

Fantasy Sports: Skill, Gambling, or Are These Irrelevant Issues?

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Abstract The emergence of daily fantasy sports has generated significant debate as to whether it constitutes gambling. Under current US law, States variably determine the legality of daily fantasy sports on the basis of it being a skill-based competition (legal) or a form of gambling where chance plays a major role (illegal). Accordingly, inconsistent State legislations are partly accounted for by differences in the degree to which legislators believe the activity is a game of skill or luck. In the absence of clear guidelines differentiating the importance of skill and luck, operators have been free in some States to operate without regulatory consumer protection guidelines. Regardless of where it fits on the skill/chance continuum, the activity contains structural elements promoting excessive use exposing players to harm. Consequently, it is argued that endeavors to define daily fantasy sports as skill-based or gambling are misguided. The degree of harm caused by excessive daily fantasy sports should be established and in response, harm minimization legislation strategies implemented.

Keywords Gambling · Problem gambling · Fantasy sports · Daily fantasy sports · Regulation · Law

Introduction

The fantasy sports (FS) industry has grown exponentially over the past decade and continues to expand at a rapid rate. The annual market impact of FS in the USA is estimated to be somewhere between \$3 and 4 billion [1]. In 2015, there were 56.8 million people who played FS in the USA, representing a 37 % increase in participation from 2014 [1, 2]. Relative to general population figures, 14 % of Americans and 19 % of Canadians play FS. According to the Fantasy Sports Trade Association (FSTA), the most popular sporting event is American Football (NFL), which accounts for 73 % of the overall FS market [2]. Unfortunately, industry statistics from other countries are seriously limited in that the data is either outdated, derived from unreliable sources, or both. Consequently, caution is advised in interpreting reported figures. Data collected by Ipsos Public Affairs show prevalence rates of players to be 5.5–7.5 million FS users in the UK aged between 16 and 64 (approximately 10 % of the general population) [3]. It is likely that these numbers have increased significantly since they were recorded. The most popular fantasy sports game in the UK was English Premier League (EPL) soccer (80 % of users). In Australia, rates reported by Vapormedia (licenses 90 % of Australian FS games) and published in Cooper [4] claimed coverage of approximately 6–7 % of the population (1.5 million people), mainly associated with the Australian Rules Football (AFL) fantasy games. From these statistics, it appears that although the USA is the forerunner of FS, the activity is gaining traction in other countries, particularly those with less legal barriers than the USA where online sports wagering is illegal.

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A Description of Fantasy Sports

Fantasy sports (FS) is an online ancillary adjunct to traditional sports consumption (e.g., attending sporting events, purchasing merchandise, viewing televised sport, etc.). Users assume the role of owner/manager of a professional sporting team by assembling their own virtual line-up of athletes to compete against other users within a certain private or public league. Fantasy points are assigned based on the real-life statistics of individual athletes and reflect a predetermined scoring system where points are allocated to certain events (e.g., in NFL fantasy, a field goal = 1 point, an interception = 2 points, and a touchdown = 6 points [5]). The fantasy team with the highest cumulative points over a season or defined timeframe is deemed the winner; this can be based on head-to-head matches between users or the total points gained over an entire sporting season. Throughout the sporting season or in a given timeframe, users can remove athletes from their line-up and sign-on others in order to improve their team, during which they are required to stay below a specified virtual salary cap. Consequently, this requires users to select winning combinations of athletes that yield maximum points, without recruiting the best and most expensive athletes to their team.

Traditional fantasy sports (TFS) competitions are conducted over a full sporting season, and users may or may not be required to pay an initial entry fee. Public leagues often award prizes at the conclusion of a season to elite and high-performing users. These prizes are largely funded by sponsors and advertising space on the league website. TFS users often play in leagues with friends or colleagues, adding a social element to the competition.

