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# The Evolving Landscape of Sports Betting: A Risk for Young People?

Damien Brevers, Claus Vögele und Joël Billieux

*Which Team Will Win The Game? What Will Be The Winning Margin? Which Player Will Score?*

While sport fans might differ in their confidence with which they respond to such questions, they will certainly have an answer. Sport events are numerous, easily accessible, and associated with a large number of betting options. Despite being banned for minors, this sort of gambling activity is extensively advertised on television and on social media platforms. Accordingly, there is a legitimate concern on whether this increasing popularization and immediate availability of sport betting has the potential to harm children and adolescents. Assuming that the current landscape of sport betting constitutes an emerging public health issue, the present chapter provides a comprehensive synthesis of the available evidence and to describe the potential impact and consequences of sports betting in young people.

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C. Vögele

Department of Behavioural and Cognitive Sciences, University of Luxembourg,  
Esch-sur-Alzette, Luxembourg  
E-Mail: [Claus.voegel@uni.lu](mailto:Claus.voegel@uni.lu)

D. Brevers (✉)

Psychological Sciences Research Institute, UCLouvain, Louvain-la-Neuve, Belgium  
E-Mail: [damien.brevers@uclouvain.be](mailto:damien.brevers@uclouvain.be)

J. Billieux

Institute of Psychology, University of Lausanne, Lausanne, Switzerland  
E-Mail: [Joel.Billieux@unil.ch](mailto:Joel.Billieux@unil.ch)

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363

## 1 Gambling-related Harm in Young People

Sports betting has become increasingly prevalent among young people, as evidenced by recent cross-sectional studies. For instance, in a recent study undertaken in a convenience sample of 735 young adults (aged 18-25) in Spain (recruited in person at various university faculties and vocational training centres in Madrid,  $n = 603$ ; or through online surveys on social network sites,  $n = 132$ ), 43% (comprising 80% of men) reported to have bet on a sports event at least once (Labrador and Vallejo-Achón 2019). This study also showed that most bets were made online, target football (soccer), and constitute obvious outcomes (e.g., betting on the winning team). With regard to underage youth (< 18-year-old), in a study involving a convenience sample of 1330 male Croatian high-school students, the majority of boys acknowledged to have been involved in sports betting, even though they do not have the legal age to gamble (Ricijas et al. 2011, 2016). Of particular concern is that 24% of male high-school students had already developed severe psychosocial consequences related to gambling (Ricijas et al. 2016). These patterns occurred particularly in sports betting, video lottery terminals, and virtual betting (Ricijas et al. 2016).

An increase in gambling-related harm has also been described for adolescents (see also **BOX 1** for a brief account of hazardous gambling practices in adolescents). For instance, a survey of 12- to 15-year adolescents in Finland (a convenience sample of 988 first-year junior high-school students) found that 3% had a probable gambling disorder and a further 4.9% can be considered at-risk gamblers (Castrén et al. 2015). Hazardous gambling involvement of adolescents has also been found in Australia (Miller 2017; Purdie et al. 2011), Canada (Elton-Marshall et al. 2016), Croatia (Ricijas et al. 2011, 2016), New Zealand (Volberg et al. 2010), Sweden (Fröberg et al. 2015), the United Kingdom (Gambling Commission UK 2016, 2017), and the United States (Marchica et al. 2017).

With regard to sports betting, recent research has shown that patterns of live betting are very common in young, male, single, educated, full-time employed workers or students (Hing et al. 2016; see also Russel et al. 2018, 2019), with a shorter experience of sports betting (Hing et al. 2018a, b). Other studies have shown that problematic sports bettors are predominantly male adolescents and young adults (Hing et al. 2017a; Humphreys and Pérez 2012; Russel et al. 2018; Wood and Williams 2009).

Importantly, the increase in online sports betting behaviors has also been shown in recent population-based sampling reports. For instance, in France, sports betting represents the type of gambling that has expanded the most in

2019, with 11% of the French population reporting to have bet on sports (three times more than in 2014; Costes et al. 2020). This reports also shows that sports betting is the second most popular type of gambling (second only to playing the lottery), with a 2.8 increase of betting stakes in five years (4.6 increase for online sports betting, which represent 56% of sports betting stakes; Costes et al. 2020). Sports betting is also linked to the type of gambling that is the most regularly played (26.9% of weekly sports bettors; 37.1% of weekly sports bettors for horses racing bets; 26.9% for other types of sports; Costes et al. 2020). Moreover, and in line with the above-mentioned convenience sample studies, Costes and colleagues (2020) observed that sports bettors are most commonly men (89.7%), of a young age (72.2% < 35 years), with a high level of education, and with higher incomes than the other types of gamblers. Critically, among the different types of gambling, sports betting is the most strongly associated with gambling-related issues (3 times more moderate problem gamblers, and 6 six times more high problem gamblers than lottery players), with a quarter of the individuals developing Gambling Disorder being specifically involved in sports betting (Costes et al. 2020).

