefficient between user engagement and problematic binge-scrolling was 0.341, thus indicating a generally positive correlation between user engagement and problematic binge-scrolling. The correlation coefficient between user engagement and mental health was 0.256, thus indicating only a weak linear correlation between user engagement and mental health.

The p-value for the relationship between problematic binge-scrolling and mental health was less than 0.01, which was significant. The correlation coefficient between problematic binge-scrolling and mental health was 0.765, thus indicating a strong positive correlation between problematic binge-scrolling and mental health.

4.3 Confirmatory factor analysis

To determine whether the scale exhibited good reliability and validity, we analysed five fit indicators: factor loading, Cronbach's alpha (CA), Kaiser–Meyer–Olkin (KMO) and Bartlett's test. A composite CA above 0.7 indicates good scale reliability; a KMO above 0.7 indicates good scale validity; CR is used to assess construct reliability, and a value above 0.6 is good; an AVE above the recommended threshold of 0.5 is considered to be good; and a standard load factor value greater than 0.7 implies a strong slave-measure relationship.

We conducted CFA using Mplus, and the results indicate that the instrument has good validity. The data are as follows: $\chi 2/df = 2.897$; 1.023; 2.694. RMSEA = 0.056; 0.006; 0.053. CFI = 0.969; 0.998; 0.993. TLI = 0.958; 0.996; 0.988, and SRMR = 0.031; 0.007; 0.014. As shown in Tables 5 and 6, all indices are above the threshold, thus indicating good convergent validity and reliability.

Table 5. Instrument validity and reliability.

Factor	Number of items	Cronbach's alpha	KMO	Factor loading	AVE	CR

Motivation	Coping/ Escapism	3	0.936	0.949***	0.709-0.823	0.572	0.800
	Personal identity	3			0.755-0.830	0.642	0.843
	Social interaction	3			0.742-0.797	0.581	0.806
	Entertainment	4			0.705-0.785	0.538	0.823
	Information	3			0.722-0.772	0.547	0.783
Problematic binge-scrolling		6	0.881	0.863***	0.633-0.845	0.542	0.875
Mental health		10	0.946	0.949***	0.759-0.893	0.708	0.960

*Notes. N = 606. ***p <0.001; **p <0.01; *p <0.05.*

Table 6. Confirmatory factor analysis (CFA).

Model	χ^2	*df*	χ^2/df	RMSEA	CFI	TLI	SRMR
Motivation	257.826	89	2.897	0.056	0.969	0.958	0.031
Problematic binge-scrolling	3.068	3	1.023	0.006	0.998	0.996	0.007
Mental health	70.038	26	2.694	0.053	0.993	0.988	0.014
Acceptable range			< 3	< 0.1	> 0.9	> 0.9	< 0.1

4.4 Moderation analysis

We investigate interactions in linear models by using the pick-a-point method (Hayes & Matthes, 2009). The independent variable (binge-scrolling) and the moderating variable (user engagement) were centralised. The moderating effect was divided into three models, with Model 1 including the independent variable (binge-scrolling), as

shown in Table 7. Model 2 added the moderating variable (user engagement) to Model 1, as shown in Table 8, and Model 3 added the interaction term (the product term of the independent and moderating variables) to Model 2, as shown in Table 9.

Table 7. Model 1 moderating effect analysis.

Model 1	*B*	*S.E.*	t	p	β
	4.034	0.031	129.626	0.000**	
1.Binge-scrolling	0.238	0.031	7.582	0.000**	0.295
2.User engagement					
1*2					
R^2			0.087		
Adjusted R^2			0.085		
F			F (1,604)=57.484,p=0.000		
$\triangle R^2$			0.087		
△F			F (1,604)=57.484,p=0.000		

*p<0.05 ** p<0.01

The aim of Model 1 was to investigate the effect of the independent variable (binge-scrolling) on the dependent variable (problematic binge-scrolling) without taking into account the interference of the moderating variable (user engagement). As shown in Table 7, the independent variable (binge-scrolling) exhibited significance (t=7.582, p=0.000<0.05), thus indicating that binge-scrolling has a significant effect on problematic binge-scrolling.

Table 8. Model 2 moderating effect analysis.

Model 2	*B*	*S.E.*	t	p	β
	4.034	0.030	132.802	0.000**	
1.Binge-scrolling	0.121	0.037	3.260	0.000**	0.150
2.User engagement	0.243	0.044	5.564	0.000**	0.256
1*2					
R^2			0.131		
Adjusted R^2			0.129		
F			F (2603)=45.646,p=0.000		
$\triangle R^2$			0.045		
△F			F (1,603)=30.957,p=0.000		

*p<0.05 ** p<0.01

The moderating effect can be demonstrated by examining the significance of the interaction term in Model 3. The interaction term for binge-scrolling and user engagement exhibited significance (t=5.842, p=0.000<0.05). Thus, binge-scrolling exhibits a significant difference in terms of the magnitude of the effect of the moderating variable (user engagement) at different levels when there is a problematic binge-scrolling effect, as shown in the simple slope plot in Figure 2.

Table 9. Model 3 moderating effect analysis.

Model 3	*B*	*S.E.*	t	p	β
	3.926	0.035	112.669	0.000**	
1.Binge-scrolling	0.062	0.038	1.647	0.100	0.077
2.User engagement	0.287	0.043	6.648	0.000**	0.302
1*2	0.228	0.039	5.842	0.000**	0.224
R^2			0.178		
Adjusted R^2			0.174		
F			F (3602)=43.478,p=0.000		
$\triangle R^2$			0.047		
△F			F (1,602)=34.126,p=0.000		

*p<0.05 ** p<0.01

The differences in the magnitude (slope) of the effect of the independent variable (binge-scrolling) on the dependent variable (problematic binge-scrolling) at different levels of the moderating variable (user engagement) are shown in Table 10 and Figure 2.

Table 10. Simple slope analysis.

Level of adjustment variables	Regression coefficient	S.E.	t	p	95% CI	
Mean	0.062	0.038	1.647	0.100	-0.012	0.136
High (+1SD)	0.254	0.043	5.945	0.000	0.171	0.338
Low (-1SD)	-0.131	0.056	-2.318	0.021	-0.241	-0.020

Fig. 2. Simple slope diagram.