Daily fantasy sports (DFS) is the most recent and controversial of FS games, and will be the primary issue of discussion in this paper. It is an accelerated version of FS conducted over much shorter time periods: generally a single game (per day) or weekly round of competition. Users pay entry fees ranging from US 25 cents to US \$5000 per league [6], which is deposited into a prize pool typically paid out to the highest ranked users in the contest. A portion of the entry fees also goes to the operator as commission. Accordingly, DFS, as such, is most associated with wagering. Currently, the US DFS market is dominated by FanDuel and DraftKings (combined with about 95 % of the market); each worth approximately US \$1 billion [7, 8]. Although only a fraction of the size, the recently established (February, 2015) *MoneyBall* is the premier DFS provider in the Australian market [9].

Demographics and Motivations for Fantasy Sports Users

According to the FSTA [1, 2], the typical FS user is Caucasian (89.8 %), middle-aged adult (mean age = 37 years), male

(66 %), college educated (57 %), and has a full-time (66 %), high-income career (47 % earn US \$75,000+). This demographic profile is consistent with several other studies that have described FS users as predominantly white males, aged in their early-to-mid 30s, who are married or in a relationship, well-educated, and work in white-collar, managerial-type professions [10••, 11–13]. Disadvantaged populations (i.e., members of ethnic minorities and low socio-economic groups) may have limited access to the necessary technology (high-speed Internet) and the required literacy in computer and web navigation to participate in FS leagues [14, 15]. These factors could explain why such populations have shown low rates of involvement in FS similar to what is found with traditional sports wagering [16]

Although recently there has been a significant growth in female participation in FS, particularly in the last 2 years (70 % increase between 2014 and 2015 [1, 2]), FS is still largely dominated by men. It has been suggested that a culture of male-exclusivity has created a hostile environment for women's participation [17], though gambling studies have also shown that women prefer to play less social, chance-oriented games (e.g., [18]). Some research has demonstrated that certain personality traits are more predictive of FS participation. Lee and colleagues [19] found that sensation-seeking and an internal locus of control (believing game outcomes are the result of their own behavior) significantly predicted positive attitudes toward and intention to engage in fantasy football in male college students.

Unlike traditional gambling, which is primarily undertaken for profit, the vast majority of users report engaging in FS because of the social benefits associated with it. While research in the area of FS is reasonably new, a small number of studies have investigated the motivations for FS participation. Dwyer, Brendan, Kim, and Yongjae [20] found that motivations for engaging in FS, including competition, social interaction, and entertainment/escape, significantly predicted time spent following FS, level of competitiveness, and number of teams managed. Gambling in general, on the other hand, demonstrated a negative correlation to these indices, suggesting that it is not a significant motivational factor for FS engagement. Similarly, Drayer et al. [10••] showed that gambling was not significantly correlated with FS consumption (i.e., money and time spent on FS products). Interestingly, users who paid an entry fee were significantly more motivated by social interaction than those who did not pay a fee.

This last point is also reflected by Mills et al. [21] who showed that users preferred to join a league where the perceived skill level of their opponents was similar to their own. Moreover, users found FS leagues more appealing when the level of competition was high and the outcomes uncertain, compared to leagues with little competition and a greater chance of winning. These results suggest that intrinsic emotional factors (i.e., excitement, competition, and fun) play a

larger role in FS involvement than the prospect of monetary gain. This is contrary to more traditional forms of gambling, where the primary motivations are centered on winning money [22].

Is Daily Fantasy Sports Considered Gambling?

Gambling can be defined as an agreement between two or more parties to deliberately stake something of value (typically money) with intent to profit on the outcome of an event that is determined wholly, or partially by chance. Wildman [23] suggests some additional criteria to guide in the assessment of what may/may not be classified as gambling; level of involvement (money and time), and the presence of excitement or thrill in pursuit of the activity (although these are not universally accepted). The classification of an event as gambling is clear-cut where the outcome is determined totally by chance, for example roulette and electronic gaming machines. In contrast, this is difficult where varying levels of skill are involved, for example card play and horse and sports wagering. Currently, there is no accepted ratio of skill versus chance that can be adopted as a criterion threshold for an activity to be defined as gambling.

