THE ASSOCIATION BETWEEN VIDEO-ON-DEMAND WATCHING BEHAVIOUR AND SUBJECTIVE WELL-BEING

An Experience Sampling Study

Bachelor Thesis

Dino Erker (s1972804)
First Supervisor: Dr. P.M. ten Klooster
Second Supervisor: Dr. M. Noordzij

UNIVERSITY OF TWENTE.

Department for Psychology, Health and Technology

Table of Content

Abstract

Background

Binge-watching, commonly defined as watching 2-6 episodes of a TV show consecutively, is a phenomenon that has gained increasing research interest in recent years. Through the growth of the video-on-demand (VoD) streaming market, binge-watching has become a widespread behaviour, being especially prevalent among college students. Several studies have investigated multiple aspects such as motivations, gratifications or characteristics of binge-watchers. Yet, there is only little evidence of how this behaviour might affect our well-being. Some evidence has hinted at both positive and negative consequences for the user's mental health. However, it appears that most studies suffer from design weaknesses and mostly rely on cross-sectional study designs.

Aim

This study aims to use an intensive longitudinal measurement approach to study the phenomenon of binge-watching and its association with subjective well-being over time.

Method

A longitudinal study design was used to investigate participants' (n=42) watching behaviour and life satisfaction, also referred to as subjective well-being. The Experience Sampling Method (ESM) required respondents to fill out daily questionnaires using their own smartphones over a period of two weeks. To measure subjective well-being for this study, the Satisfaction with Life Scale (SWLS) was used. A series of linear mixed model analyses were conducted to discover any significant relationship(s) between subjective well-being as a predictor or outcome of binge-watching. Besides analysing binge-watching according to its conceptualisation, more general watching behaviour such as "episodes watched" and "hours watched" was examined as well.

Results

No significant association of well-being with binge-watching or hours watched was found, however, the number of episodes watched positively predicted life satisfaction scores on the next day ($p = 0.02$). The related B- estimate of 0.15, however, indicates that this effect on life satisfaction was relatively small.

Conclusion

Findings generally suggest that binge-watching neither benefits nor harms people's subjective well-being. Interestingly, the number of episodes watched, however, positively predicted life satisfaction on the next day. These findings are partly in line with previous research, yet, they also conflict with some other findings of negative assumed consequences of binge-watching. The results suggest that it is questionable if the negative framing of the term binge-watching is deserved. Also, it remains unclear whether the definition of binge-watching should be altered and further adapted. Findings of this study may be limited due to a homogenous sample and the Corona pandemic in 2020 which caused this research to be conducted under extraordinary circumstances.

Introduction

Binge-watching can be broadly defined as consuming two to six episodes of a single TV show in one sitting (Silverman and Ryalls, 2016). Binge-watching behaviour was first observed with the introduction of DVD boxsets in the late 1990s and the ability to consume an entire season of a show in one sitting. Nowadays, this form of watching behaviour is rapidly becoming the new norm of television viewing (Jenner, 2016). The emergence of online streaming services seems to be essentially linked to the rising of popularity of binge-watching. Video on Demand (VoD) streaming services such as Netflix, Amazon Video or more recently Disney Plus provides the user with easy and cheap access to consume multiple episodes of the same series in a sitting (Da Costa, 2019). The subscription of such a service provides the user with a nearly unlimited autonomy concerning the selection and consumption of media content (Granow, Reinecke, & Ziegele, 2018). This autonomy has fostered a change in usage-patterns: binge-watching has now become a prevalent phenomenon (Pittman & Sheehan, 2015).

The term binge or binging is often connoted with self-harming behaviour. Binge drinking or binge eating have been associated with diseases such as alcoholism or bulimia (Jenner, 2017). To binge relates to a form of shameful indulgence and a lack of control. The use of the term binge-watching is also and especially in news media used to describe a viewing practice that moves the medium itself in a negative spotlight. Nevertheless, the term is itself also used by large VoD providers to promote their service. Especially by Netflix, introducing a genre to sort their content: “Most BingeWorthy TV” (Netflix.com). Interestingly, we do not refer to large consumption of music as “binge hearing” or reading an exciting book excessively as “binge reading” (Ramsay, 2013). Binge-watching is not associated with a clinical diagnosis similarly to heavy-episodic drinking or binge eating, rather it is a term coined by pop culture and is more related to the content release strategy of VoD providers, especially Netflix (Tefertiller & Maxwell, 2018). Consequently, the term binge-watching has been criticised because of its negative connotation, with some preferring the term “marathon viewing” (Silverman & Ryalls, 2016). Yet, others associate the practice directly with specific VoD platforms and refer to binge-watching as the “Netflix Effect” (Matrix, 2014). To date, it remains questionable, whether binge-watching does have similar negative well-being implications for individuals as the other negatively framed terms such as binge drinking or binge eating.

In research, it has been proven rather challenging to give binge-watching a concrete definition. In a study commissioned by Netflix (McCracken, 2013), most respondents themselves described binge-watching as “watching between two and six episodes of a TV show in one sitting”. They further reported that the first season of a series can be entirely binge-watched in a span of four to six days. It

is unclear whether we should define binge-watching by the number of episodes, or the entire period taken to complete a series (Gangadharbatla, Ackerman, & Bamford, 2019). Pierce-Grove (2016) already pointed to the lack of a consistent definition and thus indicated there is a need for a common empirically grounded definition. Also, there exists no consensus on how many episodes would constitute binge-watching (Sung, Kang, & Lee, 2018). In sum, binge-watching as a construct remains "ill-defined" because there exists no consensus on operationalization and measurement. The early stage of research on the impact of binge-watching behaviour shows that if we want to forward our understanding of binge-watching research should strive for more consistency and harmonization of constructs and their operationalizations (Flayelle et al., 2020). Nevertheless, the wide spreading of binge-watching behaviour has attracted increasing research interest over the last 4 years.

The very recently published systematic review of previous research studying the binge-watching phenomena by Flayelle et al. (2020), provides some clarity on what is known so far. Summarizing 24 articles in total, the primary focus in reviewed studies was the investigation of factors related to binge-watching (58% of studies) such as personality traits or psychopathology. Next up, articles focused (25% of studies) on the identification of binge-watching motivations. Followed by the development of validation of related measurement instruments (17% of studies). Fourthly, the characterization of binge-watching with 13% of studies and the definition of binge-watching with 8% of studies. Finally, the experimental testing of binge-watching and its impact on audience engagement was focused on by 8% of reviewed studies (Flayelle et al., 2020).

Research on binge-watching behaviour often utilizes college students (18-24 years old) as a target group. Besides the convenience of access to this population, this is because they engage in more video on internet watching than other age groups and 92% of college students have access to a Netflix account (Vaterlaus, Spruance, Frantz & Kruger, 2018). Overall, the average prevalence rate of people who binge-watch is estimated by research data to be around 72%, suggesting that binge-watching is not atypical but rather a norm across current samples (Flayelle et al., 2020). This prevalence of the binge-watching phenomenon makes it crucial to study the antecedents and consequences of binge-watching. Until this point research has found both positive and negative consequences of binge-watching, but also positive and negative motivations behind the behaviour.

Some insight gained by previous research shows different motivators to indulge in binge-watching. First, in a mixed-methods study conducted by Panda and Pandey (2017), students indicated to spend more time binge-watching to engage with their peers in conversations and avoid being excluded. Also, they imitate their peers' and friends' behaviour and perceive binge-watching as accepted behaviour. One more negative key factor found in the study was that students use the opportunity to binge-watch as an escape from reality. The various range of available shows further motivates students to engage

with a different world. In another qualitative study, researchers also found gratification of technology that eases binge-watching to be a motivating factor (Rubenking, Bracken, Sandoval & Rister, 2018). VoD platforms often provide a feature that shows the next episodes appearing on-screen at the finish of one, then mostly continuing the series after a countdown. The user is drawn into an ongoing cycle of anticipation, being presented the next episode he can indulge in (Rubenking et al., 2018). Moreover, the nature of the content (i.e. captivating, intense, well-done, easy-to-identify-with characters) and nature of the technology (i.e. streaming services automatically starting new content without any user input needed) was found to be a propelling factor. Additionally, mood management, relaxation, and the autonomy that VoD platforms provide the user with were mentioned as motivating factors (Rubenking et al., 2018). The uses and gratification framework indicates that consumers have goals and needs they continually seek to satisfy through various mass media activities (Elliott & Quattlebaum, 1979). The framework is based on traditional media, but it can be modified to fit VoD context showing that people binge-watch to fulfil different needs. “Lone wolves” binge-watch to assuage loneliness and gain companionship, while “social animals” binge to enjoy company with others (Panda & Pandey, 2017).

With respect to consequences, binge-watching is regarded by some studies as restorative experience (Panda & Pandey, 2017). Furthermore, binge-watching has given users new opportunities for self-determination of entertainment consumption and positively influences media enjoyment and well-being through this perceived autonomy (Granow et al., 2018).
However, binge-watching can also potentially have negative effects for several reasons. Research has found that prolonged involvement in binge-watching leads to problematic watching patterns and deleterious consequences (Flayelle et al., 2020). Initial evidence links excessive binge-watching with insomnia and chronic fatigue, a sedentary and unhealthy lifestyle, negligence of other activities and reduction of social relationships. Additionally, binge-watching is widely assumed to have addictive qualities (Flayelle et al., 2020). Research among college studies found an indication that binge-watching can result in experiencing guilt and regret for the time lost during the process and thus taken away from especially academic responsibilities (Vaterlaus et al., 2018). Moreover, some participants of the study conducted by Vaterlaus, Spruance, Frantz and Kruger (2018) stated that binge-watching could possibly be a factor in the development of health issues, if it is used as an escape or facilitator of procrastination, thus leading to an aggregation of stress because important tasks are not completed.

