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Review

Rolling the Dice: A Comprehensive Review of the New Forms of Gambling and Psychological Clinical Recommendations

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Abstract: This study aims to analyze the main and most recent forms of gambling and related psychopathological disorders, also proposing psychological clinical recommendations. From November 2022 to February 2023, we searched the databases of PubMed, Web of Science, Health & Medical Collection, Elsevier Journal, and Springer for relevant studies performing different searches through different search strings. New forms of gambling are mostly related to new technological tools, such as the Internet, smartphones, social media, or electronic machines. The prevalence of online gambling affects all demographic groups, although 35–44-year-olds appear to have the largest share. Online gambling can lead to addiction, financial hardship, and mental health problems. It has also been statistically significantly associated with high levels of Gambling disorder, high levels of depression and anxiety, poor overall mental health, and alcohol use. Furthermore, it has been noted that online gamblers are more likely to engage in high-risk gambling behaviors and have a higher prevalence of comorbid mental disorders. The review highlights the need for continued research on the impact of new forms of gambling and the development of effective prevention and treatment strategies. Further research is needed to better understand the complex relationship between new forms of gambling and the development of gambling disorders.

Keywords: gambling; internet gambling; gambling disorder; online gambling disorder; social media gambling; clinical psychology; addiction; behavioral addiction; impulse control disorder; loot box

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1. Introduction

Gambling is a common and legal activity that involves wagering something of value (usually money) on a game or event whose outcome is unpredictable and determined by chance [1]. It can be classified into different types, such as gaming, betting, and lotteries [2]. Gambling can also be conducted online or offline.

Gambling can have various effects on individuals and society. For some people, gambling is a harmless and enjoyable form of entertainment. However, for others, gambling can become a problem that causes significant harm to their health, well-being, relationships, finances, and other aspects of life [3,4]. In modern times, gambling has become more accessible and widespread, with new forms of gambling emerging and evolving rapidly [5]. These new forms of gambling, such as online gambling, mobile gaming, and social media gambling, have increased the opportunities for people to engage in gambling activities and possibly develop a gambling disorder.

The DSM-5 and DSM-5-TR identify pathological gambling or Gambling disorder (GD) as a compulsive behavior towards gambling that impairs the psychosocial functioning of the affected person and causes serious economic, relational, and individual consequences [6,7]. Previously regarded as an impulse control disorder (DSM-IV), GD was only classified as a behavioral disorder in the latest versions of the manual, which currently considers this condition as a genuine addiction disorder [7,8]. Pathological gambling behavior, when

manifested in online or video game settings, is identified as Online gambling disorder (OGD) [6].

1.1. Gambling Disorder World Prevalence

Some recent studies have reported updated prevalence rates for GD in specific countries or regions. A study in England found that the prevalence rate of problem gambling was 1.7% among adolescents aged 11–16 years in 2019 [9], which was a four-fold increase from 2016. A study in Canada found that the prevalence rate of moderate-risk or problem gambling was 2.1% among adults in 2018 [10]. A study in the UK found that the prevalence rate of gambling disorder was 0.4% among adults in 2020 [11]. In Italy, in 2020, 9% of 14–19 year-olds have developed behaviors that fall within the scope of addiction, characterized by negative repercussions on the socio-emotional and relational sphere [12]. To trigger these behaviors, according to the respondents, in the first place, there are curiosity and fun, much higher than the need for money and the belief of winning, more in advanced age groups. About 17% said they play because the game is a common practice in the family sphere. In 2021, 5% of young people fell into the category of frequent players, terms that define those who gamble at least once a week.

1.2. Online Gambling Disorder World Prevalence

As for online gambling, according to a systematic review of 17 studies conducted between 2000 and 2019 [13], the global prevalence of problem online gambling (a less severe form of OGD) was estimated to be 2.9% among adults. Some recent studies have reported more updated prevalence rates for OGD in specific countries or regions. Data for the UK population indicate that in 2020 the age distribution of online gambling is fair; 16 to 24-year-olds occupy 16.9% of the graph, representing the smallest slice, while the 35 to 44-year-olds occupy the largest slice, which is 29.3 percent [14]. A study in the UK found that the prevalence rate of problem online gambling was 7% among adolescents aged 11–16 years in 2019 [9]. A study in Australia found that 54% of gamblers gambled online compared with 23% typically during the COVID-19 pandemic in 2020 [15] and that COVID-related financial impacts and higher anxiety and depression were associated with increased likelihood of online gambling; in fact, due to the pandemic, most Italian young people have moved to digital platforms, which are now preferred by 1 in 3 players. The global pandemic situation has led to a worsening mood in 65% of young people, some of whom have shown anxiety problems, tensions, and psychological problems [12]. A study in Spain found that 0.89% of adolescents exhibited an online gambling disorder in 2020 [16], which was lower than other forms of problematic internet use, such as gaming disorder (2.5%) or social media addiction (6.8%). To address these concerns, there is a growing interest in developing clinical recommendations to prevent and treat problem gambling.

1.3. Problematic Gamblers Demographic Characteristics

Online gamblers turn out to be more frequently male individuals; in the UK, male online gamblers as of December 2022 are 29.6%, while females are 24.3% [17]. An Australian survey finding from March 2023 indicated that there was a higher proportion of male gamblers compared to female gamblers across all products surveyed, including sports, racing, and pokies. Additionally, male gamblers were found to gamble more frequently, spend more money, and exhibit a higher risk of developing gambling-related harm compared to their female counterparts [18]. In Italy, males gambling in 2021 amounted to 16% versus 5% of females, both aged 14–19 years; the average amount of gambling is 31.6 euros for men and 22.9 euros for women; for both, the age group that spends the most is between 25 and 34 years [12]. Regarding socioeconomic background, 13% of problem gamblers are part of a gambling family, and 15% have friends who gamble. Another important finding concerns life satisfaction, self-perceived as "low" in 10% of those who gamble problematically.

As for education, a study published in the *Journal of Gambling Studies* found that online gamblers in Europe tend to be more highly educated than the general population.

Specifically, the study found that 58% of online gamblers had completed tertiary education (compared to 32% of the general population) [19]. Regarding employment status, the same study found that online gamblers in Europe are more likely to be employed full-time than the general population. Specifically, the study found that 71% of online gamblers were employed full-time (compared to 43% of the general population).

