

A Survey Study on Public Attitudes Toward Gaming Disorder

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Abstract

The World Health Organization’s decision to include addictive game use (“gaming disorder”) in the International Classification of Diseases was the subject of controversial scientific debates (e.g., Aarseth et al., 2017; Rumpf et al., 2018; for an overview, see Reer & Quandt, 2021). However, knowledge is scarce on how addictive game use is perceived outside of academic circles (Schatto-Eckrodt et al., 2020). The current study aimed to fill this research gap by interviewing a stratified German sample ($N = 1,075$) on their attitudes toward the topic. We found that critical views about games and their addiction potential are rather common among the German general population. Further, we found evidence that many participants overestimated the number of players affected by gaming disorder. Regression analyses showed that age, gender, and gaming experience play a role in how individuals think about risks associated with game use. Interestingly, having heard about the topic in the media was associated with more critical attitudes and higher presumed prevalence rates. More exchange between scholars and the wider public is needed to increase knowledge on the topic. Further, media reports on gaming disorder should cover the latest research findings and the opposing views of scientists.

Keywords

computer games; digital games; gaming addiction; gaming disorder; problematic game use; societal perception; video games

1. Introduction

Playing digital games is one of the most popular leisure-time activities worldwide: According to the American Entertainment Software Association, 212.6 million Americans play digital games one hour or more per week, which equals 65% of the US population (American Entertainment Software Association, 2023). In European

countries like Germany (where the current study was conducted), six out of 10 people in the age group of 6 to 69 years play digital games (Game—Verband der deutschen Games-Branche, 2023). The number of gamers worldwide was estimated to be 3.42 billion in 2024 (Newzoo, 2024).

However, notwithstanding this popularity, there have always been worries in parts of academia and society concerning the possible negative impacts of playing digital games (e.g., Ferguson & Beaver, 2017; Przybylski, 2014; Reer et al., 2024). Despite a growing number of studies considering the beneficial effects of gaming, there is some evidence that media coverage still often portrays games and gamers in a biased and sensationalistic manner (e.g., Bigl & Schlegelmilch, 2021; Jung, 2019; Whitton & Maclure, 2017). Regarding the addiction potential of digital games, the media frequently report extreme cases of adolescents or younger adults who develop serious problems because of their excessive gaming behavior and thus have to undergo medical treatment (e.g., Reumschüssel, 2012; von Hayek, 2020). The topic received particular attention in 2019 when the World Health Organization (WHO) confirmed the inclusion of addictive game use (“gaming disorder” [GD]) in the 11th edition of the International Classification of Diseases (ICD-11; WHO, 2024).

What is less well-known among the wider population is that the WHO’s decision to include GD in the ICD-11 was controversial among scholars (Reer & Quandt, 2021). An analysis of the X (formerly Twitter) debate about GD showed that the topic was discussed not only in academia and the health sector but also among other societal groups, such as parents, journalists, and gamers (Schatto-Eckrodt et al., 2020). However, it is important to note that only a relatively small percentage of gamers are affected by GD: For example, in Germany, a representative survey of internet users aged 14 to 39 years found prevalence rates of 2.4% among gamers and 1.9% among the entire population (Reer et al., 2021). A recent meta-analysis reported an average worldwide GD prevalence rate of around 3% (1.96% if only studies with stratified samples are considered; Stevens, Dorstyn, et al., 2021).

In general, little is known about how addictive game use is perceived in society as a whole. The topic is of societal relevance, as a lack of knowledge about GD, disproportionately critical opinions on games, and a systematic overestimation of the prevalence rate could, for example, fuel unfounded worries and lead to wrong decisions concerning the regulation of gaming. Further, individuals suffering from addictions (including behavioral addictions, such as GD or gambling disorder) face public stigmatization and experience blame and social distancing (e.g., Peter et al., 2019). Such negative effects could also affect players who are mistakenly thought to be addicted to digital games.

In the current study, we surveyed a stratified German sample of internet users aged 16 to 84 years on their attitudes toward the topic. Besides providing descriptive insights into how the general population thinks about disordered game use, we additionally examined different factors that might contribute to a more critical vs. a more liberal opinion.

1.1. The GD Debate

The WHO was not the first health organization to include addictive game use in its diagnostic manual (Reer & Quandt, 2021). In 2013, the American Psychiatric Association included “internet gaming disorder” (IGD) in the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5). Referred to as a

“condition for further study,” IGD is defined by nine criteria (e.g., preoccupation, withdrawal, or loss of interest in other activities), five of which must be observable for one year or more before a diagnosis can be considered (American Psychiatric Association, 2013).

Several scholars criticized the inclusion of IGD in the DSM-5 and expressed concerns about the decision-making process underlying the proposal, as well as about the proposed diagnostic criteria (Reer & Quandt, 2021).

Kardefelt-Winther (2015) argued that many IGD criteria were adopted from substance use disorders or gambling and do not fit the context of gaming very well. For example, he stated that it is not uncommon to feel preoccupied with a favorite leisure-time activity (be it gaming) to a certain degree and to experience frustration (similar to withdrawal symptoms) when not being able to play for a longer period of time (Kardefelt-Winther, 2015). To adequately distinguish between enthusiastic healthy engagement and harmful addictive behavior, it is most important to examine whether serious psychosocial and functional impairments can be observed (Kardefelt-Winther et al., 2017).

A wide spectrum of additional arguments against the DSM-5 proposal were put forward (Reer & Quandt, 2021): For example, other authors argued that the “internet” in IGD is misleading since this terminology inadequately suggests that excessive play only concerns online (and not offline) gaming (Kuss et al., 2017). In general, IGD, as defined in the DSM-5, “is lacking a well-defined object” (Quandt, 2017, p. 121), and the classification of excessive gaming as a behavioral addiction may have a negative impact on how gaming is perceived in society, possibly leading to a pathologization of a normal leisure behavior (Kardefelt-Winther et al., 2017; Quandt, 2017).

Notwithstanding these critical voices, the WHO in 2019 decided to fully recognize GD as a diagnosis in the ICD-11 (WHO, 2024). The ICD-11 defines GD as:

A pattern of persistent or recurrent gaming behaviour (“digital gaming” or “video-gaming”), which may be online (i.e., over the internet) or offline, manifested by: 1. impaired control over gaming (e.g., onset, frequency, intensity, duration, termination, context); 2. increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities; and 3. continuation or escalation of gaming despite the occurrence of negative consequences. The pattern of gaming behaviour may be continuous or episodic and recurrent. The pattern of gaming behaviour results in marked distress or significant impairment in personal, family, social, educational, occupational, or other important areas of functioning. The gaming behaviour and other features are normally evident over a period of at least 12 months in order for a diagnosis to be assigned, although the required duration may be shortened if all diagnostic requirements are met and symptoms are severe. (WHO, 2024)

Notably, some of the concerns raised against the DSM-5 criteria were addressed by the WHO (Reer & Quandt, 2021). For example, controversial criteria such as preoccupation are not part of the ICD-11 GD definition, while functional impairment is stressed (Billieux et al., 2017; Reer & Quandt, 2021).