Another key point is that amongst young people, the loss of control over gambling and related adverse outcomes can occur rapidly, in just a few months (Spritzer et al. 2011; see also *BOX 1*). Specifically, adolescent gambling has been related to poor school performance, isolation, depression, disrupted relationship with family and friends, deleterious financial loss, and problematic substance use (Derevensky 2007, 2012; Miller 2017). Individuals who reported having gambled before the age of fifteen are also at higher risk to experience substance abuse, psychological disorders, and suicidal ideation, compared to late-onset gamblers (Burge et al. 2004, 2006; Hare 2009). Nevertheless, these results are based on cross-sectional studies, which impedes any conclusions about causality. Moreover, longitudinal studies have shown that young people's gambling behavior fluctuates over time and may not necessary lead to continued (problem) gambling in adulthood (Delfabbro et al. 2009, 2014; Edgerton et al. 2015).

Overall, current findings from the literature suggest that, among sports bettors, young male adults are at increased risk for developing gambling problems. Nevertheless, additional research is needed to distinguish temporary maladaptive gambling habits in young adulthood from those that could lead to functionally impairing gambling patterns.

### **BOX 1. Why Adolescents are More at Risk of Developing Problematic Gambling Habits?**

Adolescence represents a distinct developmental period in terms of experimentation and engagement in risky behaviors (e.g., Derevensky 2012). At the neural level, an immature prefrontal cortex is generally considered as the neurobiological correlate of poor decision making and risky behaviors in teenagers (e.g., Casey and Jones 2010).

The prefrontal cortex is one of the last regions of the brain to reach maturation (Arain et al. 2013). This region acquires information from all of the senses and orchestrates thoughts and actions to achieve specific goals (Arain et al. 2013). The prefrontal cortex is thus a key region for cognitive analysis, abstract thought, and the moderation of correct behavior in social situations (e.g., Goldstein and Volkow 2002). Accordingly, adolescents cannot fully access executive and inhibitory control functions due to the immaturity of the prefrontal cortex (Arain et al. 2013).

These processes are not detrimental *per se*, and may also promote a learning drive for optimal adaptation to adult roles (Chambers and Potenza 2003). Nevertheless, this dynamic may also confer an increased vulnerability to addictive behaviors, such as problem gambling. Gambling can be viewed as involving repeated participation in ritualized “impulsive” decision-making, featuring instant monetary rewards (Burge et al. 2004).

Adolescence is a developmental period associated with increased responsibility, autonomy and freedom, thereby facilitating the involvement in problematic and risky activities (e.g., substance use, drinking and driving, unprotected sexual behavior and gambling). All these behaviors represent primary markers for risk taking, and in certain cases are viewed as a *rite of passage* (e.g., MacDonald 1987).

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## **2 Convergence Between Sport, Gaming, and Gambling**

Does playing online games influence and shape young people’s attitudes and engagement toward (sports) gambling? This question is currently examined by research on Daily Fantasy Sports (DFS). DFS allows players to create their own teams of real-life players and to assume the role of team manager/owner and to potentially win cash prizes, derived from entry fees. The primary aim of

DFS leagues is to accrue the most points on contests that can span an entire sport season. DFS are worldwide popular (especially in North America; e.g., Marchica et al. 2017). Skill-based processes and sports knowledge (e.g., statistics, injury, player drafts, trades) play a critical role in fantasy game participation (e.g., Davis and Duncan 2006). As these games are considered as skill-based games (i.e., unlike traditional gambling involving mainly games of chance), adolescents can legally be involved in these gambling-related activities (Billings et al. 2016).

Some concerns have been expressed regarding the accelerated nature of fees and other DFS features that might promote excessive play and related harm in young people (e.g., Nelson et al. 2019). Indeed, the daily or hourly DFS use mimics online sports betting, as it offers availability and opportunities on the short-term. Accordingly, there is evidence that participating in fantasy sports leagues is associated with sports betting problems (i.e., loss of control over gambling, lying about one's gambling, being preoccupied about one's gambling) in adults (Nower et al. 2018), college students (Marchica and Derevensky 2016; Martin and Nelson 2014; Martin et al. 2016), and adolescents (Marchica et al. 2017).

In addition to DFS, other games may offer a pathway to gambling. For instance, social media sites such as Facebook offer social casino games, e.g. slot games and card games (blackjack). These games are not classified as gambling activities as they are not associated with monetary gains (although monetary expense can result from playing or subscribing). Hence, similar to DFS, these games can be legally provided to adolescents and are very popular among this population (Derevensky and Gainsbury 2016; Gainsbury et al. 2015, 2017; Kim et al. 2017; Teichert et al. 2017; Wohl et al. 2017). Crucially, longitudinal studies have shown that the involvement in simulated gambling via social network sites facilitates the transition to gambling with real money in adolescents (Dussault et al. 2017; Hayer et al. 2018). These findings raise concerns as it suggests that simulated online gambling activities can render gambling as a socially acceptable, enjoyable and risk-free activity.

