



# Binge-Watching: What Do we Know So Far? A First Systematic Review of the Evidence

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## Abstract

**Purpose of Review** Along with the expansion of on-demand viewing technology, the practice of binge-watching (i.e., watching multiple episodes of TV series back-to-back) has recently gained increasing research interest, given its potential harmfulness and presumed addictive characteristics. The present article provides the first systematic review of the evidence regarding this increasingly widespread behavior.

**Recent Findings** The results of this systematic review (including 24 studies and 17,545 participants) show that binge-watching remains an ill-defined construct as no consensus exists on its operationalization and measurement. Although such methodological disparities across studies hinder the comparability of results, the preliminary findings gathered here mainly point to the heterogeneous nature of binge-watching which covers at least two distinct realities, i.e., high but non-harmful engagement and problematic involvement in TV series watching.

**Summary** In these early stages of research, there is a major need for more consistency and harmonization of constructs and their operationalizations to move forward in the understanding of binge-watching. Just as important, future research should maintain the distinction between high and problematic involvement in binge-watching to avoid overpathologizing this common behavior.

**Keywords** Binge-watching · TV series · Systematic review · Operationalization · Assessment · Correlates

## Introduction

Video streaming platforms (e.g., Netflix, Hulu, Amazon Prime) have been expanding at a fast pace in the past few years. Combining ease of use (affordability and wide accessibility through just about any internet-connected device) and prolific content libraries available on-demand at one's convenience, these services are now part of millions of TV series viewers' daily routines [1–3]. Central to the changes afforded by these technologies is the move away from the traditional

week-by-week release of episodes with entire seasons of TV series now being made available at once. As a prime indicator of the cultural shift in watching, binge-watching (i.e., watching multiple episodes of a TV series back-to-back) has rapidly become the new normative mode of viewing TV shows, especially among young adults [1, 4].

Nevertheless, in this unparalleled era where viewers are free to watch literally as many TV series episodes as wanted, and where problematic online behaviors are taken seriously, a new sector of research recently emerged, building on the

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notion that prolonged involvement in binge-watching leads to problematic patterns of TV series viewing and deleterious consequences. Among the initial evidence of impairments associated with excessive binge-watching are insomnia and chronic fatigue [5], a sedentary and unhealthy lifestyle [6], negligence of other activities [7, 8], and reduction of social relationships [7, 9]. While the compelling nature of TV series may be considered as posing a genuine challenge to viewers' self-control abilities, there is a widespread assumption in the literature that binge-watching has addictive qualities [6, 10–13] although a specific framework of understanding still needs to be elaborated.

In a structured effort to progress in this direction, the present article aims at providing the first systematic review of existing data on binge-watching.

## Methods

In accordance with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines [14], we carried out a systematic literature review. We identified relevant studies by consulting two academic databases (*Scopus* and *PsycINFO*) and *Google Scholar*, using the following algorithm: ["Binge-watching" OR "Binge-viewing" OR "Marathon viewing" OR "Marathon watching" OR "Media marathoning" OR "Increased viewing" OR "Excessive viewing" OR "Problematic viewing" AND "TV series" OR "TV shows" OR "TV dramas"]. Articles were retained for consideration depending on whether they were: (1) published in a peer-reviewed journal from 1st of January 2013 to 11th of September 2019 (this time window covering the period from the inaugural year<sup>1</sup> when the term "binge-watching" entered the popular vocabulary to our search date); (2) published in English; (3) dealing with the practice of binge-watching episodes of TV series (i.e., involving a measurement of this specific behavior or, at least, of the extent of engagement in TV series watching); and (4) relying on quantitative data (theoretical articles, qualitative studies and single case reports were excluded).

The initial search yielded 892 results (11 in *Scopus*, 176 in *PsycINFO*, 705 in *Google Scholar*) that were processed according to the multi-step procedure depicted in Fig. 1. A first removal of duplicates led to the retention of 789 records. All of them were subsequently screened from their title/abstract. As a result, 19 articles were found to match the current search criteria (see Fig. 1) and were therefore subjected to a full-text reading for appraising their overall relevance to our topic. This step led to the further deletion of 1 article reporting the results

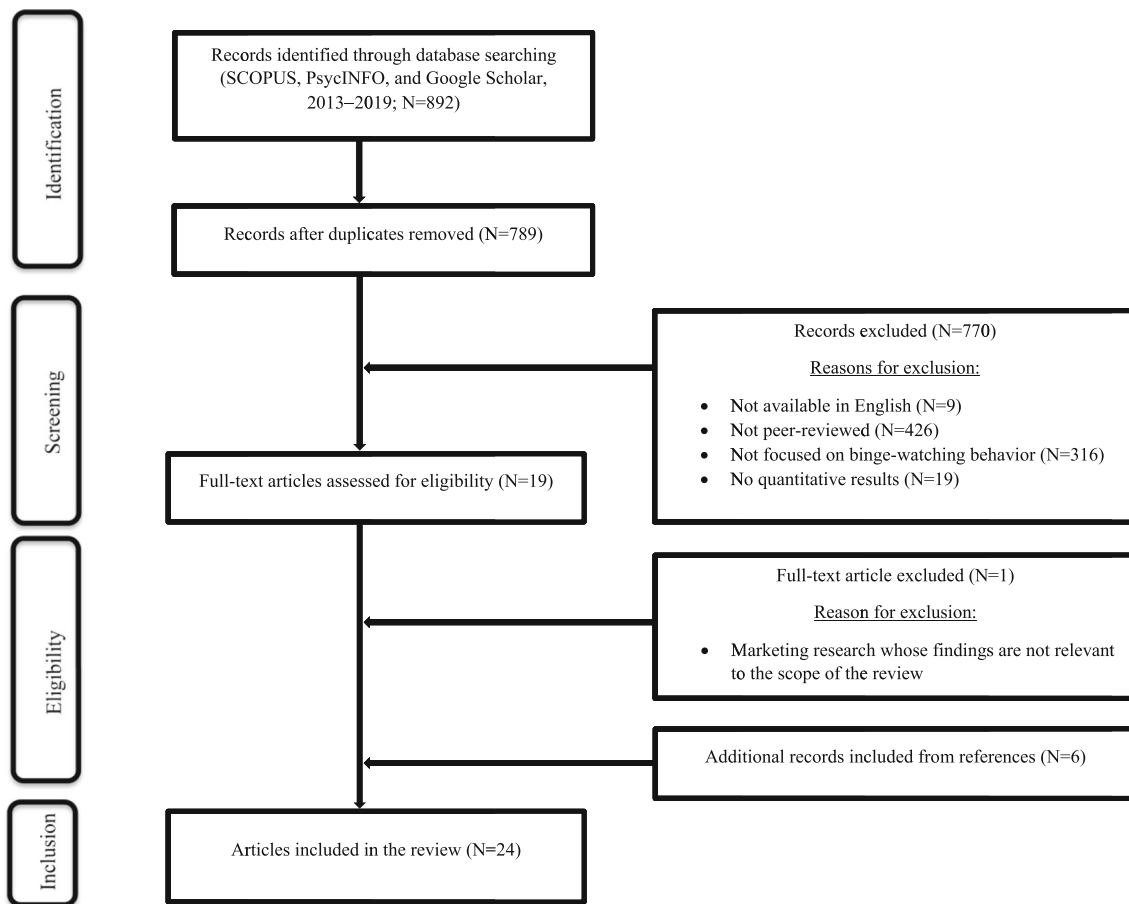
of a study designed for marketing research. Finally, the reference lists of the 18 retained articles were considered for the purpose of identifying other potentially relevant studies, which resulted in the inclusion of 6 additional articles following full-text review. Consequently, 24 papers were included in the current systematic literature review.

For all retained articles, the following data were systematically extracted: (1) the identification of the study (names of the authors, year of publication, country); (2) the characteristics of the sample (sample size, age, gender ratio); (3) the assessment of binge-watching behavior (operationalization, measurement, reported prevalence); (4) the design of the study (methodology type, set of variables measured); and (5) the identified correlates of binge-watching (divided across the following categories: socio-demographics, motivations, personality traits, positive/negative outcomes, and mental health). Additionally, an assessment of each study's methodological quality was conducted by using the "Appraisal tool for Cross-Sectional Studies" (AXIS) [15], the selection of which was guided by the fact that most included studies were observational and cross-sectional in design. This 20-item scale, developed on the basis of an international Delphi procedure, evaluates the appropriateness of study design, reporting quality and risk of bias in cross-sectional studies across disciplines. Nevertheless, as this tool does not involve any quality assessment score, we used the shortened version from Sacolo, Chimbari, and Kalinda [16], consisting of 10 yes/no questions, resulting in a total score to give a quality rating from 1 to 4 (low), 5–7 (moderate) to 8–10 (high). The details of this assessment per item/question and the total quality score for each study are presented in Table 1.