The literature does not provide specific information on other socio-demographic characteristics of online gamblers, such as marital status. In general, most studies on online gambling focus on the prevalence of gambling, risk factors for developing gambling problems, and the impact of gambling on mental health and well-being rather than on demographic factors.

1.4. Government Regulations towards Online Gambling Worldwide

Online gambling regulations are constantly evolving in the EU and UK to ensure all parties involved are treated well and protected [20].

In the UK, the government is expected to tighten regulations on the sector when it publishes its white paper on gambling later in 2023 [21]. Some of the key battlegrounds include a statutory rather than voluntary levy for gambling firms, affordability checks for gamblers, tighter controls around advertising and marketing, and maximum stakes for online slots [21].

In Europe, different countries and authorities set their own regulations. Some fully legalize all forms of online gambling, while others heavily limit or outright ban specific types like online casinos [20]. In Italy, online gambling is regulated and subject to a local licensing regime. It is only possible to submit applications during specific licensing windows opened by law [22].

In Germany, online gambling is subject to regulation at an individual State level. The Interstate Treaty on Gambling (GlüStV) was enacted to ensure unified rules throughout the 16 German states. Lately, licenses are available both for online horserace betting and sports betting, as well as virtual slot machines and online poker [23].

1.5. Aim of the Study

This review article aims to provide an overview of the new forms of gambling, which are mainly related to new smartphones and the Internet (hence the importance of the worldwide prevalence of OGD), the potential risks associated with these forms of gambling, and psychological clinical recommendations for addressing problem gambling. The article will draw upon a range of sources, including empirical studies, clinical guidelines, and policy reports, to provide a comprehensive review of the topic. By providing an evidence-based overview of the new forms of gambling and clinical recommendations, this review article aims to contribute to a better understanding of the risks associated with gambling and promote effective prevention and treatment strategies for problem gambling.

2. Materials and Methods

2.1. Search Strategies

From November 2022 to February 2023, we analyzed articles published in the PubMed, Web of Science, Health & Medical Collection, Elsevier Journals, and Springer databases that were obtained by searching each database using the following search string format: ((online gambling disorder) OR (mobile gaming gambling) OR (crypto gambling) OR (social media gambling) OR (internet gambling) OR (online gambling) OR (problem gambling)). The reported search keys have been chosen and are interrelated with reference to the objective of the paper, which is to produce an overview of the new forms of pathological gambling, analyze them and extrapolate psychological and clinical recommendations for prevention and intervention. All the included studies are summarized in Table A1, which can be found in the appendix.

This review includes the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 flow diagram [24] to describe the research methodology and selec-

tion of articles included. Additional bibliography—not reported in the flow diagram—has been extrapolated from full-text articles and included as references.

2.2. Eligibility Criteria

We included every article meeting the following criteria:

(a) All studies and reviews published in indexed journals and indexed in PubMed, Web of Science, Health & Medical Collection, Elsevier Journals, and Springer.
(b) Studies related to online gambling, online gambling disorder, mobile gaming gambling, casino online, online slots, crypto gambling, social media gambling, internet gambling, and problem gambling.
(c) Studies published from 2013 to 2022. The year 2013 was chosen because it represents one of the early years of the rising trend of doing research in the field of new forms of gambling (Figure 1). An exception to this criterion was made for two articles dated 2010, which were selected because they provide particularly enlightening insight into the relationship between gambling and both digital media and psychopathology.

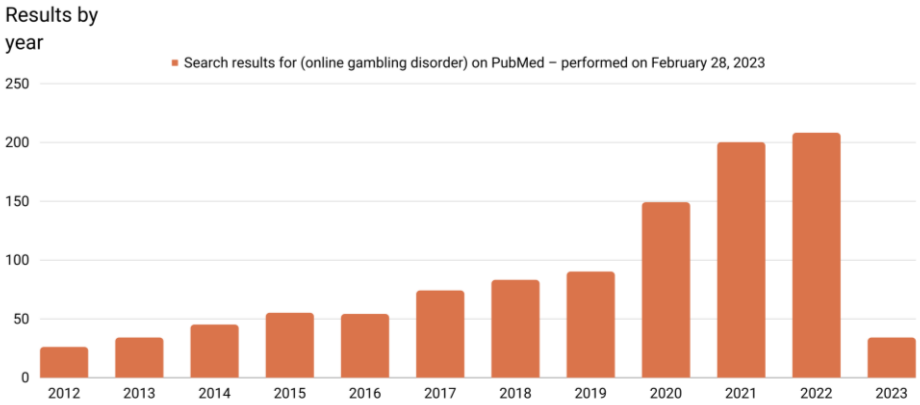


Figure 1. Graph showing the number of results obtained on PubMed by searching for the reported search query.

Journalistic sources or information deriving from web content are included.

Every article included the following criteria: study Participants were to be adolescents, young adults, adults or elders of any sex and socioeconomic status; Intervention: participants, where present, had to undergo new forms of gambling treatment programs or were used as a survey sample for investigation purposes; some research Compared traditional gambling disorder with the new forms of gambling; Outcomes of studies including interventions and programs for rehabilitation from new forms of gambling addiction were evaluated, and subsequently processed and included in the clinical recommendations in this article (PICO framework [25]).

3. Results

3.1. Characteristics of the Included Studies

In this literature review, a total of twenty-three full-text articles were included to analyze the latest forms of gambling and their associated clinical recommendations (flow diagram, Figure 2).

The studies were selected based on their relevance to the research question, which was focused on the latest forms of gambling, such as online gambling and electronic gaming machines, and their associated risk factors, diagnosis, and treatment. The studies that were reviewed spanned from 2013 to 2022 and were conducted in a variety of countries, including Australia, Norway, Spain, Switzerland, and the United States. The studies varied in methodology, including cross-sectional, longitudinal, and randomized controlled trial designs. Overall, the studies provided a broad perspective on the latest forms of gambling

and their impact on mental health and well-being, as well as on the diagnosis and treatment of gambling disorders.