An increasing convergence of gambling and video gaming has been observed over the last years, facilitated by the advent of incentivized in-game purchasing systems (i.e., micro-transactions), such as the repeat purchase of randomly determined items via "loot box" mechanics (i.e., items in video games that may be bought for real-world money, but which contain randomized contents; Zendle et al. 2020). The basic design and implementation of in-game purchasing options simulates the dynamic and intermittent reward ratios that are typically observed in slot machines (King and Delfabbro 2018), as it features rapid pace, repeatability, and randomness of rewards (e.g., monetized cosmetic in-game

items; Hardenstein 2017; Holden and Ehrlich 2017; Macey and Hamari 2018a, b; Gambling Commission UK 2017). These monetized in-game purchasing systems use sophisticated behavioral tracking and machine learning-based algorithms to alter in-game conditions to incentivize continuous spending and persistent playing (King et al. 2019a, b).

The convergence of sport, gaming and gambling is even more pronounced with the unprecedented development of E-sport (Lopez-Gonzalez and Griffiths 2018). This increasingly popular form of sport encompasses video gaming competitions organized into leagues and tournaments, along with streaming practices, which has brought professionalization, regulation, fan communities, and has also resulted in a wide range of new sport betting options (Hamari and Sjoblom 2017).

Overall, the contemporary technological and cultural environment encapsulates gaming and gambling as easy access leisure activities, along with the continuous development of E-sport. The tremendous popularity of video games (and now E-sport) and the implementation of gambling-like in-game purchasing systems in video games (e.g., loot boxes) result in most young people being exposed to gambling situations at a stage of being under age (including situations likely to promote sports betting), which raises important public health issues. In the next section, we will detail on how young people's attitudes and engagement toward gambling is also shaped by the sports betting advertising and its powerful alignment with professional sports sponsorship.

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### **3 Hyper Exposure and Easy Access to Sports Betting**

In most European countries, sports betting is legal and highly advertised (see *BOX 2* for an overview of the landscape of sports betting in Luxembourg). As a result, sports fans are directly (e.g., through television advertisements, smartphone notifications) or incidentally exposed to gambling messages while watching sport match-day programs (e.g., team shirt sponsored by gambling companies, pitch side advertising boards, half time entertainment; Sharman et al. 2019). For example, a comprehensive analysis of three full episodes of a popular soccer-related show ("*Match of the Day*", which is broadcasted on a non-commercial British television channel, BBC1) emphasizes an average of over 250 gambling logo exposures per episode (Cassidy and Ovenden 2017). Studies conducted in Australia observed that spectators watch between 10 and 15 minutes of gambling promotions during every single game (Lindsay et al.

2013), and are exposed on average to 107 gambling advertisement per game (Gordon and Chapman 2014). In the English Premier League, the number of teams with gambling shirt sponsors increased from four teams in 2008 to half of all teams in 2017 (Lopez-Gonzalez and Griffiths 2018). Live commentary and half-time studio break also promote gambling-related cues exposure via betting odds discussions (e.g., between match-day programs hosts, featuring celebrities and football experts; Deans et al 2017; Hing et al. 2015). Sports betting is thus becoming increasingly embedded into the sports culture and advertised in prime-time popular TV programs.

Another key aspect of sports betting advertising is that its content features minute-by-minute information (e.g., betting odds dynamically changing according to ongoing games and events), as well as direct incentives to bet (e.g., emails, smartphone notifications on bonus bets, happy hours, multi-bet offers, improved odds, cash out offers, refunds; for a review, see Newall et al. 2019). Hence, since a large range of macro and micro events are available to bet on, merely viewing such advertisements and the related sport events are likely to increase the motivational salience of sports betting-related cues.

These assumptions have recently been investigated in a functional magnetic resonance imaging (fMRI) study on sports betting cue exposure (Brevers et al. 2018). The results show a differential pattern of sport cues information processing, depending on whether sport fans think about a sporting event with the intention of gambling on the outcome or thinking about it with the intention of merely watching it (Brevers et al. 2018). The neural networks mediating these responses to sports betting cues were identified in the orbitofrontal cortex, anterior insula, caudate nucleus, and the hippocampus. These regions represent important brain pathways underlying memory, cognition and emotion as triggered by addiction-related cue reactivity (for a review, see Brevers et al. 2019).

One recent study found evidence for implicit associations between gambling and sport (i.e., spontaneous and fast associations between sports betting brand logos and sport names) in adolescents (Li et al. 2018). This result is important as it illustrates the considerable strength of an associative pathway between sport and gambling in young people. Specifically, the repeated pairing of environmental gambling advertisement with sports might lead these stimuli to acquire increased motivational salience and to take up more attention capacity. These patterns are consistent with those observed in adult samples of frequent gamblers (Brevers et al. 2013a; Flòrez et al. 2016; Yi and Kanetkar 2010; Zack et al. 2005).