Even more so than the inclusion of IGD as a “condition for further study” in the DSM-5, the full recognition of GD as a mental condition in the ICD-11 sparked debate among scholars (Reer & Quandt, 2021): For

example, a group of researchers questioned the scientific basis of the decision, coming to the conclusion that full recognition of GD as a formal diagnosis is premature. In consequence, premature diagnoses could occur, leading to an increase in false-positive cases and incorrect treatment (Aarseth et al., 2017; van Rooij et al., 2018). Further, policy on games could change, and the large majority of healthy gamers may be negatively affected (Aarseth et al., 2017). There were also concerns as to whether GD constitutes a unique disorder or whether it is more a symptom of other underlying mental problems (Bean et al., 2017; Ferguson et al., 2020).

In contrast, others supported the decision of the WHO (Reer & Quandt, 2021), stressing that the inclusion of GD in the ICD-11 is necessary from a clinical perspective to establish professional treatment (e.g., Higuchi et al., 2017; Rumpf et al., 2018; van den Brink, 2017). Accordingly, the points raised by Aarseth et al. (2017) and van Rooij et al. (2018) might carry the risk that health insurance companies adopt these arguments to refuse payment for therapies (Rumpf et al., 2018). Király and Demetrovics (2017) argue that even though some of the concerns raised against the ICD-11 GD criteria are legitimate, the advantages of the classification outweigh the disadvantages.

The disagreements among scientists were also reflected in a study by Ferguson and Colwell (2020), who surveyed 214 scholars about their opinions on the DSM-5 and ICD-11 classifications of GD. Ferguson and Colwell (2020) found that 60.8% of the participants agreed that addictive gaming is indeed a mental disorder (30.4% disagreed). Further, 49.7% agreed that the DSM-5 criteria are valid (36.7% disagreement), while slightly more (56.5%) agreed that the ICD-11 GD diagnosis criteria are valid (33.1% disagreement; Ferguson & Colwell, 2020). Interestingly, 54.9% stated they were worried that healthy youths may be pathologized based on the WHO GD criteria (36% disagreement), and 43.5% agreed that gaming addiction diagnoses may be more harmful than useful (47.7% disagreement; Ferguson & Colwell, 2020).

1.2. Media Coverage and Societal Perception of GD

While the debate articles that were published about the inclusion of GD in the DSM-5 and ICD-11 give a good impression of researchers' controversial opinions, much less is known about how the wider public thinks about the topic and how good knowledge of the state of research is beyond academia (Schatto-Eckrodt et al., 2020). In the current study, we were particularly interested in how well German citizens are able to realistically estimate the prevalence of GD and how widespread critical vs. liberal opinions on the topic are.

A few survey studies have tried to capture how games and gamers are perceived in society (e.g., Kort-Butler, 2021; Kowert et al., 2012; Przybylski, 2014; Stone, 2019), most of them not focusing on addictive use. Further, there are some content analyses examining how the media report on gaming-related topics (e.g., Bigl & Schlegelmilch, 2021; Jung, 2019; Whitton & Maclure, 2017).

Researchers often discuss whether the way gamers are portrayed in the media contributes to the persistence of moral panics (Bowman, 2016; Ferguson & Beaver, 2017; Sørensen, 2013). Moral panics are defined as periods when "a condition, episode, person or group of persons emerges to become defined as a threat to societal values and interests; its nature is presented in a stylized and stereotypical fashion by the mass media" (Cohen, 2002, p. 1, as cited in Sørensen, 2013, p. 965).

Indeed, media reports have associated the use of games with several negative effects, such as the displacement of more valuable activities, risks to physical health, negative social effects, and an increased

risk of violence (Bowman, 2016; Jung, 2019; McKernan, 2013). An analysis of the press coverage following the school shooting in Emsdetten (Germany) in 2006 showed that reportage about violent games was rather fragmented but that violent games were repeatedly presented as a field of political intervention, with discussion of bans to prevent such incidents in the future (Sørensen, 2013). A few content analyses have also identified favorable topic frames, for example, gaming as an emotional outlet that may enhance certain cognitive skills (Williams, 2003), as a “valuable artistic form” (McKernan, 2013, p. 308), or in relation to aspects of “team play and tactics, prudence, strategy and communication” (Sørensen, 2013, p. 972). However, several studies have found that media representations of gaming are still often negative, biased, stereotypical, or sensationalistic (Bigl & Schlegelmilch, 2021; Jung, 2019; Whitton & Maclure, 2017; Williams, 2003).

This rather negative image of gaming is also observable in survey studies that examined perceptions and opinions relating to games and gamers. For example, Kowert et al. (2012) conducted a survey of 342 internet users and found that negative stereotypes about gamers (e.g., being unattractive, overweight, or socially inept) were widespread and that especially non-gamers to a certain degree tended to adopt them as personal opinions. In a more recent study, Stone (2019) found that even though perceptions of gamers had changed to some extent, negative stereotypes were still prevalent. Notably, several studies have indicated that the extent to which negative stereotypes are internalized depends on various factors, including age, gender, self-identification as a gamer, and gaming habits (Kort-Butler, 2021; Kowert et al., 2012; Przybylski, 2014; Stone, 2021).

Further, research has sporadically examined the interplay between media coverage or reception and perceptions of gaming (e.g., Jung, 2019; Kümpel & Haas, 2016). For example, Jung (2019) conducted a multi-method study in Korea (combining an analysis of news content and a survey) and found evidence that “exposure to mass media that highlights the negative aspects of games has strong impacts on attitudes toward game regulation and leads people to agree with the idea that game playing has negative connotations” (p. 157).

However, only a few studies have explicitly focused on the societal perception of addictive game use. Carter et al. (2020) conducted qualitative interviews with 29 young gamers aged 9 to 14 years and asked them about their opinions and perspectives on GD. They reported that knowledge of what constitutes addictive behaviors was rather low and that GD, enthusiasm for a game, and high engagement were often conflated. Further, they found clear indications that the media discourse played a significant role in how children perceived games and GD, potentially contributing to a stigmatization of digital game use (Carter et al., 2020). This finding is in line with a quantitative content analysis examining media coverage of the WHO’s decision to include GD in the ICD-11: Examining 513 newspaper articles published between June 2018 and June 2019, Parrott et al. (2020) found that the opinions of health professionals were overrepresented, while gamers’ perspectives were rarely considered. Further, they observed that the media seldomly reported about the controversial debate among game scholars, but simplified the complexity of the topic and apparently legitimized the WHO’s decision (Parrott et al., 2020). A computational analysis of the X debate surrounding the WHO decision showed that the topic was in fact also discussed among gamers and the wider public, with many posts opposing the classification of GD in the ICD-11 (Schatto-Eckrodt et al., 2020).

