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# The Rise of Gambling in the Digital Age: Sports Betting and Adolescent Vulnerability

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## ABSTRACT

Since the Supreme Court overturned the federal ban on sports betting in 2018, legal sports wagering in the United States has grown significantly, with the large majority of bets now placed online. This shift matters for adolescents in particular, who develop gambling problems at higher rates than adults and are at higher risk. This paper examines how the digitization of sports betting has reshaped adolescent exposure to gambling, and argues that there are four mechanisms that combine into a single, reinforcing system rather than acting as separate risks. The first mechanism is smartphone accessibility, which removes the friction that used to help prevent impulsive betting, and embeds wagering into daily routines. Second, the convergence between gambling and gaming is examined, and how gambling-like mechanics familiarize young people with paying for chance-based rewards years before they reach the legal gambling age. The third mechanism is manipulative app design, including how the interfaces of betting platforms are deliberately built to make losing money easy. Finally, it looks at how social media has normalized gambling through advertising and gambling livestreams as an ordinary part of sports and online culture. The paper uses a literature review methodology by synthesizing the evidence across the four mechanisms and it identifies the main gaps that limit current research. It then assesses why current safeguards such as age verification and voluntary spending limits have largely failed. Then, it closes by proposing stronger measures, including biometric identity verification at registration and mandatory restrictions on gambling content across streaming platforms.

## INTRODUCTION

Looking back in the past decade, there have been significant changes made to the gambling ecosystem and its related regulations. In 2018, the Supreme Court overturned the federal ban on sports betting, allowing individual states to authorize sports gambling within their borders. The main reason is economically motivated, as states collect a lot of tax revenue from betting while the gambling industry generates tons of profit, leading to 39 states electing to legalize sports gambling in some form. This has led to a rapidly growing market, as according to Yeola et al. (2025), total sports wagers in the United States increased from $4.9 billion in 2017 to $121.1 billion in 2023, with 94% of 2023 wagers placed online.

This transformation has been profitable for both state governments and gambling operators, but it has raised concerns about its harm to society. A particular concern is the exposure of adolescents to this new gambling environment. Gambling problems fall more heavily on young people than on adults. While roughly 1 to 4% of adults experience mild to severe gambling problems, that percentage rises to 4 to 8% among youth (Family and Children's Association, 2025). Exposure is already widespread, as 60 to 80% of high school students reported gambling money in 2021 (National Council on Problem Gambling, 2022), revealing how adolescents are the group most affected by it. Also, adolescents who begin gambling early face a higher risk of developing gambling problems in adulthood along with substance use and other psychological disorders (Helfrich, 2025).

I use economic concepts and psychology to examine how the digitization of sports betting has reshaped adolescent exposure to gambling. I focus on four main categories including, smartphone accessibility, gambling-gaming convergence, manipulative app design, and media normalization, and argue that they do not operate as separate risks. Instead, they combine into a single, reinforcing system that exposes adolescents to gambling earlier and more persistently. Each of these four mechanisms is looked at in its own section. Smartphone accessibility is examined first because it removes the friction that once deterred impulsive betting, a shift that prior studies show leads to more frequent and habitual gambling (Hing et al., 2022 and James et al., 2019). Gambling-gaming convergence is after, because gambling-like mechanics embedded in video games appear to normalize spending for chance-based rewards years before a kid reaches the legal gambling age (Wardle & Zendle, 2021 and Castrén et al., 2021). The design of the betting platforms themselves is examined next, since prior research shows that their interfaces are secretly, but intentionally, engineered to increase losses (Newall, 2025 and McGarrigle et al., 2026). Finally, social media normalization is examined because advertising, peer influence, and streaming increasingly present gambling as a normal feature of the sports and online culture that adolescents are part of (Thomas et al., 2018 and Sirola et al., 2021).

The evidence in this paper is from a review of existing literature rather than original data collection. Most sources are peer-reviewed studies along with a few sources from credible organizations focused on gambling.

These four sections are ordered to follow the path a young person actually travels, beginning with the device that makes gambling constantly available, moving through the gaming environments that normalize gambling-like behavior, then to the platform features that intensify harm once betting begins, and ending with the cultural and social forces that make the entire process feel normal. After the four sections, this paper synthesizes what the evidence shows, identifies the gaps that currently limit it, and then finishes with assessing why current regulations such as age verification and voluntary spending limits have been largely ineffective. Finally, I offer suggestions for stronger regulations and directions for future research.