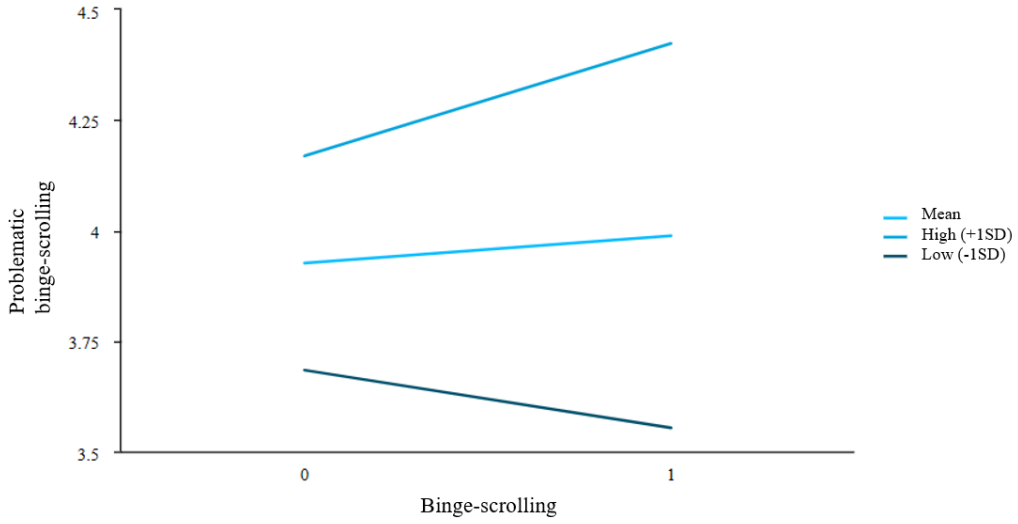
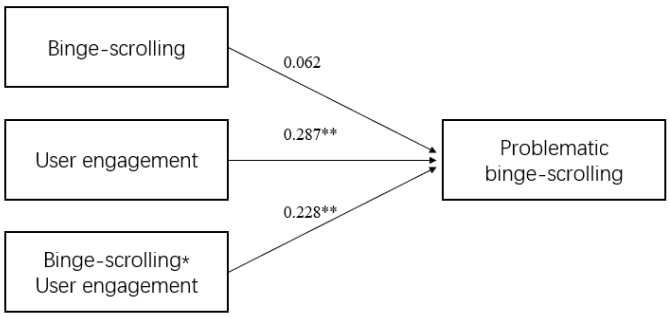


Fig. 3. Moderation model.



For UGM users (Figure 3), the moderating effect of user engagement on the relationship between binge-scrolling and problematic binge-scrolling was significant, thus supporting Hypothesis 4. The degree of binge-scrolling (duration and frequency) was positively correlated with problematic binge-scrolling. The mean regression coefficient was 0.062, the high (+1 SD) regression coefficient was 0.254, and the low (-1 SD) regression coefficient was -0.131. Accordingly, the more engaged users are, i.e., the more they engage in creative behaviours, the higher their duration and frequency of binge-scrolling, and the more likely they are to engage in problematic binge-scrolling as compared to users who merely watch.

4.5 Structural equation modelling

To validate the model fit, five fit metrics were calculated: the de-fan cardinality (χ2/df), the root mean square error of approximation (RMSEA), the standardised root mean square residual (SRMR), the comparative fit index (CFI) and the Tucker–Lewis index (TLI). All control variables (age, gender, nationality, the attachment dimension variable, the social isolation variable and the YouTube use variable) were included as covariates in the SEM analysis. The structural model exhibited a good fit (χ2/df = 2.965; RMSEA = 0.057; CFI = 0.932; TLI = 0.922; SRMR = 0.051), as shown in Table 11. Figure 4 depicts the standardised path coefficients and the significance of the relationships among the variables included in the model.

Table 11. Fit measures for the structural model.

Model	*χ2*	*df*	*χ²/df*	RMSEA	CFI	TLI	SRMR
Binge-scrolling	1722.510	581	2.965	0.057	0.932	0.922	0.051
Acceptable range			< 3	< 0.1	> 0.9	> 0.9	< 0.1

Fig. 4. The structural equation model.

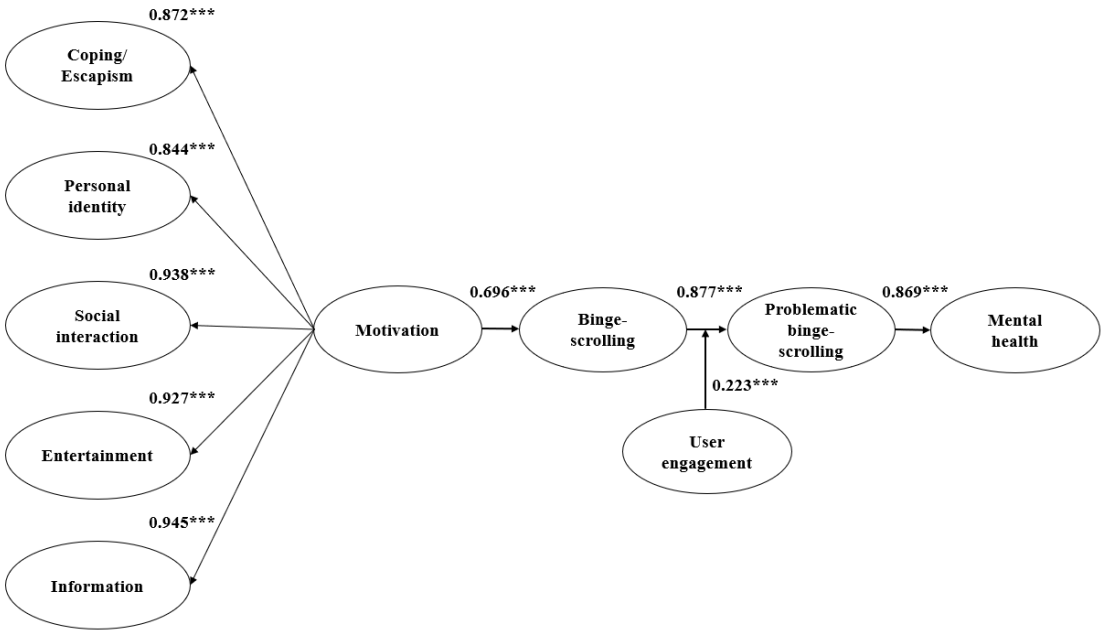


Table 12. Parameter estimates of the structural equation model.

Hypothesis	Relationship of variables	β	SE	Z	p
Hypothesis 1	Motivation → Binge-scrolling	0.696***	0.101	10.372	0.000
Hypothesis 2	Binge-scrolling → Problematic binge-scrolling	0.877***	0.072	10.567	0.000
Hypothesis 3	Problematic binge-scrolling →Mental health	0.869***	0.166	14.204	0.000
Hypothesis 4	User engagement →Binge-scrolling	0.223***	0.127	4.408	0.000

Table 13. Parameter estimates of motivation model.

Factors	β	SE	Z	p
Coping/Escapism	0.872***			
Personal identity	0.844***	0.104	13.843	0.000
Social interaction	0.938***	0.112	14.816	0.000
Entertainment	0.927***	0.082	14.133	0.000
Information	0.945***	0.084	14.459	0.000

For UGM users (Table 12), the relationship between motivation and binge-scrolling ($\beta=0.696$, $z=10.372$, $p<0.001$) supports Hypothesis 1; therefore, UGM users' motivation has a direct effect on the degree to which they engage in binge-scrolling.