1.3. The Current Study

As outlined above, research on the societal perception of addictive game use is scarce. Following an explorative attempt, we asked the following research question:

RQ1: How is addictive game use perceived in society?

We additionally aimed to provide a deeper understanding of the underlying explanatory factors that could contribute to a more critical vs. a more liberal view of games and their addiction potential. Based on the literature outlined above, we identified several factors that might play a role here.

Studies have found that older age (e.g., Jung, 2019; Przybylski, 2014), female gender (Jung, 2019; Przybylski, 2014), non-identification as a gamer (e.g., Kort-Butler, 2021; Kowert et al., 2012; Stone, 2021), and a lack of personal experiences with games (e.g., Kort-Butler, 2021; Kowert et al., 2012; Przybylski, 2014; Quandt et al., 2015) were associated with more critical attitudes and beliefs in stereotypes on games and gamers. Against this background, we posed the following hypotheses:

H1: Age is positively associated with more critical attitudes toward games (H1a) and a higher presumed GD prevalence rate (H1b).

H2: Female gender is positively associated with more critical attitudes toward games (H2a) and a higher presumed GD prevalence rate (H2b).

H3: Playing time is negatively associated with more critical attitudes toward games (H3a) and a higher presumed GD prevalence rate (H3b).

H4: Never having played a digital game is positively associated with more critical attitudes toward games (H4a) and a higher presumed GD prevalence rate (H4b).

H5: Gamer identity is negatively associated with more critical attitudes toward games (H5a) and a higher presumed GD prevalence rate (H5b).

Some studies found evidence that personal experiences with addictions can influence how individuals perceive the risks of substances like alcohol or tobacco (e.g., Koski-Jännes et al., 2012; Weinandy, 2023). We hypothesized that those who have experiences with GD themselves or who personally know someone who is assumingly affected by GD might hold more critical views:

H6: Self-identification as addicted to digital games is positively associated with more critical attitudes toward games (H6a) and a higher presumed GD prevalence rate (H6b).

H7: Knowing someone who is thought to be addicted to games is positively associated with more critical attitudes toward games (H7a) and a higher presumed GD prevalence rate (H7b).

There is some indication that the media often report about games (e.g., Bigl & Schlegelmilch, 2021; Jung, 2019; Whitton & Maclure, 2017) and GD (e.g., Parrott et al., 2020) in a rather unbalanced manner, potentially

influencing audience perceptions (Carter et al., 2020; Jung, 2019; Kümpel & Haas, 2016) and thus contributing to stigmatization and moral panic (Bowman, 2016; Carter et al., 2020; Ferguson & Beaver, 2017). Also, some scholars have argued that the classification of GD in the ICD-11 in general might contribute to moral panic and a stigmatization of players (e.g., Aarseth et al., 2017). Knowledge of the WHO decision might therefore be another factor that could foster critical views. We hypothesized:

H8: Consumption of media reports on GD is positively associated with more critical attitudes toward games (H8a) and a higher presumed GD prevalence rate (H8b).

H9: Knowledge of the WHO decision to include GD as a diagnosis in the ICD-11 is positively associated with more critical attitudes toward games (H9a) and a higher presumed GD prevalence rate (H9b).

Finally, we also considered two more general factors: personality and education. We assumed that individuals with a fearful personality and a generally dangerous worldview (e.g., Leiser et al., 2017) might tend to have more concerns that games can have negative impacts on players. Further, we asked how formal education is related to the perception of games and their addiction potential. We posed the following hypotheses:

H10: A scary worldview is positively associated with more critical attitudes toward games (H10a) and a higher presumed GD prevalence rate (H10b)

RQ2: How is education related to attitudes toward games (RQ2a) and presumed GD prevalence rate (RQ2b)?

2. Methods

The central aims of the study were to gain information about how the German general population thinks about games and their addiction potential and to identify predictors of more liberal vs. more critical opinions. In order to achieve these goals, a quantitative stratified survey seemed particularly suitable, since it allows the collection of descriptive data and to conduct regression analyses to examine the hypotheses. Against the background of these considerations, the study was conducted as part of a larger quantitative online survey project carried out in cooperation with a leading professional German survey research institute.

The external survey institute followed the ethical guidelines of the International Code on Market, Opinion and Social Research and Data Analytics by the International Chamber of Commerce and the European Society for Opinion and Market Research to provide high research and data protection standards to the participants. Further, the study procedures were confirmed by the university department's research ethics board.

The survey questions were selected and designed by the authors of this article. The survey research institute programmed the online questionnaire, conducted a technical pretest, and recruited the participants via an online access panel to participate in computer-assisted web-based interviews. A stratification procedure (criteria: gender, age, living region in Germany) was applied to more closely match the sample with the German general population.

The dataset provided by the survey research institute consisted of 1,108 cases. Before analyzing the data, the dataset was screened for invalid cases. One person reported an unrealistically high internet usage time of 9,600 minutes per week (160 hours) and also showed signs of straight-lining. The person's data were deleted from the dataset. Another 30 cases were also deleted for straight-lining and two for highly implausible answers. The final sample consisted of 1,075 German internet users aged 16–84 years (mean age: 44.93, $SD = 16.70$; 48.8% female, 51.1% male, 0.1% diverse).

2.1. Measures

The online questionnaire consisted of different thematic blocks (including parts not relevant to the current study). The first block focused on demographic data (area of residence in Germany, age, and gender). The second block consisted of questions on the use of different types of media. The questions on game use were introduced as follows:

In the following section, we are interested in the use of computer games. By computer games, we understand all forms of digital games that are played online or offline, e.g., via a desktop computer, laptop, tablet, gaming console, or mobile device, such as a smartphone.

In the survey, we used the term *addiction* when referring to disordered use. We are of course aware that there are discussions among scholars about whether the term should be used in the context of gaming (e.g., Ferguson et al., 2020; Reer & Quandt, 2021). However, we deliberately used it in the survey because this is the term most people are familiar with, while alternative terms such as *GD* or *problematic gaming* are possibly unknown among the general public.