Although previous research has addressed the phenomenon of binge-watching and its consequences these studies fall victim to several limitations. First of all, research on binge-watching is mostly targeted only at the potential harmfulness and the addictive nature, most studies using a confirmatory approach (Flayelle, Maurage, Vögele, Karila & Billieux, 2019). The latter consists of recycled substance use abuse criteria to define a potential new disorder. Using the same type of approach to

binge-watching much may limit the understanding of the phenomenon. To gain a genuine understanding of binge-watching behaviour more exploratory approaches are required (Flayelle, Maurage, Vögele, Karila & Billieux, 2019). Another major limitation with respect to the design of previous binge-watching studies, is that most of them are based on qualitative or cross-sectional survey data only. This neither permits any causal inferences nor does it provide information about potential long-term effects or the direction of tested effects (Granow et al., 2018). Furthermore, these studies are often limited due to retrospective bias. This is explained by Trull and Ebener-Priemer (2009) in detail: "individuals are more likely to recall or report experiences that seem more personal relevant (personal heuristics effect), that occurred more recently (recency effect), that stand out as significant or unusual (salience or novelty effect), or that are consistent with their current mood state (mood-congruent memory effect)". Real-time data collection strategies, however, offer a more immediate, moment-to-moment emotional, behavioural, and cognitive experience in their natural environments and thus can reduce the effect of recall bias (Trull, & Ebener-Priemer, 2009). Hence, this study will instead use the experience sampling method to investigate participants binge-watching behaviour in their natural environment over a period of 2 weeks.

The experience sampling method (ESM) aims to obtain self-reports of people's momentary lives for a representative sample of participants over a longer time frame. Participants, therefore, should carry an electronic device, a pager or smartphone. The participant will receive signals according to a random schedule, these signals are cues for the participant to answer a self-report questionnaire (Csikszentmihalyi & Larson, 2014). The ESM can acquire deeper insight into prevalence of behaviour and associations between variables over time than other sampling methods. Other advantages are that it reduces recall bias as the data collection is more immediate and closer to the moment of occurrence than other methods. As such, thoughts and feelings can be studied in specific situations and contexts. Several methodological limitations of traditional study designs such as pen and paper or interview methods appear to be surmounted by the ESM. Unlike traditional methods the ESM does not rely on recollection and reconstruction of participants, but rather immediate reports of ongoing conditions in research subjects' lives are being collected. Also, the method is not dependent on a single assessment but repeated measurements on many occasions are obtained, offering insight into a person variation of a variable related to what the person does, the time of day or any other events or contexts (Csikszentmihalyi & Larson, 2014). Further, the ESM may reveal subjective effects that otherwise might be hidden from the consciousness of an individual. Additionally, experience sampling increases ecological validity providing a more representative finding of participants daily lives. One of the major limitations of the ESM is that it is often reliant on respondents' self-reports only, although it can also be combined with more objective continuous assessments of behaviour and feelings, such as GPS trackers and physiological measurements.

Most studies to date have focussed on identifying factors or motivations related to binge-watching (Flayelle et al., 2020). Only a few have tried to examine the association of well-being and binge-watching. The study conducted by Granow, Reinecke and Ziegele (2018) found that binge-watching can have both positive (media enjoyment and well-being through perceived autonomy) and negative (goal conflicts of entertainment consumption and other obligations resulting in feelings of guilt) effects on a user's well-being. This study, however, was limited by its design being based on cross-sectional data, neither allowing causal inferences nor providing information on any long-term effects or directions of tested effects (Granow et al., 2018). The authors further note that future research would benefit from longitudinal research designs to examine effects of binge-watching on life satisfaction. Also, they mention that incorporating hedonic and eudemonic indications of well-being would provide a more differentiated understating of the well-being and thus should be investigated in future research. Another study has found similar positive effects (increased agency through streaming) but no negative effects (Groshek, Krongard, & Zhang, 2018). The study by Panda and Pandey (2018) focuses mostly on motivators and gratification, but similarly to Granow et al. (2018), found both positive (restorative experience) and negative (addiction) effects of binge-watching. Nevertheless, these studies also suffer from certain mostly methodological limitations. In their article Panda and Pandey (2017) mention that their findings are limited due to the self-reported and cross-sectional data. They do also recommend longitudinal research for future studies to better understand the phenomenon of binge-watching.

Previously conducted research mostly did not specifically engage into examining subjective well-being and may have been limited by its study design. Therefore, this study will investigate associations between binge-watching and subjective well-being and will further take advantage of the ESM.

Subjective well-being is defined by Diener, Lucas and Oishi (2002) as a person's cognitive and affective evaluation of his or her life as a whole, evaluations including emotional reactions to events as well as cognitive judgements of satisfaction and fulfilment. Subjective well-being is mostly associated with the hedonistic approach to well-being (Deci & Ryan, 2008). The eudemonic perspective, on the other hand, is related to an individual living well and actualizing their full human potential. Eudaimonia is associated with psychological well-being. Eudaimonic aspects of well-being include competence, autonomy, and relatedness and thus exceed the pleasure-oriented view of subjective well-being (Granow et al., 2018). Although these two being different perspectives on the nature of well-being, hedonia and eudaimonia are believed to have substantial overlap on the experience of well-being (Deci & Ryan, 2008). In their article, Granow et al. (2018) suggested that hedonic and eudaimonic indicators of well-being should be jointly assessed to provide a more differentiated understanding of the well-being implications of binge-watching.

The current study aims to explore the association between binge-watching behaviour and subjective well-being over time in a sample of young adult individuals. Specifically, the study will address the following research questions:

1) How is binge-watching associated with subjective well-being over time?

Also, because the current conceptualization of binge-watching remains questionable, two research questions have been established which do not rely on a pre-set definition of binge-watching:

2) How is the number of episodes watched associated with subjective well-being over time?
3) How is time spend watching associated with subjective well-being over time?

Due to this research being explorative no specific hypothesis was formulated. Binge-watching will be examined both as a potential predictor and a potential outcome of well-being. The number of episodes watched, and time spend watching will also be examined in similar regard.

Methods

Design

In this study, a repeated-measurement design was employed to examine the influence of binge-watching on subjective well-being. The data collection was issued from the 9th until the 23rd of April 2020. Additionally, the 8th of April was set as the day where participants could register for the study and fill out the demographics survey, making the total study duration 15 days. Common practices of previous ESM studies suggest that an ESM study with a duration of around 2 weeks with multiple short questionnaires yields a good response rate. It was further found that the quality of measured data of participants appears to deteriorate after a period of 2 to 4 weeks. (Berkel, Ferreira, & Kostakos, 2017). The number of recruited participants with a total count of 42, is acceptable, according to Connor and Lehmann (2012), due to the repeated measurements during the 2 weeks a small sample size provides sufficient reliability. Additionally, research suggests that with a median of 19 participants in ESM studies (Berkel et al., 2017), the sample size lies within the norm of previous ESM studies.

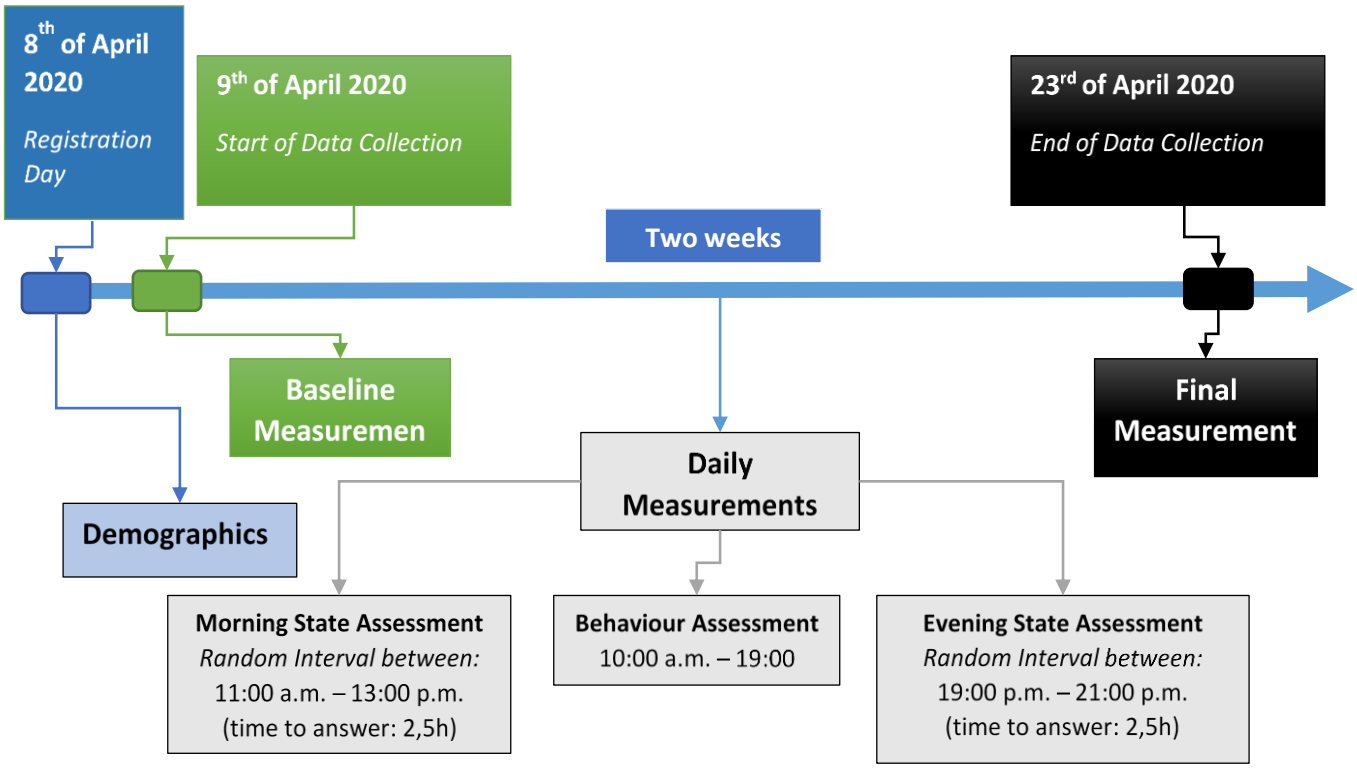

Figure 1: Visual Representation of Study Design

Smartphones were chosen as the primary technology platform to carry out the research. It is an affordable method which yields high compliance rates (Connor & Lehmann, 2012). Participants used their own smartphones, instead of devices provided by the researchers. This has the benefit that the respondent is less aware of the presence of an observing device. Another positive aspect is that participants feel more comfortable with their devices, contrary to when they need to operate with an unknown device, because of a novelty effect (Berkel et al., 2017). Further, it is one of the most convenient methods to reach out to participants.