The convenient and easy access to sports betting is not only likely to trigger gambling saliency among the population of sports fans, but might also increase non-planned betting (e.g., in-play live betting on in-match contingencies). For

instance, Hing and colleagues (2016, 2018a, b; see also Browne et al. 2019) showed that live betting is common among sports bettors, and is positively associated with gambling disorder symptoms. This line of research also has shown that patterns of live betting are very common in young men characterized by general trait impulsivity (Hing et al. 2018a, b) and sensation seeking (Martinez-Loredo et al. 2019).

Overall, these findings echo current neurocognitive approaches to gambling disorder (e.g., Brevers and Noël 2013b; Brevers et al. 2020) in that the confrontation with sports-related stimuli in individuals with problematic sports betting habits might lead to the activation of the “sports betting cluster”, which would in turn automatically trigger a corresponding impulse, consisting of a positive, fast and intense incentive attributed to gambling and a corresponding behavioral approach schema (see also Hofmann et al. 2009; Stacy and Wiers 2010).

#### **BOX 2. An Overview of the Landscape of Sports Betting in Luxembourg**

Gambling has become widely viewed as a socially acceptable and increasingly popular form of recreational activity (e.g., Calado and Griffiths 2016). This also applies to Luxembourg, which has been listed as one of the countries with the highest prevalence rates of gambling, as suggested by gross gambling revenues (Griffiths 2009), and high popularity of gambling among young adults (Duscherer and Paulos 2014).

Sports betting has been legal in Luxembourg since 1987. The minimum age for betting is 18 and **players' winnings are not taxable**. Currently, sports betting is placed under the auspices of the Loterie Nationale (since 2016). Nevertheless, as of February 2017, no foreign-based online sports betting website has been blocked in Luxembourg. Moreover, a high-frequency of sports betting advertisement can be viewed through the media from neighbouring countries (Belgium, Germany and France). Hence, there is a wide variety of options for sports bettors in Luxembourg, just as in many other European countries.



## 4 Narrative Content of Sports Betting Advertisement

Gambling brand exposure is ubiquitous in most industrialized countries. This section aims to demonstrate how young people are increasingly targeted by the gambling industry through the symbolic content of sports-betting advertising.

A growing body of literature targets the content and impact of the advertising and promotion on sports betting across the world (Deans et al. 2017; Gordon et al. 2014; Lopez-Gonzalez et al. 2018a, b). These studies have disentangled the tactics used by the sport betting industry to promote gambling behavior through online marketing and gambling-related websites, which consist of only 10 ten major strategies. These include features such as sports fan rituals and behaviors (e.g., pictures or videos of fans cheering for their teams, waving banners, and wearing team uniforms, jerseys, or scarves), mate ship and peer bonding (e.g., young men watching sport together, socializing at the pub, or at social gatherings such as parties or barbecues), social bonding characterized by an individual betting dynamic (e.g., the bettor is surrounded by people but isolated in their betting), gender stereotypes (e.g., sexual objectification of women, with advertisements often portraying male dominance or power over women), presentation of betting outcomes as predictable and skill-based (e.g., using themes of sports knowledge, calculations, active choice, the bettor identity, masculinity, control over the way in which individual gamble, and when and where they could gamble), social superiority (e.g., financial success from wagering would lead to affluent lifestyles, and control over life choices), in-play live betting, adventure, thrill, and risk (e.g., gamblers need to take risks to reap higher rewards, staking small amounts of money with large potential returns), cash winning emotion and celebration (e.g., themes of personal and group triumph and the social success resulting from monetary gains), and co-consumption with other risky behaviors (e.g., alcohol, junk food; see also Sartori et al. 2018). Humor and celebrity endorsement were also observed. These later two elements have been suggested to normalize gambling behaviors and increase its social acceptance (Derevensky et al. 2010; Hing et al. 2015; Lamont et al. 2016; McMullan and Miller 2008, 2009; Pitt et al. 2017a, b).

Taken together, sports betting advertising relies on narratives themes that exaggerate social acceptance and perceived control over betting (see *BOX 3* for a discussion on illusory active control in sports betting). Previous research also supports the notion that positive attitudes towards sports betting advertisement (e.g. “good/bad”; “like/dislike”; “harmless/harmful”), but not actual frequency

of exposure, is associated with problem gambling symptoms (Hing et al. 2017b). Importantly, positive attitudes to sports betting advertisement are also linked to increased levels of awareness of, attention to, and recall of the sponsor's name and their promotions (e.g., through logos on team uniforms), as well as with greater betting intention in young people (Glozah et al. 2019; Hing et al. 2017b; Newall et al. 2019). On the whole, it can be concluded that favorable attitudes and salient recall of sports betting marketing constitute risk factors for problem gambling in young sports bettors.