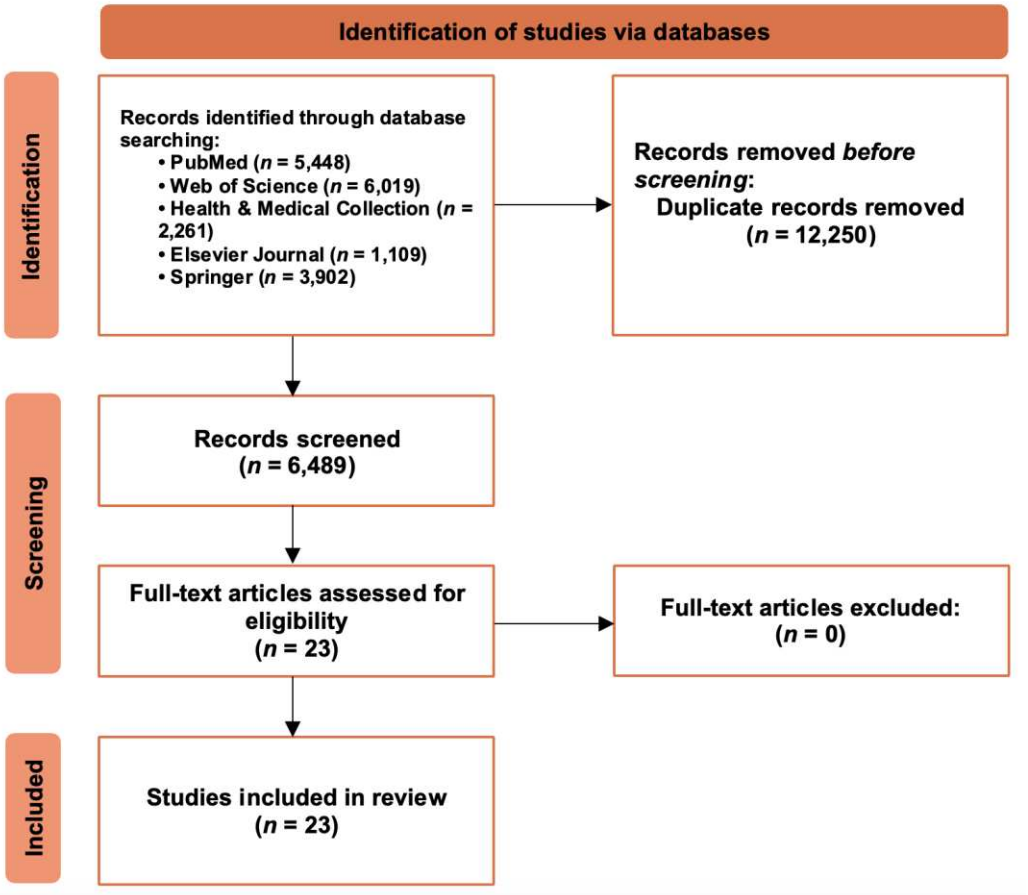


Figure 2. PRISMA 2020 [24] flow diagram.

3.2. Gambling Disorder

The definition of gambling disorder (GD) is currently included in the chapter "Substance-Related and Addictive Disorders" of Section II of the DSM-5-TR [7]. Pathological gambling or gambling disorder is identified as a compulsive behavior towards gambling that impairs the psychosocial functioning of the affected person and causes serious economic, relational, and individual consequences [6]; typical physical symptoms of addiction associated with abstinence are sometimes present, as cold sweats, tremors, headaches, abdominal pain, confusion, insomnia, and anorexia [26]. Previously regarded as an impulse control disorder (DSM-IV), gambling disorder was only classified as a behavioral disorder in the latest version of the manual, which currently regards this condition as a genuine addiction disorder [8]. Kardefelt-Winther and colleagues [27] defined *behavioral addiction* as a behavior leading to significant harm or suffering; this behavior is repeated over time and is not controlled by the individual.

Gambling Disorder and Personality

What causes this addiction, what characterizes it, and how it can be treated are still at the heart of the scientific debate. According to Bergler [28], one of the first to treat gambling disorder, the compulsive gambler presents traits of "psychic masochism", such that the subject actually plays to lose. Custer and colleagues [26] define gambling as a maladaptive coping mechanism that provides relief from psychic pain.

Dell and colleagues [29] have found that there are some personality traits most associated with the risk of developing this disorder. They used Millon Multiaxial Clinical Inventory (MMCI) [30] for the evaluation of traits, which allows the degree and type of

pathology to be identified. Among the various personality traits analyzed, it emerged that the manipulation and exploitation behaviors, frequent during the game activity, are an integral part of the personality of the individual regardless of his addiction, as they are also present at the end of the activity. It also emerged that compulsive gamblers are less conformist and more impulsive people; this would also explain the incidence of work, family, and relational problems associated with most gambling disorder frameworks.

Other interesting data concerns the scores associated with the Drug Abuse Scale, the subscale of the MMCI that measures drug abuse; while in the demographic questionnaires, there were no problems related to drug abuse within the entire sample, the Drug Abuse Scale did, however, score high on many of the profiles. This indicates that, while participants have responded negatively to questions about substance use, the behaviors that characterize the addict are still largely present in compulsive gamblers; there is, in other words, a personality structure that tends to the development of dependence, regardless of the object of such dependence. The subject with high scores in the DAS, in fact, tends to have difficulty suppressing impulses and managing the consequences of his behavior [30], which is confirmed by the results of the MMCI.

It is worth noting that there are other disorders that show similarities to substance use disorder and pathological gambling disorder, for which the word addiction is commonly used in non-medical contexts, and the condition currently rich in the literature about it is the compulsive use of online video games, or Internet gaming disorder (IGD).

3.3. Internet Gaming Disorder

Included in the Proposed Criteria, Internet gaming disorder (IGD) is described as a "persistent and recurrent use of the Internet to engage in games, often with other players, leading to clinically significant impairment or distress as indicated by five (or more) of the following in a 12-month period", where the diagnostic criteria largely reflect those typical of substance dependencies, such as "preoccupation with Internet games", "withdrawal symptoms when Internet gaming is taken away", or "loss of interests in previous hobbies and entertainment as a result of, and with the exception of, Internet games" [7]. Similarities between Internet gaming disorder and Gambling disorder are reported in the DSM-5-TR, although there seems to be a lack of a standard definition of the disorder and a description of some cases, with or without treatment.