The sampling strategy was a time-based protocol. Assessments did occur at both fixed and variable times. The latter is also called signal-contingent sampling, here assessments were issued in response to a phone notification being delivered at unpredictable times on a set time interval (Connor & Lehman, 2012). The fixed timing schedule on the other hand (also called interval-contingent sampling), plans assessments for set times during the day, such as morning and evening and asks the participant for a momentary report (Connor & Lehmann, 2012). Two random measurements, the state assessments, were issues each day, one in the morning and one in the evening (Figure 1). When receiving the random notifications, participants had 2,5 hours for each measurement to complete the respective survey. The behaviour assessment was issued at a fixed time interval (Figure 1). The demographics questionnaire was not bound by a timeframe, participants could fill in their data from the 8th until the 23rd of April. Further, a baseline measurement of depression and anxiety using the Generalized Anxiety Disorder 7 and Patient Health Questionnaire 9, was issued at the beginning and end of data collection (Figure 1).

Participants

In total 42 participants were recruited for this study. Characteristics of participants are shown in the results section in table 1. All participants were recruited using convenience sampling, mostly researchers approached friends and relatives. The overall participation was voluntary. The study was approved by the ethics committee of the faculty of behavioural, management and social sciences of the University of Twente (Approval #200366) All participants confirmed their participation with an online consent form.

Materials

The study and data collection were conducted in cooperation with three other researchers. Overall an extensive battery of questions was used to ensure a good amount of data for all researchers. Not all questionnaires are relevant for this current study, thus only the demographics, behavioural and a part of the evening questionnaire were analysed. Questionnaire items were mostly based on previous ESM studies assessing watching behaviour (Flayelle et al., 2020).

After accepting our invitation and signing up for the study participants received an e-mail giving them more information and instructions on how to proceed. Then participants needed to download the app "Ethica", which provided a platform to execute the surveys created by the researchers. On the registration day (day 0) the participants were asked to fill out a demographics survey. On the next day

(day1) participants received notifications both in the morning (“Morning State Assessment”) and in the evening (“Evening State Assessment”) on fluctuating times. Additionally, a third questionnaire, which was used to assess binge-watching behaviour (“Behaviour Assessment”), could be filled out during the whole day. Furthermore, a baseline-questionnaire (“Baseline Measurement”) was deployed at the beginning and end of the study. All surveys can be found under Appendix at the end of this paper.

Demographics & General Information

The demographics questionnaire included four questions regarding participants personal information: Gender (“Male, “Female” and “Other or no answer”), age, nationality (“Dutch”, “German”, “Other, European” and “Other, non-European”) and occupation (“Pupil”, “Student”, “Apprentice”, “Employed full-time”, “Employed part-time”, “Unemployed” and “Other”). In addition, two questions asking for some general information, which VoD streaming service(s) are usually used (“Netflix”, “Amazon Prime”, “Hulu”, “Disney+”, “Maxdome”, “Sky Home”, “YouTube” and “Other”, multiple answers were possible) and whether these services are used at least once a week (“Yes” or “No”).

Daily Behavioural Assessment

The behavioural questionnaire was used to assess watching behaviour of participants. The questions aimed for information regarding VoD platform use for the previous day. Therefore, the first question was “Did you watch a series on a video-on-demand platform such as Netflix or Amazon Prime Video yesterday?” answerable with “Yes” or “No”. If the participant did use such a service, they could continue with the rest of the questionnaire. If they had not watched, the behavioural questionnaire for the respective day ended. The next questions were designed to receive more detailed information about their watching behaviour. First participants were asked for what time of the day they watched (indicating "Morning", "Afternoon", "Evening" and "Night" multiple answers possible). Further, it was asked whether participants watched for more than one hour, how much they actually watched and how many episodes were watched. These questions were most relevant to indicate binge-watching behaviour according to the set definition so a variable could later be coded for binge-watching. Also, some question regarding information about content, motivation and context were asked.
After that, a question was prompted to assess possible guilt associated with the recent binge-watching behaviour.

Daily Evening State Assessment

Each evening, the satisfaction with life scale (SWLS) was used to gain information about participants subjective wellbeing. This scale was only used at the evening assessments, to prevent participants from becoming exhausted and because it was not expected to yield many different results within a day. The SWLS originally developed by Diener, Emmons, Larsen and Griffing (1985) is a short 5-item instrument designed to measure global cognitive judgments of satisfaction with one’s life. Despite

only including five items, the SWLS has demonstrated good psychometric characteristics (Pavot & Diener, 2008). This has also been confirmed by a study conducted by Arrindell, Meeuwesen and Huyse (1991), testing its psychometric properties for a non-psychiatric medical outpatient sample. The results of the study showed clear support for the reliability of the SWLS. Further, its convergent, and divergent construct validity was established by significantly strong associations with other measures of well-being.

The SWLS was considered a well-suited scale for a daily ESM study, because not only of its good psychometrics but also its brevity (usually only requiring about a minute of respondent's time). The participant is confronted with 5 statements: "In most ways, my life is close to my ideal", "the conditions of my life are excellent", "I am satisfied with my life", "so far I have gotten the important things I want in life" and "if I could live my life over, I would change almost nothing". Then the participant has to rate the statements based on their momentary feeling using a 1-7 scale ranging from "strongly disagree" (1), "disagree" (2), slightly disagree" (3), Neither agree nor disagree (4), slightly agree (5), "agree" (6) to "strongly agree", (7). The total score of all five items then indicates how satisfied the patient is with his life.

Procedure

On Wednesday the 14th of April participants received an e-mail invitation with a registration code to partake in the study. Further, participants received a written e-mail by the researchers with a step by step guide to take part in the study. Contact details of all involved researchers for follow up questions were provided. After downloading the "Ethica" app and registering with the provided code, participants were asked to accept or decline the online informed consent and fill out the "demographics" questionnaire. Participants were able to withdraw from the study at any given time without giving further information. On the next day the study began and participants were asked to fill out the now daily appearing "behaviour assessment", "morning state assessment", "evening state assessment" and "baseline measurement" surveys. The latter only needed to be filled out once. Participants then received notifications every day to fill out the respective surveys. If participants forgot or did not comply to notifications the app sent them a reminder. At the end of the data collection, the respondents were asked to fill in a "final measurement" corresponding to the "baseline measurement".

Analysis

To analyse the collected data the statistical program for social sciences (SPSS, version 26) was used. Data were recoded if needed. Binge-watching was coded as either 1 (binge-watching behaviour) or 0 (no binge-watching behaviour) for each behaviour assessment. Binge-watching was defined by watching at least 2 episodes of the same show and watching for at least 1 hour. The SWLS total scores were added up according to the official scoring key of the SWLS (Diener, Larsen, & Griffin, 1985).

Overall, 4 participants were removed from the final data set because of no or minimal participation. In detail, 3 participants missed more than 40% of assessments. It is commonplace that participants are required to complete at least 50% of reports (Connor & Lehmann, 2012). However, because of the sufficient sample size and otherwise high response rates, it was decided to leave out participants if they missed more than 40% of assessments. The fourth participant was removed from the data set because he or she failed to complete all evening questionnaires, thus resulting in missing important data. Therefore, the final data set consisted of 38 participants for analysis.
To analyse demographics, descriptive statistics and frequency tables were created. To examine all proposed research questions, a series of linear mixed models (LMMs) analyses were executed.

The LMM was chosen as the primary analysis tool because it is well suited to handle ESM data. First, because due to the structural nature of the ESM it was likely that respondents would miss out some questionnaires (Scollon, Prieto, & Diener, 2009). The LMM accounts for missing data with a maximum likelihood estimation, calculating the most likely behaviour of a respondent-based on their previously reported values. This makes the LMM especially useful for longitudinal designs. Additionally, the LMM can deal with the nested nature of intensive longitudinal data. Observations are "nested" within people, requiring the proper analytical treatment (Connor & Lehmann, 2012).
In addition to the LMMs, for every analysis conducted, graphical representations were created to visually demonstrate more clearly any existing or not existing association.

LMM analyses were conducted with a first-order autoregressive structure with homogenous variances. To obtain estimated marginal means for the variables of interest over persons and time points, LMMs were estimated with respondents (subject) and time points (repeated measurement) set as fixed factors. For analysing the association between watching behaviour and subjective well-being, similar models were run with SWLS total scores set as the dependent variable and watching behaviour as the fixed factor (for binge-watching) or covariate (for numbers of hours and episodes). To gain more insight into any possible associations, unstandardized B-estimates were computed. Furthermore, because every behaviour assessment refers to the previous day, to test for any significant associations on the same day instead of the following day, total SWLS scores were recoded into "lagged" variables as well. Identical LMM analysis were conducted with the SWLS scores as lagged variable for each respective research question.

Results

Participant Characteristics and watching behaviour

Table 1: Characteristics and watching behaviour of participants

Characteristics of participants (n=38)	
Sex	
Male	21 (55.3%)
Female	17 (44.7%)
Age (years)	
Mean (*SD*); range	23.79 (*5.33*); 18-51
Nationality	
German	35 (92.1%)
Dutch	1 (2.6%)
Other European	2 (5.3%)
Occupation	
Apprentice	3 (7.9%)
Employed full-time	9 (23.7%)
Employed part-time	1 (2.6%)
Other	2 (5.3%)
Pupil	1 (2.6%)
Student	22 (57.9%)
Second Occupation	
Employed part-time	1 (2.6%)
Employed full-time	1 (2.6%)
Watching behaviour	
Binge-Watching cases, n (%)	199 (37.4)
No Binge-Watching cases, n (%)	333 (62.6)
Hours watched per day mean (SD)	2.27 (1.98)
Episodes watched per day mean (SD)	3.54 (3.24)
Usage of VOD services	
Netflix	32
YouTube	30
Amazon Prime Video	22
Disney+	7
Other	7
Sky Home	4

Demographics of participants

In this study, most participants were male (n=21) making up 55.3% of the sample, while 17 female participants took part corresponding to 44.7% of the sample. The sample consisted further of mostly young people (M=23.79, SD=5.33), overall people from age 18 to 51 participated. The majority of participants had German nationality constituting 92.1 % (n=35) of the sample. Only one person was of Dutch nationality (2.6%) and two indicated to be of other European nationality (5.3%). Participants mainly indicated their occupation as students (n=22; 57.9%), followed by employed full-time (n=9; 23.7%), apprentice (n=3; 7.9%), other (n=2; 5.3%) and lastly pupil and employed part-time (both n=1; 2.6%). Only two participants reported a second occupation being employed part-time (n=1; 2.6%) and employed full-time (n=1; 2.6%).