The p values for the motivation factors were all less than 0.05, and the β values were all significant at a level greater than 0.8. Information motivation (β=0.945, z=14.459, p<0.001) was one of the most dominant motivators with regard to predicting binge-scrolling.

The effect of binge level on problematic bingeing behaviour was supported (β=0.877, z=10.567, p=0.000); therefore, Hypothesis 2 was supported. Furthermore, with regard to Hypothesis 3, the effect of problematic binge-scrolling on mental health (β=0.869, z=14.204, p=0.000) was significant and supported; thus, problematic binge-scrolling had a direct effect on mental health.

5. Discussion

5.1 Similarities and differences between these results and the literature

This study identified five motivations that were significantly associated with binge-scrolling, namely, coping/escapism, personal identity, social interaction, entertainment, and information, with the most significant predictor being information. Previous research has concluded that loneliness and convenience are not significantly related to binge-scrolling, with entertainment, accessibility and short duration being relevant predictors in this context (Karunakaran et al., 2022). Social interaction anxiety, social isolation, personalisation and entertainment were also predictors of addiction to short video applications (Zhang et al., 2019). Our study thus adds to the list of possible ways of predicting the motivations underlying binge-scrolling behaviour.

The results of this study suggest that user engagement has a positive impact on binge-scrolling. This finding is consistent with previous research showing that engagement promotes behavioural occurrence. Previous research has confirmed that more active engagement in the context of UGM leads to greater satisfaction and therefore increased usage (Lu & Lin, 2022; Marijke De Veirman, 2017; Shao, 2009). This finding is also in line with the basic framework of UGT, according to which the satisfaction obtained by interacting with others through the use of UGM is more likely to promote usage behaviour (Anghelcev et al., 2022; Fernandes & Pinto, 2020; Gangadharbatla, 2019; Munawar & Siraj, 2022; Rahman & Arif, 2021; Shao, 2009; Yoo et al., 2021). Among users of UGM, those who engage in posting behaviour binge-scroll for longer periods and more frequently than do those who engage in interacting behaviours and those who merely watch. Some participants reported that the emotional change entailed by interacting with others causes them to want to commit to UGM binge-scrolling even more. Therefore, this study recommends that UGM users who engage in ‘participating’ and ‘producing’ behaviours pay attention to the increased duration and frequency of their binge-scrolling single sessions due to emotional influences. It is worth stopping such behaviour when the user realizes that he or she is becoming overly concerned.

The study also found that the higher the duration and frequency of binge-scrolling, the more likely it is to lead to problematic binge-scrolling. The relationship between the degree of binge-scrolling (in terms of both duration during one session and frequency)

and problematic binge-scrolling on UGM (short video apps) is also consistent with the findings of previous studies on streaming media (Raza et al., 2021). The difference between binge-scrolling and problematic binge-scrolling is the corresponding effect. Some people may experience a positive effect of relaxation and cheerfulness due to binge-scrolling during weekends (Rubenking & Bracken, 2018; Starosta et al., 2021a). Other people may be unaware of the passage of time and lose control, thereby suffering the negative effects of addiction (Boursier et al., 2021; Raza et al., 2021). Therefore, consistent with the results of studies on the behaviour of people who watch TV series, the duration and frequency of watching are preventive factors for problematic binge-scrolling behaviour according to this study of watching behaviour in the context of short videos on UGM.

Consistent with previous research, our study confirmed that the degree (duration and frequency) of binge-scrolling is positively associated with mental health; problematic binge-scrolling is also positively correlated with mental health. Similar to binge-watching series addiction, internet addiction, social media addiction, etc., binge-scrolling short video addiction in the context of UGM can also be prevented, primarily by controlling the duration and frequency of scrolling behaviour (Amber L. Ferris et al., 2021; de Bérail et al., 2019; Forte et al., 2021; Koçak et al., 2021; Lortie & Guitton, 2013; Young, 1998).

The results of this study suggest that user engagement moderates the relationship between binge-scrolling and problematic binge-scrolling. Although no previous studies have examined the relationship between user engagement and binge-scrolling, we can compare these findings with those of previous studies on similar topics. Interaction reduces negativity and negative effects (Alhabash & Ma, 2017; Sheldon & Bryant, 2016; Whiting & Williams, 2013). Similar to the communicative qualities of other social media, users who interact and create are more motivated to socialise than those who merely watch (Jarman et al., 2021; Liu et al., 2019; Volpe et al., 2022; Weinstein, 2018). This study found that the duration and frequency of binge-scrolling are positively correlated with problematic binge-scrolling. Users who create and interact are more likely to suffer from insomnia, anxiety or depression than those who merely watch. The results of this study can help improve people's binge-scrolling habits and thus increase their likelihood of avoiding problematic uses and the corresponding mental health

effects.

This study investigated whether different degrees of engagement affect UGM users' binge activity when they use short video apps. We also explored the impacts of different motivations on the relationship between engagement and binge-scrolling and the resulting issues with addiction and mental health. Information and social interaction are the main motivations for binge-scrolling among short video users. This result helps users understand binge-scrolling behaviour and helps platform providers improve future directions and optimise content to enhance the quality and attractiveness of their platforms.

The positive correlation between user engagement and bingeing behaviour is likely to have a positive effect on the development of new users and the retention of user-platform bonding. At the same time, interaction and creativity can help users maintain positive emotions and a sense of satisfaction. However, importantly, a longer single-instance duration and more frequent binge-scrolling behaviours can lead to problematic binge-scrolling. Problematic binge-scrolling is positively correlated with addiction and mental health, which are detrimental to human health, as well as to the ethics of the platform industry and its sustainability.

Particular attention is given to the moderating effect of user engagement on the relationship between the duration and frequency of binge-scrolling and problematic binge-scrolling, which implies that users with interactive or creative behaviours are more likely to develop problematic binge-scrolling than are watch-only users. There are possible reasons for this, which are driven by social interaction motivation or dominated by negative emotions. Therefore, users who interact or create need to be more aware of whether binge-scrolling leads to positive or negative feelings.

Determining feelings can make users aware of problematic binge-scrolling behaviours, and prevent these behaviours by controlling the duration and frequency. Platform providers can remind users to prevent problematic binge-scrolling behaviours by giving them an indication of the length of time they have scrolled the short video. At the same time, platform providers can strengthen supervision by blocking or providing warns about unfriendly interactions to provide protection to users and reduce problematic binge-scrolling and mental problems caused by interactions and resulting negative

emotions. Our study contributes to and deepens UGT in the context of new types of social media as well as streaming media, and our findings make novel contributions to our understanding of human well-being in terms of users' engagement and binge-scrolling behaviour in the context of UGM use.

5.2 Limitations

This study has some limitations that can be addressed in future studies. First, our tests were self-reported, thus leading to potential issues pertaining to reliability and validity. Second, the data were collected in China and may not be applicable to other ethnic groups and regions. Third, the participants were largely young people, which was not conducive to investigating differences in binge-scrolling behaviour due to age. Fourth, our information on binge-scrolling motives comes from the literature on binge-watching TV series, which may not be explored in enough detail for different users and motives. Notably, different types of UGM software offer different features and effects to users, and the collection of these data did not facilitate a comprehensive study of binge-scrolling behaviour.