## SMARTPHONE ACCESSIBILITY

The conventional understanding of gambling harm has long been organized around a simple protective principle: friction matters. In traditional gambling environments, friction, meaning the effort required to travel to a casino, exchange cash, or physically sit at a machine, acts as a natural deterrent against impulsive and excessive betting. Each step in that process creates a moment where reconsideration is possible. Mobile betting applications have essentially removed friction from gambling entirely. While the concept of accessibility is often used to describe this phenomenon, it is arguably a significant understatement of the changes that have occurred as a result of the use of smartphones to place bets. Smartphones do not just lower the barrier to gambling, they embed betting opportunities into the textures of everyday life, transforming gambling from a deliberate activity into a habitual one. Additionally, accessibility is a crucial concept in relation to adolescents in particular, who have yet to develop the capacity to control their impulses.

The most immediate consequence of smartphone betting is the collapse of the decision chain that once preceded a wager. Hing et al. (2022) investigated this structural shift through adaptive grounded theory methodology, conducting semi-structured interviews with 33 Australian sports bettors between the ages of 19 and 29 who placed bets at least fortnightly on sports, esports, or fantasy sports. In the results of the study, the researchers discovered that to place a bet, each participant had to perform only a few clicks on their smartphone. Furthermore, many of the participants indicated that the bets were placed when they were performing other activities on their smartphone that had no association with gambling, such as commuting to work, watching television, or scrolling social media platforms. This ease of access did not just increase how often participants gambled, it also changed how they gambled. Bets became more spontaneous and more complex, often placed in direct response to a push notification or a conversation with a friend rather than through any deliberate decision-making process.

Beyond investigating the structural conditions that allow frictionless access, other studies have also investigated how smartphone betting leads to harmful behaviors. Hing et al. (2023) used ecological momentary assessment (EMA), a methodology that captures behavior in real time, to investigate 192 smartphone bettors between the ages of 18 and 44 in Australia. Participants used a pre-installed smartphone app to log every betting episode, recording their location, mood, social context, and the nature of each wager for seven days. The researchers used multilevel modeling to determine which factors related to the bets predicted harmful indicators such as loss chasing and decreased self-control in the participant. Among these factors was whether the smartphone bettor was in a low-structure and isolated environment. The researchers discovered that bets placed in these environments such as when the participant was lying in bed or watching television alone led to more impulsive and high-intensity betting behaviors. Furthermore, in these cases, the participants often indicated that their betting behavior was automatic and it was something that they performed out of habit or in response to feelings of stress rather than a choice. Overall, these two Hing studies suggest that the smartphone changes the psychological

conditions under which gambling decisions are made, not just increase gambling frequency, removing deliberation from the process.

Similar results were published independently by James et al. (2019). In their naturalistic study, 31 adults with an average age of 24 years were provided with a custom-built smartphone betting application. The application allowed the participants to place bets with real money directly on the app, while also allowing researchers to track things like the timing and frequency of the participant's gambling activity during the study period. Rather than using their betting access over extended periods, most of the participants in these studies used the opportunity to place bets in short bursts during breaks throughout the day, just as they may use social media or check their messages. Such integration of gambling into their daily routines resulted in habitual gambling behaviors from the participants. Of even more concern, however, was the findings of perseverative gambling, meaning the rapid and repeated attempt to recoup losses from prior bets, among participants with more severe pre-existing gambling patterns. The ease of re-engagement after a loss, a key driver of escalating problem gambling, is a direct product of mobile accessibility, as placing another bet requires no physical relocation or additional effort.