The rise of betting marketing has also prompted sport fans to describe the betting market as "saturated" (Thomas et al. 2012), and seeing themselves as "desensitized" by the continuous exposure to sports betting related cues (Deans et al. 2017). This is a further signal that gambling becomes increasingly embedded within sport. The next section aims to detail how the onset of sports betting content alongside sports news and events is susceptible to shape positive attitudes toward sport gambling among young people.

### **BOX 3. Can Sports Knowledge Impact Sports Betting Earnings?**

Cantinotti and colleagues (2004) observed that experienced sports bettors achieved higher accuracy rates when picking the results of games, as compared to a random bet selection. The monetary outcomes won by the sports bettors, however, were not significantly higher than the random selection condition. Similar results have been observed in the context of horse-race betting (Ladouceur et al. 1998).

Two studies showed that the level of football expertise did not impact the accuracy of football match prognoses (e.g., to predict the scores of the first 10 matches of the 2008 UEFA European Football Championship; Huberfeld et al. 2013; Khazaal et al. 2012). Hence, results of these studies suggest that sports related knowledge is useless when considering long term monetary gains, and that the so-called "skills" inflate the bettor's confidence. This process is frequently referred to as the "illusion of control" (Langer 1975).

In addition to sports related knowledge, the illusion of control in sports betting could also be fueled by the following factors (Lopez-Gonzalez et al. 2018a):

- A high engagement of attention and decision-making processes, with bettors required to perform composite complex actions and calculations. Hence, as bettors adopt a more active role, betting outcomes (i.e., bet won or lost) are more likely to be misinterpreted as a direct consequence of their strategic thinking.
- Near-miss situations (i.e., a loss that looks almost the same as a win) lead bettors to overestimate bets with low winning probability (Vaughan Williams 1999). For instance, in horse racing, “close finishes” usually describe the features of a good race. Hence, bookmakers have been using this characteristic feature of racing to generate betting odds (Reis 1986).
- The current positive connotations of sports betting in the society reduces the perception of risk pertaining to this type of gambling (e.g., by focusing on its entertainment value; Lopez-Gonzalez et al. 2018a, b).
- With the increasing convergence between sport, gaming, and gambling, sports bettors are increasingly identified as players and not gamblers. The juxtaposition and confusion of skill-based and chance-based roles could thus foster the illusion of control in sports betting.

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## 5 Impact of Sports Betting Advertisement on Children and Adolescents

An important public health concern is that a large number of children and adolescents are currently exposed to sports betting cues during family TV viewing time. For instance, 17% of all advertising displayed around TV’s coverage of the 2018 Football World Cup targeted gambling (Duncan et al. 2018; Newall et al. 2019). Moreover, even taking into account advertising restrictions (e.g., in Australia a restriction on advertising in live sport takes place until 8:30 pm), young people report seeing gambling advertisements on social media or on Youtube (e.g., before being able to watch the sport or gaming video they aim to watch; Thomas et al. 2018; see also Houghton et al. 2020; Killick and Griffiths 2019).

Several studies conducted in the recent years have examined the impact of sports betting advertising on gambling attitudes and consumption intentions of children and adolescents. These studies can be clustered around four complementary findings. A first observation is that young people are able to recall the names of sports betting brands, and associate sports betting sponsors with specific sport teams (Bestman et al. 2015; Djohari et al. 2019; Hanss et al.

2015; Nyemcsok et al. 2018; Pitt et al. 2016, 2017a; Thomas et al. 2016, 2018). Moreover, young people seem particularly sensitive to music, voiceovers and catchy slogans featured in advertisements for sports betting or gambling games on social platforms (Abarbanel et al. 2017; Pitt et al. 2017b).

A second important finding is that seeing parents and friends gambling is associated with gambling frequency and gambling disorder symptoms (e.g., Wickwire et al. 2007a, b; Pitt et al. 2017a, b). Social learning theorists have long pointed to the important role of observation and imitation in the acquisition and maintenance of both socially desirable and socially undesirable behaviors (Bandura 1977). Social learning takes place within a specific reference group, and observation of gambling in significant individuals could unsurprisingly affect young people's participation in gambling activities. Studies using focus group designs found that young people involved in betting generally consider this activity as non-risky and as a socially accepted form of gambling (Deans et al. 2017; Gavriel-Fried et al. 2010; Thomas et al. 2015). Furthermore, sports betting is also perceived as an activity that helps to fit in and to share topics of conversation with friends (Deans et al. 2017). These qualitative observations are consistent with the advertisement strategies of the betting industry, which portray sports betting as an activity facilitating social cohesion, mate ship, and social opportunities (e.g., Deans et al. 2017; Lopez-Gonzalez et al. 2018a, b). An increasing number of children also learn about the excitement of gambling by watching the reactions (e.g., emotional state) of their parents during sports watching (Pitt et al. 2017a, b). Betting parents also frequently include their children in their sports betting activities while watching sports (e.g., by asking their advice, by providing an active role in the actual betting activity; Pitt et al. 2017a, b). In this context, children with betting parents are likely to be at increased risk of developing illusory patterns of self-efficacy by observing (i.e., vicarious learning) and gambling with (i.e., verbal persuasion and mastery experiences) significant others.