Watching behaviour

In total 199 (37.4%) cases of binge-watching corresponding to the pre-set definition were recorded over the two weeks. In comparison, over the 14-Days period most participant did not engage into binge-watching, cases of where no binge-watching could be measured correspond to 333 (62.6%). Over the measurement period, all participants watched on average 2.27 (SD=1.98) hours and watched 3.54 (SD=3.24) episodes daily on average.

Usage of VOD services

The reported usage of VOD services was dominated by Netflix (n=32) and YouTube (n=30), followed by Amazon Prime Video (n=22), Disney+ (n=7), other (n=7) and the fewest mentioned VOD service being Sky Home (n=4). The number of VoD Service usage exceeds the total count of participants due to the nature of the survey. Participants could indicate more than one VoD service in the initial demographic's questionnaire

SWLS Total Scores

The mean SWLS score overall participants and all days was measured to be 23.73 (SD=4.81) which lies in the 21-25 cut-off score indicating an on average slightly satisfied state with life.

Association of binge-watching and life satisfaction: binge-watching as a predictor for life-satisfaction the next day

Table 2: Results of the linear mixed model analysis for binge-watching and SWLS total scores on the next day.

Estimates of Fixed Effects	B-Estimate (Standard error)	p-value	Estimated Marginal Means SWLS scores
Binge-Watching	-0.19 (0.28)	0.49	23.49
No Binge-Watching			23.30
Episodes watched	0.15 (0.07)	0.02	
Hours watched	0.15 (0.10)	0.14	

Binge-Watching and Life Satisfaction

The estimates of fixed effects (Table 2) for the analysis of binge-watching indicates that there was no significant association between binge-watching and well-being the next day (p= 0.49). The B-estimate was measured to be -0.19 with a standard error (SE) of 0.28. Further, the estimated means showed a very similar Total SWLS score mean for when no binge-watching occurred (*m*=23.3) and when binge-watching was measured (*m*=23.49). Thus, for both occurrences (binge-watching and no binge-watching) the SWLS scores the next day were not different in a noticeable way.

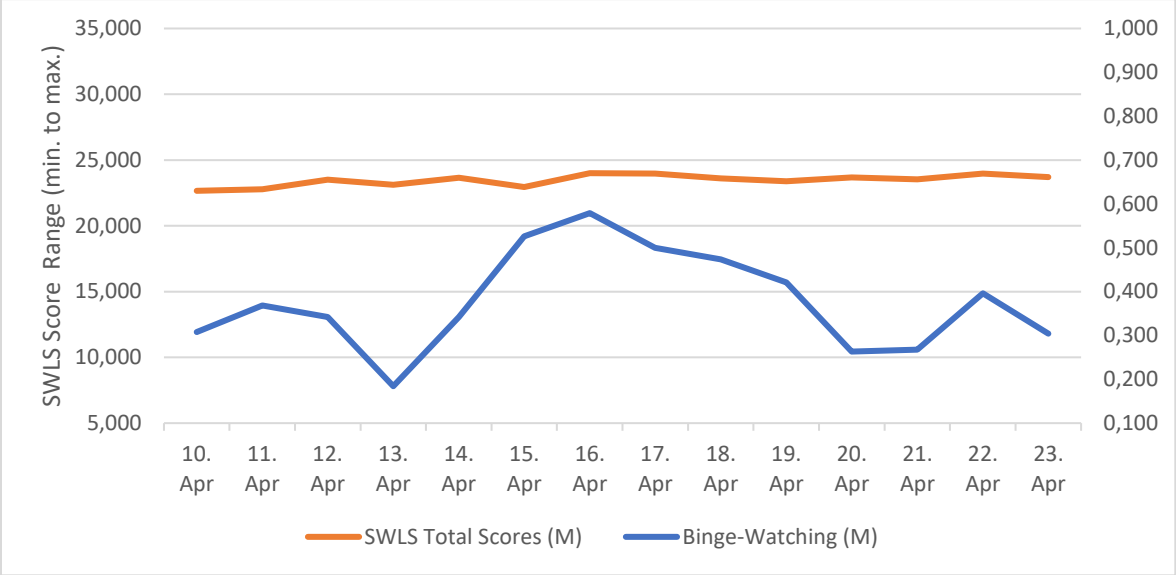

Figure 2: SWLS total scores compared with binge-watching corresponding to each day of measurement.

Also, as graphical representation (Figure 2) confirmed there is no consistent association between binge-watching and life satisfaction.

Episodes watched and Life Satisfaction

In contrast to binge-watching, the actual number of episodes watched was significantly related with the total SWLS scores on the next day (Table 2, p = 0.02). Thus, the number of episodes watched on a day positively predicted SWLS scores on the following day. The B-estimate corresponds to a value of 0.15 (SE = 0.07; Table 2). This indicates that by a 1-unit increase of episodes watched, SWLS total scores increased by 0.15.

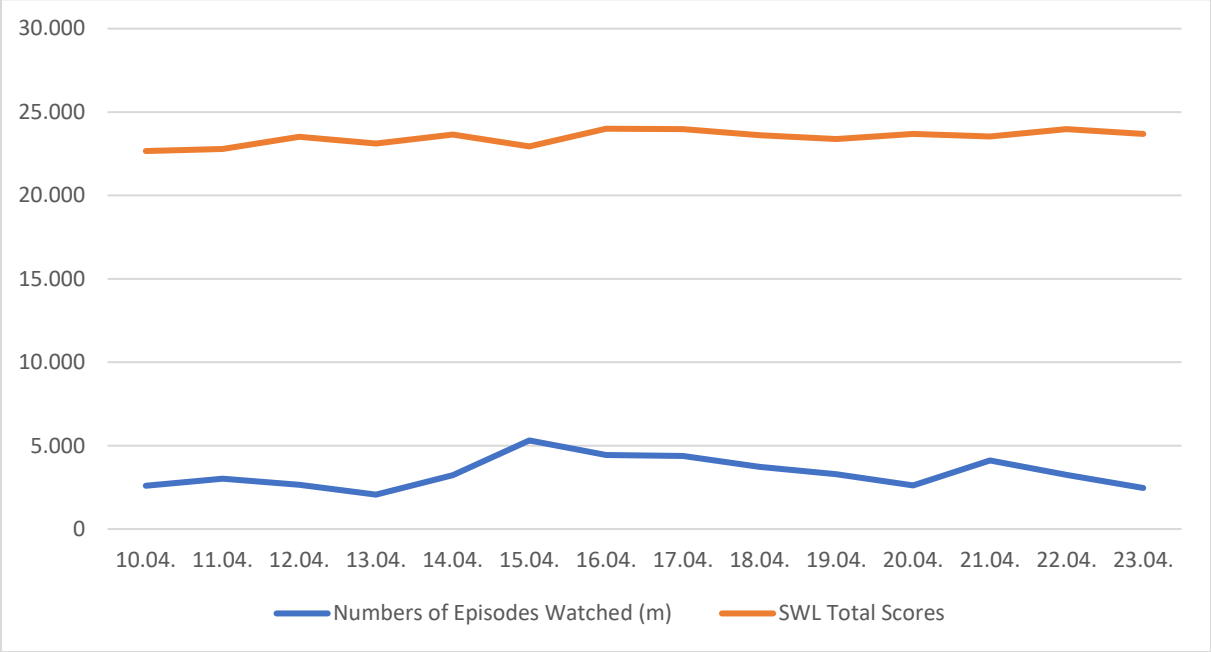

Figure 3: SWLS total scores compared with numbers of episodes watched corresponding to each day of measurement.

When comparing timepoints of both variables on a graph (Figure 3) the association becomes apparent. Positive trends in the blue line appear to stimulate change in orange line by a bit. For example, on the 14th of April when numbers of episodes watched line rose, it is also noticeable that SWLS total scores had a small upwards trend on the 15th of April, associated with the watching behaviour of the previous day.

Hours watched and Life Satisfaction

In the mixed linear model analysis of numbers of hours watched with total SWLS scores, a significant relationship could not be established. The association was not significant (Table 2, $p = 0.14$). The B-estimate value was 0.15 (SE = 0.10; Table 2).

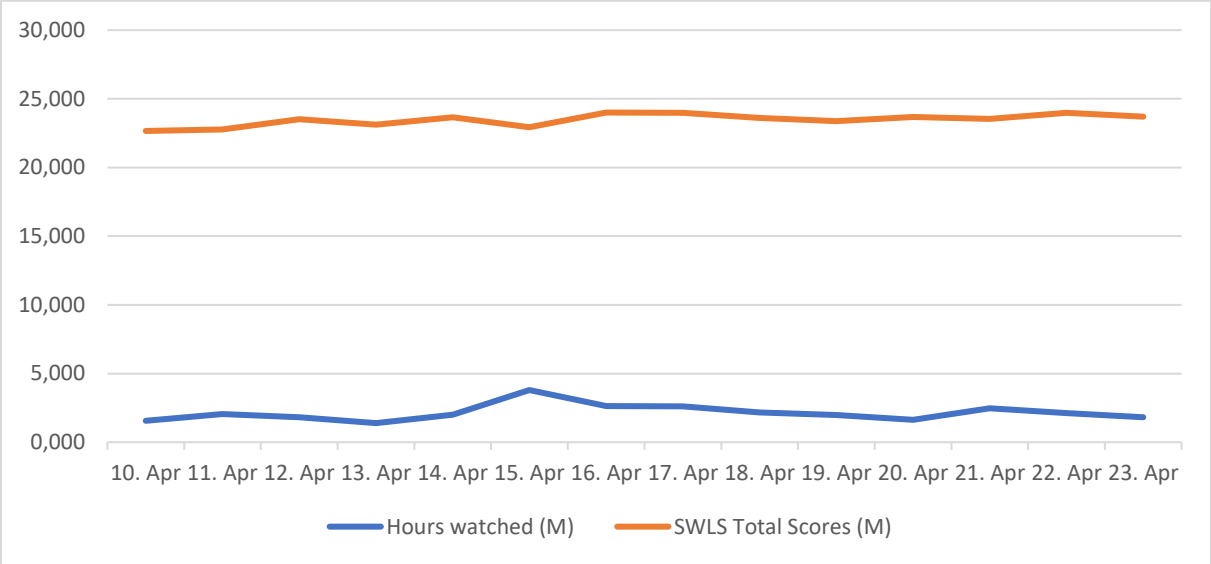

Figure 4: SWLS total scores compared with numbers of hours watched corresponding to each day of measurement.