## Key Characteristics of the Studies

A summary of the information extracted from each of the 24 included articles is presented in Table 2. The reviewed studies primarily focused on the following: (1) the investigation of factors (e.g., personality traits, psychopathology) related to binge-watching (58% of the studies); (2) the identification of binge-watching motivations (25%); (3) the development and validation of related measurement instruments (17%); (4) the characterization of binge-watching frequency (13%) and its definition (8%); and (5) the experimental testing of its impact on audience engagement (8%). The flourishing of binge-watching research over recent years is reflected by the growing number of scholarly articles, with the first one published in 2015 [17], 2 in 2016 [18, 19], 7 in 2017 [20–26], 9 in 2018 [27–35], and already 5 released until 11th of September 2019 (i.e., date on which the literature search was performed) [36–40]. In most instances, these studies were carried out in the USA ( $n = 12$ ), while the remaining ones took place in Belgium ( $n = 2$ ), Hungary ( $n = 2$ ), South Korea ( $n = 2$ ),

<sup>1</sup> Google Trends (<https://www.google.com/trends/>) clearly shows that "binge-watching" started to become a search term of interest in February 2013, coinciding with the first time when Netflix released simultaneously all 13 episodes of the first season of *House of Cards*.



**Fig. 1** Flowchart of studies screening and selection process

Australia ( $n = 1$ ), China ( $n = 1$ ), Germany ( $n = 1$ ), Poland ( $n = 1$ ), the United Arab Emirates ( $n = 1$ ), and the UK ( $n = 1$ ). With the exception of two studies involving experimental designs [22, 36], all are online cross-sectional survey-based studies. A total of 17,545 participants took part in the 24 reviewed studies with an average female representation of 69.3% ( $n = 12,162$ ) and a mean age of 26.4 years ( $SD = 5.60$ ; range 18–82), calculated on the basis of papers reporting this information ( $n = 19$ ) [17–22, 24•, 25–29, 33–35, 37–40]. As shown in Table 1, the quality scoring of these studies ranges from “moderate” to “high” values, with 63% of them [18, 19, 21–26, 28, 29, 31–35, 37–40] assessed as “high” in methodological quality.

## Operationalization of Binge-Watching

We identified considerable variability in the operational definitions proposed for binge-watching, with some articles even specifying two different options [17, 23, 29, 30, 33, 39], thus bringing the total number of distinct possibilities to 19 across the 28 definitions listed in the studies directly operationalizing binge-watching (22/24). These operationalizations almost systematically consist of the following sequence of sub-

components: (1) a quantity based-index, (2) the characterization of the content, and (3) a time pattern. With respect to the first feature (i.e., quantity-based index), it appears that binge-watching is predominantly understood as the amount of episodes ( $n = 19$ ) and programs ( $n = 1$ ) [17, 18, 20, 21, 23–25, 28–32, 34•, 35–40] or, more rarely, of hours spent viewing ( $n = 2$ ) [22, 23], comprising an underlying notion of multiplicity [18, 21, 27, 30, 31, 37] or the genuine specification of quantitative cutoffs, ranging from watching more than 1 episode ( $n = 3$ ) [17, 20, 28], to 2 episodes ( $n = 6$ ) [17, 23, 25, 32, 35, 40], and 3 episodes ( $n = 7$ ) [24•, 29, 34•, 36, 38•, 39], or watching for more than 1 h [23] or 3 h [22]. Rubenking and Bracken [29] added a further subtlety by adapting their proposed threshold to the typical length of the show (i.e., 30-min or hour-long episodes), but this constitutes an exception among current definitions. In turn, last alternatives involved more broad-based patterns by relying on the viewing of a full season [30, 33, 39] or an entire series [33]. From the second feature (i.e., characterization of the content), most operationalizations referred to the viewing of the same series ( $n = 20$ ) [17–21, 23, 24•, 28–30, 32–37, 39], while the rest of them dealt with undifferentiated programs ( $n = 5$ ) [22, 27, 29, 30, 38•] or did not specify the type of binge-watched content

**Table 1** Study assessments and total scores using the Appraisal Tool for Cross-Sectional Studies (AXIS), shortened version

Authors (year)	Scores for each item										Total score	Quality rating
	1	2	3	4	5	6	7	8	9	10		
Pittman & Sheehan [17]	Y	Y	N	Y	N	N	Y	Y	Y	N	6	Moderate
Conlin et al. [18]	Y	Y	N	Y	Y	Y	Y	Y	N	Y	8	High
Orosz et al. [19]	Y	Y	N	N	N	Y	Y	Y	Y	Y	7	Moderate
Ahmed [20]	Y	Y	N	Y	N	N	Y	Y	N	N	5	Moderate
Exelmans and Van den Bulck [21]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	9	High
Horvath et al. [22]	Y	Y	N	Y	Y	Y	Y	Y	N	Y	8	High
Panda and Pandey [23]	Y	Y	N	Y	Y	Y	Y	Y	Y	N	8	High
Riddle et al. [24••]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	9	High
Spruance et al. [25]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	9	High
Tóth-Király et al. [26]	Y	Y	N	N	Y	Y	Y	Y	Y	Y	8	High
Granow et al. [27]	Y	Y	N	Y	Y	N	Y	Y	Y	N	7	Moderate
Merikivi et al. [28]	Y	Y	N	Y	Y	Y	Y	Y	Y	N	8	High
Rubenking and Bracken [29]	Y	Y	N	Y	Y	N	Y	Y	Y	Y	8	High
Shim et al. [30]	Y	Y	N	Y	Y	N	Y	Y	Y	N	7	Moderate
Shim and Kim [31]	Y	Y	N	N	Y	Y	Y	Y	Y	N	7	Moderate
Sung et al. [32]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	9	High
Tefertiller and Maxwell [33]	Y	Y	N	N	Y	Y	Y	Y	Y	Y	8	High
Tukachinsky and Eyal [34••]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	9	High
Walton-Pattison et al. [35]	Y	Y	N	N	N	Y	Y	Y	Y	Y	7	Moderate
Erickson et al. [36]	Y	Y	N	Y	Y	N	N	Y	Y	N	6	Moderate
Flayelle et al. [37]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	9	High
Merill and Rubenking [38•]	Y	Y	N	Y	Y	N	Y	Y	Y	Y	8	High
Pittman and Steiner [39]	Y	Y	Y	N	N	N	Y	Y	Y	Y	7	Moderate
Starosta et al. [40]	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	9	High

Questions related to each item (the main or complementary factors assessed are in italics)

#### Introduction

(1) Were the aims/objectives of the study clear?

*We notably evaluated the clarity of the research question and its relevance in view of the presented literature.*

#### Method

(2) Was the study design appropriate for the stated aim(s)?

(3) Was the sample size justified?

*Be it based on previous studies' sample sizes or on statistical calculation.*

(4) Was the target/reference population clearly defined? (Is it clear who the research was about?)

*We centrally checked whether inclusion/exclusion criteria were specified.*

(5) Were the risk factor and outcome variables measured correctly using instruments/measurements that had been trialed, piloted or published previously?

(6) Were the methods (including statistical methods) sufficiently described to enable them to be repeated?

*We also evaluated the validity and reliability of the measures used.*

#### Results

(7) Were the results presented for all the analyses described in the methods?

*We also evaluated the validity of the analyses conducted and results obtained.*

#### Discussion

(8) Were the authors' discussions and conclusions justified by the results?

(9) Were the limitations of the study discussed?

#### Other

(10) Was ethical approval or consent of participants attained?

N no, Y yes

( $n = 3$ ) [25, 31, 40]. Finally, with regard to the third feature (i.e., time pattern), the proposed operationalizations involved various timeframes, the majority of which referring to the notion of consecutiveness, i.e., “in a single sitting” ( $n = 22$ ) [17–32, 34••, 35, 36, 37, 38•, 39], whereas the remaining ones

relied on the following distinct temporalities: “in a small amount of time” [33], “a day” [40], “in several days” [17, 30], and “within a week” [39]. A graphical overview of these operational disparities across studies is provided in Fig. 2. Unsurprisingly, the lack of a validated and common definition

of binge-watching is clearly identified by the authors as a major obstacle to coherence and reproducibility in current early binge-watching research [17, 20, 21, 29, 30, 33, 35–37].