A third important observation is that young people take promotions at face value and cannot fully grasp the persuasive and cynical aspects of appeal strategies in sports betting advertisements. For instance, young people are attracted by the skill elements depicted in sports betting advertisement, and interpret these messages as relevant information (Pitt et al. 2016, 2017b). Other studies emphasize that the alignment of gambling with culturally valued events (i.e., sport), celebrity endorsement, perceived expert knowledge and understanding of sport, cash back offers, and the positive attitude of parents and peers towards gambling increase perceptions of trust in sports betting in children

and adolescents (e.g., “sports betting is a part of the sports fan’s identity”; Pitt et al. 2016, 2017a, b).

Fourth, the abiding sports betting marketing has been shown to successfully increase gambling intention and motivation in young people. For instance, over 40% of young people reported that they wanted to gamble after having been exposed to gambling advertisement (Derevensky et al. 2010). A high number of young sports fans also reported that they would like to try sports betting (currently or when being legally authorized to bet on sports; Hing et al. 2014; Pitt et al. 2017b). Besides, sport-related gambling is not necessarily perceived as true gambling, and is associated with a lower degree of stigma (Lopez-Gonzalez et al. 2019; Sproston et al. 2015). Results from recent focus group-based studies support the notion that the positive attitudes and connotations surrounding sports betting might negatively impact upon self-perception of problem gambling (Johansen et al. 2019; Lopez-Gonzalez et al. 2019).

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## 6 Sport Betting in Young Athletes

Throughout the present chapter, we have described how the sports betting industry contributes progressively to the creation of new subcultures (e.g., sports betting is becoming a sports fan ritual) and identities (i.e., bettors are now referred to as “players”) associated with their product. This section focuses on young athletes. Specifically, we investigated how young athletes perceive sports betting, and whether the high accessibility, aggressive advertising, and social acceptability of sports betting impact on their gambling behaviors, as well as on their sport performance.

Some of these questions were addressed by Richard et al. (2019) over the course of four study iterations (2004, 2008, 2012 and 2016) in student-athletes from the North American National Collegiate Athletic Association (NCAA). These studies examined gambling behaviors in more than 84,000 student-athletes (22,388 in the 2016 study) across all three NCAA divisions. The participants were surveyed regarding their attitudes toward and engagement in various gambling activities, including sports betting. The results show that, in contrast to the decrease of poker or online casino use over the years, online sports betting, and especially in-game betting, remains popular with student-athletes. Despite NCAA prohibition, 9% of athletes reported betting on sports at least once per month, and 2% met diagnostic criteria for gambling disorder (see also *BOX 4* for a discussion on why athletes could be more at risk to develop problem gambling). Although playing cards for money was the most common

first experience with gambling, sports betting was increasingly cited by NCAA men as the preferred and most frequently practiced gambling activity (with 90% of men and 82% of women placing their first bet before entering college). Of particular concern is that 11% percent of Division I football players and 5% of men's basketball players reported betting on a game from their championship (but not involving their team).

A recent qualitative study specifically focused on the betting practices among professional football, handball and basketball players (Moriconi and Cima 2019). This study capitalized on semi-structured interviews to explore why athletes bet on their own competitions and sometimes even on their own games (see also Grall-Bronnec et al. 2016). One striking finding from this study is that, even mindful of the regulations and prohibitions, gambling is described by the athletes as a well-known and recurring practice in their milieu. Sports betting is mostly perceived as a recreational behavior for seeking excitement/stimulation or prestige within the group (e.g., internal rivalry between teammates who bet on opposed results to compete and define who eventually "knows more about sport"). Sport athletes also describe specific strategies that they frequently display to avoid being identified by regulators, such as asking a friend to bet for (and sometimes on) themselves, or betting with low amounts. Interestingly, for some individuals, betting in one's own games can even be a sign of sport integrity and a source of collective motivation (e.g., similar to an official monetary prize or cash bonus). In the players' opinion, problem gambling and financial insecurity were seen as conditions that could lead to match fixing. According to the players, if athletes become indebted, they can be tempted to altering their play on the field to affect the outcome of a game. According to the informants, betting-related behaviors are involved at different levels and conducted by different actors to finance various kinds of activities, from salaries to travel expenses (Moriconi and Cima 2019).