Although Figure 4 shows some similarities to Figure 3, they are not significant enough to establish an association between hours watched and SWLS total scores on the next day.

Association of binge-watching and life satisfaction: binge-watching as an outcome of life-satisfaction on the same day

Table 3: Results of the linear mixed model analysis for SWLS total scores and binge-watching on the same day.

Estimates of Fixed Effects	B-Estimate (standard error)	p-value	Estimated Marginal Means SWLS scores
Binge-Watching	0.27 (0.32)	0.39	23.51
No Binge-Watching			23.79
Episodes watched	-0.13 (0.08)	0.12	
Hours watched	-0.11 (0.12)	0.37	

Binge-Watching and Life Satisfaction

Like binge-watching and its association to SWLS which corresponded to the next day, there was also no significant association (Table 3, p = 0.39) found when compared to SWLS scores on the same day of binge-watching, indicating that subjective wellbeing was not predictive of binge-watching that day. Again, also the estimated marginal means (Table 3) show similar SWLS means for both binge-watching (23.51) and no binge-watching (23.79). The B-estimate corresponds to value of 0.27 (SE = 0.32).

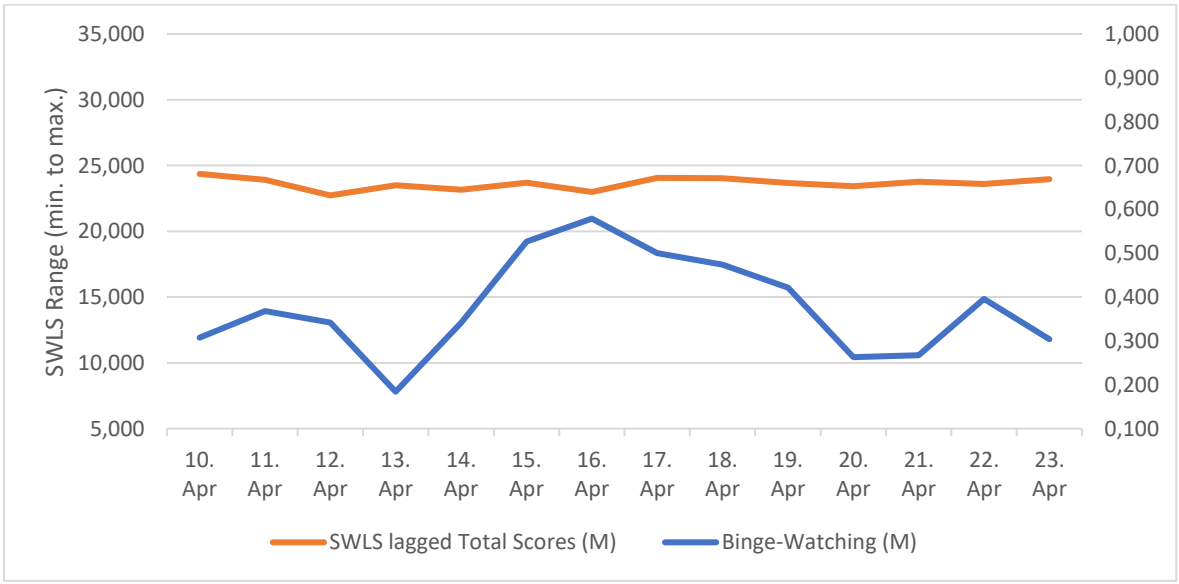

Figure 5: SWLS total scores compared with binge-watching on the same day, corresponding to each day of measurement.

Similarly to the representation in Figure 1, no relationship can be established between binge-watching and life satisfaction scores on the same day (Figure 5).

Episodes watched and Life Satisfaction

When analysing the connection of episodes watched and SWLS on the same day, also no significant association was found (Table 3, p = 0.12; B = -0.13, SE = 0.08).

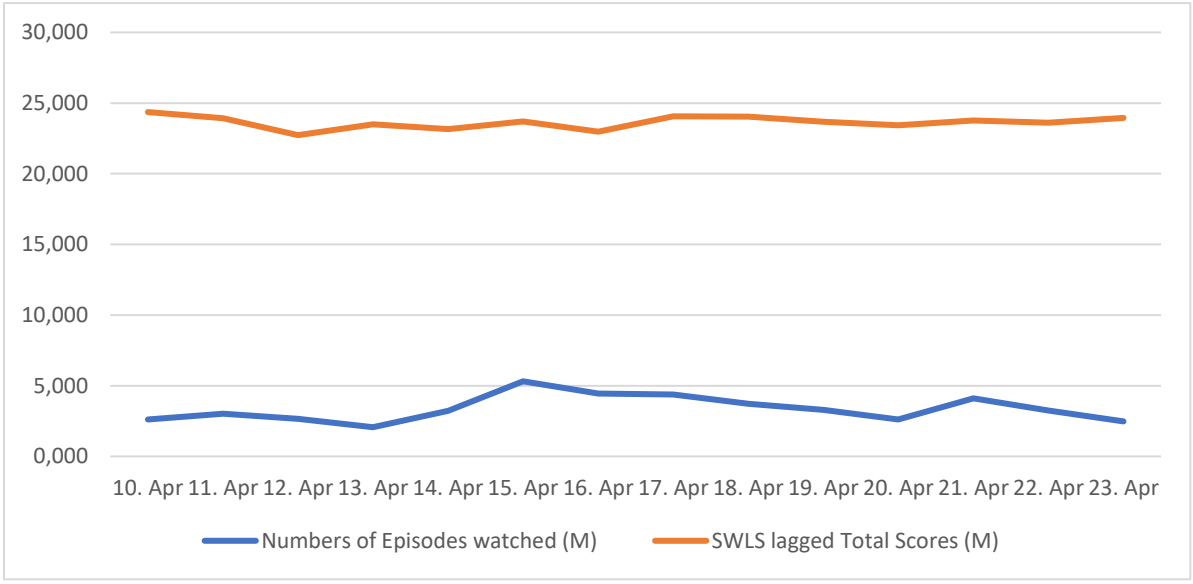

Figure 6: SWLS total scores compared with numbers of episodes watched on the same day, corresponding to each day of measurement.

There was no visual association to be found that binge-watching predicts life satisfaction on the same day (Figure 6).

Hours watched and Life Satisfaction

When examining the effect of hours watched on SWLS scores on the same day, no significant association could be found either (Table 3, p = 0.37; B = -0.11, SE = 0.12).

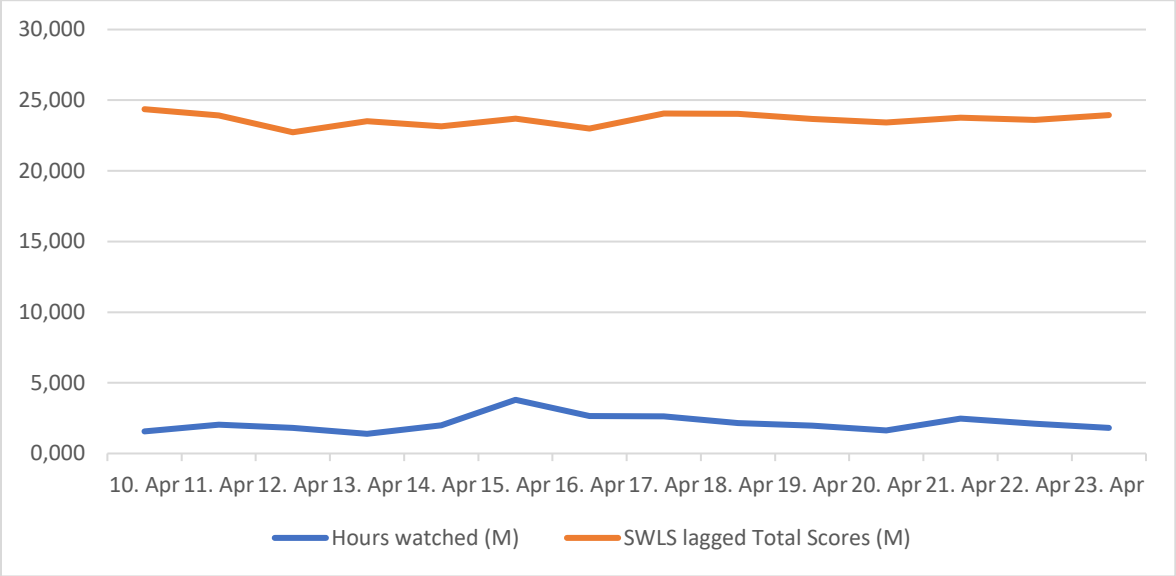

Figure 7: SWLS total scores compared with hours of episodes watched on the same day, corresponding to each day of measurement.

Adding to the findings of the analysis of hours watched and life satisfaction on the next day, no association could be found between hours watched and life satisfaction when compared on the same day (Figure 7).

Discussion

This study examined the association between VoD watching behaviour and subjective well-being. It was found that the number of episodes watched was positively, but weakly, associated with life satisfaction on the following day. Still, the found association has a rather tiny impact on well-being. Binge-watching, on the other hand, was not associated with well-being the next day and well-being was also not predictive of watching behaviour the same day.

Generally, this study adds to the small number of studies who previously examined well-being and watching behaviour. Previously, it was found that binge-watching can be regarded as a restorative experience (Panda & Pandey, 2017). Also, media enjoyment through perceived autonomy and new opportunities for self-determination of entertainment consumption were mentioned (Granow et al., 2018). However, research has also found potentially negative effects of binge-watching. These include but are not limited to, formation of guilt and regret due to neglecting of responsibilities (Vaterlaus et al., 2018), insomnia, reduction of social relationships, and finally even addiction to binge-watching (Flayelle et al., 2020). This study differs from previous research in that regard that the ESM was used for investigating the phenomenon of binge-watching. The positive association that was found between numbers of episodes watched and subjective well-being can be interpreted as a potentially positive consequence of VoD watching. Further, no negative consequences or a decline in life satisfaction as a result of binge-watching was found. Thus, in contrary to previous research, this study does not indicate that watching behaviour has a negative association on well-being.