Several questions addressed demographics and background factors. We asked the participants about their gender and age. Formal education was assessed by asking the participants about the German school-leaving qualification they had achieved. Participants who were still attending school were asked about the type of school. To measure individual differences in the general perception of the world, we adopted the 5-item dangerous worldview scale by Leiser et al. (2017; for original items, see Altemeyer, 1988; Duckitt et al., 2002). The scale consists of statements about how dangerous people in general perceive their social surroundings ("any day now chaos and anarchy could erupt around us, all the signs are pointing to it"; 1 = *strongly disagree*, 6 = *strongly agree*; Cronbach's $\alpha = 0.808$, $M = 3.36$, $SD = 1.04$).

Concerning attitudes toward (addictive) game use, the existing quantitative studies on public perceptions of games and gamers had a different focus than that of the current study, and, for example, examined beliefs in aggression risks associated with playing violent games (Przybylski, 2014), general stereotypes associated with gamers (Kowert et al., 2012; Stone, 2021), or stigmatization of addicted gamers (Peter et al., 2019). Other studies that included items on attitudes toward GD were conducted among experts and not among the general public (e.g., Ferguson & Colwell, 2017, 2020; Quandt et al., 2015). In the absence of a suitable existing scale, eight items were created to measure critical attitudes toward games, primarily focusing on addictive use. They were rated on a scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The survey block containing the items on addictive gaming was presented using the following instruction: "We will now again focus on the topic of computer games. We are interested in your opinion: How much do you agree with the following statements?" A full list of all items and descriptive statistics is provided in Table 1. A principal axis factor

analysis (varimax rotation; eigenvalue > 1) showed that all eight items loaded highly on one single factor that explained 62.56% of the initial variance. We computed a mean index of the eight items ($\alpha = 0.913$, $M = 3.28$, $SD = 1.01$). A high mean value indicates a stronger belief in the harmfulness and addictiveness of games, while a low value indicates a more liberal opinion. Additionally, using a slider from 0 to 100%, the participants were asked to estimate the prevalence rate of addicts among game users ("Please estimate: What percentage of computer game users are addicted to them?").

Further, the questionnaire included several gaming-related measurements. Participants were asked how much time they spent gaming in a normal/average week. In total, 227 participants indicated that they have never actively played a digital game and 259 stated that they currently do not play. The average weekly game usage time was 4.42 hours ($SD = 8.00$) among the entire sample (including non-gamers), and 8.15 hours ($SD = 9.36$) among active gamers (playing time > 0.00 hours). Three items were used to measure the participants' level of identification as a gamer (based on Ellemers et al., 1999; Tang et al., 2020; e.g., "I identify with other gamers"; 1 = *strongly disagree*, 5 = *strongly agree*; $M = 1.65$, $SD = 1.03$, $\alpha = 0.908$).

Lastly, the participants were asked about personal experiences with addictive gaming and knowledge about the WHO decision. We asked them whether they would consider themselves addicted to computer games and whether they know someone personally whom they would consider addicted. A single item rated on a 5-point scale (1 = *never* to 5 = *very often*) was used to measure how often the participants have heard something about computer game addiction in the media ($M = 2.38$, $SD = 0.89$). Finally, the participants were asked whether they are aware of the WHO's decision to include GD in the ICD-11.

3. Results

To answer RQ1, we calculated descriptive statistics for all eight items on attitudes toward addictive game use. For simplification, we aggregated options one and two (disagreement), and options four and five (agreement) of the provided 5-point scale.

As can be seen in Table 1, most participants had a rather critical view of games. A majority showed agreement that games can be addictive, that their addiction potential is similar to that of alcohol or cigarettes, that professional therapies are needed, that game addiction is a serious societal risk, and that official acknowledgment is useful. Results concerning statements on stricter laws, a prohibition of particular games, and the comparability of game addiction with heroin and cocaine abuse were more balanced.

The participants on average considered 36.70% of gamers to be addicted ($SD = 23.52$). The median for the estimated prevalence rate was 32%. Overall, 2.8% of the participants would consider themselves addicted, while 24.7% indicated personally knowing someone whom they would consider addicted to computer games. Interestingly, only 16.2% of the participants were aware of the WHO decision.

To examine the hypotheses, two regression models were calculated: one predicting the mean index of attitudes toward game addiction, and one predicting the presumed prevalence rate (see Table 2). Education (high = 1) and gender (female = 1) were dichotomized. To account for non-normality, bootstrapping with 95% bias-corrected and accelerated confidence intervals (CI) was applied (10,000 bootstrap samples).

Table 1. List of items on attitudes toward gaming addiction.

Topic	Item	M (SD)	Disagreement		Agreement
			(1 and 2)	(3)	(4 and 5)
Addictiveness	Computer games can be addictive	4.05 (1.11)	118 11%	138 12.8%	819 76.2%
Alcohol/nicotine	The addiction potential of computer games is similar to alcohol or cigarettes	3.45 (1.24)	243 22.6%	261 24.3%	571 53.1%
Heroin/cocaine	The addiction potential of computer games is similar to heroin or cocaine	2.87 (1.31)	426 39.6%	284 26.4%	365 34%
Stricter laws	We need stricter legal regulations of computer games	2.87 (1.35)	436 40.6%	276 25.7%	363 33.8%
Prohibition	Some computer games should be forbidden because of their addiction potential	3.02 (1.45)	409 38%	234 21.8%	432 40.2%
Therapies	We need professional therapies and facilities for the treatment of computer game addiction	3.36 (1.22)	236 22%	311 28.9%	528 49.1%
Societal risk	The addiction potential of computer games is a serious societal risk	3.28 (1.26)	294 27.3%	280 26%	501 46.6%
Acknowledgment	An official acknowledgment of computer games addiction as a diagnosable disease is useful	3.36 (1.27)	262 24.4%	284 26.4%	529 49.2%

We found that age predicted more critical views toward games but was not significantly related to a higher presumed prevalence rate. Thus, hypothesis H1a was confirmed, while H1b had to be rejected. H2a and H2b were both confirmed, as female gender was positively related to more critical attitudes as well as to higher presumed prevalence rates.

Concerning gaming experiences, we found that never having played a game was positively related to more critical attitudes and a higher presumed prevalence rate (confirming H4a–b), while gaming time was a negative predictor of both dependent variables (confirming H3a–b). Hypothesis H5 was only partly supported, as gamer identity negatively predicted critical attitudes (supporting H5a) but was not significantly related to the presumed prevalence rate (not confirming H5b).

As expected, knowing someone who is thought to be addicted to games predicted more critical attitudes (supporting H7a) and higher presumed prevalence rates (supporting H7b). However, self-identification as someone who is addicted to games only predicted a higher presumed prevalence rate (confirming H6b) and was not significantly related to more critical attitudes (not confirming H6a).