## Assessment and Prevalence of Binge-Watching

Similar to operationalizations of binge-watching, its measurement substantially varies across papers. In the absence of accepted assessment criteria, most studies simply relied on global quantity estimates, as usually done in media research [41], revolving around three sets of indicators: (1) the frequency, assessed in various terms (i.e., generally speaking, over the last month, over the last week), of binge-watching ( $n = 9$ ) [17–21, 24•, 29, 32, 35, 38•, 39]; (2) the average duration of one viewing session ( $n = 7$ ) [20, 21, 25, 29, 32, 35, 38•]; and the number of episodes usually watched (per viewing session or per day;  $n = 5$ ) [20, 21, 32, 34•, 35]. These criteria were either assessed alone [24•, 39] or in different combinations [20, 21, 29, 32, 35, 38•, 40], sometimes complemented by additional idiosyncratic questions relating to the intention (i.e., planning ahead) and severity of binge-watching [17], the number of consecutive days spent watching a show recently [34•], or by a non-validated measure of narrative transportation (i.e., deep sense of immersion into the world of a story) [32]. These indicators (or their combination) have been used as stand-alone dependent variables [17, 21, 29, 38•] or construed as forming a composite binge-watching score [20, 32, 34•, 35, 40]. For the remaining studies where there was no use of such criteria, binge-watching was assessed through other questions relating to: its recent occurrence based on participants' self-perceived binge-watching duration [25], the general tendency to binge-watching [30, 31], and the pace of watching a particular series [18, 33]. Finally, beyond mere measurement items, four studies used custom made and non-validated binge-watching measures of intention [23], tendency [27], behavioral/cognitive involvement [28], or excessiveness [40], while three studies used proposed psychometrically validated measurement instruments [19, 26, 37]. The conceptual underpinnings and robustness of methods behind the current assessment of binge-watching are thus manifold, this heterogeneity again being disclosed as impeding consistency among existing studies [21, 24•, 27, 29, 38•]. Such plurality of measurement alternatives also poses a major challenge to replication of results and data comparability, which is presently made difficult due to these discrepancies at theoretical and methodological levels. The available prevalence data offer a prime example of this as, based on their respective assessment criteria, studies ( $n = 12$ ) report a prevalence rate of binge-watching ranging from 44.6 to 98%. It should be stressed, however, that all of these form an average prevalence of 72.14%, thus suggesting that binge-watching is not an atypical

viewing practice, but rather the norm across the current samples, which corroborates recent market reports [1, 4].

## Emerging Profiles of Binge-Watchers

The results from the studies included in this systematic review suggest a number of susceptibility factors for binge-watching, which provides some preliminary insight into binge-watchers' profile. A first category of binge-watching correlates concerns their socio-demographic characteristics. A number of studies showed a positive association between female gender and engagement in binge-watching, either in terms of frequency and intensity of viewing sessions [17, 21, 25, 38•], or of loss of control over watching [19, 40]. Nevertheless, results are inconsistent across studies as, in addition to those who found no gender effect [17, 20, 29–31, 38•], Exelmans et al. [21] report that binge-viewing sessions lasted longer among men. Similarly, some of the reviewed studies suggest that younger age is positively associated with overall binge-watching [20, 30, 31], its frequency [29], and problematic series watching [19], while others have not reproduced such correlations [17, 38•]. Finally, while single individuals (in terms of partnership status) were generally more severe binge-watchers [20], educational level was found to be both positively [25] and negatively [19, 30] related to binge-watching. Such discrepancies again underline that current results are highly dependent on the binge-watching operationalization (and measurement) used.

Be this as it may, more areas of commonality among the reviewed studies' findings can be identified with respect to binge-watchers' motivations, this time establishing a clearer picture. Consistent with the *Uses & Gratifications* framework asserting that media use is primarily driven by needs satisfaction [42, 43], binge-watchers' engagement in TV series viewing appears to derive from various outcome expectations with a clear preponderance of hedonistic motivations (i.e., entertainment, enjoyment) [17, 29, 31, 32, 37, 40]. The motivational pull of TV series binge-watching seems, therefore, to stem from a first set of drivers that concern the maximization of enjoyable attributes of viewing: better engagement with the content [17], greater fan enthusiasm [31], deeper experience of suspense/anticipation [29], and stronger feeling of getting swept away in the story (i.e., narrative transportation) [39]. In accordance with such a "derived-benefits" view of binge-watching, more eudaemonic (e.g., personal enrichment, information seeking) and reward-based motivations have also been found to play a role for binge-watchers' involvement [37, 38•, 40]. At the same time, however, a second cluster of motivational correlates emerged across studies to make binge-watching appear as something rather compensatory: high levels of binge-watching were associated with the motivations of passing time [32, 40], dealing with loneliness [40], and



**Table 2** Description and main results of the studies included in the systematic review

Authors (year)	Country	Participants		Binge-watching assessment		Measure	Prevalence (%)	Study design
		N	Age ( $M_{age}$ )	Females (%)	Operationalization			
Pittman and Sheehan [17]	USA	262	29	62	Watching 2 or more episodes of the same series in a single sitting, or watching 1 or more episodes of the same series for several consecutive days.	Frequency (Fre) Intention (Int) Severity (Sev)	97	Online survey
Conlin, Billings and Averset [18]	USA	160	35.2	48.8	Consuming multiple episodes of the same TV show in one sitting.	Pace of watching	NR	Online survey
Orosz, Böthe and Tóth-Király [19]	Hungary	1118	25	71.7	NA	PSWS	NA	Online survey
Ahmed [20]	UAE	260	25.8	51.9	Watching more than 1 episode from the same TV content consecutively in the same session.	Frequency Duration Number of episodes (composite score)	44.6	Online survey
Exelmans and Van den Bulck [21]	Belgium	423	22.2	61.9	Watching multiple consecutive episodes of the same TV show in one sitting.	Frequency (Fre) Duration (Dur) Number of episodes (Num)	80.6	Online survey
Horvath et al. [22]	Australia	51	22.2	57	Viewing of 3 or more hours of programming within a single sitting.	NR	NR	Laboratory experiment
Panda and Pandey [23]	USA	229	NR	56	Watching a minimum of 2–3 episodes of the same series or at least 1 h of the same TV series in one sitting.	Intention (created measure)	NR	Online survey
Riddle et al. [24]	USA	171	19.9	75	Watching 3+ episodes of the same TV program in one sitting.	Frequency intentional BW (Fre-Int) Frequency unintentional BW (Fre-Un)	98	Online survey
Spruance et al. [25]	USA	500	20.6	57.8	Watching between 2 and 6 episodes in one sitting.	Self-perceived duration ⇒ Occurrence last week ⇒ Occurrence last month SWES	20 (weekly) 72 (monthly) NA	Online survey
Tóth-Király et al. [26]	Hungary	1520	30.1	72.2	NA	Tendency (created measure)	NR	Online survey
Granow, Reinecke and Ziegele [27]	Germany	499	28.2	67	Intense and consecutive consumption of series in a single sitting.	Behavioral involvement (Beh) Cognitive involvement (Cog)	NR	Online survey
Merikivi et al. [28]	China	227	21	77.2	Consuming more than one episode of the same television show in one sitting.	Frequency (Fre) Duration (Dur)	NR	Online survey
Rubenking and Bracken [29]	USA	797	35.5	56.5	Watching 3 to 4 or more 30-min shows or 3 episodes or more of hour-long television episodes of the same show in one sitting.			
Shim et al. [30]	South Korea	714	NR	52.4	Watching multiple episodes of programs in a single sitting or an entire season over the course of a few days.	Tendency	64	Online survey
Shim and Kim [31]	South Korea	785	NR	53.1	Watching multiple episodes in a single sitting.	Tendency	70	Online survey
Sung, Kang and Lee [32]	USA	292	NR	76.4		Frequency	75.8	Online survey

**Table 2** (continued)

Authors (year)	Study design	Binge-watching correlates					Personality traits	Positive outcomes	Negative outcomes	Mental health
		Variables measured	Socio-demographics	Motivations	Watching 2 or more episodes of the same TV series in one sitting.	Duration Number of episodes Engagement (composite score) Pace of watching				
Pittman and Sheehan [17]	<ul style="list-style-type: none"><li>• Demographics</li><li>• Programs and platforms used</li><li>• BW behavior</li><li>• BW-related motivations (based on previous non-validated measure)</li></ul>	+ Being a woman (Sev)	+ Engagement (Fre, Int, Sev) + Hedonism (Int, Sev) + Social (Sev)	Consuming a full TV season or series in a relatively small amount of time. Watching at least 3 episodes of a program in one sitting.	46	80			Online survey	
Tukachinsky and Eyal [34]	USA	167	20	81					Online survey	
Walton-Pattison, Dombrowski and Presseau [35]	UK	86	30	67					Online survey	
Erickson, Dal Cin and Byl [36]	USA	77	NR	76					Laboratory experiment	
Flayelle et al. [37]	Belgium	6556	24.5	77.6					Online survey	
Merill and Rubenking [38]	USA	651	20.5	63.6					Online survey	
Pittman and Steiner [39]	USA	781	35.4	44.2					Online survey	
Starosta, Izydorczyk and Lizinczyk [40]	Poland	1004	22	85					Online survey	
Authors (year)	Study design	Binge-watching correlates					Personality traits	Positive outcomes	Negative outcomes	Mental health
		Variables measured	Socio-demographics	Motivations	Watching 2 or more episodes of the same TV series in one sitting.	Duration Number of episodes Engagement (composite score) Pace of watching				
Pittman and Sheehan [17]	<ul style="list-style-type: none"><li>• Demographics</li><li>• Programs and platforms used</li><li>• BW behavior</li><li>• BW-related motivations (based on previous non-validated measure)</li></ul>	+ Being a woman (Sev)	+ Engagement (Fre, Int, Sev) + Hedonism (Int, Sev) + Social (Sev)	Consuming a full TV season or series in a relatively small amount of time. Watching at least 3 episodes of a program in one sitting.	46	80			Online survey	
Conlin, Billings and Averset [18]	<ul style="list-style-type: none"><li>• Demographics</li><li>• BW behavior</li><li>• Fear of Missing Out scale</li><li>• Social media use</li></ul>	+ Being a woman + Being younger - Education		Watching more than 2 episodes of the same TV show in one sitting.	67				Online survey	
Orosz, Bőthe and Tóth-Király [19]	<ul style="list-style-type: none"><li>• Demographics</li><li>• Problematic Series Watching Scale</li><li>• Amount of free time</li><li>• Time spent watching</li></ul>	+ Being a woman + Being younger - Education		Watching multiple episodes, generally 3 or more, of a television program in rapid succession.	76				Laboratory experiment	
Ahmed [20]	<ul style="list-style-type: none"><li>• Demographics</li></ul>	+ Being younger		Watching multiple episodes of the same TV series in one session. Watching 3 or more episodes of television content in one sitting.	77.6 63.6				Online survey	
				Viewing of 3 or more episodes of a show in a row (or 2 episodes, if it is a longer show) or watching a whole season of a show within a week.	44.2				Online survey	
				Watching from 2 episodes a day.	85				Online survey	