3.4. Gambling Disorder, Internet Gaming Disorder, and Online Gambling Disorder

On multiple occasions, the correlation and comparison between GD and IGD have been studied and analyzed. Research has shown that individuals with IGD exhibit greater impulsiveness, whereas those with GD display greater compulsivity [31]; when gambling behavior that is pathological is manifested in online or video game contexts, we refer to this phenomenon as Online gambling disorder (OGD) [7], and there is ample evidence suggesting a strong association between the purchase of microtransactions within video games and the emergence of IGD or OGD [32–37].

Online gambling disorder is a form of gambling disorder that involves gambling on the internet. It is associated with various biological, psychological, and social risk factors [10]. Online gambling disorder can cause substantial distress or impairment for individuals who suffer from it [38]. Some studies have found that online gambling is more likely to lead to gambling-related problems than offline gambling [39,40]. This may be due to factors such as accessibility, anonymity, convenience, and immersion. Online gamblers may also have higher levels of food addiction and impulsivity than offline gamblers [41].

3.5. Online Gambling

3.5.1. Childhood and Adolescence

Online gambling among children and adolescents has become a growing concern in recent years. Emond and Griffiths [42] conducted a literature review on gambling behaviors in this population and found that online gambling is becoming increasingly

prevalent, especially among boys. They noted that online gambling could lead to negative consequences, such as addiction, financial difficulties, and mental health problems.

A study by Canale et al. [43] examined the association between online gambling and problematic gambling behavior in Italian adolescents. They found that online gambling was significantly associated with problematic gambling behavior, suggesting that online gambling may increase the risk of developing a gambling disorder.

In addition, a study by Dowling et al. [44] examined the association between online gambling and mental health outcomes among Australian adolescents. The results showed that online gambling was significantly associated with higher levels of depression and anxiety, as well as poorer overall mental health.

Overall, these studies suggest that online gambling among children and adolescents is a significant public health concern, and interventions are needed to prevent and treat problem gambling in this population.

3.5.2. Young Adulthood

Marmet et al. [39] investigated the associations between online gambling and gambling disorder in a representative sample of young Swiss men aged 18–29. The results showed that online gambling was associated with higher levels of GD and related problems, including depression, anxiety, and alcohol use. The study also found that online gamblers were more likely to engage in high-risk gambling behaviors, such as chasing losses, and had a higher prevalence of comorbid mental health disorders.

Similar studies have also found associations between online gambling and GD in young adults. For example, Gainsbury et al. [45] conducted a study on Australian university students and found that online gamblers had a higher risk of developing GD compared to non-gamblers.

3.5.3. Adults

Gomez et al. [46] used the Online Gambling Disorder Questionnaire (OGD-Q) to assess and measure the symptoms of OGD among adults. They found out that the Questionnaire, which is found in the Supplementary Materials as File S1, has good reliability and validity for assessing OGD symptoms in adults across ages and gender and can be used as a reliable tool for identifying individuals with problematic online gambling behaviors. The study also identified several factors that contribute to the development and maintenance of OGD, including impulsivity, craving, anxiety, and depression.

These results are in line with evidence obtained by Mallorquí-Bagué et al. [41], whose study found that adults with IGD and OGD have higher levels of impulsivity, sensation seeking, and neuroticism, and lower levels of agreeableness and conscientiousness compared to adults without IGD and OGD. The study also found that comorbidity with other psychiatric disorders, such as depression and anxiety, was common in individuals with IGD and OGD.

3.5.4. Late-Life

Sauvaget et al. [47] highlight the risk of online gambling disorder in the elderly population. The study reports a case of an 83-year-old man who developed an online gambling disorder after retirement. The patient had no previous history of gambling or addiction but was an active user of online gambling sites.

The authors suggest that retirement and social isolation may have contributed to the development of the disorder. The study emphasizes the importance of addressing online gambling in the elderly population.

3.6. Mobile Gaming and Loot Boxes

As previously noted, studies have indicated a favorable correlation linking the acquisition of microtransactions in video games with the onset of Internet Gaming Disorder or Online Gambling Disorder. This correlation is most evident in the case of loot

boxes—reward systems within games that can be purchased multiple times using actual currency in order to obtain a random assortment of virtual items [32]—rather than other microtransactions that allow players to acquire extra game content or premiums, such as virtual items, skins, currency, levels, or power-ups; the focus here is on in-game reward systems that can be repeatedly purchased using real money to receive a random selection of virtual items. These types of transactions are commonly utilized in revenue models for mobile games, which offer the core game for free but encourage players to invest money in order to progress freely within the game (i.e., bypassing a "paywall") [32].

The low probability of getting a desired item means that the player will have to buy an indeterminate number of loot boxes to get the item. Loot boxes resemble classic gambling slot machines because they do not require player skills and have a randomly determined outcome [32]. Finally, it has been noted that the risk of Gambling Disorder increases as microtransaction spending increases [48]. One study then found that both subjects with IGD and subjects with GD have worse performance in decision-making than control groups, although IGD subjects still seem to be able to move to more advantageous decision-making processes in the contexts in which they are placed [49].

Loot Boxes in Adolescence and Young Adulthood

A study by González-Cabrera et al. [33] examined the relationship between loot boxes and IGD and OGD in Spanish adolescents and young adults. The results of the study showed that participants who spent more money on loot boxes were more likely to have symptoms of IGD and OGD. These findings are consistent with previous research, which has found a positive association between loot boxes and problem gambling in young adults [50].

Another study by Zendle and Cairns [51] investigated the prevalence and monetization of loot boxes in video games and found that loot boxes are often marketed to young people and are associated with gambling-like behaviors. A study by King et al. [52] found that young people are particularly vulnerable to the effects of gambling and that the availability of online gambling and mobile gaming may increase the risk of developing problem gambling behaviors.

3.7. Social Media Gambling: Twitch.tv

Twitch.tv is a video streaming platform based in the United States, recognized as one of the most thriving live streaming websites globally. Operated by Twitch Interactive, a subsidiary of Amazon.com, Inc., it was introduced in June 2011 as a spin-off of the Justin.tv gaming-oriented streaming platform. The services and the Justin.tv brand then ceased operations in August 2014 in conjunction with the purchase of the platform by Amazon [53].

Live streaming, which entails broadcasting user-generated video content in real-time over the internet, has also been noted on platforms such as Facebook and YouTube.