These behavioral patterns, documented primarily in adult and young adult samples, are significantly more alarming when applied to adolescent populations. For instance, Delfabbro et al. (2016) reviewed gambling behaviors among adolescents within North America, Europe, and Australia, finding that 50 to 70% of adolescents reported gambling for money at least once per year. Additionally, 4 to 8% experienced significant gambling-related problems, rates consistently higher than those found among adults. The authors identified expanding digital gambling environments as a primary driver of this increased exposure, noting that adolescents are growing up in a landscape where gambling access is effectively built into the devices they already carry. Additionally, Zhao et al. (2018) provided further direct evidence of mobile gambling's specific risk for youth by analyzing survey data from 6,818 middle and high school students in Wood County, Ohio, with an average age of 15.2 years. Only 5.3% of respondents reported gambling on a mobile device in the past year, however, those who did gamble on a mobile device at least once per month were 13 times more likely to meet criteria for at-risk or problem gambling on the NODS-CLiP scale (a brief, 3-question screening tool used to quickly identify adults at high risk for problem or pathological gambling). Furthermore, mobile gambling was the single strongest predictor of problem gambling within these adolescents, surpassing every other type of gambling behavior that was assessed. Additionally, mobile gamblers were more likely to participate in multiple other forms of gambling, suggesting that smartphone access may function as a gateway that expands overall gambling involvement rather than substituting for it.

Overall, the studies indicate that the smartphone has not simply made gambling more convenient. It has restructured the conditions under which gambling decisions occur, removing friction, embedding betting into daily routines, and creating the psychological preconditions for habitual and impulsive behavior. For adolescents, who are among the heaviest smartphone users and whose prefrontal cortex development governing impulse control and risk assessment is not complete until the mid-twenties, these features

represent a structural mismatch between the design of mobile betting platforms and the developmental realities of the population most exposed to them.

## GAMBLING-GAMING CONVERGENCE

Mobile accessibility alone does not fully explain why adolescents are particularly vulnerable to gambling harm. A second and equally significant pathway operates through the digital games that young people play long before they encounter any sports betting app. Over the last two decades, video gaming and gambling have become increasingly similar to one another as game designers have incorporated gambling elements into their games such as chance-based reward systems, randomized purchases, and virtual currencies. This convergence matters not because gaming and gambling have become identical, but because gaming increasingly functions as an environment in which adolescents are exposed to, normalized toward, and psychologically primed for gambling-like behavior before they ever place a real-money bet.

The mechanics driving this convergence are seen in various elements that have been incorporated into gaming activities by developers and designers include elements like loot boxes. Loot boxes are in game purchases that deliver a randomized reward of uncertain value. Drawing on existing gambling research and industry data, King and Delfabbro (2019) analyzed these loot box systems and found that they replicate the core structural features of gambling quite precisely. They found that players spend real money for chance-based outcomes and oftentimes must make repeated purchases to obtain desired items, never being guaranteed what they want. This type of mechanism makes adolescents subject to variable reinforcement schedules, a reward pattern in which unpredictable payouts sustain engagement more effectively than predictable ones, and are specifically designed to maintain spending behavior. Additionally, the authors noted most games use virtual currencies as a means of allowing players to spend their real money, but to hide the fact they are actually spending money while also making it harder for players to track costs. Other ways of encouraging players to continue to purchase items for games include the use of time-limited offers, personalized incentives, and progress gating systems in which users cannot access new content until they purchase something prior. Additionally, approximately 34% of the Australian youth reported in-game purchases tied to these systems, leading the authors to conclude that these monetization strategies are actually intentional applications of psychological reinforcement, embedding gambling mechanics directly into gaming.

Empirical research confirms that exposure to these mechanics is associated with meaningful increases in gambling risk. For instance, Wardle and Zendle (2021) examined a survey of 3,549 individuals aged between 16 and 24 years old in Great Britain that utilized data from YouGov's panel (weighted to reflect national demographics). The authors used multivariable logistic regression to determine whether or not loot box purchasing predicted problem gambling while controlling for sociodemographic factors, impulsivity, and participation in 17 distinct gambling activities. That last control is methodologically important because it tests whether the association holds even after accounting for the possibility that loot box buyers are simply people who gamble more across the board. They are, but the association holds

regardless. Among loot box purchasers, 16.9% met criteria for problem gambling, compared to 1.8% of non-purchasers. Even after controlling for all other gambling involvement, loot box purchasers were 4.4 times more likely to be classified as problem gamblers. The magnitude of this relationship is similar to the relationship between problem gambling and high-risk gambling forms like online casino games. While these online casino games are regulated in some capacity, loot boxes are accessible to minors without any restrictions in most cases.