Nevertheless, in many respects, DFS can be construed as representing a form of gambling: (a) DFS includes an *agreement* between an individual and others, (b) money is *staked* on the relative performances of athletes across a certain number of sporting events with the outcome determined by both chance and skill, and (c) *chance* is involved given that multiple unknown factors can influence outcomes. In this regard, similarities are found in horse and sports wagering where some skill in selecting horse/sports outcomes is present, but unpredictable variables influence results (i.e., chance). With respect to Wildman's criteria, studies have shown high levels of involvement among typical DFS users. For example, Eilers Research [24] reported that most users spend an average of 10–20 h per week on DFS-related research. Moreover, arousal has been identified as a key motivator for participation in FS [17]. Other research has observed similarities in a number of key features between traditional forms of gambling and DFS. Kwak et al. [25] observed a number of cognitive distortions in FS users that are similarly found in traditional gambling forms where randomness is a significant factor, i.e., illusions of control and the over-evaluation of relevant knowledge and skills [26, 27].

Literature from the legal field asserts that *gambling* must contain three elements: (a) *consideration* (staking something of value in order to participate), (b) *chance* (luck is a substantial factor in determining results), and (c) *prizes* (cash, merchandise, services, or points) are redeemable [28]. While the first and third elements are clearly present in DFS, the second element, chance, is the source of current disagreement in the

USA (see following section on the legal status of FS). According to Miller and Singer [29], 91 % of the winnings in the first half of the 2015 Major Baseball League season were accounted for by 1.3 % of DFS users. Although this statistic has been used to argue for the predominance of skill in DFS [29], by these standards, traditional sports wagering, track betting, and casino table games like blackjack and poker would also qualify as non-gambling activities.

A common sense approach here is appropriate, where the influence of skill versus chance is assessed based on average DFS users and not on a minority or extreme outliers. Daily fantasy sports operators claim that DFS is not “gambling” because of the substantial amount of skill involved in the selection and management of FS teams, though the same may be said for the experienced gambler/punter whose horse selections are influenced by numerous factors that contribute to the outcome of each race, or for the many tactical decisions made by poker players during the course of a poker game. The reality of sports—upon which fantasy points are inextricably linked—is that there are many unpredictable factors that can affect the performance of individual athletes, player injury being a prime example. There is also a valid argument that DFS has eliminated certain aspects of skill from the traditional version (such as the ability to trade athletes); and that a chance event like injury would have a far greater impact on a daily contest than it would across an entire season [30]. As such, until the quantification of chance in FS is addressed, and the amount of chance deemed permissible in a non-gambling activity is decided, further debate on classification is impractical. Perhaps, under current circumstances, greater focus on regulation in response to identified negative consequences is a more worthwhile approach. In other words, regulation should be imposed if it can be determined that participation in FS results in serious negative repercussions for a proportion of users and/or the community, irrespective of whether or not skill or chance is the predominant factor involved. This position reflects that recently taken by the National Council on Problem Gambling (NCPG) [31].

Is Daily Fantasy Sports a Risky Product?

Certain gambling products may be considered more risky (i.e., they are more likely to facilitate gambling problems) than others based on specific structural and/or situational characteristics. Most importantly, particularly risky products are deemed to have higher event frequency, that is, a short timeframe between placing a bet and receiving results, and subsequently repeating the process exposing individuals to the potential of excessive monetary loss [32].

Given the close links between DFS and commercial sports betting, it is important to evaluate the potential risks associated with the DFS league structure, and compare these to legalized gambling activities. The event frequency of DFS appears, at face value, to be quite high. The major DFS sites contain hundreds of contests, each contest generally comprising an entry fee of around US \$5–\$25, though some can reach up to US \$5000 [6]. Additionally, both FanDuel and DraftKings allow users to save a line-up they enter into one contest and by clicking a specified hyperlink, populate that line-up into other similar contests of the same sport, making the entry process far quicker. Theoretically, a user could enter hundreds of leagues simultaneously, spending thousands of dollars on entry fees. However, because the rate of play varies depending on the number of sporting games involved in the contest and the frequency in which that sport is played, it can often take days for the user to realize the outcome of their game. Consequently, the intensity of game play is somewhat slower compared to traditional sports betting (where in-play bets are possible) or electronic gaming machines (immediate notification of result).