5.3 Future research directions

First, no validated scales with good psychological properties have yet been developed for binge-scrolling through UGM. Second, there is insufficient research on the motivations associated with binge-scrolling in the context of short videos. Third, previous research on binge-watching has focused mainly on TV series, and insufficient attention has been given to binge-scrolling behaviour in the context of different UGM. Moreover, the reasons underlying user involvement in the regulation of binge-scrolling and problematic binge-scrolling require further investigation. It might be feasible to collect the various perspectives and motivations of diverse users through questionnaires or interviews to form a thesaurus in the future. More detailed motivations can be explored by data mining the thesaurus. These issues must be considered in future research to refine our understanding of binge-scrolling behaviour.

6. Conclusion

To our knowledge, few studies have focused on the multiple effects of engagement on binge-scrolling in the context of short video platforms. Previous research on this topic has mainly emphasised the motivations of individuals who binge-watch TV series. Furthermore, previous studies have been limited in that they have mostly supported only the negative effects of overwatching without examining the moderating effects of different degrees of engagement on binge-scrolling. This study is therefore novel due to the fact that it investigates binge-scrolling behaviour in the context of UGM (short video apps) and examines the moderating effect of user engagement on the negative effects of binge-scrolling behaviour. In conclusion, the duration and frequency of binge-scrolling have negative impacts on addiction and mental health. That is, prolonged continuous viewing and a high frequency of binge-scrolling can lead to symptoms of insomnia, depression, and anxiety. These adverse effects are moderated by the degree of user engagement. Therefore, this study recommends avoiding prolonged and high frequency problematic watching habits with the aim of mitigating the mental health symptoms caused by prolonged watching. Improving people's uses and understanding of user-generated media and consciously improving viewing habits and interactions can enhance human well-being, and thus decrease problematic watching and its adverse effects.

Appendix

Appendix A. Constructs and Measurement Items

Constructs	No. of items	Item	Items	Sources
Coping/ escapism	3	Cop1	I watch short videos to pass the time and escape from boredom	Adapted from [9]
		Cop2	I watch short videos to relieve stress, anxiety or negative emotions	
		Cop3	I watch short videos to overcome loneliness	
Personal identity	3	Iden1	I can make a good impression on others by using user-generated media (UGM).	Adapted from [18]
		Iden2	I can present to others who I am and who I want to be by using user-generated media (UGM).	
		Iden3	I can improve the way in which I am perceived by using user-generated media (UGM).	
Social interaction	3	Soc1	I watch short videos to maintain good relationships with others (for networking purposes).	Adapted from [81]
		Soc2	I watch short videos to relate to others more easily because short videos give me something to discuss	

		Soc3	I watch short videos to receive updates on my family and friends through UGM.	
Entertainment	4	Enter1	I use UGM for enjoyment.	Adapted from [61]
		Enter2	UGM helps me have fun when I am bored.	
		Enter3	Watching UGM is a pleasant way of relaxing.	
		Enter4	I watch UGM because it helps me release stress	
Information	3	Info1	I watch short videos to discover whole new worlds and increase my knowledge of several subjects	Adapted from [81]
		Info2	I watch short videos to develop my personality and broaden my views	
		Info3	I watch short videos to learn or become familiar with a new skill. (such as cooking, language, or writing skills)	
Consumption	1	Con1	In the past week, how often on average did you use user-generated media (UGM) by watching others' short videos and comments (such as on YouTube, TikTok, and WeChat channels)?	Adapted from [48][63]
Contribution	1	Contr1	In the past week, how often on average did you reply to others' short videos or click the button to like/support others' short videos?	

Content creation	1	Creat1	In the past week, how often on average did you create and post your own short videos?	
Problematic binge-watching	6	Pbw1	Thought of how you could free up more time to watch short videos?	Adapted from [85]
		Pbw2	Spent much more time watching short videos than you initially intended?	
		Pbw 3	Watched short videos to reduce feelings of guilt, anxiety, helplessness and depression?	
		Pbw 4	Were told by others to cut down on watching short videos but did not listen to them?	
		Pbw 5	Became restless or troubled if you were prohibited from watching short videos?	
		Pbw 6	Ignored your partner, family members, or friends because of your short videos watching?	
Insomnia	6	Ins1	During the past month, how many days a week has it taken you more than 30 minutes to fall asleep after the light was switched off?	Adapted from [34]
		Ins2	During the past month, how many days a week have you been awake for more than 30 minutes between periods of sleep?	
		Ins3	During the past month, how many days a week have you awakened more than 30 minutes earlier than you wished without	

			managing to fall asleep again?	
		Ins4	During the past month, how many days a week have you felt that you have not had enough rest after waking up?	
		Ins5	During the past month, how many days a week have you been so sleepy/tired that it has affected you at school/work or in your private life?	
		Ins6	During the past month, how many days a week have you been dissatisfied with your sleep?	
Anxiety and Depression	4	Anx1	During the past month, how often have you felt tense, anxious or on edge?	Adapted from [20][101]
		Anx2	During the past month, how often have you been unable to stop or control worrying	
		Dep1	During the past month, how often have you felt down, depressed, or hopeless	
		Dep2	During the past month, how often have you felt little interest or pleasure in doing things?	

References

Ahmed, A.A.-A. (2017) 'A new era of TV-watching behavior: Binge watching and its psychological effects', Media Watch, 8(2). https://doi:10.15655/mw/2017/v8i2/49006

Alhabash, S., & Ma, M. (2017). A Tale of Four Platforms: Motivations and Uses of Facebook, Twitter, Instagram, and Snapchat Among College Students? Social Media + Society, 3. https://doi.org/10.1177/2056305117691544

Andreassen, C. S., Griffiths, M. D., Hetland, J., & Pallesen, S. (2012). Development of a work addiction scale. Scandinavian Journal of Psychology, 53(3), 265–272. https://doi.org/10.1111/j.1467-9450.2012.00947.x

Anghelcev, G., Martin, J., Sar, S., & Moultrie, J. L. (2022). Is heavy binge-watching a socially driven behaviour? Exploring differences between heavy, regular and non-binge-watchers. Journal of Digital Media and Policy, 13(2), 201-221–221. https://doi.org/10.1386/jdmp_00035_1

Bahfiarti, T., & Arianto, A. (2022). Uses and gratifications approach: influence of COVID-19 media exposure on millennial generation in Makassar city, Indonesia. Heliyon, 8(6). https://doi.org/10.1016/j.heliyon.2022.e09704

Boursier, V., Gioia, F., Musetti, A., Flayelle, M., Billieux, J., & Schimmenti, A. (2021). Is Watching TV Series an Adaptive Coping Strategy During the COVID-19 Pandemic? Insights From an Italian Community Sample. Frontiers in Psychiatry, 12. https://doi.org/10.3389/fpsyt.2021.599859

ByteDance (no date) Tik-Tok Data Report. Available at: https://www.bytedance.com/zh/news?anchor=part-2 (Accessed: 25 March 2024).

