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Abstract

Gambling has typically been considered a predominately male activity. However, recent prevalence surveys have shown greater numbers of females are now gambling. Much of the gambling literature suggests online gamblers are more likely to be male, and that problem gamblers are more likely to be male. Males and females are also likely to be gambling for different reasons and have a preference for different gambling activities.. Little is known about the pattern of play among female online gamblers. The aim of this survey was to develop a better profile of female online gamblers and to examine any gender differences between males and females in terms of how and why they gamble online, their frequency of online gambling, patterns of play, as well as attitudes to online gambling. The survey was posted on 32 international online gambling websites and was completed by 975 online gamblers (including 175 female online gamblers). Chi-square tests of association were conducted to examine the association between gender and a range of variables. The results showed that females had been gambling online for a shorter duration of time than males, had much shorter online gambling sessions, different motivations for gambling online (i.e. to practice for free, to spend less money and out of boredom), and experienced online gambling differently to males, with increased feelings of guilt and shame for gambling online. This suggests there is still a stigma around gambling particularly evident among females in this study. The findings indicate that clinicians and treatment providers need to be aware of these potential gender differences in online gambling to develop appropriately tailored interventions.

Introduction

Gambling has traditionally been seen as a male activity with males being more likely to be problem gamblers compared to females (Wardle et al., 2011a). Nevertheless, prevalence surveys have shown greater proportions of women are now gambling (Abbott, Volberg & Ronnberg, 2004; Wardle *et al.*, 2007; 2011a). The recent British Gambling Prevalence Survey published in 2011 found that there had been a general increase in participation in gambling since the 2007 survey (from 68% to 73%). However, this increase was greater among women than men (65% in 2007 and 71% in 2010). Online gambling participation has also increased since 2007, (6% and 7% respectively, excluding lottery play) again with a greater increase among women than men (3% and 5% respectively). Since online gambling participation seems to be increasing faster among women than men, there may be differences in reasons for gambling that need further examination.

Based on research into offline gambling, males may be more likely to gamble for excitement or thrill seeking, while for women, gambling may be related to modulation of adverse moods (Grant & Kim 2002; Ladd & Petry 2002; Potenza *et al.*, 2001). Boredom has been found to be a motivating factor for gambling among women (Brown & Coventry, 1997). However, boredom is also thought to be associated with the maintenance of problem gambling (Mercer & Eastwood, 2010; Nower & Blaszczynski, 2006). Women are also more likely to start gambling at an older age than men, and typically have a faster progression to pathological gambling than men (Wenzel & Dahl, 2008). Differences in reasons for gambling between males and females may reflect differential comorbidities between genders, which in turn may be important for understanding etiology and treatment (Petry, Stinson & Grant, 2005).

Males and females are also likely to be gambling on different activities (Wardle *et al.*, 2011a). Males tend prefer sports betting, animal racing and strategic games like blackjack and poker, while females tend to prefer non-strategic games like slot machines, bingo, and lottery activities (Ladd & Petry, 2002; Potenza, *et al.*, 2001; Wenzel & Dahl, 2008) although there are some cultural differences such as male youth preferring slot machines in Great Britain (Volberg *et al.*, 2010). In Great Britain, men are more likely to participate in a greater number of gambling activities (1.9 per year and 1.3 per year respectively) (Wardle *et al.*, 2007). LaPlante *et al.* (2006) looked at data from 2256 problem gambling treatment participants to examine the influence of gender on play patterns. The results suggest that personal demographic, economic, and health-related profiles provide essential distinguishing information for gamblers who prefer specific games. LaPlante *et al.* (2006) suggest that for understanding gambling patterns, gender is less informative than descriptive profiles. Developing a better understanding of the nature of supposed gender differences by creating gambling profiles based on demographic, economic, and health-related factors might help to better explain individuals preferences for certain games (LaPlante *et al.*, 2006).

Online gamblers (like offline gamblers) are also significantly more likely to be male (Gambling Commission, 2010; Griffiths *et al.*, 2009; Wood & Williams, 2009; Wardle *et al.*, 2011b). However, there are indications of increases in females gambling online compared to offline venues. A study by Griffiths (2001) reported that women reported a preference to gambling online over more traditional offline gambling venues because they viewed online gambling as safer, less intimidating, anonymous, more fun and more tempting. Corney and Davis (2010) also found that females were attracted to online gambling as it was seen as less of a male domain and a place where women can learn to gamble. Online gambling is providing a safer space for females.