Fantasy Sports and Gambling Problems

Gambling disorder is the term used in the latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) to classify individuals who meet criteria for a clinical diagnosis [33]. However, many research studies report on problem gambling, or problem gamblers, a term used to describe individuals experiencing adverse consequences due to their gambling, but may not necessarily meet DSM-5 criteria for gambling disorder [34]. Consequently, the term problem gambling captures a broader range of gamblers.

Very few studies have directly assessed the relationship between FS participation and gambling problems. Most recently, Marchica and Derevensky [35••] used large-scale survey data to assess the relationship between FS participation (entry fee and no entry fee) and at-risk and problem gambling among college student athletes. The study found that although only 1.9 % of males and 0.1 % of female student athletes met criteria for at-risk or problem gambling, a large proportion of those students engaged in FS. Among the at-risk and problem gamblers, 65.4 % of men and 44.4 % of women participated in free FS leagues, and 48.1 % of men and 25 % of women participated in paid leagues. This compared to 52.2 % of men and 8.5 % of women taking part in free leagues, and 18.4 % of men and 1.8 % of women taking part in paid leagues among the non-problem gamblers in the sample.

Another study examining this connection was carried out by Martin and Nelson [36]. Their study analyzed survey data

from 1556 US college students and found that FS users (free and fee-based) were five times more likely to incur gambling problems than non-FS users, and students who played FS for money had significantly higher rates of gambling problems than those who played in free leagues. Significant gender differences were also found, as men were more likely to report gambling problems than women. A similar study by Martin et al. [37] reported significantly higher rates of FS participation in students with gambling problems, than those without. However, very few students reported gambling problems ($n = 35$), limiting the reliability of the chi-squared analysis as well as the generalizability of this finding. In addition, a limitation of both studies is that gambling problems were measured as the endorsement of just one or more DSM-5 criteria (problem gambling is usually indicated by 3–4 criteria). Such a low threshold is not a valid indicator of gambling problems, and would certainly inflate the number of participants reported to have gambling problems.

This line of research is in its infancy, and more studies are needed that involve populations other than college students in order to improve the generalizability of the findings. Moreover, studies that can differentiate DFS from TFS users would be helpful to determine the problem gambling rates associated with each type of FS. Furthermore, the above studies include cross-sectional data, thus providing no indication of causal direction, something that could be addressed by longitudinal studies. Theoretically, a number of explanations could exist to account for the higher rates of problem gambling in FS, such as (a) FS is appealing to existing problem gamblers as an adjunct to their other traditional gambling activities, and in the case of DFS, a potential additional perceived source of revenue; (b) DFS promotes cognitive errors about the role of skill in gambling (e.g., “a test of sports knowledge and fantasy knowhow—where winners can taste victory on any given day” [38]); and (c) certain personality traits (i.e., sensation seeking [19]) and social factors (i.e., social engagement and masculinity [15]) increase the likelihood of both FS participation and problem gambling.