Cabeza-Ramírez, L. J., Sánchez-Cañizares, S. M., Fuentes-García, F. J., & Santos-Roldán, L. M. (2022). Exploring the connection between playing video games and watching video game streaming: Relationships with potential problematic uses. Computers in Human Behavior, 128. https://doi.org/10.1016/j.chb.2021.107130

Castro, D., Rigby, J. M., Cabral, D., & Nisi, V. (2021). The binge-watcher's journey: Investigating motivations, contexts, and affective states surrounding Netflix viewing. Convergence, 27(1), 3-20–20. https://doi.org/10.1177/1354856519890856

Chang, Y-J, & Peng, C-Y. (2022). Exploring experiences of binge-watching and perceived addictiveness among binge-watchers: a qualitative study. BMC Public Health, 22(1), 1–8. https://doi.org/10.1186/s12889-022-14789-z

Chen, Y. (2020). An investigation of the influencing factors of chinese wechat users' environmental information-sharing behavior based on an integrated model of UGT, NAM, and TPB. Sustainability (Switzerland), 12(7). https://doi.org/10.3390/su12072710

Cordeiro, J. A., Castro, D., Nisi, V., & Nunes, N. J. (2021). BWDAT: A research tool for analyzing the consumption of VOD content at home. Addictive Behaviors Reports, 13. https://doi.org/10.1016/j.abrep.2020.100336

Corp, I. (2016). IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp. (Released 2016).

Costa, J.C.R.D. (2019) Binge-watching: A life course perspective, Journal for Social Thought. Available at: https://ojs.lib.uwo.ca/index.php/jst/article/view/4812 (Accessed: 25 March 2024).

de Bérail, P., Guillon, M., & Bungener, C. (2019). The relations between YouTube addiction, social anxiety and parasocial relationships with YouTubers: A moderated-mediation model based on a cognitive-behavioral framework. Computers in Human Behavior, 99, 190–204. https://doi.org/10.1016/j.chb.2019.05.007

De Keere, K., Thunnissen, E., & Kuipers, G. (2021). Defusing moral panic: Legitimizing binge-watching as manageable, high-quality, middle-class hedonism. Media, Culture and Society, 43(4), 629-647–647. https://doi.org/10.1177/0163443720972315

Donnelly, E. (2017) 'Depression among users of social networking sites (SNSS): The role of SNS addiction and increased usage', Journal of Addiction and Preventive Medicine, 02(01). doi:10.19104/japm.2016.107.

Dziuban, C. D., & Shirkey, E. C. (1974). When is a correlation matrix appropriate for factor analysis? Some decision rules. Psychological Bulletin, 81(6), 358-361–361. https://doi.org/10.1037/h0036316

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. Journal of Computer-Mediated Communication, 12(4), 1143–1168. https://doi.org/10.1111/j.1083-6101.2007.00367.x

Erickson, S. E., Cin, S. D., & Byl, H. (2019). An experimental examination of binge watching and narrative engagement. Social Sciences, 8(1). https://doi.org/10.3390/socsci8010019

Exelmans, L., & Van Den Bulck, J. (2017). Binge viewing, sleep, and the role of Pre-Sleep Arousal. Journal of Clinical Sleep Medicine, 13(8), 1001-1008–1008. https://doi.org/10.5664/jcsm.6704

Fairchild, A. J., & MacKinnon, D. P. (2009). A General Model for Testing Mediation and Moderation Effects. Prevention Science, 10(2), 87–99. https://doi.org/10.1007/s11121-008-0109-6

Fernandes, A.I. and Pinto, M.S. (2020) 'Binge-watching behaviour among college students: A uses and Gratifications Perspective', Mass Communicator: International Journal of Communication Studies, 14(4), pp. 17–24. doi:10.5958/0973-967x.2020.00021.6.

Fernandes, B., Uzun, B., Aydin, C., Tan-Mansukhani, R., Vallejo, A., Saldaña-Gutierrez, A., Nanda Biswas, U., & Essau, C. A. (2021). Internet use during COVID-19 lockdown among young people in low- and middle-income countries: Role of psychological wellbeing. Addictive Behaviors Reports, 14. https://doi.org/10.1016/j.abrep.2021.100379

Ferris, A. L., Hollenbaugh, E. E., & Sommer, P. A. (2021). Applying the Uses and Gratifications Model to Examine Consequences of Social Media Addiction. Social Media and Society, 7(2). https://doi.org/10.1177/20563051211019003

Field, A. P. (2009). Discovering statistics using SPSS : (and sex and drugs and rock "n" roll) (3rd ed). SAGE.

Fino, E., Humphries, M., Robertson, J., Orosz, G., & Griffiths, M. D. (2022). Factor structure, reliability and criterion-related validity of the English version of the Problematic Series Watching Scale. BJPsych Open, 8. https://doi.org/10.1192/bjo.2022.561

Flayelle, M., Canale, N., Vögele, C., Karila, L., Maurage, P., & Billieux, J. (2019). Assessing binge-watching behaviors: Development and validation of the "Watching TV Series Motives" and "Binge-watching Engagement and Symptoms" questionnaires. Computers in Human Behavior, 90, 26–36. https://doi.org/10.1016/j.chb.2018.08.022

Flayelle, M., Castro-Calvo, J., Vögele, C., Astur, R., Ballester-Arnal, R., Challet-Bouju, G., Brand, M., Cárdenas, G., Devos, G., Elkholy, H., Grall-Bronnec, M., James, R. J. E., Jiménez-Martínez, M., Khazaal, Y., Valizadeh-Haghi, S., King, D. L., Liu, Y., Lochner, C., Steins-Loeber, S., … Billieux, J. (2020a). Towards a cross-cultural assessment of binge-watching: Psychometric evaluation of the "watching TV series motives" and "binge-watching engagement and symptoms" questionnaires across nine languages. Computers in Human Behavior, 111. https://doi.org/10.1016/j.chb.2020.106410

Flayelle, M., Maurage, P., Di Lorenzo, K. R., Vögele, C., Gainsbury, S. M., & Billieux, J. (2020b). Binge-Watching: What Do we Know So Far? A First Systematic Review of the Evidence. Current Addiction Reports, 7(1), 44–60. https://doi.org/10.1007/s40429-020-00299-8

Forte, G., Favieri, F., Tedeschi, D., & Casagrande, M. (2021). Binge-watching: Development and validation of the binge-watching addiction questionnaire. Behavioral Sciences, 11(2). https://doi.org/10.3390/bs11020027

Gabbiadini, A., Baldissarri, C., Valtorta, R. R., Durante, F., & Mari, S. (2021). Loneliness, escapism, and identification with media characters: An exploration of the psychological factors underlying binge-watching tendency. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.785970