Hypotheses H8a–b predicted a positive effect of media consumption on the two outcome variables and were both supported. Knowledge of the WHO decision showed no significant effect on presumed prevalence rates (H9b). The effect for critical views (H9a) approached significance ($p = 0.055$); however, the beta coefficient ($\beta = 0.05$) was very small.

Table 2. Regression models.

	Critical attitudes				Presumed prevalence rate			
	<i>B</i> (<i>SE</i>)	Beta	95% <i>CI</i>	<i>p</i>	<i>B</i> (<i>SE</i>)	Beta	95% <i>CI</i>	<i>p</i>
(Constant)	1.53 (0.18)		1.19, 1.89	0.001	6.06 (4.29)		-2.61, 14.78	0.158
Age	0.01 (0.00)	0.20	0.01, 0.02	0.001	0.05 (0.05)	0.04	-0.04, 0.14	0.273
Female gender	0.27 (0.06)	0.14	0.16, 0.38	0.001	6.01 (1.33)	0.13	3.43, 8.49	0.001
High education	0.07 (0.06)	0.03	-0.05, 0.18	0.272	-4.95 (1.42)	-0.10	-7.71, -2.09	0.001
Scary worldview	0.16 (0.03)	0.16	0.10, 0.21	0.001	5.15 (0.68)	0.23	3.84, 6.47	0.001
Gaming hours (week)	-0.01 (0.00)	-0.07	-0.02, -0.001	0.034	-0.28 (0.10)	-0.09	-0.48, -0.09	0.005
Never played game	0.24 (0.07)	0.10	0.09, 0.38	0.001	4.63 (1.74)	0.08	1.25, 8.09	0.007
Gamer identity	-0.16 (0.04)	-0.16	-0.23, -0.09	0.001	-1.33 (0.84)	-0.06	-2.97, 0.26	0.117
Self-identified addict	-0.30 (0.19)	-0.05	-0.69, 0.07	0.101	18.73 (4.19)	0.13	10.27, 26.83	0.001
Knowing an addict	0.34 (0.07)	0.15	0.21, 0.47	0.001	11.97 (1.66)	0.22	8.85, 15.23	0.001
Media consumption	0.28 (0.04)	0.24	0.21, 0.35	0.001	4.20 (0.81)	0.16	2.61, 5.80	0.001
Knowledge WHO	0.14 (0.07)	0.05	-0.01, 0.28	0.055	-0.50 (1.83)	-0.01	-4.02, 3.12	0.788
<i>R</i> ²	0.25				0.22			

Notes: $n = 1,064$ (11 cases were excluded because the education level was unclear); significance tests and 95% *CI* based on bootstrapping (10,000 samples; bias-corrected and accelerated); dichotomous variables were coded with 0 and 1.

Finally, we found that a scary worldview was a significant predictor of both more critical attitudes (supporting H10a) and higher presumed prevalence rates (supporting H10b). Concerning RQ2, we found that high education significantly predicted lower presumed prevalence rates (RQ2b), but no significant effect for critical attitudes (RQ2a) was identified.

Because outliers can influence model estimation, we additionally calculated alternative robust regressions using the “lmrob” function of the “robustbase” package for *R* (Maechler et al., 2024) to compare results. The only remarkable difference in the significance of the predictors was that the *p*-value for knowledge of the WHO decision on critical attitudes turned significant (unstandardized $B = 0.16$; $p < 0.05$), while it was not significant in the classical bootstrapping approach (unstandardized $B = 0.14$; $p = 0.055$).

4. Discussion

Our results show that critical views about games and their addiction potential are rather common among the German general population. A majority showed agreement that games can be addictive, that their addiction potential is similar to that of alcohol or cigarettes, that professional therapies are needed, that game addiction

is a serious societal risk, and that an acknowledgment of computer game addiction as a diagnosable disease is useful. Notably, about one-third even (rather) agreed that the addiction potential of digital games is similar to that of heroin or cocaine. Further, a considerable number of participants also (rather) agreed that stricter legal regulation of games is needed (33.8%) and that some games should be forbidden because of their addiction potential (40.2%). These findings are in line with previous research showing that even though perceptions of games and gamers have shifted to a certain degree in recent years, negative views are still widespread (Stone, 2019, 2021).

The high average presumed prevalence rate of 36.70% indicates that many participants overestimated the number of players addicted to games. In fact, the global prevalence rate of GD was recently found to lie around 2% to 3% (Stevens, Dorstyn, et al., 2021), and similar rates were also reported for Germany (e.g., Reer et al., 2021). The reasons for the overestimation of GD prevalence may be manifold. The simplest explanation could be that people are generally not very good at estimating numbers. However, it can also be interpreted as a rather widespread misperception of gaming or misunderstandings of the term *addiction*. Previous studies have shown that knowledge of what constitutes an addiction is rather low and that enthusiastic play and GD are often conflated (Carter et al., 2020). In general, it seems difficult for laypersons to identify (behavioral as well as substance) addictions sufficiently (Jamieson & Dowrick, 2021), and public understanding of the term *addiction* is complex and goes beyond the diagnostic criteria defined in the ICD-11 or DSM-5 (Weinandy, 2023). Thus, the high estimated prevalence rate could be indicative of difficulties in distinguishing between problematic, addictive, and healthy play. Likewise, the relatively high percentage of participants who stated that they knew someone whom they would consider addicted (24.7%) raises the question of whether this perhaps reflects a lack of knowledge rather than a widespread addiction problem. In this context, it is also noteworthy that only a minority (16.2%) was aware of the WHO decision to officially acknowledge GD. This indicates that the topic and the intensive scientific debate surrounding the decision (e.g., Aarseth et al., 2017; Higuchi et al., 2017; Rumpf et al., 2018; van Rooij et al., 2018) have probably not been noticed by large parts of the German public.

The results of the regression analyses give further insights into what factors play a role in how people think about games and GD. We found that females and older participants were more critical about games, and females also estimated GD prevalence higher. These findings are in line with earlier studies: For example, Jung (2019) found that older persons and females more often supported stronger regulation of games and in general had more negative opinions about games. Przybylski (2014) reported similar results concerning beliefs in aggression effects, finding that “demographic cohorts who did not grow up with games and those who lack concrete gaming experience” (p. 228) were more critical of games. Consistent with this, we found that playing time per week and identification as a gamer were associated with more liberal opinions, and gaming time negatively predicted the presumed prevalence rate. Further, participants who had never actively played a digital game themselves were more critical and estimated the prevalence rate as higher. Thus, negative perceptions of games and overestimations of the addiction problem might to a certain degree be attributed to a lack of personal experience with the subject (e.g., Ferguson & Colwell, 2017, 2020; Kort-Butler, 2021; Kowert et al., 2012; Przybylski, 2014; Quandt et al., 2015). Alternatively, one could argue that individuals who highly identify as gamers and who themselves regularly play tend to be less critical about games.