Attitudes towards sports betting were also examined by Richard, Paskus and Derevensky (2019) in a sample of NCAA student-athletes. Around 25% of athletes reported being uncomfortable with the idea of betting on college sports and 50% were against gambling advertising related to college sporting events. Nevertheless, 44% percent of men and 31% of women viewed sports betting as a harmless pastime. This view was more pronounced (76% and 61%) among student-athletes who were involved in sports betting. Moreover, around 50% of men and 25% of women who bet on sports thought that sport betting is a convenient way of winning money. The student-athletes involved in sports betting also reported that a lot of players violate NCAA betting bylaws and 25% think that coaches did not consider these rules seriously.

These findings suggest that online sports betting is already firmly rooted within the sport culture, i.e. not only in sport fans but also in athletes. This high-acceptance of gambling might also change the way young people consider sports (e.g., Thomas et al. 2018; Pitt et al. 2017b). This aspect is especially relevant when tackling the issue of sports betting by adopting a sport psychology perspective. The development that a young elite performer is likely to progress through is completely at odds with the achievement goals conveyed by sports betting. Specifically, young athletes need to develop self-efficacy and self-determined motivation through the experimentation and the observation of task-oriented mastery goals (e.g., Baker et al. 2003; Côté 1999; Kitsantas et al. 2000). These patterns fundamentally contrast with sports betting in which the main motivation is oriented toward an external reward (i.e., money) that is obtained through quantitative indices of performances. Hence, it might be that the sports betting culture increases the normative aspect of performance-oriented goals in young athletes (commonly associated with sport dropout in this population; e.g., Conroy et al. 2003; Duda 2001; Elliot and McGregort 2001), and hamper the development of task-oriented goals (commonly associated with feelings of pleasure and self-efficacy in young athletes; e.g., Smith et al. 2009). Further studies are thus needed to examine whether and how the normalization and acceptance of sports betting impacts on young athletes' motivation and achievement goals toward their sport practice.

#### **BOX 4. Are Athletes More at Risk to Develop Problem Gambling than Non-athletes?**

The most frequent motives to gamble among elite athletes tend to be related to their competitive attitude and interest in sport (Curry and Jobu 1995). More specifically, gambling corresponds well to athletes' desire for competition and challenges, and sometimes their heightened needs to experience sensation and risk-taking (St-Pierre et al. 2014; Håkansson et al. 2018). In addition, athletes tend to think that they know more about their particular sport and, therefore, may view sports betting as an easy opportunity to win money (Curry and Jobu 1995; Grall-Bronnec et al. 2016). Furthermore, most professional athletes have a lot of free time, which could lead them to bet on sport as an occupational activity of for sharing their knowledge and interest in sport (Nowak and Aloe 2014). Lastly, having a considerable income at a young age has also been linked to gambling behaviors (Hayatbakhsh et al. 2012).

Of particular public health concerns is the reported significant number of athletes who are starting gambling in group and at a young age (e.g., Sullivan-Kerber 2005; Huang et al. 2007). Based on a nationally representative sample of 20,739 student-athletes in the United States, a study reported that 62.4% of males and 42.8% of females were involved in some sort of gambling (Huang et al. 2007). In a sample of European professional athletes, Grall-Bronnec et al. (2016) found that 56.6% of the sample had gambled at least once during the previous year. This rate of gambling frequency is higher than the percentage generally found in the general population in European countries (with variations ranging from 25% in Belgium to 56.2% in France; Costes et al. 2015; Goudriaan et al. 2013; Ekholm et al. 2014).

With regards to problem gambling, recent studies reported lifetime prevalence rates of 7% (in a Swedish sample of university student athletes,  $N = 352$ ; Håkansson et al. 2018) and 8.2% (in a sample of European professional athletes from Grall-Bronnec et al. 2016). These rates are at the upper end of the range reported in the general population, with lifetime rates of problem gambling ranging from 0.7 to 6.5% (Calado and Griffiths 2016). Gambling frequency and problem gambling were also positively linked to participation in competitive sports in high school, in samples of adolescent athletes (Gavriel-Fried et al. 2010; Moore and Ohtsuka 2000).

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## 7 Regulatory Responses and Educational Programmes

Policymakers and legislators are becoming increasingly aware of the potential adverse effects of sports betting in young people. In the last years, various regulatory responses have targeted sports betting advertising, such as discussing with sports clubs strategies to prevent their team and stadium from exposure to gambling sponsorship, or banning all gambling advertising across public spaces and television during a sports event (Thomas et al. 2018). Nevertheless, these regulation strategies contain a number of exemptions which have important implications for young people's continued exposure to sports betting advertising (Thomas et al. 2018). In Belgium, for instance, gambling advertisement is now banned during live sport events, but can still be visualized through stadium and team sponsorships. Moreover, sports betting marketing is still allowed during



the other types of sport television programs occurring shortly prior or after the live event. Besides, cut-off time strategies (e.g., no betting ads prior 8:30 pm) are generally inefficient since young people watch media content well beyond e.g. 8:30 pm, or are engaged in media viewing via online digital platforms and social media which are exempted from these regulations, such as Youtube (Thomas et al. 2018).