However, Twitch has emerged as the undisputed leader in this domain across most parts of the world. Considered a type of social media entertainment that blurs the boundaries between traditional broadcast entertainment and social media [54,55], live streaming has emerged as a significant source of online media consumption. Initially, Twitch was primarily known for broadcasting esports and competitive video gaming [56], but it has since expanded to include millions of content creators who regularly stream their activities on the platform [57].

The platform was initially designed as a showcase for gamers, public characters who bring, as main content, live streamings in which they play a video game and interact with the 'audience' identified in what is called "the chat", a type of audience active and involved in the show it is attending. While Twitch's primary focus is still on providing content such as gameplay streams, the platform has evolved in recent years to include a range of new formats. These include talk shows, live music, crafting sessions, pool streams, ASMR content, and, more recently, *slotstreams*—the majority of which are produced by amateur creators. The appeal of Twitch.tv lies in its ability to bridge the gap between social media

and conventional broadcast systems like television, thus serving as a hub for a diverse range of content [58].

3.7.1. Demographic Characteristics of Twitch Users

According to data from 2022, most of the users on Twitch are teenagers and young adults, with projections suggesting that the percentage of users between the ages of 16 and 24 is around 22.3% [59] and 41% [60–62], predominantly males with estimates ranging from 65% [60–62] to 78.36% [63]. These findings are consistent with previous research [64,65] and particularly with the work of Cabeza-Ramírez, Muñoz-Fernández, and Santos-Roldán [66], whose findings reveal that young males are the most frequent users of video games and live streaming. Specifically, older and female users tend to spend less time on video games and live-streaming platforms, whereas younger and male users spend the majority of their time playing games and watching others. This demographic is primarily under the age of 19 and consider themselves as expert players or professionals. They use these platforms mainly to stay informed and are notable for exhibiting high levels of negative behavior on networks (e.g., online trolling).

3.7.2. Relationship between Content Creator and Viewer

The new era of social media had already seen the approach of users to public characters, canceling the previous 'one-way' communication and opening the path to a greater possibility of interaction (or illusion of interaction) by gradually transforming the role of the public from that of a mere spectator to that of a 'friend' [67]. "Parasocial relationships"—this is how relations between the public and celebrities are defined [68]—have been extensively studied in the literature, especially in relation to the use of the internet and social media.

Although amateur, streamers can be considered in all respects celebrities; they have a showcase, a vast audience, and a format, elements that allow them, in addition to a gain, to attain a certain popularity. While recent research has focused on the role of the social media showcase in celebrity endorsement because "they provide a secure and convenient way for celebrities to interact with a large number of fans", it can be assumed that Twitch also performs, for the same reason, a similar function [67].

3.7.3. The "Slotstreams"

We define 'slotstreams' as the live-streaming content in which streamers entertain the public by gambling on online gambling sites—such as crypto casinos—from which they are sponsored for advertising [69]. This type of content, born on Twitch relatively recently, has had and still has ups and downs in popularity, boasting the merit of having reached a peak of over 280,000 simultaneous viewers in late July 2022 [70]. Live streaming based on gambling content is a very controversial phenomenon, hotly discussed even within the same community of Twitch [71] and among the same streamers, which do not fail to point the finger at both those who carry this content, judging them to be "irresponsible" towards their audience and towards the platform itself, to authorize their airing [72–75].

Because of the strong and constant protests, both from streamers and from users, on 21 September 2022, Twitch issued a statement in which it announced some changes to the rules of the platform regarding content on slots and online casinos by stating that as of 18 October 2022, it would have prohibited the streaming of sites with gambling that include slot machines, roulette or dice games that do not have a US license or other jurisdictions that provide adequate consumer protection. "We will continue to allow—it reads—sites that deal with sports betting, fantasy-sports, and poker" [76–78].

3.7.4. Online Gambling and Slotstream Viewing

As noted earlier, Twitch's primary audience is made up of young adults and teenagers [59–65] who are at greater risk of developing problematic or moderate online gambling behaviors [79]. Online gambling has been linked to psychiatric conditions like bipolar disorder, particularly among individuals who experience hypomanic episodes [80], and there is a

significant association between youth and bipolar disorder, particularly in individuals who also experience depression [81]. Depression and anxiety disorders are also on the rise among young adults and adolescents, likely as a result of the recent COVID-19 pandemic [82,83], and male biological sex, which accounts for most Twitch users [66], is another risk factor for gambling, especially pathological [84]. Consequently, Twitch viewers are more prone to participate in gambling activities, especially if they struggle with mood or depressive disorders that may encourage them to resort to gambling as a means of alleviating their mood [80].

3.8. Electronic Gaming Machines, Race Betting, and Sports Betting

Electronic Gaming Machines (EGMs), Race Betting, and Sports Betting are three popular forms of gambling that have been associated with problem gambling and psychological distress.

In a study by Gainsbury et al. [85], the impact of particular types of gambling activities and modes on both problem gambling and psychological distress in individuals who gamble online was analyzed. The study found that EGMs were the most commonly played form of online gambling, followed by sports betting and race betting. Additionally, EGMs were found to be the most predictive of problem gambling and psychological distress. The study concluded that different forms of online gambling have different impacts on problem gambling and psychological distress, highlighting the need for tailored interventions for different types of gambling activities.

Similarly, Hing et al. [86] investigated the risk factors for gambling problems on online EGMs, race betting, and sports betting. The study found that race betting and EGMs were significantly associated with problem gambling, while sports betting was not. The study also identified several risk factors for problem gambling, including younger age, male gender, higher frequency and intensity of gambling, higher impulsivity, and higher levels of alcohol consumption. The study concluded that different forms of online gambling have different risk factors for problem gambling, and these risk factors should be considered in the development of responsible gambling policies and interventions.