The average life satisfaction of the participants over all assessments was measured to be 23.73 (*SD=4.81*), which corresponded with being "slightly satisfied" with life. Compared to another study which examined SWLS scores in the German population the average scores in this study are slightly lower. In the study conducted by Hinz et al. (2018) a large German community was investigated with the SWLS and provided a norm SWLS total score of around 26 in the age group under 39 years. This corresponds to a "satisfied with life" interpretation. Nevertheless, this studies sample lies within the normal distribution. Also, the authors themselves mention that their measured SWL score was slightly higher than that of other similar studies (Hinz et al., 2018). Thus, the sample in this research was relatively representative with respect to subjective well-being.

Overall, this study did not show any negative consequences for VoD watching on well-being but did show a positive association between number of episodes watched and well-being the next day. These findings are in line with some previous research indicating that VoD watching can positively affect a users' well-being. In another conducted ESM study, happiness and relaxation were found as

significantly correlated positive psychological consequences of binge-watching (Troles, 2019). Additionally, these findings add to the other predominantly cross-sectional studies that found mostly positive qualities of VoD watching ((Rubenking et al., 2018; Panda & Pandey, 2017; Granow et al., 2018; Flayelle et al., 2020). Nevertheless, some studies have also pointed to negative consequences of binge-watching (Panda & Pandey, 2017; Vaterlaus et al., 2018; Flayelle et al., 2020). This could be due to different target groups or definitions of binge-watching operationalized. Examining different target groups such as for example a clinical sample may yield vastly different results. Also, different definitions operationalized with other cut-off scores may indicate problematic behaviour with individuals and thus produce found negative consequences of binge-watching.

This positive association could mean that in the current sample VoD watching maybe a healthy and well-controlled behaviour and that respondents watch mainly for entertainment and watching more episodes of a series they enjoy makes them more satisfied. The B-estimate indicated that watching 1 episode more can elevate the SWL scores on the following day by 0.15 points. This, however, indicates that, although positive, the impact of VoD watching is rather small. For example, if the average SWLS score of 23.73 should be positively impacted from a "slightly satisfied" state to a "satisfied state" (cut-off ranging from 26-30) a person needs to watch roughly 15 episodes a day to achieve this state the next day. Interestingly, the time spend watching (hours watched) did not significantly influence this well-being. This could be due to episodes of shows generally differing in length from episodes as short as 20 minutes to episodes lasting a full hour. Perhaps, measuring watching behaviour should not only rely on number of episodes per se but consist of a combination of both length and number of episodes as has been suggested by Rubenking et al. (2018).

Further, there was no association between binge-watching and life satisfaction the next day. According to the set definition of binge-watching for this study at least. This finding shows that binge-watching has no positive but also no negative effect on subjective well-being. However, it may be the case that the association is non-linear, and the definition used in this research may be too liberal and thus fails to indicate any problematic behaviour. Therefore, the cut-off should perhaps be set higher in order to recognize any problematic behaviour that could eventually yield negative consequences. In early binge-watching research, the lack of a validated and common definition of binge-watching is also clearly identified as a major obstacle to coherence and reproducibility (Flayelle et al., 2020). Therefore, the operationalization should be reconsidered, and the usually used components of binge-watching such as the quantity based-index, characterisation of content and time pattern may need to be altered, as has been proposed by Rubenking and Bracken (2018). They added the typical length of a show as a further specification and thus adapting their threshold of the binge-watching definition. Yet, their adapted definition constitutes an exception among current definitions (Flayelle et al., 2020).

Binge-watching as a concept can be hardly defined at this point and needs to be further concretized in the future as has been confirmed by previous research.

For both binge-watching and hours watched there was also no relationship with well-being found if compared to the same day of watching. Additionally, this was also the case for numbers of episodes watched and subjective well-being differing from when measured on the next day. Hence, well-being does not appear to be a predictor of VoD watching behaviour. This eventually indicates that the number of episodes watched can be regarded as a predictor of life satisfaction but not a outcome of life satisfaction.
Previous research studying both motivating factors and gratification of people could help in explaining the found association between numbers of episodes watched and subjective well-being the next day. Relaxation, peer acceptance and perceived autonomy have been identified as propelling factors for binge-watching (Rubenking et al., 2018; Panda & Pandey, 2017; Granow et al., 2018). Perhaps, besides relaxation, peer acceptance and perceived autonomy that lets respondents engage in watching influences the number of episodes and thus also influences well-being indirectly. If participants watch more of a series they experience more of the show and therefore are more socially accepted, because they can exchange with peers about the watched content and thus making them happier. However, this explanation remains questionable, due to the specific circumstances under which the study was conducted. The COVID-19 pandemic that took place during the period of data collection caused people to stay home in isolation. Although people can still exchange via digital means, it is unlikely that they would watch more episodes in isolation just to be socially accepted, as no social happenings were occurring. More on the specific circumstances that COVID-19 evoked will be discussed later under limitations.

Still, in their isolated state participants who engage into watching for enjoyment and value their perceived autonomy could explain the finding of this study. The technological state of most VoD platform allows respondents to watch a series continually and comfortably. The cycle of anticipation (Rubenking et al., 2018) can draw the user into watching more episodes. As users mostly watch to relax and entertain themselves, they could engage more with a series, resulting in an elevated state of subjective well-being on the next day. Perhaps, as the participant watches more and finds enjoyment in watching more of a series, he or she would evaluate his life more positively. This is especially relevant as the pandemic caused people to stay home in isolation. If people find no possibility to socialize, work or follow their hobbies they could retreat to watch more episodes. Then, the respondent finds relaxation, enjoyment and maybe also a purpose in the state of isolation which makes them overall evaluate their lives more positively.

This study is relevant not only because there have been few attempts to actually investigate the effects binge-watching has on the viewers subjective well-being, but also for how the term "binge-watching" is regarded by the public and media. Netflix has been promoting the idea that binge-watching is a normalized, new means of television viewing assisted by new technological advancement (Tefertiller & Maxwell, 2018). On the other hand, popular news media tend to consistently report about the negative consequences of binge-watching. Still, Netflix has more or less claimed the term and they proudly present themselves as a platform providing "binge-worthy" material (Netflix.com). With the emergence of new streaming platforms competing with Netflix, we can notice a trend of providing new series in a traditional episodic manner where one episode is released each weak instead of a whole series on the day of release. For example, Disney releasing their own streaming service "Disney Plus" is another big competitor for Netflix that makes use of the weekly release strategy. Comparing Netflix and Disney Plus does in some way represent how binge-watching is viewed. Although it must be mentioned that Disney may employ its strategy mostly because it has the most value profit-wise. Releasing a series over multiple weeks will keep the user engaged and subscribed to the service. Yet, it could be argued that Disney, often claiming their platform to be a family-friendly service, also takes a step back from binge-watching and does not want to support this behaviour (at least for new series). Binge-watching is a negatively connotated term, as mentioned earlier, but coined mostly by the media and pop culture (Pena, 2015).

There has been research finding both negative and positive consequences of this behaviour conflicting with the findings of this research. In this study, no negative outcomes of binge-watching or watching in general for subjective well-being could be found when examining a total group level. There may be negative associations with some individuals. The differences in research findings could be due to too several factors. One major factor is that most studies relied on cross-sectional data. Besides study design, the discrepancy between studies could be due to too different samples or other used definitions of binge-watching. It remains unclear whether the term still deserves the same wording (binge) and connotations as the clinically framed terms of binge-drinking and binge-eating. We can notice that in the rising VoD market big companies shift more to a traditional episodic release strategy on the contrary to Netflix who are popular and proud of their freshly released "binge-worthy" series. There is little agreement on the definition and conceptualisations of binge-watching, but also a validated cut-off is missing. This generates further doubt whether binge-watching is as harmful as the term of binging may indicate it to be. Findings in this research indicate that at least from a hedonistic perspective the negatively framed term of binge-watching cannot be supported. In the contrary, it was found that watching more episodes can, although the effect seems small, positively elevate a user's overall life satisfaction.

Limitations

There were some limitations to this study. First, the sample consisted of mainly young students. The sample was very homogenous, and individuals were for the most part highly educated. On this account, individuals may be less likely to engage in problematic behaviour. Highly educated individuals may be more aware of their behaviour and struggle less to control themselves. Further, students seem to have less responsibilities when compared to people with full-time jobs, children and other care taking tasks. Albeit that binge-watching studies often utilize college students as target group, focus should also be set on more heterogenic and at-risk groups to make findings more generalisable. Also, the data collection took place in the middle of the first weeks of the Corona crisis which created an extraordinary situation. Through isolation, participants had usually more time to engage into watching then in normal circumstances. This situation also applies to subjective well-being, but it is unclear how the situation influenced participants well-being state. Although the special environment created through the pandemic might be interesting to study on its own, the findings of this research might differ if conducted under normal circumstances, potentially limiting the external validity of this study.

Future Recommendations

As already mentioned, this study was conducted during the Corona pandemic of 2020, and it is, therefore, unclear whether findings can be replicated during normal circumstances. It is therefore advised to conduct the research anew to confirm any findings. The ESM appeared to be an appropriate method which has several advantages in contrary to the mostly used cross-sectional data in this research area. Hence, it is recommended to stick with a longitudinal study design. It would be advisable to start researching long-term consequences of binge-watching. Most addictions, such as alcohol and nicotine only reveal their negative consequences after some time has passed. Thus, it could be helpful to study binge-watching and related outcomes on a long-term and intensive use basis. Also, the conceptualisation of binge-watching remains questionable. The time of watching and number of episodes watched should always be examined along with binge-watching. More generated data in this research area may lead to a more concrete and validated definition of binge-watching. As shown in this study, binge-watching was not associated with subjective well-being, the analysis of numbers of episodes watched however, did yield significant results.

Conclusion

This study was one of the first to examine the association between binge-watching and subjective well-being using the ESM. Also, two separate variables, namely numbers of episodes watched, and time watched, were examined for a relationship with subjective well-being. All cases were investigated for life-satisfaction scores referring to the next day, but also on the same day. Yet, only

one significant association could be established. It was found that the numbers of episodes watched on a day was slightly positively related to the subjective well-being of participants the next day. It remains unclear whether this was due to the isolation and pandemic situation or an ordinary occurrence. Future studies should continue with longitudinal study designs and aim to research more about the relationship between binge-watching and well-being to provide a clearer picture of how watching behaviour influences people.