Further, regression analysis indicated that those who considered themselves addicted to gaming estimated prevalence as higher. Also, knowing someone who was thought to be addicted to gaming was associated

with more critical attitudes and higher estimations of the prevalence rate. Koski-Jännes et al. (2012) found that individuals in treatment perceived the risk of dependence for legal substances like alcohol and tobacco as higher than the general population and health professionals, while non-significant or opposing results were reported for behavioral addictions and illegal substances. Weinandy (2023) reported that individuals with personal addiction experiences perceived some objects as more addictive than individuals without such experiences. We think that it makes sense that individuals who belong to the minority of players affected by GD themselves (or who personally know someone potentially belonging to this group) estimate prevalence rates as higher due to the negative experiences they have had with games. The average player (who may have played for years without experiencing any negative consequences) may consider it less likely that a large proportion of players become addicted to gaming. However, one should consider that the group sizes were small and that the results are based on subjective assessments of one's own (addictive) gaming behavior and the (addictive) gaming behavior of others. Thus, the results should be interpreted cautiously. Further research is needed to verify the influence of personal experiences with GD on the perception of GD.

Several scholars have argued that the inclusion of addictive gaming in the DSM-5 and ICD-11 might lead to a stigmatization of players and a pathologization of a normal leisure-time activity (e.g., Aarseth et al., 2017; Quandt, 2017; van Rooij et al., 2018). However, according to our data, knowledge about the WHO's decision had no significant influence on the estimated GD prevalence rate and influence on critical attitudes was unclear. A recent experimental study indicated that framing problematic gaming as an addictive disorder (in line with the ICD-11 classification) has little influence on the stigmatization of gamers (Galanis et al., 2023). This could be interpreted as a hint that worries concerning a general pathologization of gamers due to the WHO decision could be unfounded. However, more research on this topic is needed to substantiate these findings.

Further, researchers have frequently discussed the role of media coverage in fostering moral panics about games and gaming's potentially negative effects (e.g., Bowman, 2016; Ferguson & Beaver, 2017; Sørensen, 2013). Indeed, studies have shown that the media often portray games in a rather unbalanced manner (e.g., Bigl & Schlegelmilch, 2021; Jung, 2019; Whitton & Maclure, 2017), potentially influencing audience perceptions (Carter et al., 2020; Jung, 2019; Kümpel & Haas, 2016). Accordingly, we found that having heard about the topic in the media was associated with more critical attitudes and higher presumed prevalence rates. This may be interpreted as a hint that the way media reports about GD promotes critical views.

Additionally, we found that some more general background factors play a role in the perception of games and GD: High education was negatively associated with the estimated GD prevalence rate, indicating that individuals with higher formal education estimated the prevalence as lower. A plausible explanation could be that individuals with high education have better knowledge of the topic and therefore are less likely to overestimate the prevalence of GD. Alternatively, one could also argue that persons with high formal education are perhaps in general better at giving estimations for rather abstract concepts, such as the GD prevalence rate. Further, we found that participants with a fearful personality who perceived the social surroundings as dangerous had a more skeptical view of games and estimated GD prevalence as higher.

Finally, we want to emphasize that several other factors that might influence the perception of games and GD but that were out of the scope of the current study could be examined in future research. For example, there is currently considerable discussion about the extent to which predatory mechanisms (such as loot boxes or

micropayments) can increase the addiction potential of games (e.g., Reer & Quandt, 2021; Stevens, Delfabbro, & King, 2021). For example, Stevens, Delfabbro, and King (2021, p. 1) found that “in-game spending features (microtransactions) that resemble or facilitate electronic gambling” are perceived as particularly risky. Further, new technical features that allow a more immersive gaming experience (such as virtual reality technologies) are also discussed as increasing the addictiveness of games (e.g., Reer & Quandt, 2021; Stavropoulos et al., 2019). It seems plausible that such recent developments in the games sector have a particularly large influence on how games and their addiction potential are perceived. Concerning females’ critical views of games, they may in part be explained by negative experiences females have had with games. For example, several studies have shown that female gamers are often confronted with hostility and sexual harassment in online gaming contexts (e.g., Fox & Tang, 2017; Tang et al., 2020). Qualitative follow-up studies may be particularly valuable to address some of the questions left open by the current study.

4.1. Limitations

Of course, our study is not free of limitations. For example, the question on the consumption of media coverage did not distinguish between conservative and more liberal media outlets, which could differ in how they report about GD as well as in how audience opinions on games are potentially influenced. Also, one should keep the cultural context of our study in mind when interpreting the results. The study was conducted in a Western industrial country (Germany), and perceptions of GD could be quite different in other cultural contexts. For example, there is evidence that the popularity of gaming in general, but also GD rates, are higher in Asian countries (e.g., Stevens, Dorstyn, et al., 2021). This might influence societal perceptions, which could be an interesting topic for future cross-cultural studies.

A major methodological limitation concerns the cross-sectional survey approach, which did not allow testing for causality. For instance, having a critical view on games might also lead a person to consume more media coverage on the topic. Thus, further research should be conducted with longitudinal and experimental approaches to investigate the relationships between the variables in more detail. Further, it is very likely that there are several additional factors that influence the perception of games and GD that we did not consider in our survey and that could be identified following a qualitative approach. In general, we could only test a very limited set of attitudes toward games and GD and a qualitative follow-up study could help to offer a more complex picture.

Finally, we relied on self-reported data, and effects of social desirability (for example regarding gamer identity or gaming behavior) cannot be ruled out. Further, even though significant, some of the effects we detected were only small and therefore should not be over-interpreted.

4.2. Conclusion

Taken together, our results suggest that critical attitudes toward games are widespread and that the number of gamers affected by GD is often overestimated. Further, profound knowledge about GD seems to be rather low, and personal experience with games seems to play a role in how gaming and GD are perceived. More exchange between digital natives and older cohorts, as well as between gamers and non-gamers, would be desirable to prevent misunderstandings and misconceptions about gaming and GD. Health campaigns could help improve the public’s understanding of what constitutes addictive playing and how it can be distinguished

from healthy forms of enthusiastic gaming. Also, research findings are perhaps not sufficiently communicated outside the scientific community. More exchange between scholars and the wider public is needed to increase knowledge on the topic. Further, the media should report on GD in a balanced way that considers the latest research findings and the opposing views of scientists.

Finally, we would like to encourage further research into the perception of games and GD in order to better understand the different opinions in society (and the reasons for these opinions). From a societal perspective, it is important that misconceptions and misunderstandings concerning games and GD are identified to avoid stigmatization of healthy players, but also to adequately help those affected by GD and to minimize the risks gaming has for some players.