The link between spending money on digital games in general, not only loot boxes, and gambling participation was studied by Castrén et al. (2021). Utilizing data from 4,595 adolescents in Finland who completed the European School Survey Project on Alcohol and Other Drugs (ESPAD) in 2019, ages 15 to 16, the study assessed whether adolescents who spent money on digital games were more likely to have participated in gambling in the past year. The researchers used logistic regression while controlling for substance use, peer behavior, and parental monitoring, and results indicated that adolescents who spent money on games were 1.48 times more likely to have gambled in the past year compared to adolescents who did not. Additionally, 51% of adolescents who spent money participated in gambling in the past year compared to 36% of adolescents who did not spend money on games. Notably, problematic gaming on its own, meaning heavy or compulsive use without any financial component, was not a significant predictor of gambling participation. This distinction is analytically important. It suggests that the mechanism linking gaming to gambling is not simply heavy use or addictive tendencies carried over from one domain to the other. Rather, it appears to be the normalization of financial risk-taking within gaming environments that increases the likelihood of real-money gambling. Spending money on uncertain in-game outcomes may accustom adolescents to a behavioral pattern, paying for a chance at a desired reward, that is functionally identical to gambling.

Similar results were found in another research study that examined the relationship between video game players and individuals that participate in gambling. McBride and Derevensky (2017) surveyed 1,229 adolescents and young adults aged 16 to 24 in Montreal, Canada, using cross-tabulations to analyze relationships between gaming frequency, gaming addiction scores, and gambling participation. Video game players were significantly more likely to gamble than non-players (54.6% vs. 31.1%), and gamblers were more likely to play video games than non-gamblers (94.1% vs. 85.7%). More tellingly, those classified as addicted gamers showed the highest rates of gambling participation and the greatest proportion of problem gamblers within the sample. While this association does not itself establish causation, it is consistent with the hypothesis that gaming and gambling share underlying behavioral and psychological risk factors, and that heavy gaming involvement may serve as a marker for the same sensation-seeking and reward-chasing tendencies that elevate gambling risk.

Qualitative research further shows why this overlap exists at the level of perception and experience. Calado et al. (2014) conducted six focus groups with 37 participants aged 13 to 26 in Portugal, using thematic analysis to examine how adolescents and young adults understand the relationship between gaming and gambling. Participants across both age groups described gambling initiation as closely linked to prior gaming experience, frequently reporting that the skills, confidence, and familiarity with reward

systems developed through gaming translated in their minds directly into gambling. Adolescents in particular pointed to massively multiplayer online role-playing games (MMORPGs) as experiences that felt structurally similar to gambling due to their randomized item drops, virtual currencies, and achievement systems. Both age groups identified reward accumulation and the drive for achievement as central to engagement in both activities. Critically, adolescents in the study consistently underestimated the role of chance in gambling, believing that the skill they had developed through gaming would transfer. This belief is one of the most well-documented cognitive risk factors for problem gambling. The findings from Calado et al. (2014) suggest that gaming environments may actively cultivate it by rewarding skill-based thinking in contexts that increasingly incorporate chance-based outcomes.

These findings help to demonstrate that the existing regulations have failed to address the issue effectively. Kim and King (2020) reviewed empirical studies on gaming-gambling convergence and concluded that participation in gambling-like activities within games is consistently associated with a greater likelihood of gambling later with real money. Additionally, they found that psychological structures like reward uncertainty, reinforcement loops, and repeated attempts at desirable outcomes, may reflect shared underlying behavioral risk factors. Shi et al. (2021) further documented that many of these gambling-like mechanics operate in games with minimal or entirely absent age restrictions, including social casino games, which are free-to-play mobile or online games that simulate slot machines and casino-style experiences without requiring real-money bets. This means that adolescents encounter and internalize chance-based reward systems years before reaching legal gambling age. A survey of secondary school students in Hong Kong, cited in Shi et al. (2021), found that 71.4% of youth who gambled online had previously played gambling-style games on free-to-play websites, a finding that implies a directional relationship between gaming exposure and gambling initiation rather than a coincidence.

For adolescents who are simultaneously navigating the frictionless access of mobile sports betting, prior normalization through gaming may significantly lower the psychological threshold for beginning to gamble with real money.