Secondary analysis from the British Gambling Prevalence Survey examined public attitudes towards gambling in the UK (Orford *et al.*, 2009). The survey of 8,880 respondents found that public attitudes towards gambling are, overall, more negative than positive. While the majority felt that people have a right to gamble whenever they want and were against a total prohibition on gambling, most believed that gambling was more harmful than beneficial for individuals and society. More positive attitudes were reported among those with greater engagement in gambling. Females have also been found to have more negative attitudes towards gambling compared to men (Wardle *et al.*, 2011a).

The main aim of this study was to examine gender differences in online gambling, and to develop a profile of female online gamblers by examining any differences between males and females in terms of the activities they are gambling on, their reasons for gambling online, and their frequency of online gambling and patterns of play, as well as to examine attitudes to gambling online. It was hypothesised that there would be differences between males and females in terms of motivations for gambling online, with females more likely to gamble out of boredom. It was also hypothesised that there would be differences in terms of the activities males and females choose to gamble on, with females preferring bingo and slot machines (more commonly known as ‘fruit machines’ in the UK), and differences in attitudes towards online gambling, with females more likely to have negative attitudes.

Method

Participants: After excluding 144 participants, a sample size of 975 remained and was analysed. Respondents were excluded if they only answered the demographic questions and

none of the questions on gambling, or if they indicated they did not gamble online. Excluding participants in this way replicated strategies from similar previous studies such as LaBrie, *et al.* (2007).

Materials: The survey contained 47 questions. A section on demographic questions included questions on gender (fixed choice, male or female), age (open response), ethnicity (fixed choice), and country of residence (fixed choice with ‘other’ option). Further questions concerned the frequency of which they participated in each gambling activity online. The gambling activities included were: poker, roulette, blackjack, horse race betting, dog race betting, sports betting, spread betting, betting exchanges, bingo, fruit machines (i.e., slot machines), football pools, lottery, instant win games, and any other activity not listed. Respondents indicated how often they engaged in each activity. There were four response options ranging from ‘never’ to ‘most days’. Participants also indicated for how many years they had been gambling (online and offline; fixed choice), their age the first time they gambled online (fixed choice), for how long they gambled online in a typical gambling session (fixed choice), and their reasons for ending a gambling session (bored; tired; something else to do; reaching a target; lost too much money; run out of money; won a lot of money; frustration; or other).

Motivations and emotions

Motivations for online gambling were also assessed. Participants could tick as many options that applied (convenience; anonymity; 24-hour availability; easy accessibility; comfort; offline venues being too far away; disliking the atmosphere in offline venues; high speed of game play; playing at own pace; being better value online; being safer than going to an offline venue; influenced by gambling advertisements; betting ‘in-play’; greater variety of

games online; greater flexibility in stake size; spending less online; playing multiple games; practicing for free; getting bonus offers/free bets, to win money; out of boredom, being enjoyable; for the person-to-person competition; to 'escape'; being influenced by others; stimulation; challenge, or other). They were also asked about emotions felt when gambling online (euphoria; relaxation; excitement; anger; escapism; lonely; frustrated; irritable; ashamed/embarrassed; empty; guilty; happy).

Website features

The survey also asked whether they engaged in multi-gambling, free practice games, or used autoplay features (on a Likert scale, ranging from always; very often; sometimes; rarely; and never). The survey asked how they chose a gambling website (friends use it; brand name; free offers/bonuses; celebrity endorsement; advertisements; recommendations from other players; ease of use; graphics; variety of games to play; or other) and what they considered the disadvantages of online gambling were, if any (no drawbacks; need a credit card; worried about fraud; not trusting the websites; the bets might be rigged; not wanting to give out personal information; not being able to see your opponent; lack of atmosphere; not as real as offline gambling; having to wait to collect winnings; easier to hide a gambling problem, or other).

Attitudes towards online gambling

Additionally, the survey assessed attitudes and opinions about online gambling and included 18 statements with respondents indicating whether they agree or disagree on a five-point Likert scale. Three attitude statements were taken from the British Gambling Prevalence Survey carried out in 2007 (Wardle *et al.*, 2007) that included a 14-item scale of general attitudes towards gambling (the Attitudes Towards Gambling Scale: ATGS). This was the

first empirical study of the general adult public's attitudes towards gambling in general (Orford *et al.*, 2009) and was designed to be suitable for use in other surveys. The rest of the statements reflected opinions towards features of online gambling such as sound effects, graphics, trust, responsible gambling features, etc.