Gadino, N., Ellithorpe, M. E., Ulusoy, E., Wirz, D. S., & Eden, A. (2023). Binge-watching to feel better: Mental health gratifications sought and obtained through binge-watching. Psychology of Popular Media. https://doi.org/10.1037/ppm0000485

Gan, C., & Li, H. (2018). Understanding the effects of gratifications on the continuance intention to use WeChat in China: A perspective on uses and gratifications. Computers in Human Behavior, 78, 306–315. https://doi.org/10.1016/j.chb.2017.10.003

Jacob Groshek, & Sarah Krongard. (2016). Netflix and Engage? Implications for Streaming Television on Political Participation during the 2016 US Presidential Campaign. Social Sciences, 5(4), 65. https://doi.org/10.3390/socsci5040065

Joakim H. Kristensen, Ståle Pallesen, Daniel L. King, Mari Hysing, & Eilin K. Erevik. (2021). Problematic Gaming and Sleep: A Systematic Review and Meta-Analysis. Frontiers in Psychiatry, 12. https://doi.org/10.3389/fpsyt.2021.675237

Halsøy, Ø., Johnson, S. U., Hoffart, A., & Ebrahimi, O. V. (2021). Insomnia symptoms in the general population during the COVID-19 pandemic. Frontiers in Psychiatry, 12. https://doi.org/10.3389/fpsyt.2021.762799

Harrington, D. (2009). Confirmatory factor analysis. Oxford University Press.

Gangadharbatla, H., Ackerman, C., & Bamford, A. (2019). Antecedents and consequences of binge-watching for college students. First Monday, 24(2), 1. https://doi.org/10.5210/fm.v24i12.9667

Hasan, M. R., Jha, A. K., & Liu, Y. (2018). Excessive use of online video streaming services: Impact of recommender system use, psychological factors, and motives. Computers in Human Behavior, 80, 220–228. https://doi.org/10.1016/j.chb.2017.11.020

Hayes, A. F., & Matthes, J. (2009). Computational procedures for probing interactions in OLS and logistic regression: SPSS and SAS implementations. Behavior Research Methods, 41(3), 924–936. https://doi.org/10.3758/brm.41.3.924

Hiestand, S., Forthun, I., Waage, S., Pallesen, S., & Bjorvatn, B. (2023). Associations between excessive fatigue and pain, sleep, mental-health and work factors in Norwegian nurses. PLoS ONE, 17(4), 1–22. https://doi.org/10.1371/journal.pone.0282734

Horvath, J. C., Horton, A. J., Lodge, J. M., & Hattie, J. A. C. (2017). The impact of binge watching on memory and perceived comprehension. First Monday, 22(9). https://doi.org/10.5210/fm.v22i19.7729

Ilyas, U., & Qureshi, A. S. (2020). Relationship between binge watching and cognitive functioning among university students in Lahore, Pakistan. Rawal Medical Journal, 45(3), 702-706–706.

Merikivi, J., Bragge, J., Scornavacca, E., & Verhagen, T. (2020). Binge-watching Serialized Video Content: A Transdisciplinary Review. Television and New Media, 21(7), 697-711–711. https://doi.org/10.1177/1527476419848578

Jarman, H. K., Marques, M. D., McLean, S. A., Slater, A., & Paxton, S. J. (2021). Motivations for Social Media Use: Associations with Social Media Engagement and Body Satisfaction and Well-Being

among Adolescents. Journal of Youth & Adolescence, 50(12), 2279–2293. https://doi.org/10.1007/s10964-020-01390-z

Karunakaran, R., R, G., Ram, M. K., & S, A. (2022). Antecedents of Binge-Scrolling Short-form Videos. 2022 International Conference on Innovations in Science and Technology for Sustainable Development (ICISTSD), Innovations in Science and Technology for Sustainable Development (ICISTSD), 2022 International Conference On, 134–138. https://doi.org/10.1109/ICISTSD55159.2022.10010460

Kendall, T. (2021). From Binge-Watching to Binge-Scrolling: TikTok and the Rhythms of #LockdownLife. Film Quarterly, 75(1), 41–46. https://doi.org/10.1525/fq.2021.75.1.41

Khan, M. A., & Manzoor, S. (2013). Television Viewing and Schoolgirls of Multan: A Uses and Gratifications Approach [Article]. Pakistan Journal of Social Sciences, 33. https://link.gale.com/apps/doc/A382774305/AONE?u=anon~7f701670&sid=googleScholar&xid=21b60f05

Kilian, C., Bröckel, K. L., Overmeyer, R., Dieterich, R., & Endrass, T. (2020). Neural correlates of response inhibition and performance monitoring in binge watching. International Journal of Psychophysiology, 158, 1–8. https://doi.org/10.1016/j.ijpsycho.2020.09.003

Kircaburun, K., Griffiths, M. D., Balta, S., Emirtekin, E., Tosuntaş, Ş. B., & Demetrovics, Z. (2021). Compensatory usage of the internet: The case of mukbang watching on youtube. Psychiatry Investigation, 18(4), 269-276–276. https://doi.org/10.30773/PI.2019.0340

Koçak, O., Arslan, H., & Erdoğan, A. (2021). Social Media use Across Generations: from Addiction to Engagement. European Integration Studies, 15, 63–77. https://doi.org/10.5755/j01.eis.1.15.29080

Kroenke, K., Spitzer, R. L., Williams, J. B. W., & Löwe, B. (2009). An Ultra-Brief Screening Scale for Anxiety and Depression: The PHQ–4. Psychosomatics, 50(6), 613–621. https://doi.org/10.1016/S0033-3182(09)70864-3

Liu, X., Min, Q., & Han, S. (2020). Understanding users' continuous content contribution behaviours on microblogs: an integrated perspective of uses and gratification theory and social influence theory. Behaviour & Information Technology, 39(5), 525–543. https://doi.org/10.1080/0144929X.2019.1603326

Lortie, C. L., & Guitton, M. J. (2013). Internet addiction assessment tools: dimensional structure and methodological status. Addiction, 108(7), 1207–1216. https://doi.org/10.1111/add.12202

Lu, J.-D. (Evelyn), & Lin, J.-S. (Elaine). (2022). Exploring uses and gratifications and psychological outcomes of engagement with Instagram Stories. Computers in Human Behavior Reports, 6. https://doi.org/10.1016/j.chbr.2022.100198

Luo, M. M., Chea, S., & Chen, J.-S. (2011). Web-based information service adoption: A comparison of the motivational model and the uses and gratifications theory. Decision Support Systems, 51(1), 21–30. https://doi.org/10.1016/j.dss.2010.11.015

Marijke, V. and De Veirman, C. (2017) Consumers' motivations for lurking and posting in brand communities on, Taylor & Francis. Available at: https://www.taylorfrancis.com/chapters/edit/10.4324/9781315623252-12/consumers-motivations-lurking-posting-brand-communities-social-networking-sites-marijke-de-veirman-verolien-cauberghe-liselot-hudders-patrick-de-pelsmacker (Accessed: 25 March 2024).