## APP FEATURES

Mobile accessibility and the convergence between gaming and gambling explain how young people arrive at online betting platforms, but the design of those platforms shapes what happens once they are there. Extensive research shows that the interface itself is a driver of harm, showing that decisions about friction, default settings, and framing consistently push users toward spending more. These features share a single principle that friction is distributed unevenly, so that actions profitable to the operator are made effortless while actions that protect the user are made difficult. This is especially relevant for adolescents, whose impulsivity, excitement for reward, and limited experience managing money leave them less equipped to resist such design compared to older adults.

One attempt to organize this uneven friction comes from Newall (2025), who sorted deceptive gambling design into three overlapping categories drawn from behavioral science. “Sludge” refers to deliberate

friction in the user's path, such as withdrawal processes that require more steps than deposits. “Dark patterns” refers to interface choices that steer users toward the more profitable option, such as suggesting a bet size well above the minimum or printing safe gambling information in the smallest font on the screen. “Dark nudges” refers to a design that exploits mental shortcuts, such as framing gambling as harmless fun or displaying past roulette outcomes that reveal nothing about what will happen next. Also, Newall (2025) found that a majority of audited gambling websites suggested in-game bet sizes above the allowed minimum, while safer gambling messaging was routinely buried in blocks of over 2,000 words in the smallest font on the screen. He argues that these choices are engineered to maximize losses rather than support informed decisions, and also points out that any regulation is consistently trailing behind each new manipulation. The author built this taxonomy from his own expertise and existing audit reports, but not from a formal, repeatable database search. Therefore, this works well as a way to organize and label the features, but does not measure how much any single feature actually changes behavior.

The scoping review by McGarrigle et al. (2026) helps address that measurement gap. The authors aimed to document and categorize every deceptive design feature that research has found on online gambling platforms to date, synthesizing 16 peer-reviewed and grey literature sources published between 2018 and 2025. They used the Gray et al. (2024) dark patterns classification framework, which sorts deceptive design tricks into five standard strategy categories (sneaking, obstruction, interface interference, forced action, and social engineering) so findings from different studies can be compared. Additionally, most of their research came from the UK and Australia without a specific participant age or sample. The features they document follow the same asymmetry that Newall (2025) found. Responsible gambling tools were hidden behind small fonts and dark colors while betting and deposit features occupied the most visible positions, deposit limits and stake boxes came preset above the minimum, and users were prompted to bet again as soon as a wager was resolved. Stopping was often made deliberately difficult, with withdrawals requiring a minimum balance and account closure routed through customer support, while a closed account could reopen with almost no effort. In each case, the easier path benefits the operator. The authors also point out that gambling companies hold detailed behavioral data on their users but rarely share it with independent researchers, making it difficult to measure how much these features actually affect people. They recommend stronger regulation of platform design, mandatory data sharing, and the adoption of "light patterns," meaning design that prioritizes consumer welfare over operator profit.

There are two experimental findings that move this asymmetry from description to evidence, operating in two directions. The first comes from a field trial conducted by the Behavioural Insights Team cited within the McGarrigle et al. (2026) review, in which removing high default deposit options and letting users type their own amount reduced the spending limits people set by roughly 45%. The same logic runs the opposite way in the randomized controlled trial by Ivanova et al. (2019), which tracked 4,328 online slot players from a Finnish platform (mean age 29.3) for 90 days to test whether prompting users to set a voluntary spending limit reduces losses. Prompting a user sharply raised the percentage who set a limit, from 6.5% to 45%, but made no difference to how much money people lost, a failure the authors attribute to a limit that was voluntary and easily removed. A further finding is that users who set a limit and then raised or removed it lost significantly more than those who never set one, and users who set a limit on

their own without being prompted also lost more than non-setters. This suggests that self-initiated limit setting may actually be a warning sign of problem gambling rather than a protective behavior. The authors conclude that marketing voluntary, easily removable limits as a responsible gambling strategy is misleading, because no evidence shows they reduce harm. Taken together, the two trials show the same asymmetry in two different ways. A default deposit suggestion favoring the operator produced a large, measurable increase in spending, while a protective tool built to be easily reversed produced none. This is consistent with Newall's argument that these interfaces are designed to maximize losses, and it suggests the responsible gambling features platforms advertise may offer limited protection in practice.