References

1. Arrindell, W. A., Meeuwesen, L., & Huyse, F. J. (1991). The satisfaction with life scale (SWLS): Psychometric properties in a non-psychiatric medical outpatients sample. *Personality and Individual Differences*, *12*(2), 117–123. doi:10.1016/0191-8869(91)90094-r

2. Conner, T. S., & Lehman, B. J. (2012). Getting started: Launching a study in daily life. In M. R. Mehl & T. S. Conner (Eds.), *Handbook of research methods for studying daily life* (p. 89–107). The Guilford Press.

3. Csikszentmihalyi, M., & Larson, R. (2014). Validity and reliability of the experience-sampling method. In *Flow and the foundations of positive psychology* (pp. 35-54). Springer, Dordrecht. https://doi.org/10.1007/978-94-017-9088-8_3

4. Da Costa, J. C. R. (2019). Binge-watching: Self-care or self-harm? Understanding the health subjectivities of binge-watchers. *Journal of health psychology*. https://doi.org/10.1177/1359105319877231

5. Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of happiness studies*, *9*(1), 1-11. https://doi.org/10.1007/s10902-006-9018-1

6. Diener, E., Lucas, R. E., & Oishi, S. (2002). Subjective well-being: The science of happiness and life satisfaction. *Handbook of positive psychology*, *2*, 63-73.

7. Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment, 49*(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

8. Elliott, W. R., & Quattlebaum, C. P. (1979). Similarities in patterns of media use: A cluster analysis of media gratifications. *Western Journal of Communication (includes Communication Reports)*, *43*(1), 61-72. https://doi.org/10.1080/10570317909373954

9. Flayelle, M., Maurage, P., Di Lorenzo, K. R., Vögele, C., Gainsbury, S. M., & Billieux, J. (2020). Binge-Watching: What Do we Know So Far? A First Systematic Review of the Evidence. *Current Addiction Reports*, 1-17. https://doi.org/10.1007/s40429-020-00299-8

10. Flayelle, M., Maurage, P., Vögele, C., Karila, L., & Billieux, J. (2019). Time for a plot twist: Beyond confirmatory approaches to binge-watching research. *Psychology of Popular Media Culture*, *8*(3), 308.

11. Gangadharbatla, H., Ackerman, C., & Bamford, A. (2019). Antecedents and consequences of binge-watching for college students. *First Monday*, *24*(12). https://doi.org/10.5210/fm.v24i12.9667

12. Granow, V. C., Reinecke, L., & Ziegele, M. (2018). Binge-watching and psychological well-being: Media use between lack of control and perceived autonomy. *Communication Research Reports*, *35*(5), 392-401. https://doi.org/10.1080/08824096.2018.1525347

13. Groshek, J., Krongard, S., & Zhang, Y. (2018, July). Netflix and Ill? Emotional and Health Implications of Binge Watching Streaming TV. In *Proceedings of the 9th International Conference on Social Media and Society* (pp. 296-300). https://doi.org/10.1145/3217804.3217932

14. Hinz, A., Conrad, I., Schroeter, M. L., Glaesmer, H., Brähler, E., Zenger, M., Kocalevent, R.D., & Herzberg, P. Y. (2018). Psychometric properties of the Satisfaction with Life Scale (SWLS), derived from a large German community sample. *Quality of Life Research, 27*(6), 1661-1670. https://doi.org/10.1007/s11136-018-1844-1

15. Jenner, M. (2016). Is this TVIV? On Netflix, TVIII and binge-watching. *New media & society*, *18*(2), 257-273. https://doi.org/10.1177/1461444814541523

16. Jenner, M. (2017). Binge-watching: Video-on-demand, quality TV and mainstreaming fandom. *International Journal of Cultural Studies*, *20*(3), 304-320. https://doi.org/10.1177/1367877915606485

17. Larsen, RJ, Diener, E and Emmons, RA. (1985). An evaluation of subjective well-being measures. *Social Indicators Research*, 17: 1–18.

18. Matrix, S. (2014). The Netflix effect: Teens, binge watching, and on-demand digital media trends. *Jeunesse: Young People, Texts, Cultures*, *6*(1), 119-138. https://doi.org/10.1353/jeu.2014.0002

19. McCracken, G. (2013). From Arrested Development to Dr. Who, Binge-Watching Is Changing Our Culture. *Wired.com*, *24*.

20. Panda, S., & Pandey, S. C. (2017). Binge watching and college students: Motivations and outcomes. *Young Consumers*. https://doi.org/10.1108/YC-07-2017-00707

21. Pavot, W., & Diener, E. (2008). The satisfaction with life scale and the emerging construct of life satisfaction. *The journal of positive psychology*, *3*(2), 137-152. https://doi.org/10.1080/17439760701756946

22. Pena, L. L. (2015). Breaking binge: Exploring the effects of binge watching on television viewer reception. *Dissertations -ALL.* 283. Retrieved from https://surface.syr.edu/etd/283

23. Pierce-Grove, R. (2016). Just one more: How journalists frame binge watching. *First Monday*, *22*(1). https://doi.org/10.5210/fm.v22i1.7269

24. Pittman, M., & Sheehan, K. (2015). Sprinting a media marathon: Uses and gratifications of binge-watching television through Netflix. *First Monday*, *20*(10).

25. 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

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

27. Scollon, C. N., Prieto, C. K., & Diener, E. (2009). Experience sampling: promises and pitfalls, strength and weaknesses. In *Assessing well-being* (pp. 157-180). Springer, Dordrecht. https://doi.org/10.1007/978-90-481-2354-4_8

28. Silverman, R. E., & Ryalls, E. D. (2016). "Everything Is Different the Second Time Around" The Stigma of Temporality on Orange Is the New Black. *Television & New Media*, *17*(6), 520-533. https://doi.org/10.1177/1527476416647496

29. 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

30. 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

31. Troles, H. (2019). *Binge-watching and its influence on psychological well-being and important daily life duties: An Experience Sampling Study*. Retrieved from http://essay.utwente.nl/78395/

32. Trull, T. J., & Ebner-Priemer, U. W. (2009). Using experience sampling methods/ecological momentary assessment (ESM/EMA) in clinical assessment and clinical research: Introduction to the special section [Editorial]. *Psychological Assessment*, *21*(4), 457–462. https://doi.org/10.1037/a0017653

33. Van Berkel, N., Ferreira, D., & Kostakos, V. (2017). The experience sampling method on mobile devices. *ACM Computing Surveys (CSUR)*, *50*(6), 1-40. https://doi.org/10.1145/3123988

34. Vaterlaus, J. M., Spruance, L. A., Frantz, K., & Kruger, J. S. (2018). *College student television binge watching: Conceptualization, gratifications, and perceived consequences. The Social Science Journal.* doi.org/10.1016/j.soscij.2018.10.004

Appendix

Behaviour Assessment

1 (Q#22): Hey there! Now we'd like you to answer some questions concerning your video-on-demand watching behaviour.

2 (Q#13): Did you watch a series on a video-on-demand platform such as Netflix or Amazon Prime Video **yesterday**?

1) ○ Yes

2) ○ No

3 (Q#2): At what time of the day did you watch the series? Multiple answers are possible. For example: You watched from 6 p.m. until 11 p.m., mark evening and night.

But: The times only serve approximate orientation. If you started watching at 5:55 p.m., for example, you do not have to mark *afternoon*.

1) ☐ Morning (6 a.m. - 12 p.m.)

3) ☐ Afternoon (12 p.m. - 6 p.m.)

4) ☐ Evening (6 p.m. - 11 p.m.)

6) ☐ Night (11 p.m. - 5 a.m.)

4 (Q#12): Did you watch for more than 1 hour?

1) ○ Yes

2) ○ No

5 (Q#26): Please indicate the number of hours you watched.

6 (Q#15): Please indicate how many episodes you watched. If you watched more than 20 episodes, choose *21.*

7 (Q#27): What type of content did you watch?

1) ☐ Comedy

2) ☐ Thriller

3) ☐ Documentary

4) ☐ Horror

5) ☐ Action

6) ☐ Drama

7) ☐ Romance

8) ☐ Adventure

9) ☐ Animation

10) ☐ Mystery

11) ☐ Science-Fiction

12) ☐ Fantasy

13) ☐ Other

8 (Q#20): What was your reason for watching?

1) ☐ Entertainment

2) ☐ Boredom/nothing else to do

3) ☐ Stress

4) ☐ Interest/Curiosity

-1) ☐ Escape from reality/distraction

11) ☐ Procrastination/Avoidance of other responsiblities

12) ☐ Information seeking

13) ☐ Peer activity (watching with friends/family)

14) ☐ Relaxation/taking a break

9 (Q#28): In what kind of context did you watch?

1) ☐ Alone

2) ☐ With friends

3) ☐ With family

4) ☐ With partner

10 (Q#23): After that, did you feel guilty about watching?

1) ○ Yes

2) ○ Not at all.

11 (Q#29): To what extent did you feel guilty?

1) ○ Slightly guilty

2) ○ Moderately guilty

3) ○ Very guilty

4) ○ Extremely guilty

12 (Q#24): Please mark the reason for your guilty feeling.

1) ☐ I watched more episodes or for a longer time than I wanted / planned to.

2) ☐ I neglected other obligations that I should have fulfilled.

3) ☐ I neglected other free-time activities that I wanted to pursue.

4) ☐ I neglected bodily needs, for example sleep.

5) ☐ I think that I wasted time or could have spent that time more wisely/useful.

6) ☐ Other

13 (Q#30): Other:

Please explain why you felt guilty.

14 (Q#17): Thank you for answering the questions. See you later!

Morning State Assessment

Wellbeing, Stress, Guilt, Depression, Anxiety

Questions

1 (Q#7): Good Morning! We'd just like you to answer some questions about your recent moods and feelings. Have a nice day!

2 (Q#6): On a scale of 0 to 10, with 0 being no stress and 10 being the worst stress possible, what number best describes your level of stress **right now**?

3 (Q#22): Please indicate to what extent you experienced the following feelings within the past hour.