The Current Legal Status of Daily Fantasy Sports in the USA

Despite high FS participation rates in the USA, there is a surprising lack of regulation and legal clarity around DFS. Gaming laws in the USA are complex and for DFS to operate legally as a non-gambling product, operators need to comply with both federal and state laws. The Unlawful Internet Gambling Enforcement Act (UIGEA) [39], a US federal statute that was introduced in 2006 prior to the proliferation of DFS, imposes numerous restrictions on Internet gambling. Although the statute was mainly intended to address the rapid emergence of online poker rooms and sports bookies,

professional sports leagues expressed concern over the impact the UIGEA could have on TFS revenues (professional sports leagues receive millions of dollars from TFS operators for the use of their league's intellectual property, including player names and statistics) [40]. This resulted in the commercial sports lobby pushing for a narrow exemption wherein "any fantasy sports" games were not to be treated as illegal gambling under federal statutes. Such an exemption was contingent on the criteria: (a) prizes are not determined by participant numbers/fees and are disclosed prior to the game, (b) winning outcomes are not based on the score/point-spread/or performance of a single team/multiple teams/or an individual athlete, and (c) winning outcomes reflect participants' relative skill and knowledge, and are determined predominantly by the accumulated statistics of individual performances in multiple real-world sporting or other events [39]. The main challenge that operators now face lies in the differentiation of DFS from online casino games and lottery, that is, by maintaining that the outcomes are considerably determined by skill rather than by chance. The same is true at the state-level (states follow the three-part gambling classification system mentioned above) where one of three available tests may be used to purportedly distinguish chance from skill games. Additionally, the degree of randomness permitted (before a game is considered gambling) ranges across states from any at all, a minimal amount, to less than 50 % [40, 41]. Consequently, the states vary considerably in how DFS is classified and its subsequent legal status.

Due to the ambiguities of state laws relating to DFS, at present, the two main DFS operators, FanDuel and DraftKings, are preventing residents from a number of States from participating in their leagues [42]. On the other hand, a number of states have advanced bills in order to legalize FS games [30, 43]. Other countries, such as Australia, classify and regulate DFS as a gambling product encompassing both mixed chance and skill [44]. It should be noted that the legal situation in the USA is the subject of constant change, and the information in this review may not accurately reflect the legal situation at the time of readership.

Focusing on Regulation

From an academic perspective, it could be argued that DFS can be considered a gambling activity; however, from a legal standpoint, classification is less clear as a result of the difficulty in quantifying the parameters that differentiate chance and skill. Consequently, current debate in the USA regarding the classification of DFS as a skill-based competition, gambling, or an entirely new activity, should not be the sole consideration or priority. This position holds until an accurate, quantifiable measure of skill and chance in games is developed, and is recognized by all stakeholders. The focus instead should be shifted

toward regulation and player protection once the impact and ramifications of FS-related harm are clearly established, or evidence of the extent of exploitation is detected.

Currently, there are no mandatory consumer protection guidelines for operators to adhere to, leaving the industry vulnerable to unethical practices. For example, in 2015, a DraftKings employee is reported to have used inside information to aid their winning of US \$350,000 on their competitor FanDuel's website [45]. To address such issues where employee behavior impinges on other users, the NCPG recently advanced consumer protection initiatives for FS covering the areas of staff training, informed decision making, customer assistance, self-exclusion and time-out features, advertising, promotion, and website features [46••]. The next step, as the NCPG suggests, is collaboratively developing and implementing these initiatives with all stakeholders of internet-based FS competitions.

Conclusions

It is important, given the emergence and popularity of the FS industry, to avoid moral panic, to view the issue objectively, and to regulate growth accordingly. As research has suggested, the vast majority of DFS users are not primarily motivated by the prospect of winning money as in traditional forms of gambling, rather they are drawn to the social aspect and high level of competition in FS. These differences in core motivations between DFS and traditional forms of gambling could potentially act as a protective buffer from the harms often associated with excessive gambling (e.g., financial, social, and psychological problems). Although individuals' motivations to engage in DFS differ from traditional forms of gambling, certain structural elements and characteristics of DFS (i.e., event frequency and bet size) could increase the risk for harm and therefore need to be investigated further. In addition to the structural features of DFS, preliminary research has suggested a connection between FS participation and problem gambling; however, due to several methodological limitations, the exact nature of this relationship is unknown. As it stands, it is essential that policymakers and industry stakeholders work collaboratively to regulate the FS industry in order to protect consumers and maintain a profitable and ethical business model, particularly if it is established that FS is associated with significant harm. Simultaneously, the academic community should focus on the impact that FS has on users and the wider community, whether that may be beneficial or harmful. The debate as to whether or not DFS is skill-based or gambling is a red herring. The fundamental question ought to remain, does DFS result in serious negative consequences among users, and if so, what harm minimization strategies should be imposed?