Problem gambling scale

Respondents also completed a problem gambling diagnostic measure, the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001). Numerous studies have used the PGSI (e.g., Phillips, Ogeil & Blaszczynski, 2011; Rockloff & Dyer, 2006; Wardle *et al.*, 2007; 2011a) and it has been shown to have good psychometric properties, examining gambling involvement, problem gambling behaviour, adverse consequences, and problem gambling correlates (Ferris & Wynne, 2001; Holtgraves, 2009). It identifies those problem gamblers who are most severely disordered but also has greater classification accuracy than other measures for successfully identifying individuals who are at low or moderate risk for developing a gambling problem (Wynne, 2003). There are four classification categories based on the following cut off points for PGSI scores: 0 = non-problem gambler, or non-gambler; 1-2 = low risk gambler; 3-7 = at-risk gambler; 8+ = problem gambler.

Procedure: A pilot test of the survey was carried out before it was advertised online. The researchers then applied for registration to a large number of gambling forums (n=88). However, access was not allowed for all of these sites either because accounts were not approved or moderators did not allow links to be posted, or accounts were banned because moderators believed the post to be spam. Subsequently, the survey was advertised on 30 gambling forums and two gambling websites. The forums were varied in content, ranging from specific gambling activities such as bingo (e.g., *BingoLife*) to more general gambling

(e.g., *GamblingPlanet*). Informed consent was obtained from all participants, and ethical approval for the study was granted by the research team's University Ethics Committee.

Analysis: Descriptive statistics were carried out first, followed by chi-square tests of association to examine the association of gender on a range of variables. The variables analysed include age; problem gambling level; gambling activity; number of years gambling online; length of a typical gambling session; emotions experienced; reasons for gambling online; reasons for ending a gambling session; reasons for choosing a gambling website; multi-gambling, practice games, and autoplay features; attitude to online gambling; and disadvantages of online gambling.

Results

Of the total sample (n=975), not all participants answered every question, therefore total sample size may be different in the analysis of different questions. Respondents from all over the world took part in the survey, with just over half of the sample from the UK (51.6%). The mean age of participants was 34.7 years old (SD=13.9 years; range 17 to 80 years). A total of 953 indicated their gender and 175 were female (18.4%). Females were significantly younger than males in the sample (male mean age=36.1 years; S.D 13.9; Female mean age=28.5 years; S.D=12.5; $t(280.4)=7.1$, $p<0.01$). In terms of the ethnicity of the sample there was a wide range of responses. The majority of the participants were Caucasian (86.9%; males = 88.8% and females = 77.7%). The majority of the participants were from the UK (51.6%; Males = 45.6%; females = 78.9%) and USA (33.1%; males = 37.5%; females = 13.7%), with 42 other countries mentioned. A greater proportion of females were from the UK compared to the males.

Problem gambling

Using the PGSI, 14% of the participants were identified as problem gamblers (71.7% male, 28.3% female). A further 29% were classed as at-risk problem gamblers, 32.7% were classed as low-level problem gamblers, and 24.3% were identified as non-problem gamblers. The mean age of the problem gamblers was 34.6 years (S.D=10.6 years, range=18 to 56 years). A Chi-square test was performed to examine the relation between gender and level of gambling (four levels: problem gambler; at-risk problem gambler; low-level problem gambler; non-problem gambler) and found a significant difference between gender and level of gambling ($X^2=13.03$, d.f = 3, $p<0.05$). When the categories ‘problem gambler’ and ‘at-risk gambler’ were combined (as has been adopted in similar studies [e.g. McBride & Derevensky, 2009; Vitaro, Arseneault & Tremblay, 1997; Volberg *et al.*, 2001] due to at-risk gamblers exhibiting at least some level of problem gambling behaviour), there was also a significant difference with males more likely to be a problem/at-risk gambler compared to females ($X^2=10.24$, d.f=1, $p<0.01$).

Online gambling activity and gender

Poker was the most popular online activity among males and females with 15.4% of females indicating they participate in poker online ‘most days’. The next most popular activities participated in ‘most days’ were bingo (6.3%), lottery (5.7%), and fruit machines (4%). Table 1 shows each online gambling activity and the frequency participated in among males and females.

INSERT TABLE 1

A new variable was created for regular and non-regular gamblers. Those participants that indicated they participated in an activity online ‘most days’ were classed as regular gamblers, while those that indicated ‘1-4 times a month’; ‘less than once a month’, or ‘never’ were classed as non-regular gamblers. This was repeated for each of the online activities. For example, someone who indicated they played poker ‘most days’ but ‘never’ played bingo would be classed as a regular poker player and a non-regular bingo player.