**Table 2** (continued)

		+ Being single		
Exelmans and Van den Bulek [21]	<ul style="list-style-type: none"> <li>• Viewing habits</li> <li>• BW behavior</li> <li>• Depression</li> </ul>			
	(based on previous non-validated measure)			
Horvath et al. [22]	<ul style="list-style-type: none"> <li>• UCLA Loneliness scale</li> <li>• Demographics</li> <li>• Perceived physical health</li> <li>• Exercise level</li> <li>• Bedtime TV viewing</li> <li>• BW behavior</li> <li>• Pittsburgh Sleep Quality Index</li> <li>• Fatigue Assessment Scale</li> <li>• Bergen Insomnia Scale</li> <li>• Pre-Sleep Arousal Scale</li> </ul>	<ul style="list-style-type: none"> <li>+ Being a woman (Fre)</li> <li>+ Being a man (Dur)</li> </ul>		<ul style="list-style-type: none"> <li>+ Poor sleep quality (Fre)</li> <li>+ Daytime fatigue (Fre)</li> <li>+ Pre-sleep arousal (Fre)</li> <li>+ Symptoms of insomnia (Fre)</li> </ul>
	Weekly group [1 episode per week over 6 consecutive weeks] Daily group [1 episode per day over 6 consecutive days] Binge group [6 episodes in a single setting]			
Panda and Pandey [23]	<ul style="list-style-type: none"> <li>• Perceived comprehension (immediately after show completion/1 week later/140 days later)</li> <li>• Retention (24 h later/1 week later/140 days later)</li> <li>• Demographics</li> <li>• BW behavior</li> <li>• BW-related motivations</li> </ul>			
	(based on previous qualitative investigation and non-validated measures)			
Riddle et al. [24]	<ul style="list-style-type: none"> <li>• BW-related outcomes</li> <li>• BW-related outcomes (based on previous qualitative investigation)</li> <li>• Demographics</li> <li>• BW behavior</li> </ul>		<ul style="list-style-type: none"> <li>+ Social engagement</li> <li>+ Escape</li> <li>+ Accessibility</li> <li>+ Advertising influence</li> </ul>	<ul style="list-style-type: none"> <li>+ Negative gratifications</li> </ul>
	(semester weekdays/ semester weekends/semester breaks)			
Spruance et al. [25]	<ul style="list-style-type: none"> <li>• TV Addiction Scale (items adapted to BW)</li> <li>• Barratt Impulsivity Scale</li> <li>• Grade Point Average</li> <li>• Demographics</li> <li>• BW behavior (weekly/monthly)</li> <li>• Physical activity</li> <li>• Diet</li> <li>• BMI</li> </ul>	<ul style="list-style-type: none"> <li>+ Being a woman (weekly, monthly)</li> <li>+ Education (monthly)</li> </ul>		<ul style="list-style-type: none"> <li>+ Impulsivity (Fre-Un)</li> <li>+ Addiction symptoms (Fre-Un)</li> </ul>
	Series Watching Engagement Scale			
Tóth-Király et al. [26]	<ul style="list-style-type: none"> <li>• Demographics</li> </ul>		<ul style="list-style-type: none"> <li>- Healthy eating (weekly, monthly)</li> <li>+ Harmonious passion</li> </ul>	<ul style="list-style-type: none"> <li>+ Obsessive passion</li> </ul>



Table 2 (continued)

Author(s)	Construct	Measurement	Findings
Granow, Reinecke and Ziegele [27]	-	<ul style="list-style-type: none"> <li>• Problematic Series Watching Scale</li> <li>• Series Watching Passion Scale</li> <li>• Time spent watching</li> <li>• Big Five Inventory-10 Item Scale</li> <li>• Demographics</li> <li>• BW behavior</li> <li>• Goal conflicts</li> <li>• State Shame and Guilt Scale (items adapted to BW)</li> <li>• Autonomy (based on previous non-validated measure)</li> <li>• Recovery Experience Questionnaire (“psychological detachment” and ‘relaxation’ subscales)</li> <li>• Activation-Deactivation Checklist (“energy” and “tiredness” subscales)</li> <li>• Enjoyment (based on previous non-validated measure)</li> <li>• Demographics</li> <li>• BW behavior</li> <li>• Usage satisfaction</li> <li>(based on previous non-validated measure)</li> <li>• Demographics</li> <li>• BW behavior</li> <li>• Appointment viewing frequency</li> <li>• Emotion Regulation Questionnaire</li> <li>• Brief Self-Control Measure</li> <li>• Self-efficacy</li> <li>• Self-Report Habit Index (‘automaticity’ subscale)</li> <li>• Suspense/Anticipation motives</li> <li>• Demographics</li> <li>• BW behavior</li> <li>• Media use</li> <li>• Negative attitudes toward BW</li> <li>• Deferment of Gratification Scale (items adapted to BW)</li> <li>• Need For Cognition Scale (items adapted to BW)</li> <li>• Demographics</li> <li>• BW behavior</li> <li>• Media use</li> <li>• BW-related motivations (based on previous qualitative investigation)</li> <li>• Need For Cognition Scale (items adapted to BW)</li> </ul>	<ul style="list-style-type: none"> <li>+ Perceived autonomy</li> <li>+ Recovery</li> <li>+ Enjoyment</li> <li>+ Goal conflicts</li> <li>+ Feelings of guilt</li> </ul>
Merikivi et al. [28]	-	<ul style="list-style-type: none"> <li>+ Being younger</li> </ul>	<ul style="list-style-type: none"> <li>+ Usage satisfaction (Beh)</li> </ul>
Rubenking and Bracken [29]	-	<ul style="list-style-type: none"> <li>+ Being younger</li> <li>+ Emotion regulation (Fre)</li> <li>+ Automatism (Fre)</li> </ul>	<ul style="list-style-type: none"> <li>+ Automatism (Fre)</li> </ul>
Shim et al. [30]	-	<ul style="list-style-type: none"> <li>+ Being younger</li> <li>- Education</li> </ul>	<ul style="list-style-type: none"> <li>+ Immediate gratification</li> <li>+ Need for cognition</li> <li>+ Negative feelings</li> </ul>
Shim and Kim [31]	-	<ul style="list-style-type: none"> <li>+ Being younger</li> </ul>	<ul style="list-style-type: none"> <li>+ Need for cognition</li> <li>+ Sensation seeking</li> </ul>