The research of Di Censo et al. (2024) offers a more direct connection between these design features and young people. To identify which factors best predict problem gambling among young sports bettors, the study recruited 567 participants aged 18 to 24 from a United Kingdom research panel who all held active betting accounts. The authors measured severity with the Problem Gambling Severity Index (PGSI), a scale that classifies gamblers from non-problem up to problem. Using hierarchical regression, a method that adds variables in stages so each group's contribution can be measured separately, the authors found that behavioral and psychological factors alone explained 34.4% of the variance in problem gambling scores, with marketing variables explaining a further 15%.

These predictors tie the design features back to the psychology of young people. The strongest behavioral predictor was in-play betting, meaning wagers placed continuously throughout a live event. The authors argue it is harmful because the short interval between placing a bet and learning its outcome, combined with the ability to place multiple wagers within a single game, mirrors the reinforcement structure of a slot machine. In-play betting is a structural feature built into the platform, and it belongs to the same continuous-play design that both Newall (2025) and McGarrigle et al. (2026) catalogue as harmful. Negative urgency, the tendency to act impulsively during negative emotions, emerged as a significant psychological predictor. Susceptibility to inducements such as sign-up bonuses and free bets was the strongest marketing predictor. Each of these traits corresponds to a feature on the platform. Countdown timers and re-bet prompts give an opportunity for impulsivity, high defaults and above-minimum stake boxes turn inexperience into larger losses, and inducements turn responsiveness into sustained engagement. Because adolescents are, on average, more impulsive and reward-sensitive than older adults, the features documented as harmful for the general gambling population align with the vulnerabilities most concentrated in this age group.

## NORMALIZATION MECHANISMS

Unlike the other mechanisms so far, normalization works earlier, shaping the attitudes and expectations young people bring to gambling long before any wager is placed. Normalization changes the surrounding culture, making gambling appear ordinary, socially endorsed, and inseparable from the sports and online spaces adolescents already occupy. This process matters for adolescents since their attitudes toward risk are still forming and are heavily shaped by what they perceive their peers to accept, leaving them more susceptible than adults to environments that present gambling as a normal feature of everyday life.

The most visible engine of this normalization is advertising, and research shows that regulations attempted to shield young people from it have largely failed. Thomas et al. (2018) examined where and when young people encounter gambling advertising through interviewer-assisted surveys with 111 basketball fans aged 11 to 16 in Victoria, Australia. They conducted these surveys at stadiums between May and July 2018, with a mean age of 12.9 years. Almost all of the participants (91%) recalled seeing gambling ads on television, most often during sporting matches. But the more consequential finding was about newer platforms, as 55% recalled seeing gambling ads on social media and 36% specifically named YouTube, often before sports or gaming videos. The study documented that Australia's advertising restrictions, including a ban on gambling ads during live sport before 8:30 pm, were riddled with loopholes covering news programs, stadium signage, player uniforms, replays, and all social media. Also, 84% of the adolescent participants reported continuing to watch sport after the 8:30 pm cutoff that was supposed to protect them. What makes this finding notable is that the young people themselves recognized the saturation, with 79% saying there were too many gambling ads in sport, some observing that the ads teach children that sport cannot be enjoyed without betting.

The pattern of social media outpacing traditional broadcast as exposure to gambling reoccurs in a more recent study. Di Censo et al. (2024) surveyed 190 UK residents aged 18 to 24 that were 86.8% male, all of whom had watched at least one match of the 2022 FIFA World Cup and had prior online gambling experience. They measured how much advertising they recalled and had the participants complete a problem gambling severity scale. Participants recalled seeing ads more often on social media than on television or internet banners, and higher-risk gamblers recalled significantly more total advertising than lower-risk gamblers (scoring a 14.04 against 10.18 on a combined exposure scale out of 30). More revealing than the raw volume was the content, as higher-risk gamblers were more likely to recall ads for riskier bet types including micro-betting, meaning wagers placed on small in-game events such as the next play, at 55.4% compared to 38.2%. Additionally, they were more likely to remember and find appealing inducements such as increased odds and bonus bet promotions. Only 46.3% of all participants recalled seeing any advertising for harm mitigation tools like deposit limits or self-exclusion, compared to 95.8% who recalled bet type ads, showing how advertising algorithms promote harmful rather than safety ads.