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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

References

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

•• Of major importance

1. Fantasy Sports Trade Association. Industry demographics: at a glance [Internet]. 2014 [cited 2016 Jan 6]. Available from: <http://www.fsta.org/?page=Demographics>
2. Fantasy Sports Trade Association. Industry demographics | FSTA [Internet]. 2015 [cited 2015 Dec 10]. Available from: <http://fsta.org/research/industry-demographics/>
3. Fisher E. Fantasy players seen as big spenders in key consumer categories [Internet]. 2009 [cited 2016 Jan 6]. Available from: <http://www.sportsbusinessdaily.com/Daily/Issues/2009/09/Issue-6/Sponsorships-Advertising-Marketing/Fantasy-Players-Seen-As-Big-Spenders-In-Key-Consumer-Categories.aspx>
4. Cooper A. Fantasy sports enjoy very real growth [Internet]. The Sydney Morning Herald. 2012 [cited 2016 Jan 6]. Available from: <http://www.smh.com.au/small-business/growing/fantasy-sports-enjoy-very-real-growth-20120327-1vvvd.html>
5. NFL.com. NFL.com's standard scoring system [Internet]. 2012 [cited 2016 Jan 6]. Available from: <http://www.nfl.com/fantasy/story/09000d5d8084b736/article/nflcoms-standard-scoring-system>
6. DraftKings. Contest lobby - DraftKings [Internet]. DraftKings - Daily Fantasy Sports for Cash. 2015 [cited 2016 Jan 6]. Available from: <https://www.draftkings.com/lobby/#featured>
7. Grove C. Report: daily fantasy leader FanDuel looking to raise at billion-dollar valuation [Internet]. Legal Sports Report. 2015 [cited 2015 Dec 16]. Available from: <http://www.legalsportsreport.com/553/fanduel-billion-dollar-dfs-site/>
8. Kim E. Billion-dollar sports gambling startups Draft Kings and FanDuel are legal because of a questionable loophole in the law [Internet]. Business Insider Australia. 2015 [cited 2016 Jan 5]. Available from: <http://www.businessinsider.com.au/why-draft-kings-and-fanduel-are-legal-2015-4>
9. Boyd T. Moneyball is no longer a start-up fantasy [Internet]. Financial Review. 2015 [cited 2016 Jan 6]. Available from: <http://www.afr.com/brand/chanticleer/moneyball-the-new-sporting-fantasy-20150904-gjfkw5>
10. •• Drayer J, Dwyer B, Shapiro SL. Examining the impact of league entry fees on online fantasy sport participation and league consumption. *Eur Sport Manag Q.* 2013;13:339–57. **This study surveys a sample of FS users and groups them based on whether they did or did play fantasy baseball for money. The results indicated that those who played FS for money were more motivated by the social benefits of participation rather than the opportunity to win money. This finding contradicts research on traditional gambling form, which often reports social harms and stronger motivations toward money with increased gambling.**
11. Karg AJ, McDonald H. Fantasy sport participation as a complement to traditional sport consumption. *Sport Manag Rev.* 2011;14(4):327–46.
12. Lee S, Seo WJ, Green BC. Understanding why people play fantasy sport: development of the Fantasy Sport Motivation Inventory (FanSMI). *Eur Sport Manag Q.* 2013;13(2):166–99.