**Table 2** (continued)

Sung, Kang and Lee [32]	<ul style="list-style-type: none"> <li>• Brief Sensation Seeking Scale (items adapted to BW)</li> <li>• Demographics</li> <li>• General TV watching behavior</li> <li>• BW behavior</li> <li>• Programs and platforms used</li> <li>• Viewing Motivation Scale</li> <li>• Transportation (based on previous non-validated measure)</li> </ul>	+ Entertainment + Passing time	+ Transportation	
Tefertiller and Maxwell [33]	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• BW behavior</li> <li>• Center for Epidemiological Studies Scale of Depression</li> <li>• Brief State-Trait Anxiety Inventory Scale</li> <li>• Social and Emotional Loneliness Scale for Adults (“social” subscale)</li> <li>• Self-control (based on previous non-validated measure)</li> <li>• Emotion/Affect (while-viewing, after-viewing; based on previous non-validated measure)</li> <li>• Hedonic enjoyment and appreciation (based on previous non-validated measure)</li> </ul>		- Meaningful affect (after-viewing) - Positive affect (after-viewing)	- Depression + Anxiety
Tukachinsky and Eyal [34]	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• BW behavior</li> <li>• Attachment style (based on previous non-validated measure)</li> <li>• Center for Epidemiological Studies Scale of Depression</li> <li>• UCLA Loneliness scale</li> <li>• Self-regulation (based on previous non-validated measure)</li> <li>• Narrative Transportation Scale</li> <li>• Enjoyment (based on previous non-validated measure)</li> <li>• Parasocial Interaction Scale</li> <li>• Identification (based on previous non-validated measure)</li> </ul>	- Secure attachment - Self-regulation	+ Parasocial relationships + Identification	+ Depression
Walton-Pattison, Dombrowski and Presseau [35]	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• BW behavior</li> <li>• Viewing habits</li> <li>• Intention</li> <li>• Outcome expectations (physical/affective/social)</li> </ul>	+ Outcome expectations	+ Automaticity	+ Anticipated regret + Goal conflict

**Table 2** (continued)

Erickson, Dal Cin and Byl [36]	<ul style="list-style-type: none"> <li>• Self-efficacy</li> <li>• Self-Report Automatic Index (items adapted to BW)</li> <li>• Anticipated regret (based on previous non-validated measure)</li> <li>• Goal conflict</li> <li>• Goal facilitation</li> </ul>	<ul style="list-style-type: none"> <li>+ Transportation</li> <li>+ Parasocial relationships (after show completion/1 week later)</li> </ul>	
	<p>Traditional condition [1 episode per week for 3 weeks]</p> <ul style="list-style-type: none"> <li>• Enjoyment</li> <li>• Parasocial Interaction Scale (immediately after show completion/1 week later)</li> <li>• Narrative Transportation Scale</li> <li>• Demographics</li> <li>• Watching TV Series Motives Questionnaire</li> <li>• Binge-Watching Engagement and Symptoms Questionnaire</li> <li>• Positive and Negative Affect Schedule</li> <li>• Compulsive Internet Use Scale</li> <li>• Alcohol Use Disorder Identification Test</li> <li>• Fagerström Test for Nicotine Dependence</li> </ul>		
Flayelle et al. [37]	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• Watching TV Series Motives Questionnaire</li> <li>• Binge-Watching Engagement and Symptoms Questionnaire</li> <li>• Positive and Negative Affect Schedule</li> <li>• Compulsive Internet Use Scale</li> <li>• Alcohol Use Disorder Identification Test</li> <li>• Fagerström Test for Nicotine Dependence</li> <li>• Demographics</li> <li>• BW behavior</li> <li>• Motivated Strategies for Learning Questionnaire ("metacognitive self-regulation" subscale)</li> <li>• Brief Self-Control Scale</li> <li>• Enjoyment Audience Response Scale (items adapted to BW)</li> <li>• Reward watching</li> <li>• Procrastination (based on previous non-validated measure)</li> <li>• Regret</li> </ul>	<ul style="list-style-type: none"> <li>+ Emotional enhancement (BW engagement)</li> <li>+ Enrichment (BW engagement)</li> <li>+ Social (BW symptoms)</li> <li>+ Coping/Escape (BW symptoms)</li> <li>+ Procrastination (Fre)</li> <li>+ Reward watching (Fre)</li> </ul>	<ul style="list-style-type: none"> <li>+ Negative affect (BW symptoms)</li> <li>+ Problematic Internet use (BW symptoms)</li> </ul>
	<ul style="list-style-type: none"> <li>• Being a woman (Dur)</li> </ul>		
Merill and Rubenking [38]	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• BW behavior</li> <li>• Motivated Strategies for Learning Questionnaire ("metacognitive self-regulation" subscale)</li> <li>• Brief Self-Control Scale</li> <li>• Enjoyment Audience Response Scale (items adapted to BW)</li> <li>• Reward watching</li> <li>• Procrastination (based on previous non-validated measure)</li> <li>• Regret</li> </ul>	<ul style="list-style-type: none"> <li>+ Being a woman (Dur)</li> <li>+ Self-regulation (Dur)</li> <li>+ Enjoyment (Fre)</li> </ul>	<ul style="list-style-type: none"> <li>- Regret (Fre)</li> </ul>
	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• BW behavior (higher attentiveness, lower attentiveness)</li> <li>• Big Five Inventory-10 Item Scale</li> <li>• Narrative completion motive</li> <li>• Narrative Transportation motive</li> <li>• Multitasking</li> <li>• Regret</li> <li>• Demographics</li> <li>• BW behavior</li> </ul>		
Pittman and Steiner [39]	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• BW behavior (higher attentiveness, lower attentiveness)</li> <li>• Big Five Inventory-10 Item Scale</li> <li>• Narrative completion motive</li> <li>• Narrative Transportation motive</li> <li>• Multitasking</li> <li>• Regret</li> <li>• Demographics</li> <li>• BW behavior</li> </ul>	<ul style="list-style-type: none"> <li>+ Narrative transportation</li> <li>- Agreeableness</li> <li>- Conscientiousness</li> <li>- Openness</li> <li>+ Neuroticism</li> </ul>	<ul style="list-style-type: none"> <li>- Regret (HA BW)</li> <li>+ Regret (LA BW)</li> </ul>
	<ul style="list-style-type: none"> <li>• Being a woman</li> <li>+ Escape</li> </ul>		
Starosta, Izydorczyk and Lizinczyk [40]	<ul style="list-style-type: none"> <li>• Demographics</li> <li>• BW behavior</li> </ul>		

**Table 2** (continued)

<ul style="list-style-type: none"> <li>• Viewing habits</li> <li>• Viewing Motivation Scale</li> <li>• Questionnaire of Excessive Binge-Watching Behaviors</li> </ul>	<ul style="list-style-type: none"> <li>+ Dealing with loneliness</li> <li>+ Information</li> <li>+ Spending free time</li> <li>+ Entertainment</li> </ul>
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Note. + indicates a positive relationship whereas - indicates a negative relationship

NA not applicable, NR not reported, BWESQ binge-watching engagement and symptoms questionnaire, PSWS problematic series watching scale, QEBWB questionnaire of excessive binge-watching behaviors, SWES series watching engagement scale

escaping from everyday worries [23, 40], while higher frequency was related to procrastination [38•] and emotion regulation [29] purposes. In a similar vein, Flayelle et al. [37] found that coping/escapism motivation was specifically linked to problematic binge-watching, thus supporting the hypothesis that problematic binge-watching involves maladaptive coping or emotion-regulation strategies [44]. This line of thinking is in accordance with results showing that problematic involvement in a wide range of recreational activities (e.g., drug use, video gaming, gambling, cybersex) reflects as many different attempts to reduce aversive emotional states [45–47]. With regard to binge-watching, it is moreover noteworthy that female viewers shown more inclination to such purposes [37, 40]. Other motives in seeking gratification relate to the opportunity to bond with others by means of TV series [17, 23, 37], although some studies have not found any association with such social expectations [32, 40]. The current systematic literature review shows, however, that the latter relied on the same quantitative instrument assessing motivations for TV viewing in general (i.e., not specifically applying to binge-watching), which prompts some reservations as to the possible conclusions.

Finally, giving credence to theories of media exposure stating that users' personality is a strong predictor of the intensity of media consumption [48, 49], specific associations between individual differences in personality traits and propensity to binge-watch also emanated. While viewers who get drawn into binge-watching were found to be characterized by insecure attachment [34••], low agreeableness, conscientiousness, and openness [26, 39], they presented, in contrast, high levels of both neuroticism [26, 39], need for cognition and sensation seeking [30, 31]. But above all, the reviewed literature reveals the impulsive personality of binge-watchers. Riddle et al. [24••], for example, found that high impulsivity was related to increased levels of unintentional binge-watching (i.e., occurring unexpectedly), which echoes other findings demonstrating the relationship between self-regulation deficits and binge-watching [34••, 38•]. Such evidence is in line with substantial media research showing that both impulsivity and self-regulation failure constitute significant predictors of increased (and even excessive/problematic) media use [50–56]. In close connection with the foregoing, the included studies also suggest that heavy binge-watchers reported a higher predilection toward immediate gratification [30], and that the frequency of binge-viewing sessions was related to automaticity [29, 35].