Advertising establishes exposure, but another factor to consider is the social context that young people receive it in, specifically online peer groups. Sirola et al. (2021) examined whether young people who form tight-knit online friend groups, referred to as online cliques, are more drawn to gambling content on social media and more likely to conform to what those groups appear to approve. They used an online survey and experiment with 15 to 25 year olds from Finland, the United States, South Korea, and Spain with roughly 1,200 participants per country, collected between 2017 and 2019. Participants rated their tendency to identify with online cliques and then responded to fabricated gambling-related social media posts labeled as either mostly liked or mostly disliked by other users. Young people who scored higher on clique involvement reported greater interest in gambling content overall, and these same participants found majority-liked posts noticeably more interesting than majority-disliked ones, indicating a

susceptibility to conforming to perceived group approval. The authors point out that social media algorithms amplify already-popular content, so that once a clique-involved young person engages with gambling material, that type of content continues to resurface, producing a feedback loop that normalizes gambling attitudes over time.

The offline and familial parts of this social normalization emerge when gambling trajectories are traced back through childhood. Hing et al. (2024) explored how gambling attitudes develop across childhood and what distinguishes teenagers who become at-risk gamblers from those who never gamble. They used qualitative interviews and week-long online focus group communities with 89 Australians aged 12 to 17 in New South Wales, sorted into at-risk or problem gamblers, non-problem gamblers, and non-gamblers using a validated screening scale, with each participant's gambling history traced from early childhood. At-risk and non-problem gamblers were typically first introduced to gambling by parents in early childhood, often through games such as Keno or scratch tickets, and described those experiences as positive moments of family bonding. On the other hand, non-gamblers were rarely exposed to parental gambling and tended to inherit their parents' negative attitudes instead. As they aged, at-risk teenagers increasingly bonded with friends and fathers over private sports betting and tipping competitions, developing genuine interest in betting odds and gambling advertising, while non-gamblers stayed disengaged largely because their friends did not gamble either. Notably, although most at-risk teenagers could describe the symptoms of harmful gambling such as chasing losses, none acknowledged their own gambling as a problem. This study reinforces that normalization is not only a result of commercial advertising but is also affected by the family and peer relationships that surround a young person, making it substantially harder to counteract through regulation of advertising alone.

A newer factor combines the advertising exposure, peer dynamics, and the other addictive gambling mechanisms into a single format: a gambling livestream. Wu et al. (2024) tested whether watching gambling livestreams, meaning broadcasts on platforms such as Twitch and Kick where a streamer shows themselves gambling, triggers gambling cravings or is used to manage them. The authors used two pre-registered online surveys recruiting people who gamble across six English-speaking countries. The first study compared 221 stream viewers (average age 37) against 642 non-viewers (average age 42) with the data collected in June 2022. Using a regression model to identify which traits predicted being a viewer, they found that viewers scored significantly higher on both problem gambling severity and gambling cravings. The likelihood of being a viewer rose with problem gambling severity and was 176% higher for men, and declined with age. The second study, examining 271 viewers with an average age of 36 compared against the same 642 non-viewers, found that more severe problem gambling was linked both to stronger cravings evoked by watching and to the motivation to watch as a way of coping with those cravings. So that the same content viewers turned to for relief appeared to intensify the urge to gamble rather than relieve it, an effect tied specifically to the excitement of watching high-stake bets and jackpot wins. The most concerning part, however, is that 41% of Twitch viewers are ages 16-24 (Global Web Index, 2019) and an unknown portion being below 16, meaning these livestreams proven to increase cravings are disproportionately affecting adolescents.