Matrix, S. (2014). Netflix effect: Teens, binge watching, and on demand digital media trends. Available at: https://www.scribd.com/document/457545669/TeensAndBingeWatching-pdf (Accessed: 25 March 2024).

Menon, D. (2022). Purchase and continuation intentions of over -the -top (OTT) video streaming platform subscriptions: a uses and gratification theory perspective. Telematics and Informatics Reports, 5. https://doi.org/10.1016/j.teler.2022.100006

Munawar, K., & Siraj, S. A. (2022). Problematic symptoms among binge watchers in Islamabad and Rawalpindi, Pakistan: analysis from uses, gratification, and dependency perspectives. Media Asia, 49(4), 333-352–352. https://doi.org/10.1080/01296612.2022.2046250

Muntinga, D. G., Moorman, M., & Smit, E. G. (2011). Introducing COBRAs. International Journal of Advertising, 30(1), 13–46.

Orosz, G., Bőthe, B., & Tóth-Király, I. (2016). The development of the Problematic Series WatchingScale (PSWS). Journal of Behavioral Addictions, 5(1), 144–150. https://doi.org/10.1556/2006.5.2016.011

Ort, A., Wirz, D. S., & Fahr, A. (2021). Is binge-watching addictive? Effects of motives for TV series use on the relationship between excessive media consumption and problematic viewing habits. Addictive Behaviors Reports, 13. https://doi.org/10.1016/j.abrep.2020.100325

Oxford (2013) Meanings & definitions of English words, Dictionary.com. Available at: https://www.lexico.com/en/definition/binge (Accessed: 25 March 2024).

Pallesen, S., Bjorvatn, B., Nordhus, I. H., Sivertsen, B., Hjørnevik, M., & Morin, C. M. (2008). A new scale for measuring insomnia: The Bergen Insomnia Scale. Perceptual and Motor Skills, 107(3), 691–706. https://doi.org/10.2466/PMS.107.7.691-706

Panda, S., & Pandey, S. C. (2017). Binge watching and college students: motivations and outcomes. Young Consumers, 18(4), 425–438. https://doi.org/10.1108/YC-07-2017-00707

Paschke, K., Napp, A.-K., & Thomasius, R. (2023). Parents Rate Problematic Video Streaming in Adolescents: Conceptualization and External Assessment of a New Clinical Phenomenon Based on the ICD-11 Criteria of Gaming Disorder. Journal of Clinical Medicine, 12(3). https://doi.org/10.3390/jcm12031010

Pittman, M., & Sheehan, K. (2015). Sprinting a media marathon: Uses and gratifications of binge-watching television through netflix. First Monday, 20(10), 1p. https://doi.org/10.5210/fm.v20i10.6138

Pittman, M., & Steiner, E. (2021). Distinguishing feast-watching from cringe-watching: Planned, social, and attentive binge-watching predicts increased well-being and decreased regret. Convergence, 27(5), 1507-1524–1524. https://doi.org/10.1177/1354856521999183

Podgorelec, V. K. (2020). Why Binge-Watching? The Prominent Motives and Analysis of the Motivating Hedonic and Eudaimonic Elements of Emotional Gratification in a Binge-Watching Experience. Medijske Studije, 11(21), 3–23. https://doi.org/10.20901/ms.11.21.1

Pontes, H. M., Szabo, A., & Griffiths, M. D. (2015). The impact of Internet-based specific activities on the perceptions of Internet addiction, quality of life, and excessive usage: A cross-sectional study. Addictive Behaviors Reports, 1, 19–25. https://doi.org/10.1016/j.abrep.2015.03.002

Potashnikov, A. M., Mazin, V. A., Stepanov, N. S., Smirnov, A. P., & Mozhaeva, A. I. (2022). Analysis of Modern Methods Used to Assess the Quality of Video Sequences During Signal Streaming. 2022 Systems of Signals Generating and Processing in the Field of on Board Communications, Signals Generating and Processing in the Field of on Board Communications, 2022 Systems Of, 1–4. https://doi.org/10.1109/IEEECONF53456.2022.9744294

PR Newswire. (2013, December 13). Netflix Declares Binge Watching is the New Normal. PR Newswire US.

Rahman, K. T. and Arif, M. ZU. (2021). Impacts of Binge-Watching on Netflix during the COVID-19 pandemic. South Asian Journal of Marketing, 2(1), 97–112. https://doi.org/10.1108/SAJM-05-2021-0070/full/pdf?title=impacts-of-binge-watching-on-netflix-during-the-covid-19-pandemic

Raza SH, Yousaf M, Sohail F, Munawar R, Ogadimma EC, & Siang JMLD. (2021). Investigating Binge-Watching Adverse Mental Health Outcomes During Covid-19 Pandemic: Moderating Role of Screen Time for Web Series Using Online Streaming. Psychology Research and Behavior Management, ume 14, 1615–1629.

Reisa, S. and Irwansyah, I. (2021) 'Fragmentation and audience activity on video-on-demand platform: Netflix and the "binge-watching"', Jurnal InterAct, 9(2), pp. 120–132. doi:10.25170/interact.v9i2.2235.

Riddle, K., Peebles, A., Davis, C., Xu, F., & Schroeder, E. (2018). The addictive potential of television binge watching: Comparing intentional and unintentional binges. Psychology of Popular Media Culture, 7(4), 589–604. https://doi.org/10.1037/ppm0000167

Rodgers, S. (2017) Digital Advertising Theory and Research. New York: Routledge.

Rubenking, B., & Bracken, C. C. (2018). Binge-Watching: A Suspenseful, Emotional, Habit. Communication Research Reports, 35(5), 381–391. https://doi.org/10.1080/08824096.2018.1525346

Rubenking, B., Sandoval, J., Rister, A., & Bracken, C. C. (2018). Defining new viewing behaviours: What makes and motivates TV binge-watching? International Journal of Digital Television, 9(1), 69-85–85. https://doi.org/10.1386/jdtv.9.1.69_1

Rubin, A. M. (2002) Uses-and-gratifications perspective on media effects | request PDF. Available at: https://www.researchgate.net/publication/232564235_Uses-and-gratifications_perspective_on_media_effects (Accessed: 24 March 2024).

Ryan, T., Chester, A., Reece, J., & Xenos, S. (2014). The uses and abuses of Facebook: A review of Facebook addiction. JOURNAL OF BEHAVIORAL ADDICTIONS, 3(3), 133–148. https://doi.org/10.1556/JBA.3.2014.016

Saletti, S. M. R., Van den Broucke, S., Billieux, J., Karila, L., Kuss, D. J., Espejo, J. M. R., Sheldon, P., Lang, C. P., Zimmer-Gembeck, M. J., Zollo, P., Courboin, C., Diez, D., Madison, T. P., Ramos-Diaz, J., Elias, C. A. E., & Otiniano, F. (2023). Development, psychometric validation, and cross-cultural comparison of the "Instagram Motives Questionnaire" (IMQ) and the "Instagram Uses and Patterns Questionnaire" (IUPQ). Journal of Behavioral Addictions, 12(1), 105–127.