4 (Q#21): Low/sad mood

1) ○ Not at all
2) ○ Slightly
3) ○ Moderately
4) ○ Strongly
5) ○ Extremely

5 (Q#23): Low energy/fatigue

1) ○ Not at all
2) ○ Slightly
3) ○ Moderately
4) ○ Strongly
5) ○ Extremely

6 (Q#24): Feelings of guilt

1) ○ Not at all

2) ○ Slightly

3) ○ Moderately

4) ○ Strongly

5) ○ Extremely

7 (Q#25): Problems with concentration

1) ○ Not at all

2) ○ Slightly

3) ○ Moderately

4) ○ Strongly

5) ○ Extremely

8 (Q#26): Sleeping problems in the last night

1) ○ Not at all

2) ○ Slightly

3) ○ Moderately

4) ○ Strongly

5) ○ Extremely

Evening State Assessment

Wellbeing, Stress, Guilt, Depression, Anxiety

Questions

1 (Q#7): Hey! We'd again like you to answer a few questions concerning your current moods and feelings. Thank you!

2 (Q#6): On a scale of 0 to 10, with 0 being no stress and 10 being the worst stress possible, what number best describes your level of stress **right now**?

3 (Q#8): Please indicate to what extent you experienced the following feelings within the **past hour**.

4 (Q#17): Low/sad mood

1) ○ Not at all

2) ○ Slightly

3) ○ Moderately

4) ○ Strongly

5) ○ Extremely

5 (Q#18): Low energy/fatigue

1) ○ Not at all

2) ○ Slightly

3) ○ Moderately

4) ○ Strongly

5) ○ Extremely

6 (Q#19): Feelings of guilt

1) ○ Not at all

2) ○ Slightly

3) ○ Moderately

4) ○ Strongly

5) ○ Extremely

7 (Q#20): Problems with concentration

1) ○ Not at all

2) ○ Slightly

3) ○ Moderately

4) ○ Strongly

5) ○ Extremely

8 (Q#16): Next, there are some statements about feelings and thoughts. Please tick the box that best describes your experience of each **during the day**.

9 (Q#12): Today, how often have you felt nervous, anxious or on edge?

1) ○ Not at all

2) ○ Several times

3) ○ More than half of the day

4) ○ Nearly all day

10 (Q#13): Today, how often have you not been able to stop or control worrying?

1) ○ Not at all

2) ○ Several times

3) ○ More than half of the day

4) ○ Nearly all day

11 (Q#14): Today, how often have you felt down, depressed or hopeless?

1) ○ Not at all

2) ○ Several times

3) ○ More than half of the day

4) ○ Nearly all day

12 (Q#15): Today, how often did you have little interest or pleasure in doing things?

1) ○ Not at all

2) ○ Several times

3) ○ More than half of the day

4) ○ Nearly all day

13 (Q#22): Next, there are five statements that you may agree or disagree with. Please indicate your agreement with each item by choosing the answer that suits your agreement on the statement based on your **momentary feeling** the most. That means your answer should reflect how you feel about a particular statement **right now**. Please be open and honest.

14 (Q#23): In most ways my life is close to my ideal.

1) ○ Strongly disagree

2) ○ Disagree

3) ○ Slightly disagree

4) ○ Neither agree nor disagree

5) ○ Slightly agree

6) ○ Agree

7) ○ Strongly agree

15 (Q#27): The conditions of my life are excellent.

1) ○ Strongly disagree

2) ○ Disagree

3) ○ Slightly disagree

4) ○ Neither agree nor disagree

5) ○ Slightly agree

6) ○ Agree

7) ○ Strongly agree

16 (Q#26): I am satisfied with my life.

1) ○ Strongly disagree

2) ○ Disagree

3) ○ Slightly disagree

4) ○ Neither agree nor disagree

5) ○ Slightly agree

6) ○ Agree

7) ○ Strongly agree

17 (Q#25): So far I have gotten the important things I want in life.

1) ○ Strongly disagree

2) ○ Disagree

3) ○ Slightly disagree

4) ○ Neither agree nor disagree

5) ○ Slightly agree

6) ○ Agree

7) ○ Strongly agree

18 (Q#24): If I could live my life over, I would change almost nothing.

1) ○ Strongly disagree

2) ○ Disagree

3) ○ Slightly disagree

4) ○ Neither agree nor disagree

5) ○ Slightly agree

6) ○ Agree

7) ○ Strongly agree

Demographics & General Information

Collect basic information about the participants.

Questions

1 (Q#2): Welcome to our study about VoD watching behaviour! Thank you for your time and support!
Before the daily questionnaires start, we would like to get some basic information about you.

2 (Q#3): Please indicate your gender.

1) ○ Male

2) ○ Female

3) ○ Other (or do not wish to answer)

3 (Q#4): How old are you?

4 (Q#6): What is your nationality?

1) ○ Dutch

2) ○ German

3) ○ Other, European

-1) ○ Other, non-European

5 (Q#11): Please indicate your current occupation.

1) ☐ Pupil

2) ☐ Student

3) ☐ Apprentice

4) ☐ Employed full-time

5) ☐ Employed part-time

6) ☐ Unemployed

7) ☐ Other

6 (Q#7): As you were informed beforehand, we would like to investigate your video-on-demand (VoD) watching behaviour. This does not mean linear television, but streaming platforms such as, for example, Netflix. The following questions are meant to explore your usage of these services to watch series, shows or/and movies.

7 (Q#8): Please mark the VoD streaming services that you usually use to watch series, shows, or/and movies. Multiple answers are possible.

- [ ] 1) Netflix
- [ ] 2) Amazon Prime Video
- [ ] 3) Hulu
- [ ] 4) Disney+
- [ ] 5) Maxdome
- [ ] 6) Sky Home
- [ ] 8) YouTube
- [ ] 7) Other

8 (Q#9): Do you use one of these services at least once a week?

- ○ 1) Yes
- ○ 2) No

Baseline Measurement

One time measurements at start of study. So far includes GAD-7 and PHQ-9

Questions

1 (Q#5): Hey! We'd like you to respond to some statements that only need to be filled out once in the beginning and the end of the study.

Over the last 2 weeks, how often have you been bothered by any of the following problems?

2 (Q#4): Little interest or pleasure in doing things.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

3 (Q#6): Feeling down, depressed, or hopeless.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

4 (Q#7): Trouble falling or staying asleep, or sleeping too much.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

5 (Q#8): Feeling tired or having little energy.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

6 (Q#9): | Poor appetite or overeating.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

7 (Q#11): Trouble concentrating on things, such as reading the newspaper or watching television.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

8 (Q#10): Feeling bad about yourself or that you are a failure or have let yourself or your family down.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

9 (Q#13): Moving or speaking so slowly that other people could have noticed. Or the opposite being so figety or restless that you have been moving around a lot more than usual.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

10 (Q#14): Thoughts that you would be better off dead, or of hurting yourself.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

11 (Q#15): If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

1) ○ Not difficult at all

2) ○ Somewhat difficult

3) ○ Very difficult

4) ○ Extremely difficult

12 (Q#16): Thank you already for filling out those questions! Just a couple more and you'll be done!

Over the last 2 weeks, how often have you been bothered by any of the following problems?

13 (Q#17): Feeling nervous, anxious, or on edge.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

14 (Q#18): Not being able to stop or control worrying.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

15 (Q#19): Worrying too much about different things.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

16 (Q#20): Trouble relaxing.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

17 (Q#21): Being so restless that it's hard to sit still.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

18 (Q#23): Becoming easily annoyed or irritable.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

19 (Q#24): Feeling afraid as if something awful might happen.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

20 (Q#25): If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

1) ○ Not difficult at all

2) ○ Somewhat difficult

3) ○ Very difficult

4) ○ Extremely difficult

Final Measurement

One time measurements at start of study. So far includes GAD-7 and PHQ-9

Questions

1 (Q#5): Hey! We'd like you to respond to some statements that only need to be filled out one more time at the end of the study.

Over the last 2 weeks, how often have you been bothered by any of the following problems?

2 (Q#4): Little interest or pleasure in doing things.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

3 (Q#6): Feeling down, depressed, or hopeless.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

4 (Q#7): Trouble falling or staying asleep, or sleeping too much.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

5 (Q#8): Feeling tired or having little energy.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

6 (Q#9): Poor appetite or overeating.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

7 (Q#11): Trouble concentrating on things, such as reading the newspaper or watching television.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

8 (Q#10): Feeling bad about yourself or that you are a failure or have let yourself or your family down.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

9 (Q#13): Moving or speaking so slowly that other people could have noticed. Or the opposite being so figety or restless that you have been moving around a lot more than usual.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

10 (Q#14): Thoughts that you would be better off dead, or of hurting yourself.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

11 (Q#15): If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

1) ○ Not difficult at all

2) ○ Somewhat difficult

3) ○ Very difficult

4) ○ Extremely difficult

12 (Q#16): Thank you already for filling out those questions! Just a couple more and you'll be done!

Over the last 2 weeks, how often have you been bothered by any of the following problems?

13 (Q#17): Feeling nervous, anxious, or on edge.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

14 (Q#18): Not being able to stop or control worrying.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

15 (Q#19): Worrying too much about different things.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

16 (Q#20): Trouble relaxing.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

17 (Q#21): Being so restless that it's hard to sit still.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

18 (Q#23): Becoming easily annoyed or irritable.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

19 (Q#24): Feeling afraid as if something awful might happen.

1) ○ Not at all

2) ○ Several days

3) ○ More than half the days

4) ○ Nearly every day

20 (Q#25): If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

1) ○ Not difficult at all

2) ○ Somewhat difficult

3) ○ Very difficult

4) ○ Extremely difficult

Dropout

In case, a participant would like to drop out of the study, it might be useful why. The participant expresses the wish to withdraw from the study. The responsible researcher for this participant may ask him or her about the reasons for the dropout to see if the problem can be solved. Furthermore, the participant should be kindly asked to reconsider the choice. If he or she still wishes to dropout, he/she needs to be informed that all prior answers to the surveys will not be used in the data analysis. If the participant does not wish to give a reason for the dropout, he/she needn't to do so!

Questions

1 (Q#1): We are very sad that you want to withdraw from the study. All your prior answers will be deleted and not used for the analysis of the data. Now, we would like to know more about the reasons, why you would like to stop your participation in the survey.

2 (Q#2): Please explain why you would like to withdraw from this study. If you do not wish to give a reason, you can only write " - " in this field.