## CONCLUSION

This paper examined how the digitization of sports betting has reshaped adolescent exposure to gambling across four mechanisms: smartphone accessibility, gambling-gaming convergence, manipulative app design, and media normalization. Together, the four sections support a single claim, which is that this shift has created a gambling environment more dangerous to adolescents than the one that came before it. The four mechanisms work as parts of a single system rather than as separate risks, and several of the same underlying features appear in more than one of them. The clearest is the uneven distribution of friction. Smartphone betting destroys the decision chain that used to slow the process of making a wager, so that placing a bet takes only a few clicks and can happen while commuting or lying in bed (Hing et al., 2022 and Hing et al., 2023). Platform design makes deposits effortless but buries withdrawals and account closure behind extra steps (Newall, 2025 and McGarrigle et al., 2026). A second feature is that adolescents are normalized toward gambling way before they actually place a bet with money. The convergence between gaming and gambling familiarizes young people to paying for chance-based rewards through loot boxes and social casino games (Wardle & Zendle, 2021 and Castrén et al., 2021). Then, advertising, peer approval, and streaming make gambling seem like an ordinary part of the sports and online culture (Thomas et al., 2018 and Sirola et al., 2021). In each case, making a bet with real money begins to feel like a familiar next step. A third feature of digital sports betting is how the structure mirrors a slot machine, the quick cycle between wager and outcome, which appears as in-play and micro betting (Di Censo et al., 2024). Adolescents spend a significant amount of time on a smartphone which keeps gambling accessible, gaming and social culture make it feel normal, and platform design intensifies betting once it begins.

The research behind these conclusions does have some limitations. The biggest one is the shortage of direct behavioral data on people under 18. Several of the strongest studies used samples aged 18 to 24 or older, including Di Censo et al. (2024) and Ivanova et al. (2019), so the claim that these mechanisms press hardest on minors often relies on inference from nearby age groups rather than on measurement of adolescents themselves. There is also a limitation on where the studies take place geographically, since many of the papers use participants or data from the United Kingdom, Australia, and Finland. These countries have gambling markets and regulatory systems slightly different from those in the United States, but most of the conceptual findings are still able to be applied to adolescents in the United States.

Unfortunately, regulation has not kept up with the increasingly harmful gambling environment. Age verification, the most common protection against underage gambling, is easily bypassed, and existing research shows that young people evade these checks by simply indicating they are over 18 in a checkbox (Shi et al., 2021). Advertising restrictions have also been attempted, however they were ineffective and could be improved, such as the Australian ban on gambling advertising during live sport reported in Thomas et al. (2018). Voluntary responsible tools don't do any better, since the deposit limit tool operators promoted as a safeguard produced no reduction in losses since it was easy to remove (Ivanova et al., 2019). Among all these regulations, the main issue is that they are all easy for the user or the operator to get around, making them unlikely to work especially for impulsive teenagers.

More effective regulation would target these mechanisms directly rather than rely on the good faith of operators or the self-control of young users. The first fix I would suggest is a form of real identity verification at registration. A checkbox or self-reported birthdate is not an effective type of verification, since a minor clears it in a second with a false year. Biometric confirmation, such as a facial recognition scan matched against a government ID at account creation and withdrawal, is already standard in banking apps and would be highly effective. It would not be perfect though, since a teenager might still borrow a parent's identity. Another problem is advertising, since verification only affects who can bet while advertising affects who wants to bet long before an account is opened. The most realistic change for the streaming case is adjusting the platforms' own terms of service. Twitch, Kick, and YouTube could be required to treat sponsored gambling content as age-restricted and gate it behind verified-adult access similar to the face verification I suggested for betting platforms. Unfortunately, platforms have little incentive to restrict profitable content, so the requirement would need to be mandated and audited rather than left optional. Both proposals share the idea that a safeguard works only when it is mandatory and verified instead of optional and self-reported.

Future research could close these gaps in a few ways. The most important is experimental studies on samples of adolescents under 18, ideally through designs that follow young people over time and can figure out whether early exposure to gambling-like mechanics actually leads to later gambling harm rather than only correlating with it. More research based in the United States is also needed, since the American betting market has grown rapidly since 2018 while much of the strongest evidence still comes from countries with different regulatory systems. Also, the effectiveness of protective tools, especially age verification, could use more testing than it has received, so that future regulation can be backed with evidence. Until that evidence exists, protecting adolescents requires consistent advocacy by both parents but also by peers of those who may be at risk. In order to successfully advocate, understanding and educating others on how the gambling environment has become increasingly more frictionless, gamified, manipulative, and constantly normalized in the media, is essential.

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