## Binge-Watching Outcomes

In conjunction with the motivational profile of binge-watchers described above, it comes as no surprise that binge-watching is especially gratifying in the light of the review of its associated outcomes, according to which this behavior seems

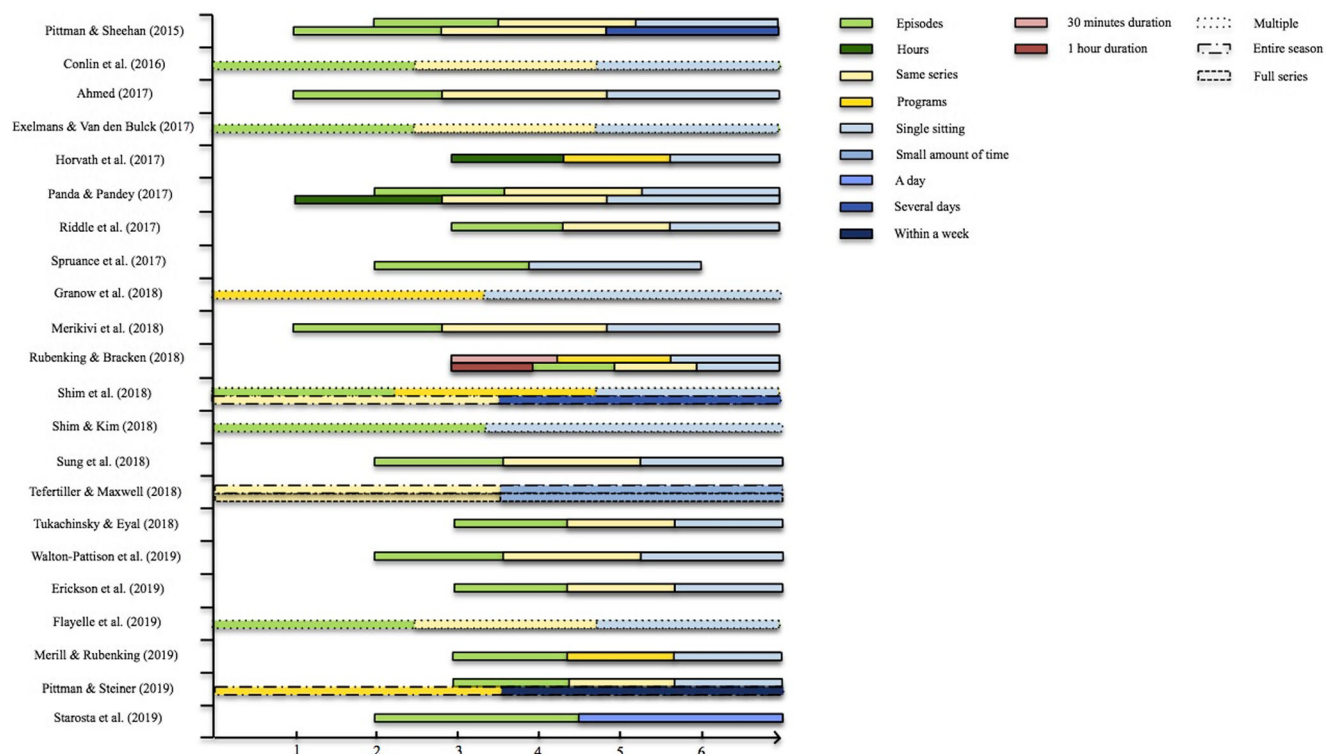
mainly supported by the deepening of viewers' experience (and therefore engagement) during viewing. Coherent with the widely held notion that increased engagement enhances media effects (i.e., impact of media consumption on one's beliefs, emotions, or behaviors) [57], binge-watching was related to higher levels of enjoyment [27, 38•], narrative transportation [32], and identification with featured characters [34••], with whom binge-watchers were also found to develop stronger parasocial relationships [34••]. These conclusions are further corroborated by Erickson and colleagues' experimental findings showing that, of two groups of viewers being asked to watch a TV show under different schedules (traditional episodic versus binge modes of viewing), the ones in the binge-condition experienced higher narrative transportation while forming stronger and lasting parasocial relationships with the series' protagonists [36]. Finally, binge-watching was positively associated with several indicators of well-being via perceived autonomy [27], as well as with usage satisfaction [28] and harmonious passion [26]. This set of results, however, contrasts with studies that failed to identify a link between binge-watching and narrative transportation [34••] or positive gratifications such as hedonic enjoyment [20, 34••]. Moreover, the other experimental study currently available found that individuals who were (experimentally) required to watch TV series episodes back-to-back not only reported significant less enjoyment than those following a daily or weekly pace of watching [22], but also less enduring content memory [22], which, in itself, is a likely indicator of program engagement.

In parallel to this, a second line of evidence shows a rather uniform picture of outcomes associated with binge-watching, this time in a more negative light. Binge-watching frequency was associated with reduced sleep quality, daytime fatigue and insomnia, with cognitive pre-sleep arousal mediating those relationships [21], while a healthy diet was negatively correlated with overall binge-watching [25]. Another self-report study found that binge-watchers tend to experience a decrease of meaningful and positive affect right after viewing, which led the authors to suggest a post-binge-viewing "show hole", i.e., a feeling of emptiness following show completion [33]. Binge-watching is also associated with obsessive passion [26] and with goal conflicts and emotional distress (i.e., guilt, regret) [23, 27, 30, 35], through the effect of which such viewing practice was, besides, negatively related to well-being [27]. Shim et al. [30] notably showed that, among viewers characterized by a higher preference for instant gratification, post-binge-watching feelings of regret and guilt constitute positive predictors of subsequent binge-viewing sessions. The same observation was made by Panda and Pandey [23] who further commented that viewers may alleviate such negative emotional states precisely by continuing to binge-watch TV series, thus

paving the way for a vicious circle that both research teams consider as addictive in nature. Only one study stands in stark contrast to the above claims by identifying regret as a negative predictor of binge-watching frequency [38•], while other findings shed some light on the matter by evidencing the moderating role of the level of attentiveness paid to a show in whether motivations for binge-watching predict decreased or increased later regret [39]. All these preliminary findings are very revealing about how a nuanced understanding is necessary when approaching binge-watching. The two-sided picture resulting from its reviewed correlates thus gives further credit to the fact that media use may imply both positive and negative media effects on users' well-being [58], which are generally moderated by self-control abilities exerted in those contexts [51].

## Mental Health Correlates of Binge-Watching

The current systematic review emphasizes that heavy binge-watchers experience psychopathological symptoms such as anxiety (including fear of missing out) [18, 33], depression [20, 34••]—the effect of which is mediated by self-regulation deficits [34••]—addiction-like symptoms [24••], and problematic Internet use [37], although results are sometimes mixed (e.g., Tefertiller et al. [33] found that depression was associated with a decreased likelihood of binge-watching). Consistent with this, the positive relationship between negative affect and problematic binge-watching [37] continues to argue in favor of the notion of binge-watching as an emotion-focused coping strategy. These associations convey the idea that there are problematic comorbid versions of binge-watching to be considered, for which preliminary assumptions can be made in terms of underlying mechanisms. In this respect, the Interaction of Person-Affect-Cognition-Execution (I-PACE) model [59, 60] provides a sound framework within which the general results of this systematic review can be interpreted. The I-PACE model describes the processes involved in the development and maintenance of the problematic use of online applications of any type (e.g., online gambling and gaming, cybersex, social networking, online shopping) by considering both predisposing variables representing core characteristics of the person (P), affective and cognitive responses to external or internal stimuli (AC), and executive functions, inhibitory control, and the decision to use certain applications/sites (E). According to such a conceptual basis, it may be proposed that the impulsive personality of binge-watchers acts as a predisposing factor which, in combination with misplaced coping mechanisms, interacts with depressive mood to likely potentiate the risk of developing problematic binge-watching behavior.



**Fig. 2** Operationalization of binge-watching used in the studies (22/24) included in the systematic review. Each operational definition is decomposed into its key elements that are color-coded. The x-axis refers to the quantitative cutoffs used where applicable

## Conclusions

As the digitization of TV series puts viewers in control within an unprecedented “all you can watch” culture, binge-watching has become a widespread behavior that has attracted increasing research interest over the last 4 years. By summarizing and discussing available quantitative data derived from these initial studies, the present overview of the current evidence shows a coherent and nuanced picture where preliminary patterns can be described. Navigating between gratification and compensation, binge-watching appears not to represent a single and uniform behavior but constitutes a complex phenomenon which shows at least two manifestations: (1) a highly rewarding and pleasurable experience that may drive deliberate and harmonious significant viewing involvement performed in response to various needs and desires; and (2) an excessive/problematic behavior not only associated with negative outcomes, but also with a range of risk factors associated with dysfunctional use of technologies (e.g., age, underlying coping motives, impulsivity, automaticity) and diverse mental health conditions. Echoing a recent recommendation made for video-gaming [61], high but healthy engagement in TV series watching should be distinguished from problematic binge-watching to avoid pathologizing this highly popular activity. Additionally, in order to promote healthy patterns of engagement among TV series viewers, future research should inform policy and practices in the development and implementation

of strategies to minimize harms associated with problematic use of such emerging technologies. For example, education on potential risks to one’s health and well-being (especially among youths), provision of clear user guidelines on appropriate and inappropriate use of streaming platforms, as well as the introduction of in-app tools to aid self-regulation in binge-watching should be proposed [62].