3.9. Psychological Clinical Recommendations to Diagnose and Treat Problem Gambling

Based on the articles reviewed, the following clinical recommendations can be made for diagnosing and treating problem gambling:

1. Screen for problem gambling using validated tools such as the Problem Gambling Severity Index (PGSI) and the Online Gambling Disorder Questionnaire (OGD-Q). These tools can help identify individuals who may require further assessment and interventions [87].
2. Consider online self-directed interventions as a potential treatment option for problem gambling. These interventions have been shown to be effective in reducing gambling severity and increasing treatment-seeking behavior [88].
3. Examine online psychological interventions as a potential solution for addressing problem gambling and gambling disorder. Meta-analytic evidence suggests that such interventions can lead to a significant reduction in gambling severity and psychological distress [89].
4. Assess for comorbid mental health conditions, as problem gambling is often associated with depression and anxiety [85].
5. Address risk factors associated with specific gambling activities. For example, sports betting has been associated with higher levels of problem gambling in men, while electronic gaming machines are associated with higher levels of problem gambling in women [86].
6. Consider incorporating quality-of-life assessments into treatment plans, as problem gambling can have a negative impact on an individual's quality of life [90].

Bodor et al. [10] also provided a comprehensive review of the evidence-based aspects of GD treatment in 2021. They discussed the current state of GD treatment and presented an overview of the existing interventions that have been demonstrated to be effective.

The article covered a range of evidence-based treatments, including cognitive-behavioral therapy, motivational interviewing, and pharmacotherapy, and highlighted their strengths and limitations. The authors also discussed the importance of tailored treatment plans for individuals with gambling disorders and the need for collaboration between mental health professionals, gambling industry representatives, and policymakers to ensure the best outcomes for individuals struggling with GD.

Overall, early detection and intervention are critical for addressing problem gambling and reducing the negative consequences associated with this disorder. The use of validated screening tools, online interventions, and tailored treatment plans can help individuals overcome problem gambling and improve their overall well-being.

4. Discussion

The results collected in the review affirm that pathological gambling, in all its variants, turns out to be a problem from the health, socio-economic, and relational perspectives for those who engage in it and those close to them [6,27].

The new forms of gambling disorder are mostly related to new technological tools, be they the Internet, smartphones, social media, or electronic machines [5,85], and we can therefore encapsulate them in the category of Internet gambling [7] or online gambling. The prevalence of online gambling affects all demographic groups, from childhood to old age. In particular, although the 35–44-year-old group seems to occupy the largest slice [14], it is worth noting that the global pandemic situation has led to a worsening of mood in 65% of young people, some of whom have developed severe anxiety, depression, tension, and psychological problems [12]; these COVID-related problems, as well as other various biological, psychological, and social risk factors [10] have been associated with an increased likelihood of online gambling [15].

Online gambling can lead to negative consequences, such as addiction, financial difficulties, and mental health issues [42,91]. It has also been statistically significantly associated with high levels of GD and related problems, such as high levels of depression and anxiety, poor overall mental health [44], and alcohol use [39]. In addition, it was noted that online gamblers are more likely to engage in high-risk gambling behaviors, such as chasing losses, and have a higher prevalence of comorbid mental health disorders [39].

4.1. Previous Research

This article agrees with what was found by Akçayır et al. [91], which provided a systematic review of empirical research related to emerging gambling problems and suggested interventions in 2022. The authors identified and analyzed studies that focus on new forms of gambling, such as online gambling and esports betting, and the associated risks and harms, such as addiction and financial problems. They also examined interventions that have been proposed or implemented to address these issues, including self-exclusion programs, responsible gambling measures, and counseling services. The authors concluded that while there is a need for further research on these topics, there is evidence to suggest that certain interventions, such as personalized feedback and motivational interviewing, can be effective in reducing gambling problems.

4.2. Limitations

The current review has several limitations that should be acknowledged. First, the literature search was limited to specific databases and keywords, which may have excluded relevant studies. Second, due to the heterogeneity of studies and measures used, it was difficult to make direct comparisons and draw definitive conclusions. Third, many studies rely on self-reported measures, which may be subject to biases such as social desirability bias. Fourth, many studies focused on specific populations, such as college students or online gamblers, limiting the generalizability of the findings. Finally, the lack of longitudinal studies limits our understanding of the long-term effects of new forms of gambling and online gambling disorders. Despite these limitations, the current review provides important

insights into the current state of research on new forms of gambling and online gambling disorders and highlights areas for future research, also providing clinical recommendations useful for experimental, preventive, and treatment purposes.

5. Conclusions

New forms of gambling are usually linked to new technological tools, such as the Internet, smartphones, social media, or electronic machines, thus falling under the category of Internet gambling or online gambling. The prevalence of online gambling affects all demographic groups, although 35–44-year-olds appear to have the largest share. Various biological, psychological, and social risk factors have been associated with an increased likelihood of online gambling. Online gambling can lead to negative consequences, such as addiction, financial hardship, and mental health problems. It has also been statistically significantly associated with high levels of gambling disorder, high levels of depression and anxiety, poor overall mental health, and alcohol use. Additionally, online gamblers have been noted to be more likely to engage in high-risk gambling behaviors and have a higher prevalence of co-occurring mental disorders.

Finally, early diagnosis and intervention are essential to address the new forms of problem gambling and reduce the negative consequences associated with this disorder. The use of validated screening tools, online interventions, and tailored treatment plans can help people overcome problem gambling and improve their overall well-being.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/psychiatryint4020014/s1, File S1: Online Gambling Disorder Questionnaire (OGD-Q) translated from Spanish to English.

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Appendix A

Table A1. Data extraction.