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Conflict of Interests

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References

- Aarseth, E., Bean, A. M., Boonen, H., Carras, M. C., Coulson, M., Das, D., Deleuze, J., Dunkels, E., Edman, J., Ferguson, C. J., Haagsma, M. C., Bergmark, K. H., Hussain, Z., Jansz, J., Kardefelt-Winther, D., Kutner, L., Markey, P., Nielsen, R. K. L., Prause, N., . . . Van Rooij, A. J. (2017). Scholars' open debate paper on the World Health Organization ICD-11 gaming disorder proposal. *Journal of Behavioral Addictions, 6*(3), 267–270.
- Altemeyer, B. (1988). *Enemies of freedom: Understanding right-wing authoritarianism*. Jossey-Bass.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).
- Bean, A. M., Nielsen, R. K., van Rooij, A. J., & Ferguson, C. J. (2017). Video game addiction: The push to pathologize video games. *Professional Psychology: Research and Practice, 48*(5), 378–389.
- Bigl, B., & Schlegelmilch, C. (2021). Are video games still a boys' club? How German public television covers video games. *Games and Culture, 16*(7), 798–819.
- Billieux, J., King, D. L., Higuchi, S., Achab, S., Bowden-Jones, H., Hao, W., Long, J., Lee, H. K., Potenza, M. N., Saunders, J. B., & Poznyak, V. (2017). Functional impairment matters in the screening and diagnosis of gaming disorder. *Journal of Behavioral Addictions, 6*(3), 285–289.
- Bowman, N. D. (2016). The rise (and refinement) of moral panic. In R. Kowert & T. Quandt (Eds.), *The video game debate: Unravelling the physical, social, and psychological effects of video games* (pp. 22–38). Routledge.
- Carter, M., Moore, K., Mavoa, J., Gaspard, L., & Horst, H. (2020). Children's perspectives and attitudes towards Fortnite 'addiction.' *Media International Australia, 176*(1), 138–151.
- Duckitt, J., Wagner, C., du Plessis, I., & Birum, I. (2002). The psychological bases of ideology and prejudice: testing a dual process model. *Journal of Personality and Social Psychology, 83*(1), 75–93.
- Ellemers, N., Kortekaas, P., & Ouwerkerk, J. W. (1999). Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity. *European Journal of Social Psychology, 29* (2/3), 371–389.
- Entertainment Software Association. (2023). *Essential facts about the US video game industry 2023*. https://www.theesa.com/wp-content/uploads/2023/07/ESA_2023_Essential_Facts_FINAL_07092023.pdf
- Ferguson, C. J., Bean, A. M., Nielsen, R. K., & Smyth, M. P. (2020). Policy on unreliable game addiction diagnoses puts the cart before the horse. *Psychology of Popular Media, 9*(4), 533–540.

- Ferguson, C. J., & Beaver, K. M. (2017). Who's afraid of the big, bad video game? Media-based moral panics. In D. Chadee (Ed.), *Psychology of fear, crime and the media* (pp. 240–252). Psychology Press.
- Ferguson, C. J., & Colwell, J. (2017). Understanding why scholars hold different views on the influences of video games on public health. *Journal of Communication*, 67(3), 305–327.
- Ferguson, C. J., & Colwell, J. (2020). Lack of consensus among scholars on the issue of video game “addiction.” *Psychology of Popular Media*, 9(3), 359–366.
- Fox, J., & Tang, W. Y. (2017). Women's experiences with general and sexual harassment in online video games: Rumination, organizational responsiveness, withdrawal, and coping strategies. *New Media & Society*, 19(8), 1290–1307.
- Galanis, C. R., Weber, N., Delfabbro, P. H., Billieux, J., & King, D. L. (2023). Gaming disorder and stigma-related judgements of gaming individuals: An online randomized controlled trial. *Addiction*, 118(9), 1687–1698.
- Game-Verband der deutschen Games-Branche. (2023). *Jahresreport der deutschen Games-Branche 2023*. https://www.game.de/wp-content/uploads/2023/08/230809GME_Jahresreport_2023_168x240_DE_Web.pdf
- Higuchi, S., Nakayama, H., Mihara, S., Maezono, M., Kitayuguchi, T., & Hashimoto, T. (2017). Inclusion of gaming disorder criteria in ICD-11: A clinical perspective in favor. *Journal of Behavioral Addictions*, 6(3), 293–295.
- Jamieson, S., & Dowrick, C. (2021). Comparing public perceptions of substance addictions and behavioural addictions. *Drug and Alcohol Dependence*, 220, Article 108472.
- Jung, C. W. (2019). Media discourse and perception of game regulatory issues. *The Communication Review*, 22(2), 139–161.
- Kardefelt-Winther, D. (2015). A critical account of DSM-5 criteria for internet gaming disorder. *Addiction Research & Theory*, 23(2), 93–98.
- Kardefelt-Winther, D., Heeren, A., Schimmenti, A., van Rooij, A., Maurage, P., Carras, M., Edman, J., Blaszczynski, A., Khazaal, Y., & Billieux, J. (2017). How can we conceptualize behavioural addiction without pathologizing common behaviours? *Addiction*, 112(10), 1709–1715.
- Király, O., & Demetrovics, Z. (2017). Inclusion of gaming disorder in ICD has more advantages than disadvantages. *Journal of Behavioral Addictions*, 6(3), 280–284.
- Kort-Butler, L. A. (2021). Gamers on gaming: A research note comparing behaviors and beliefs of gamers, video game players, and non-players. *Sociological Inquiry*, 91(4), 962–982.
- Koski-Jännes, A., Hirschovits-Gerz, T., Pennonen, M., & Nyssönen, M. (2012). Population, professional and client views on the dangerousness of addictions: Testing the familiarity hypothesis. *Nordic Studies on Alcohol and Drugs*, 29(2), 139–154.
- Kowert, R., Griffiths, M. D., & Oldmeadow, J. A. (2012). Geek or chic? Emerging stereotypes of online gamers. *Bulletin of Science, Technology & Society*, 32(6), 471–479.
- Kümpel, A. S., & Haas, A. (2016). Framing gaming: The effects of media frames on perceptions of game(r)s. *Games and Culture*, 11(7/8), 720–744.
- Kuss, D. J., Griffiths, M. D., & Pontes, H. M. (2017). Chaos and confusion in DSM-5 diagnosis of internet gaming disorder: Issues, concerns, and recommendations for clarity in the field. *Journal of Behavioral Addictions*, 6(2), 103–109.
- Leiser, D., Duani, N., & Wagner-Egger, P. (2017). The conspiratorial style in lay economic thinking. *PloS one*, 12(3), Article e0171238.
- Maechler, M., Rousseeuw, P., Croux, C., Todorov, V., Ruckstuhl, A., Salibian-Barrera, M., Verbeke, T., Koller, M., Conceicao, E. L. T., & di Palma, M. A. (2024). *Basic robust statistics* [Computer software]. <https://cran.r-project.org/web/packages/robustbase/robustbase.pdf>