Nevertheless, the current systematic review also demonstrates recurring discrepancies in studies’ findings that need to be put into perspective with the particular operationalization of binge-watching and its related assessment. As highlighted in this paper, binge-watching remains an ill-defined construct without consensus regarding its (operational) definition across studies, which use a whole host of assessment methods that continue to impair comparability of data and results. Therefore, this systematic review places a strong emphasis on the current need to structure research efforts devoted to binge-watching to overcome fragmentation and to promote the soundness of this fast-developing research area. To this end, particular avenues for future research are evident including, among others, the development of a common evidence-based definition of binge-watching (e.g., by determining expert consensus through a Delphi technique), and the expansion of the factors investigated (in connection with both unproblematic and problematic related involvement) with reliance on standardized binge-watching self-report measures that have proven to be reliable for use across research teams. Only



then will research on binge-watching be able to generate findings likely to best deepen our understanding of this prominent behavioral phenomenon in today's technological landscape.

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## Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interest. This article has been edited by Editor-in-Chief Marc Potenza instead of Joël Billieux, as Joël Billieux is the Section Editor of the "Technological Addictions" topical collection.

**Human and Animal Rights and Informed Consent** This article does not contain any studies with human or animal subjects performed by any of the authors.

## References

Papers of particular interest, published recently, have been highlighted as:

- Of importance
- Of major importance

1. Deloitte's digital media trends survey 12<sup>th</sup> edition. A new world of choice for digital consumers 2018. [https://www2.deloitte.com/content/dam/insights/us/articles/4479\\_Digital-media\\_trends/4479\\_Digital\\_media%20trends\\_Exec%20Sum\\_vFINAL.pdf](https://www2.deloitte.com/content/dam/insights/us/articles/4479_Digital-media_trends/4479_Digital_media%20trends_Exec%20Sum_vFINAL.pdf). Accessed 20 Sep 2019.
2. Deloitte's digital media trends survey 13<sup>th</sup> edition. Piecing it together 2019. [https://www2.deloitte.com/content/dam/insights/us/articles/4782\\_digital-media-trends-13th-edition/DI\\_Digital-media-trends-13th-edition.pdf](https://www2.deloitte.com/content/dam/insights/us/articles/4782_digital-media-trends-13th-edition/DI_Digital-media-trends-13th-edition.pdf). Accessed 20 Sep 2019.
3. Netflix Media Center. About Netflix 2019. <https://media.netflix.com/en/about-netflix>. Accessed 18 Sep 2019.
4. YouGov Omnibus. 58% of Americans binge-watch TV show 2017. <https://today.yougov.com/news/2017/09/13/58-americans-binge-watch-tv-shows/>. Accessed 20 Sep 2019.
5. Brookes S, Ellithorpe M. Good for your mood, bad for your health: Narrative involvement, health behaviors, and binge watching. San Diego: Poster presented at: 67th ICA Annual Conference; 2017. p. 25–9.
6. Vaterlaus JM, Spruance LA, Frantz K, Kruger JS. College student television binge watching: conceptualization, gratifications, and perceived consequences. *Soc Sci J*. 2018. <https://doi.org/10.1016/j.soscij.2018.10.004>.
7. De Feijter D, Khan JV, Van Gisbergen, MS. Confessions of a 'guilty' couch potato: Understanding and using context to optimize binge-watching behavior. In: TVX '16 Proceedings of the ACM International Conference on Interactive Experiences for TV and Online Video; 2016 Jun 22–24; Chicago (IL): p.59–67. <https://doi.org/10.1145/2932206.2932216>
8. Rubenking B, Bracken CC, Sandoval J, Rister A. Defining new viewing behaviours: What makes and motivates TV binge-watching? *Int J Digital Television*. 2018;9:69–85. [https://doi.org/10.1386/jdtv.9.1.69\\_1](https://doi.org/10.1386/jdtv.9.1.69_1).
9. Hernández Pérez JF, Martínez Díaz MA. Nuevos modelos de consumo audiovisual: Los efectos del binge-watching sobre los jóvenes universitarios [New forms of audiovisual consumption: Binge-watching effects on university students] In: Felici JM, Ripollés AC, editors. *En adComunica. Revista Científica de Estrategias, Tendencias e Innovación en Comunicación*; 2016; Castellón (Spain): p. 201–221. <https://doi.org/10.6035/21740992.2017.13.11>
10. Devasagayam, R. Media bingeing: A qualitative study of psychological influences. In: De Long D, Edmiston D, Hightower R, editors. *Once Retro Now Novel Again: Proceedings of the Marketing Management Association*; 2014 Mar 26–28; Chicago (IL): p. 40–44.
11. Sung YH, Kang EY, Wee L. A bad habit for your health? An exploration of psychological factors for binge-watching behavior. Poster presented at: 65th ICA Annual Conference; 2015 May 21–25; San Juan, Puerto Rico.
12. Umesh S, Bose S. Binge-watching: a matter of concern? *Indian J Psychol Med*. 2019;41:182–4. [https://doi.org/10.4103/IJPSYM.IJPSYM\\_279\\_18](https://doi.org/10.4103/IJPSYM.IJPSYM_279_18).
13. Steiner E, Xu K. Binge-watching motivates change: Uses and gratifications of streaming video viewers challenge traditional TV research. *Convergence*. 2018. <https://doi.org/10.1177/1354856517750365>.
14. Moher D, Liberati A, Tetzlaff J, Altman DG, Altman D, Antes G, et al. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med*. 2009;6:e1000097. <https://doi.org/10.1371/journal.pmed.1000097>.
15. Downes MJ, Brennan ML, Williams HC, Dean RS. Development of a critical appraisal tool to assess the quality of cross-sectional studies (AXIS). *BMJ Open*. 2016;6:e011458. <https://doi.org/10.1136/bmjopen-2016-011458>.
16. Sacolo H, Chimbari M, Kalinda C. Knowledge, attitudes and practices on Schistosomiasis in sub-Saharan Africa: a systematic review. *BMC Infect Dis*. 2018;18:46. <https://doi.org/10.1186/s12879-017-2923-6>.
17. Pittman M, Sheehan K. Sprinting a media marathon: uses and gratifications of binge-watching television through Netflix. *First Monday* 2015;20. <https://doi.org/10.5210/fm.v20i0.6138>.
18. Conlin L, Billings AC, Averset L. Time-shifting vs. appointment viewing: The role of fear of missing out within TV consumption behaviors. *Commun Soc*. 2016;29:151–64. <https://doi.org/10.15581/003.29.4.151-164>.
19. Orosz G, Bóthe B, Tóth-Király I. The development of the problematic series watching scale (PSWS). *J Behav Addict*. 2016;5:144–50. <https://doi.org/10.1556/2006.5.2016.0111>.
20. Ahmed A. New era of TV-watching behavior: Binge-watching and its psychological effects. *Media Watch*. 2017;8:192–207. <https://doi.org/10.15655/mw/2017/v8i2/49006>.
21. Exelmans L, Van den Bulck J. Binge viewing, sleep, and the role of pre-sleep arousal. *J Clin Sleep Med*. 2017;13:1001–8. <https://doi.org/10.5664/jcsm.6704>.
22. Horvath JC, Horton AJ, Lodge JM, Hattie JA. The impact of binge watching on memory and perceived comprehension. *First Monday* 2017;22. <https://doi.org/10.5210/fm.v22i9.7729>.
23. Panda S, Pandey SC. Binge-watching and college students: motivations and outcomes. *Young Consum*. 2017;18:425–38. <https://doi.org/10.1108/YC-07-2017-00707>.
24. Riddle K, Peebles A, Davis C, Xu F, Schroeder E. The addictive potential of television binge-watching: Comparing intentional and unintentional binges. *Psychol Pop Media Cult*. 2017;7:589–604. <https://doi.org/10.1037/ppm0000167> **This study was the first one to introduce the notion that binge-watching is not to be approached as a unitary construct by showing that there are two types of binge-watching behaviors, i.e. intentional and unintentional. In addition, this study emphasized that only**