Study Title	Year of Publication	Participants' Age and Number	Intervention (If Applicable)	Comparison between Traditional and "New" Forms of Gambling	Outcomes	Clinical Recommendations
Gambling in children and adolescents	2020	Children and adolescents *	N/A	N/A	Online gambling is rising among children and young people, with a small minority developing a gambling disorder.	Gambling can affect the mental health of children and adolescents. Managing gambling disorders requires working closely with families.
Impact of Internet gambling on problem gambling among adolescents in Italy: Findings from a large-scale nationally representative survey	2016	Adolescents, 14,778	Self-administered questionnaires	Rates of problem gambling were five times higher among online gamblers than non-online gamblers.	Living with non-birth parents, having a higher perception of financial family status, being more involved with gambling, and the medium preferences of remote gamblers increased the risk of becoming a problem online gambler.	Family characteristics and contextual elements concerning youth Internet gambling may play a key role in explaining problem online gambling among adolescents.
The impacts of problem gambling on concerned significant others accessing web-based counselling	2014	Adults, 366	Summarize the characteristics of 'concerned significant others' (CSOs) using the Australian national gambling web-based counseling site and explore their impacts and associated factors.	N/A	CSOs are often intimate partners of problem gamblers and are usually females under 30. They experience emotional distress and relationship impacts, followed by social and financial impacts. Employment and physical health impacts are less common.	The findings can help develop web-based interventions for CSOs of problem gamblers.
Online Gambling's Associations With Gambling Disorder and Related Problems in a Representative Sample of Young Swiss Men	2021	Young men, 5352	The spectrum from offline to online gambling was measured using one question. Total money gambled and time spent were assessed. GD severity was measured using DSM-5 criteria. Gambling-related problems, other addictive disorders, and mental health problems were also inquired about.	Mixed gamblers showed the highest levels of GD symptoms and gambling-related problems. Levels of other addictive disorders and mental health problems were higher among mixed gamblers than offline-only gamblers. These associations remained significant after adjusting for overall involvement in gambling.	Gamblers engaging in both offline and online gambling have the highest levels of gambling disorder symptoms and related problems.	Prevention efforts should focus on targeting both offline and online gambling.
An investigation of social casino gaming among land-based and Internet gamblers: A comparison of socio-demographic characteristics, gambling, and co-morbidities	2014	Adults, 15,006	A random digit dial telephone survey was conducted in November and December 2011 using a computer-assisted telephone interview.	Social casino game use is more common amongst Internet gamblers.	The most popular social casino games were poker, gaming machines, and casino table games. Social casino game players were younger and more similar to Internet gamblers. They were more likely to smoke, use illicit drugs, and have higher levels of psychological distress and gambling problems.	Consumer protection measures should be strengthened for social casino games near gambling and when players are encouraged to migrate to gambling.

Table A1. *Cont.*

Study Title	Year of Publication	Participants' Age and Number	Intervention (If Applicable)	Comparison between Traditional and "New" Forms of Gambling	Outcomes	Clinical Recommendations
Using Online Gambling Disorder Questionnaire (OGD-Q) with Adults: Factor Structure, Reliability, External Validity, and Measurement Invariance Across Age and Gender	2022	Adults, 968	The study examined the suitability of the Online Gambling Disorder Questionnaire (OGD-Q), developed for studying online gambling in adolescents, for use with adults. The OGD-Q was completed by the sample.	N/A	The findings supported the use of the original OGD-Q in adults from a psychometric perspective.	OGD-Q scores can be accurately compared and interpreted across men and women and emerging and older adults without concern for differences in scaling and measurement properties.
Internet gaming disorder and online gambling disorder: Clinical and personality correlates	2017	Adults, 288	Self-reported questionnaires were completed by participants to investigate symptoms of psychopathology, food addiction (FA), and personality traits.	N/A	OGD and IGD groups had higher psychopathology and less functional personality traits than a normative Spanish population. IGD patients were younger, more likely single, and unemployed with lower age of disorder onset. They had lower somatization and depressive scores and lower tobacco use but higher FA scores and body mass index. They also had lower novelty-seeking and persistence traits.	IGD and OGD patients share emotional distress and personality traits. However, IGD patients are younger, with lower novelty-seeking scores and higher BMI and FA scores. IGD has unique characteristics not found in OGD.
Unexpected online gambling disorder in late-life: a case report	2015	An 83-year-old man *	N/A	N/A	The number of elderly people with OGD may be higher than estimated, especially among those who are isolated, have mobility issues, and have easy access to the internet.	Late-life GD should only be diagnosed after a thorough medical, psychiatric (including assessment of suicide risk), and cognitive evaluation has ruled out other conditions.
Predatory monetization schemes in video games (e.g., 'loot boxes') and internet gaming disorder	2018	N/A	N/A	N/A	IGD cases involving games that require payment may have greater financial involvement and share similarities with gambling disorder, such as overspending and borrowing or stealing money.	N/A
The role of microtransactions in Internet Gaming Disorder and Gambling Disorder: A preregistered systematic review	2022	Adults and older adolescents. Sample sizes ranged from N = 113 to N = 7422 *	N/A	Positive relationships were found between microtransactions and both IGD and GD, especially with loot boxes. Risky loot box use may mediate these relationships. Microtransaction spending increases with GD risk. Adolescents who buy loot boxes may have a higher risk of developing GD.	Outcomes of the review are shown in the previous column.	N/A

Table A1. *Cont.*

Study Title	Year of Publication	Participants' Age and Number	Intervention (If Applicable)	Comparison between Traditional and "New" Forms of Gambling	Outcomes	Clinical Recommendations
Discounting delayed monetary rewards and decision making in behavioral addictions-A comparison between patients with gambling disorder and internet gaming disorder	2020	Adults, 78	Intervention groups were compared on their performance in the Delay Discounting Task (DDT), Iowa Gambling Task (IGT), and self-reported impulsivity using the Barratt Impulsiveness Scale.	N/A	In the DDT, the area under the curve was associated with GD severity. No correlations were found with impulsivity subscales. The GD group performed worse in the IGT, while IGD patients only performed worse at the beginning. Similarities between GD and IGD in the DDT suggest faster reward discounting, and both patient groups performed worse in the IGT than in controls indicating decision-making deficiencies.	The IGD group showed an ability to make more advantageous decisions, which could have significant implications for treatment.
Loot boxes in Spanish adolescents and young adults: Relationship with internet gaming disorder and online gambling disorder	2022	11–30 y/o, 6633	Participants filled out Spanish versions of the Internet Gaming Disorder Scale-Short Form (IGDS9-SF) and the Online Gambling Disorder Questionnaire (OGD-Q) to assess Internet Gaming Disorder and Online Gambling Disorder.	N/A	This study found a high prevalence of loot box buying among Spanish adolescents and young adults. A significant positive relationship was found between loot box purchases and both IGD and OGD.	N/A
Investigating relationships between video gaming, spectating esports, and gambling	2018	14–50 y/o, 613	Participants finished two assessments of troublesome behavior: the Game Addiction Scale (GAS) and the Problem Gambling Severity Index (PGSI).	N/A	There is no strong link between video games/esports and gambling. Problematic gaming has a small negative association with gambling and problematic gambling.	The negative link between game addiction and gambling suggests that problematic gaming and gambling are distinct. Those with high game addiction scores are unlikely to start gambling despite similarities.
Loot boxes are again linked to problem gambling: Results of a replication study	2019	≥18 y/o, 1172	Participants were surveyed to measure problem gambling and loot box spending. Loot box spending was assessed using specific questions, while problem gambling was measured with the Problem Gambling Severity Index (PGSI).	This study's findings support the existence of a significant link between problem gambling and loot box spending.	The findings indicate that either loot boxes lead to problem gambling or that those with gambling problems spend more on loot boxes.	N/A
The Convergence of Gambling and Digital Media: Implications for Gambling in Young People	2010	Young people *	N/A	N/A	New gambling technologies may attract young people, spread misinformation about gambling, provide an escape from problems, facilitate peer pressure to gamble, ease the transmission of gambling attitudes from parents, and make gambling more socially acceptable.	N/A