Shao Guosong. (2009). Understanding the appeal of user-generated media: a uses and gratification perspective. Internet Research, 19(1), 7–25. https://doi.org/10.1108/10662240910927795

Sheldon, P., & Bryant, K. (2016). Instagram: Motives for its use and relationship to narcissism and contextual age. Computers in Human Behavior, 58, 89–97. https://doi.org/10.1016/j.chb.2015.12.059

Shim, H., & Kim, K. J. (2018). An exploration of the motivations for binge-watching and the role of individual differences. Computers in Human Behavior, 82, 94–100. https://doi.org/10.1016/j.chb.2017.12.032

Shim, H., Lim, S., Jung, E. E., & Shin, E. (2018). I hate binge-watching but I can't help doing it: The moderating effect of immediate gratification and need for cognition on binge-watching attitude-behavior relation. Telematics & Informatics, 35(7), 1971–1979. https://doi.org/10.1016/j.tele.2018.07.001

Sigre-Leirós, V., Billieux, J., Mohr, C., Maurage, P., King, D. L., Schimmenti, A., & Flayelle, M. (2023). Binge-watching in times of COVID-19: A longitudinal examination of changes in affect and TV

series consumption patterns during lockdown. Psychology of Popular Media, 12(2), 173–185. https://doi.org/10.1037/ppm0000390

Sjöblom, M., & Hamari, J. (2017). Why do people watch others play video games? An empirical study on the motivations of Twitch users. Computers in Human Behavior, 75, 985–996. https://doi.org/10.1016/j.chb.2016.10.019

Srinivasan, A., Edward, S. and Eashwar, A. (2022) 'A study on binge watching and its association with sleep pattern - a cross sectional study among medical college students in Kancheepuram District, Tamil nadu', National Journal of Community Medicine, 12(12), pp. 400–404. doi:10.5455/njcm.20211122052816.

Starcevic, V. (2016). Behavioural addictions: A challenge for psychopathology and psychiatric nosology. AUSTRALIAN AND NEW ZEALAND JOURNAL OF PSYCHIATRY, 50(8), 721–725. https://doi.org/10.1177/0004867416654009

Starosta, J., Izydorczyk, B., & Dobrowolska, M. (2020). Personality traits and motivation as factors associated with symptoms of problematic binge-watching. Sustainability (Switzerland), 12(14), 1-15–15. https://doi.org/10.3390/su12145810

Starosta, J., Izydorczyk, B., Sitnik-Warchulska, K., & Lizińczyk, S. (2021a). Impulsivity and difficulties in emotional regulation as predictors of binge-watching behaviours. Frontiers in Psychiatry, 12. https://doi.org/10.3389/fpsyt.2021.743870

Starosta, J., Izydorczyk, B., & Wontorczyk, A. (2021b). Anxiety-Depressive Syndrome and Binge-Watching Among Young Adults. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.689944

Statista. (2023a). Statista Dossier about Instagram. Available at: https://www.statista.com/study/21392/instagram-statista-dossier/ (Accessed: 25 March 2024).

Statista. (2023b). YouTube - Statistics & Facts Available at: https://www.statista.com/topics/2019/youtube/#topicOverview (Accessed: 25 March 2024).

Steiner, E., & Xu, K. (2020). Binge-watching motivates change: Uses and gratifications of streaming video viewers challenge traditional TV research. Convergence, 26(1), 82-101–101. https://doi.org/10.1177/1354856517750365

Sung, Y. H., Kang, E. Y., & Lee, W.-N. (2018). Why Do We Indulge? Exploring Motivations for Binge Watching. Journal of Broadcasting & Electronic Media, 62(3), 408–426. https://doi.org/10.1080/08838151.2018.1451851

Tefertiller, A. C., & Maxwell, L. C. (2018). Depression, emotional states, and the experience of binge-watching narrative television. Atlantic Journal of Communication, 26(5), 278–290. https://doi.org/10.1080/15456870.2018.1517765

Tóth-Király, I., Bothe, B., Tóth-Fáber, E., Hága, G., & Orosz, G. (2017). Connected to TV series: Quantifying series watching engagement. Journal of Behavioral Addictions, 6(4), 472-489–489. https://doi.org/10.1556/2006.6.2017.083

Viens, A., & Farrar, K. M. (2021). Conceptualizing and Measuring Binge Watching. Communication Studies, 72(3), 267–284. https://doi.org/10.1080/10510974.2021.1876748

Volpe, U., Orsolini, L., Salvi, V., Albert, U., Carmassi, C., Carrà, G., Cirulli, F., Dell, O. B., Luciano, M., Sampogna, G., Vecchio, V. D., Giallonardo, V., Giannelli, L., Mugnolo, A., Fiorillo, A., Menculini, G., Tortorella, A., Nanni, M. G., Murri, M. B., … Tonioni, F. (2022). COVID-19-Related Social Isolation Predispose to Problematic Internet and Online Video Gaming Use in Italy. International Journal of Environmental Research and Public Health, 19(3). https://doi.org/10.3390/ijerph19031539

Weinstein, E. (2018). The social media see-saw: Positive and negative influences on adolescents' affective well-being. New Media & Society, 20(10), 3597–3623. https://doi.org/10.1177/1461444818755634

Whiting, A., & Williams, D. (2013). Why people use social media: a uses and gratifications approach. Qualitative Market Research: An International Journal, 16(4), 362–369. https://doi.org/10.1108/QMR-06-2013-0041

Wongpakaran, N., Wongpakaran, T., Pinyopornpanish, M., Simcharoen, S., & Kuntawong, P. (2021). Loneliness and problematic internet use: testing the role of interpersonal problems and motivation for internet use. BMC Psychiatry, 21(1), 1–11. https://doi.org/10.1186/s12888-021-03457-y

Yang, Z., Yan, Z., Xu, W., & Griffiths, M. D. (2021). Can watching online videos be addictive? A qualitative exploration of online video watching among chinese young adults. International Journal of Environmental Research and Public Health, 18(14). https://doi.org/10.3390/ijerph18147247

Yoo, J., Lee, J., & Lee, D. (2020). A verification of motivations for over-the-top binge and short viewing of audio-visual content. New Review of Hypermedia and Multimedia, 26(3–4), 93-122–122. https://doi.org/10.1080/13614568.2020.1865464

Young, K. S. (1998). Internet addiction: The emergence of a new clinical disorder. CyberPsychology & Behavior, 1(3), 237–244. https://doi.org/10.1089/cpb.1998.1.237

Zhang, X., Wu, Y., & Liu, S. (2019). Exploring short-form video application addiction: Socio-technical and attachment perspectives. Telematics and Informatics, 42. https://doi.org/10.1016/j.tele.2019.101243