- unintentional binge-watching was related to impulsivity and symptoms of addiction.**
25. Spruance LA, Karmakar M, Kruger JS, Vaterlaus JM. “Are you still watching?”: Correlations between binge TV watching, diet and physical activity. *J Obesity Weight Manag* 2017.
  26. Tóth-Király I, Bőthe B, Tóth-Fáber E, Gyöző H, Orosz G. Connected to TV series: quantifying series watching engagement. *J Behav Addict*. 2017;6:472–89. <https://doi.org/10.1556/2006.6.2017.083>.
  27. Granow V, Reinecke L, Ziegele M. Binge-watching & psychological well-being: media use between lack of control and perceived autonomy. *Commun Res Rep*. 2018;35:392–401. <https://doi.org/10.1080/08824096.2018.1525347>.
  28. Merikivi J, Salovaara A, Mäntymäki M, Zhang L. On the way to understanding binge watching behavior: the over-estimated role of involvement. *Electron Mark*. 2018;28:111–22. <https://doi.org/10.1007/s12525-017-0271-4>.
  29. Rubenking B, Bracken CC. Binge-watching: a suspenseful, emotional, habit. *Commun Res Rep*. 2018;35:381–91. <https://doi.org/10.1080/08824096.2018.1525346>.
  30. Shim H, Lim S, Jung EE, Shin E. 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 Inform*. 2018;35:1971–9. <https://doi.org/10.1016/j.tele.2018.07.001>.
  31. Shim H, Kim KJ. An exploration of the motivations for binge-watching and the role of individual differences. *Comput Hum Behav*. 2018;82:94–100. <https://doi.org/10.1016/j.chb.2017.12.032>.
  32. Sung YH, Kang EY, Wee L. Why do we indulge? Exploring motivations for binge watching. *J Broadcast Electron Media*. 2018;62:408–26. <https://doi.org/10.1080/08838151.2018.1451851>.
  33. Tefertiller AC, Maxwell LC. Depression, emotional states, and the experience of binge-watching narrative television. *Atl J Commun*. 2018;26:278–90. <https://doi.org/10.1080/15456870.2018.1517765>.
  34. •• Tukachinsky R, Eyal K. The psychology of marathon television viewing: antecedents and viewer involvement. *Mass Commun Soc*. 2018;21:275–95. <https://doi.org/10.1080/15205436.2017.1422765> **This study showed that binge-watching is not inherently pathological or dysfunctional as it can also reflect an active and very meaningful experience for viewers. This study also argues that the dynamic relationship between depression and self-regulation deficiency is a possible psychological mechanism in binge-watching.**
  35. Walton-Pattison E, Dombrowski SU, Presseau J. “Just one more episode”: Frequency and theoretical correlates of television binge watching. *J Health Psychol*. 2018;23:17–24. <https://doi.org/10.1177/1359105316643379>.
  36. Erickson SE, Dal Cin S, Byl H. An experimental examination of binge watching and narrative engagement. *Sociol Sci*. 2019;8:19. <https://doi.org/10.3390/socsci8010019>.
  37. Flayelle M, Canale N, Vögele C, Karila L, Maurage P, Billieux J. Assessing binge-watching behaviors: development and validation of the “watching TV series motives” and “binge-watching engagement and symptoms” questionnaires. *Comput Hum Behav*. 2019;90:26–36. <https://doi.org/10.1016/j.chb.2018.08.022>.
  38. • Merrill K, Rubenking B. Go long or go often: Influences on binge-watching frequency and duration among college students. *Sociol Sci*. 2019;8:10. <https://doi.org/10.3390/socsci8010010> **The results of this study point out the heterogeneous and multi-determined nature of binge-watching by showing that binge-watching frequency and duration are predicted by two non-overlapping sets of variables (e.g., low self-regulation predicted frequency while viewing enjoyment predicted duration).**
  39. Pittman M, Steiner E. Transportation or narrative completion? Attentiveness during binge-watching moderates regret. *Sociol Sci*. 2019;8:1–14. <https://doi.org/10.3390/socsci8030099>.
  40. Starosta J, Izydorczyk B, Lizińczyk S. Characteristics of people’s binge-watching behavior in the “entering into early adulthood” period of life. *Health Psychol Rep*. 2019;7:149–64. <https://doi.org/10.5114/hpr.2019.83025>.
  41. Vandewater EA, Lee SJ. Measuring children’s media use in the digital age: issues and challenges. *Am Behav Sci*. 2009;52:1152–76. <https://doi.org/10.1177/0002764209331539>.
  42. Katz E, Blumler JG, Gurevitch M. Uses and gratifications research. *Public Opin Q*. 1973;37:509–23. <https://doi.org/10.1086/268109>.
  43. Rubin AM. Uses-and-gratifications perspective on media effects. In: Bryant J, Oliver MB, editors. *Media effects: advances in theory and research*. New York: Routledge; 2009.
  44. Flayelle M, Maurage P, Vögele C, Karila L, Billieux J. Time for a plot twist: beyond confirmatory approaches to binge-watching research. *Psychol Pop Media Cult*. 2019;8:308–18. <https://doi.org/10.1037/ppm0000187>.
  45. Blasi MD, Giardina A, Giordano C, Coco GL, Tosto C, Billieux J, et al. Problematic video game use as an emotional coping strategy: evidence from a sample of MMORPG gamers. *J Behav Addict*. 2019;8:25–34. <https://doi.org/10.1556/2006.8.2019.02>.
  46. Billieux J, Gay P, Rochat L, Van der Linden M. The role of urgency and its underlying psychological mechanisms in problematic behaviours. *Behav Res Ther*. 2010;48:1085–96. <https://doi.org/10.1016/j.brat.2010.07.008>.
  47. Selby EA, Anestis MD, Joiner TE. Understanding the relationship between emotional and behavioral dysregulation: emotional cascades. *Behav Res Ther*. 2008;46:593–611. <https://doi.org/10.1016/j.brat.2008.02.002>.
  48. Wimmer RD, Dominick JR. *Mass media research: an introduction*. Boston: Wadsworth; 2013.
  49. Raney AA. The psychology of disposition-based theories of media enjoyment. In: Bryant J, Vorderer P, editors. *Psychology of entertainment*. Mahwah: Lawrence Erlbaum; 2006.
  50. Reinecke L, Hofmann W. Slacking off or winding down? An experience sampling study on the drivers and consequences of media use for recovery versus procrastination. *Hum Commun Res*. 2016;42:441–61. <https://doi.org/10.1111/hcre.12082>.
  51. Hoffmann W, Reinecke L, Meier A. Of sweet temptations and bitter aftertaste: Selfcontrol as a moderator of the effects of media use on well-being. In: Reinecke L, Oliver MB, editors. *The Routledge handbook of media use and well-being: international perspectives on theory and research on positive media effects*. New York: Routledge/Taylor & Francis Group; 2017.
  52. Panek E. Left to their own devices: college students’ “guilty pleasure” media use and time management. *Commun Res*. 2014;41:561–77. <https://doi.org/10.1177/0093650213499657>.
  53. Cao F, Su L, Liu T, Gao X. The relationship between impulsivity and internet addiction in a sample of Chinese adolescents. *Eur Psychiatry*. 2007;22:466–71. <https://doi.org/10.1016/j.eurpsy.2007.05.004>.
  54. Mottram AJ, Fleming MJ. Extraversion, impulsivity, and online group membership as predictors of problematic internet use. *CyberPsychol Behav*. 2009;12:319–21. <https://doi.org/10.1089/cpb.2007.0170>.
  55. LaRose R, Eastin MS. A social cognitive theory of internet uses and gratifications: toward a new model of media attendance. *J Broadcast Electron Media*. 2004;48:358–77. [https://doi.org/10.1207/s15506878jobem4803\\_2](https://doi.org/10.1207/s15506878jobem4803_2).
  56. Kwon M, Lee JY, Won WY, Park JW, Min JA, Hahn C, et al. Development and validation of a smartphone addiction scale (SAS). *PLoS One*. 2013;8:e56936. <https://doi.org/10.1371/journal.pone.0056936>.

57. Green M, Brock T, Kaufman G. Understanding media enjoyment: the role of transportation into narrative worlds. *Commun Theory*. 2004;14:311–27. <https://doi.org/10.1111/j.1468-2885.2004.tb00317.x>.
58. Reinecke L, Oliver MB. Media use and well-being. Status quo and open questions. In: Reinecke L, Oliver MB, editors. *The Routledge handbook of media use and well-being: international perspectives on theory and research on positive media effects*. New York: Routledge/Taylor & Francis Group; 2017.
59. Brand M, Laier C, Young KS. Internet addiction: coping styles, expectancies, and treatment implications. *Front Psychol*. 2014;5: 1256. <https://doi.org/10.3389/fpsyg.2014.01256>.
60. Brand M, Young KS, Laier C, Wolfling K, Potenza MN. Integrating psychological and neurobiological considerations regarding the development and maintenance of specific internet-use disorders: an interaction of person-affect-cognition-execution (I-PACE) model. *Neurosci Biobehav Rev*. 2016;71:252–66. <https://doi.org/10.1016/j.neubiorev.2016.08.033>.
61. Billieux J, Flayelle M, Rumpf HJ, Stein D. High involvement versus pathological involvement in video games: a crucial distinction for ensuring the validity and utility of gaming disorder. *Curr Addict Rep*. 2019;6:323–30. <https://doi.org/10.1007/s40429-019-00259-x>.
62. Swanton TB, Blaszczyński A, Forlini C, Starcevic V, Gainsbury SM. Problematic risk-taking involving emerging technologies: A stakeholder framework to minimize harms. *J Behav Addict*. 2019. <https://doi.org/10.1556/2006.8.2019.52>.

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