Table A1. *Cont.*

Study Title	Year of Publication	Participants' Age and Number	Intervention (If Applicable)	Comparison between Traditional and "New" Forms of Gambling	Outcomes	Clinical Recommendations
How psychological symptoms relate to different motivations for gambling: an online study of internet gamblers	2010	Adults, 4125	Participants rated 11 gambling motivations. The relationships between these motivation scores and gambling behavior, depression, hypomania, self-harm, and substance abuse were then analyzed.	N/A	Those at risk of problematic gambling gamble for mood regulation, monetary goals, and enjoyment. Mood regulation and enjoyment are stronger in female problem gamblers. Low mood reduces enjoyment motivation, while previous mood elevation enhances it. Gambling problems with hypomania or dysphoria enhance gambling for emotional regulation.	N/A
Problem gambling, associations with comorbid health conditions, substance use, and behavioural addictions: Opportunities for pathways to treatment	2020	18–60 y/o, 2038	A web survey was distributed to a representative Swedish panel. Tests and regression analysis were used to find associations between problem gambling and comorbid conditions/behaviors.	N/A	Out of 2038 participants, 5.7% had lifetime problem gambling. Problem gambling was significantly associated with being male, education level, daily tobacco use, moderate psychological distress, problematic shopping, and problem gaming.	The link between problem gambling and other health conditions like psychological distress and behavioral addictions shows the need to screen for problem gambling in healthcare settings.
Isolating the impact of specific gambling activities and modes on problem gambling and psychological distress in internet gamblers	2019	18–85 y/o, 998	Participants were recruited via a market research company to take an online survey measuring their gambling participation, problem gambling severity, and psychological distress.	N/A	Problem gambling is linked to frequent online and venue-based EGM gambling and venue-based sports betting. Psychological distress is associated with frequent venue EGM gambling, sports betting, and casino games.	Internet gamblers who use EGMs, both online and land-based, have higher gambling disorder severity. High gambling engagement and venue-based EGMs, sports betting, and casinos can lead to harm and distress.
Risk Factors for Gambling Problems on Online Electronic Gaming Machines, Race Betting and Sports Betting	2017	Adults, 4594	Participants filled out an online survey; problem/moderate risk gamblers who identified online EGMs, race betting, or sports betting as their most problematic form were compared to non-problem/low-risk gamblers who had gambled online on these forms.	N/A	Risk factors for online EGM gambling included frequent play, substance use, and higher distress. For online sports betting, risk factors included being male, younger, lower income, and non-native English speakers. For online race betting, risk factors included being male and younger.	These results can help create better interventions for high-risk gamblers on these online activities by considering their specific characteristics.

Table A1. *Cont.*

Study Title	Year of Publication	Participants' Age and Number	Intervention (If Applicable)	Comparison between Traditional and "New" Forms of Gambling	Outcomes	Clinical Recommendations
Design and Measurement Properties of the Online Gambling Disorder Questionnaire (OGD-Q) in Spanish Adolescents	2020	Adolescents, 883	Participants gave demographic information and were assessed using instruments like the Online Gambling Diagnostic Questionnaire (OGD-Q), the Spanish version of the Generalized and Problematic Internet Use Scale (GPIUS2), the Internet Gaming Disorder Scale (IGD-20), the Spanish version of the Nomophobia Questionnaire (NMP-Q) and Depression, Anxiety, Stress Scales-21 (DASS-21).	N/A	Participants with problems or at risk of online gambling disorder had more stress, anxiety, and depression. 0.89% of the total sample and 2.71% of those who have gambled were classified as having online gambling disorder.	This study confirms the reliability of the OGD-Q scores and provides data on the prevalence of online gambling disorder. This information is useful for pediatric and psychology units and school guidance counselors.
Online Self-Directed Interventions for Gambling Disorder: Randomized Controlled Trial	2019	≥18 y/o, 181	An online version of a telephone-based intervention is compared to an online feedback intervention called Check Your Gambling.	N/A	Both interventions reduced gambling days and problem severity. No previous treatment and higher self-efficacy predicted fewer gambling days. The extended online program had better outcomes for engaged participants. The brief Check Your Gambling intervention was equally effective.	Online interventions for mental health and addictions show potential, but more research is needed to understand how they work and for whom.
Psychological online interventions for problem gambling and gambling disorder-A meta-analytic approach	2022	2857	N/A	N/A	This study found that online psychological interventions can effectively reduce problem gambling and gambling disorder.	Online interventions are a potentially useful and effective tool for the treatment of pathological gambling.
Spanish Validation of the Internet Gaming Disorder Scale-Short Form (IGDS9-SF): Prevalence and Relationship with Online Gambling and Quality of Life	2020	Young adults, 535	This study aimed to translate the IGDS9-SF into Spanish and test its validity and reliability. The Spanish versions of the IGDS9-SF, Mobile Phone-Related Experiences Questionnaire (CERM), Online Gambling Disorder Questionnaire (OGD-Q), and KIDSCREEN-27 were used.	N/A	1.9% of gamers had IGD, and another 1.9% were at risk. The IGDS9-SF, CERM, and OGD-Q were positively related. Participants with IGD had a poorer health-related quality of life.	One possible clinical recommendation could be to screen for both IGD and Online Gambling Disorder (OGD) in individuals who engage in gaming and provide support and treatment for those who meet the criteria for either disorder or are considered at-risk.

* Not an experimental study; by "participants", we mean the investigated population group.

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