13. Ruihley BJ, Hardin RL. Message boards and the fantasy sport experience. *Int J Sport Commun.* 2011;4(2):233–52.
14. Warschauer M. Of digital divides and social multipliers: combining language and technology for human development. Information and communication technologies in the teaching and learning of foreign languages: state of the art, needs and perspectives [Internet]. Moscow: UNESCO Institute for Information Technologies in Education; 2004 [cited 2016 Jan 5] p. 46–52. Available from: <http://ru.iite.unesco.org/pics/publications/en/files/3214627.pdf#page=48>
15. Davis NW, Duncan MC. Sports knowledge is power: reinforcing masculine privilege through fantasy sport league participation. *J Sport Soc Issues.* 2006;30(3):244–64.
16. Palmer C. Sports betting research: Literature review [Internet]. University of Tasmania; 2014 [cited 2016 Dec 2]. Available from: http://www.dhhs.tas.gov.au/_data/assets/pdf_file/0006/170772/Sports_Betting_Literature_Review.pdf
17. Ruihley BJ, Billings AC. Infiltrating the boys' club: motivations for women's fantasy sport participation. *Int Rev Sociol Sport.* 2013;48(4):435–52.
18. Delfabbro PH, Winefield AH. Predictors of irrational thinking in regular slot machine gamblers. *J Psychol.* 2000;134(2):117–28.
19. Lee W-Y, Kwak DH, Lim C, Pedersen PM, Miloch KS. Effects of personality and gender on fantasy sports game participation: the moderating role of perceived knowledge. *J Gambl Stud.* 2011;27(3):427–41.
20. Dwyer B, Kim Y. For love or money: developing and validating a motivational scale for fantasy football participation. *J Sport Manag.* 2011;25:70–83.
21. Mills BM, Kwak DH, Lee JS, Lee W-Y. Competitive environments in fantasy sports gaming: effects of entry fees and rewards on opposition quality and league sorting. *Int Gambl Stud.* 2014;14(1):161–80.
22. Thompson WN. Why do people gamble? In: *Legalized Gambling: A Reference Handbook.* 2nd ed. 1997.
23. Wildman RW. *Gambling: an attempt at an integration.* Wynne Resources; 1997.
24. Eilers Research. Daily fantasy sports player survey - 2015 [Internet]. 2015 [cited 2016 Jan 6]. Available from: <https://courier.bluematrix.com/Courier/EmailDocViewer.action?info=vNnixFYyhd4FCmyi2AiiGw5bKPLv9kyz%2BZwoDtUOHirWYkn0AQzNKxEiRrGphv6zdodk2GDWPv/X%0AC%2BhzuqMIBWlef97PSR8CVyMr2Di1PopPVRmAbIdrG1Y9nnc0G0wivhqCSj7Nl6M9WmRaDJk4Vfu%0AazRheD6Qqr6vQsok1GU%3D%0A>
25. Kwak DH, Lim CH, Lee WY, Mahan III J. How confident are you to win your fantasy league: exploring the antecedents and consequences of winning expectancy. *J Sport Manag.* 2010;24(4):416–33.
26. Goodman JK, Irwin JR. Special random numbers: beyond the illusion of control [Internet]. Rochester, NY: Social Science Research Network; 2006. [cited 2016 Jan 5], Available from: <http://papers.ssrn.com/abstract=1334319>.
27. Ladouceur R, Giroux I, Jacques C. Winning on the horses: how much strategy and knowledge are needed? *J Psychol.* 1998;132(2):133–42.
28. Rose IN, Owens MD. Mary Ann Liebert: Internet gaming law; 2005.
29. Miller E, Singer D. For daily fantasy sports operators, the curse of too much skill [Internet]. *Sports Business Daily Global Journal.*