- McKernan, B. (2013). The morality of play: Video game coverage in The New York Times from 1980 to 2010. *Games and Culture*, 8(5), 307–329.
- Newzoo. (2024). *Global games market report: Free version released August 2024*. https://best-of-gaming.be/wp-content/uploads/2024/09/2024_Newzoo_Global_Games_Market_Report.pdf
- Parrott, S., Rogers, R., Towery, N. A., & Hakim, S. D. (2020). Gaming disorder: News media framing of video game addiction as a mental illness. *Journal of Broadcasting & Electronic Media*, 64(5), 815–835.
- Peter, S. C., Li, Q., Pfund, R. A., Whelan, J. P., & Meyers, A. W. (2019). Public stigma across addictive behaviors: Casino gambling, eSports gambling, and Internet gaming. *Journal of Gambling Studies*, 35, 247–259.
- Przybylski, A. K. (2014). Who believes electronic games cause real world aggression? *Cyberpsychology, Behavior, and Social Networking*, 17(4), 228–234.
- Quandt, T. (2017). Stepping back to advance: Why IGD needs an intensified debate instead of a consensus. *Journal of Behavioral Addictions*, 6(2), 121–123.
- Quandt, T., Van Looy, J., Vogelgesang, J., Elson, M., Ivory, J. D., Consalvo, M., & Mäyrä, F. (2015). Digital games research: A survey study on an emerging field and its prevalent debates. *Journal of Communication*, 65(6), 975–996.
- Reer, F., Festl, R., & Quandt, T. (2021). Investigating problematic social media and game use in a nationally representative sample of adolescents and younger adults. *Behaviour & Information Technology*, 40(8), 776–789.
- Reer, F., & Quandt, T. (2021). Games addiction: A comprehensive overview. In J. Nussbaum (Ed.), *Oxford research encyclopedia of communication*. Oxford University Press. <https://oxfordre.com/communication/display/10.1093/acrefore/9780190228613.001.0001/acrefore-9780190228613-e-1154>
- Reer, F., Siitonen, M., & de La Hera, T. (2024). The dark and the light side of gaming. *Frontiers in Psychology*, 14, Article 1349479.
- Reumschüssel, A. (2012, December 28). Wie der Teufelskreis der Computersucht beginnt. *Welt*. <https://www.welt.de/gesundheit/psychologie/article112274531/Wie-der-Teufelskreis-der-Computersucht-beginnt.html>
- Rumpf, H.-J., Achab, S., Billieux, J., Bowden-Jones, H., Carragher, N., Demetrovics, Z., Higuchi, S., King, D. L., Mann, K., Potenza, M., Saunders, J. B., Abbott, M., Ambekar, A., Aricak, O. T., Assanangkornchai, S., Bahar, N., Borges, G., Brand, M., Chan, E. M.-L., . . . Poznyak, V. (2018). Including gaming disorder in the ICD-11: The need to do so from a clinical and public health perspective. *Journal of Behavioral Addictions*, 7(3), 556–561.
- Schatto-Eckrodt, T., Janzik, R., Reer, F., Boberg, S., & Quandt, T. (2020). A computational approach to analyzing the Twitter debate on gaming disorder. *Media and Communication*, 8(3), 205–218.
- Sørensen, E. (2013). Violent computer games in the German press. *New Media & Society*, 15(6), 963–981.
- Stavropoulos, V., Burleigh, T. L., Beard, C. L., Gomez, R., & Griffiths, M. D. (2019). Being there: A preliminary study examining the role of presence in internet gaming disorder. *International Journal of Mental Health and Addiction*, 17, 880–890.
- Stevens, M. W., Delfabbro, P. H., & King, D. L. (2021). Prevention approaches to problem gaming: A large-scale qualitative investigation. *Computers in Human Behavior*, 115, Article 106611.
- Stevens, M. W., Dorstyn, D., Delfabbro, P. H., & King, D. L. (2021). Global prevalence of gaming disorder: A systematic review and meta-analysis. *Australian & New Zealand Journal of Psychiatry*, 55(6), 553–568.
- Stone, J. A. (2019). Self-identification as a “gamer” among college students: Influencing factors and perceived characteristics. *New Media & Society*, 21(11/12), 2607–2627.
- Stone, J. A. (2021). Uncovering the meaning: Exploring semantic differences in US perceptions of “gamer” and game players. *Games and Culture*, 16(7), 907–931.

- Tang, W. Y., Reer, F., & Quandt, T. (2020). Investigating sexual harassment in online video games: How personality and context factors are related to toxic sexual behaviors against fellow players. *Aggressive Behavior*, 46(1), 127–135.
- van den Brink, W. (2017). ICD-11 gaming disorder: Needed and just in time or dangerous and much too early? Commentary on: Scholars' open debate paper on the World Health Organization ICD-11 gaming disorder proposal (Aarseth et al.). *Journal of Behavioral Addictions*, 6(3), 290–292.
- van Rooij, A. J., Ferguson, C. J., Carras, M. C., Kardefelt-Winther, D., Shi, J., Aarseth, E., Bean, A. M., Bergmark, K. H., Brus, A., Coulson, M., Deleuze, J., Dullur, P., Dunkels, E., Edman, J., Elson, M., Etchells, P. J., Fiskaali, A., Granic, I., Jansz, J., . . . Przybylski, A. K. (2018). A weak scientific basis for gaming disorder: Let us err on the side of caution. *Journal of Behavioral Addictions*, 7(1), 1–9.
- von Hayek, S. (2020, October 9). Computerspielsucht: So viel und nie genug. *Berliner Zeitung*. <https://www.berliner-zeitung.de/lernen-arbeiten/computerspielsucht-so-viel-und-nie-genug-li.108462>
- Weinandy, J. T. G. (2023). Understanding perceptions of levels and indicators of addictiveness and related factors. [Unpublished doctoral dissertation]. Bowling Green State University.
- Whitton, N., & Maclure, M. (2017). Video game discourses and implications for game-based education. *Discourse: Studies in the Cultural Politics of Education*, 38(4), 561–572.
- Williams, D. (2003). The video game lightning rod. *Information, Communication & Society*, 6(4), 523–550.
- World Health Organization. (2024). 6C51 Gaming disorder. ICD-11 for mortality and morbidity statistics (version 2024-01). <https://icd.who.int/browse/2024-01/mms/en#1448597234>

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