When asking young people to share their opinions on what could be done for addressing public health concerns on sports betting, they tend to report that sport institutions and government bodies should do more to protect young people from gambling advertisement exposure (Richard et al. 2019; Thomas et al. 2016, 2018). This includes the need to remove all gambling advertising from sport (without exemption rules) and to create educational programs on sport integrity. In other words, regulatory actions need to go beyond the gamble ban message.

It is important to disentangle excitement and knowledge resulting from sports passion from those oriented toward sports betting (e.g., Miller 2017). This aspect is crucial for allowing young people to build a sports fans and/or athletes identity centered around the passion for sports, despite being highly exposed to sports betting advertisement. This view echoes qualitative works on gambling abstinence (Reith and Dobbie 2011, 2012, 2013; Reith 2018). These studies emphasized that the maintenance gambling abstinence revolves around shifting from a gambling self-identity (i.e., a “gambling self”, with many becoming unable to fulfill roles associated with their “non-addict selves”; Reith and Dobbie 2012) to a self-identity that is reshaped in harmonious and appropriate ways (e.g., through a renewed interest in activities in line with the individual’s life values, which allows him/her to recover a sense of agency and meaning in life). In this context, building a sport fan’s or athlete’s identity separated from gambling activities is a key feature of young people regulated betting habits. Indeed, a challenge for sport fans who try to diminish or stop betting is to watch sport events without betting on them (e.g., Johansen et al. 2019). In this vein, educational programs promoting harmonious sports passion should help to restore an interest in sports *per se*, that is, without betting on it (i.e. shifting back to a “sport-fan” or “athlete identity”).

Interestingly, these initiatives depart from prototypical gambling industry “responsible gambling” practices, which are framed in terms of the individual’s responsibility to avoid harm and to act responsibly (Hancock 2011, 2018; Hancock and Smith 2017). Specifically, this “responsible gambling” approach might reinforce individual choice, and shape public policy in ways favorable to the gambling industry (e.g., by avoiding more government regulation through corporate political activity; Baysinger 1984). This dynamic is also likely to

divert attention away from banning sports betting advertising during broadcasts by focusing on voluntary self-regulation. It is thus crucial to develop and fund innovative educational programs aiming to protect young people, and to spread these actions to parents, young adults' peers or siblings, teachers and sporting coaches.

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## 8 Conclusion and Perspectives

Given the constantly growing popularity of sports betting, it is important to better characterize young adults' involvement in this new digitalized form of gambling. Little is known about the specific factors that distinguish safe from harmful involvement in sports betting. It will also be important to distinguish excitement and knowledge resulting from sports from those oriented toward the gambling-related reward (e.g., Miller 2017). This aspect is crucial for allowing young people to build a sports fans and/or athletes identity centered around the passion for sports, despite being highly exposed to sports betting advertisement.

This view echoes qualitative works on gambling abstinence (Reith and Dobbie 2011, 2012, 2013; Reith 2018), as well as recent theoretical accounts on addictive behaviors (Miller et al. 2020). These authors emphasize that the maintenance of gambling abstinence revolves around shifting from a gambling self-identity (i.e., a “gambling self”, with many becoming unable to fulfill roles associated with their “non-addict selves”; Reith and Dobbie 2012) to a self-identity that is reshaped in harmonious and appropriate ways (e.g., through a renewed interest in activities in line with the individuals' life values, which allows them to recover a sense of agency and optimal engagement with the world; Reith and Dobbie 2012; Miller et al. 2020).

In this context, building a sport fan's or athlete's identity separated from gambling activities is a key process for young people regulating betting habits. A challenge for sport fans who try to reduce or stop betting is to watch sport events without betting on them (e.g., Johansen et al. 2019), which—in a clinical context—would be akin to exposure with response prevention in the cognitive-behavioral treatment of behaviors with a strong compulsion. Another issue is that sports betting is often undertaken in groups (e.g., friends, relatives; Johansen et al. 2019), as a form of rituals as members of a community (Miller et al. 2020). Hence, young adults' identity might be associated with a sense of membership in a gambling community with which the individual identifies (Miller et al. 2020). In this context, educational programs promoting harmonious sports passion

should help to restore an interest in sports *per se*, that is, without betting on it (i.e. shifting back to a “sport-fan” or “athlete identity”).

This research direction should also be relevant when adopting a longitudinal approach in the investigation of the long-term (mental) health effects of young adults’ exposure to sports betting cues, as well as in studying trajectories of problematic gambling habits (initiation, maintenance, disengagement) in the light of other behaviors that might or might not be detrimental to young people (e.g., substance use, videogaming, Internet use).

To conclude, while the long-term effects of early exposure to sports betting cues are still unknown, there is a need to fuel the discussion on how the increasing popularization and ubiquity of sports betting impact young people’s mental health. These concerns should address gambling related risks at a global level, and challenge stakeholders’ views on the status of gambling in sports.

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