- 2015 [cited 2016 Jan 5]. Available from: <http://www.sportsbusinessdaily.com/Journal/Issues/2015/07/27/Opinion/From-the-Field-of-Fantasy-Sports.aspx>
30. Rose IN. Are daily fantasy sports legal? *Gaming Law Rev Econ*. 2015;19(5):346–9.
 31. National Council on Problem Gambling. Resolution of the NCPG board of directors regarding fantasy sports [Internet]. 2015. Available from: <http://www.ncpgambling.org/wp-content/uploads/2015/10/NCPG-Fantasy-Sports-Resolution-Oct-2015.pdf>
 32. Productivity Commission. Gambling [Internet]. Canberra; 2010 [cited 2015 Dec 16]. Report No.: 50. Available from: <http://www.pc.gov.au/projects/inquiry/gambling-2009/report>
 33. American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-5. 5th ed. Washington, D.C: American Psychiatric Association; 2013.
 34. Neal P, Delfabbro PH, O'Neill M. Problem gambling and harm: working towards a national definition [Internet]. Melbourne, Australia: National Ministerial Council on Gambling, South Australian Centre for Economic Studies, & the Department of Psychology, University of Adelaide; 2005. **Available from:** <https://www.adelaide.edu.au/saces/gambling/publications/ProblemGamblingAndHarmTowardNationalDefinition.pdf>.
 - 35.♦♦ Marchica L, Derevensky J. Fantasy sports: a growing concern among college student-athletes. *Int. J. Ment. Health Addict*. 2015;1–11. **The study looks at data from 2004, 2008, 2012, national surveys of collegiate athletes assessing gambling behaviour. A steady rise in FS participation among college students was found between 2004–2012. Approximately 50% of male and 25% of female college athletes who qualified as at-risk or problem gamblers also reported FS wagering.**
 36. Martin RJ, Nelson S. Fantasy sports, real money: exploration of the relationship between fantasy sports participation and gambling-related problems. *Addict Behav*. 2014;39(10):1377–82.
 37. Martin RJ, Nelson SE, Gallucci AR. Game on: past year gambling, gambling-related problems, and fantasy sports gambling among college athletes and non-athletes. *J Gamb Stud*. 2015;1–13.
 38. FanDuel. The birth of daily fantasy, as we know it - about FanDuel [Internet]. FanDuel. 2015 [cited 2016 Jan 6]. Available from: <https://www.fanduel.com>
 39. Unlawful Internet Gambling Enforcement Act (UIGEA) [Internet]. 31 U.S.C 5361–5366 2006. Available from: <https://www.law.cornell.edu/uscode/text/31/subtitle-IV/chapter-53/subchapter-IV>
 40. Edelman M. Navigating the legal risks of daily fantasy sports: a detailed primer in federal and state gambling law. *Univ Ill Law Rev*. 2015;
 41. Cabot AN, Light GJ, Rutledge KF. Alex Rodriguez, a monkey, and the game of scrabble: the hazard of using illogic to define the legality of games of mixed skill and chance. *Drake Law Rev*. 2009;57: 383–412.
 42. FanDuel. FanDuel: daily fantasy football, MLB, NBA, NHL leagues for cash [Internet]. FanDuel Terms of Use. 2015 [cited 2015 Dec 17]. Available from: <https://www.fanduel.com>
 43. Grove C. Daily fantasy sports - bill tracker [Internet]. Legal Sports Report. 2016 [cited 2016 Jan 5]. Available from: <http://www.legalsportsreport.com/dfs-bill-tracker/>
 44. Moneyball FAQ. Daily fantasy sports for real money at Moneyball [Internet]. Moneyball.com.au. 2015 [cited 2015 Dec 17]. Available from: <https://moneyball.com.au/#/help>
 45. Rose IN. End game for daily fantasy sports? *Gaming Law Rev Econ*. 2015;19(9):634–7.
 - 46.♦♦ National Council on Problem Gambling (NCPG). NCPG releases first fantasy sports consumer protection guidelines [Internet]. PRWeb. 2015 [cited 2015 Dec 17]. Available from: <http://www.prweb.com/releases/2015/12/prweb13119192.htm>. **This document prepared by the National Council on Problem Gambling represents the first attempt to develop guidelines specifying the regulatory requirements to be implemented in Fantasy Sports contests involving entry fees and the award of cash prizes. The framework covers areas of staff training, informed decision-making, customer assistance, timeouts, self-exclusion, advertising and promotions, and website and game features.**