A Chi-square test of independence was performed to examine the relationship between regular gamblers and non-regular gamblers in terms of gender for each of the online gambling activities. For the activities roulette, blackjack, dog-race betting, bingo, slot machines, football pools, lottery and instant win games, the analysis showed that one cell had an expected count less than five, so Fisher’s exact test was selected for Pearson’s chi-square. The regular gamblers who participated in online poker ($X^2=44.42$, d.f=1, $p<0.01$), online horse-race betting ($X^2=20.83$, d.f=1, $p<0.01$), online sports betting ($X^2=51.96$, d.f=1, $p<0.01$), online spread betting ($X^2=16.48$, d.f=1, $p<0.01$) and online betting exchanges ($X^2=15.49$, d.f=1, $p<0.01$) were significantly more likely to be male than female. The regular gamblers who participated in online bingo ($X^2=24.80$, d.f=1, $p<0.01$), and online slot machines ($X^2=8.14$, d.f=1, $p<0.01$) were significantly more likely to be female than male. There was no significant difference between males and females for regular and non-regular gambling on roulette ($X^2=0.00$, d.f= 1, $p>0.01$), blackjack ($X^2=0.09$, d.f=1, $p>0.01$), dog-racing ($X^2=1.80$, d.f=1, $p>0.01$), football pools ($X^2=1.12$, d.f=1, $p>0.01$), and instant win games ($X^2=5.45$, d.f=1, $p>0.01$).

Number of years gambling/length of gambling session

In relation to gambling session length, there was little variance in the average length of a gambling session online. The median was between one hour and one hour and 59 minutes (n = 212, 23.3%). A total of 14.1% of participants gambled online for less than 10 minutes and 16.3% gambled online for more than four hours at a time. However there were significant gender differences with the majority of males (26%) gambling for between one hour and one hour and 59 minutes, while the majority of females (25.6%) gambled for less than 10 minutes. 'Session length' was created into a dichotomous variable. Results showed that females were significantly more likely to gamble for less than one hour per session ($X^2=44.56$, d.f.=1, $p<0.01$) compared to males.

In relation to number of years gambling, 34.9% indicated they had been gambling online for more than five years, while 22.3% said they had been gambling online for less than one year. The variable 'number of years gambling online' was created into a dichotomous variable. It was felt that those gambling online for more than five years would be more likely to be problem gamblers (based on research in the offline gambling literature showing that problem gamblers tend to start gambling at an earlier age than non-problem gamblers [Turner, Zangeneh & Littman-Sharp, 2006], and the empirical research showing that the earlier a person starts gambling the more likely they are to have a gambling problem [Volberg, Gupta, Griffiths, *et al.*, 2010]). Furthermore, it was felt that those who had been gambling online for less than five years may have started gambling due to the recent 'craze' and popularity of online gambling and may therefore have slightly different characteristics than those who had been gambling online for more than five years. Some would argue the poker phenomenon really started in 2005 and led to a huge increase in online gambling (Stewart, 2006).

Additionally, based on Griffiths and Whitty's (2010) paper examining actual behavioural indicators of online problematic gambling it was considered that gambling online for more than four hours at a time would indicate a potential compulsion to gamble and therefore would be more likely to be a problem gambler. The results of this survey show that those who had been gambling online for more than five years were significantly more likely to be male ($X^2=41.30$, d.f.=1, $p<0.01$).

Emotions

Excitement was the most frequently cited emotion experienced when gambling online (45.7%), followed by feeling happy (29.2%), feeling relaxed (25.3%) and feeling euphoric (22.8%). Additionally, 41.8% reported feeling no different when gambling online. The total responses for each option can be seen in Table 2. A Chi-square test of independence was performed to examine the relation between gender and emotions experienced when gambling online. Anger, happiness, irritability, guilty, ashamed, and 'other emotions', showed a significant difference between males and females. Males were significantly more likely than females to experience anger, happiness and/or irritability when gambling online. Females were significantly more likely than males to experience feeling ashamed or guilty when gambling online. Additionally the relationship between gender and feeling no different when gambling online was significant ($X^2 =8.83$, d.f.=1, $p<0.01$). Compared to females, males were more likely to feel no different when gambling online compared to not gambling online.

INSERT TABLE 2

Reasons for gambling online

Participants could tick as many options as they felt applied to them in relation to why they gambled online. Convenience was the most frequently cited reason for gambling online (80.4%), followed by accessibility (66.8%), comfort (64.5%), availability (58.8%), to win money (57.8%), enjoyment (48.7%), the challenge (33.5%) and better value for money (30.4%). The total responses for each option can be seen in Table 3.

INSERT TABLE 3

A Chi-square test of independence was performed to examine the relation between gender and reasons for gambling online. Out of 26 reasons, 20 were found to be significantly different between males and females, suggesting that males and females are gambling online for completely different reasons. Compared to females, males were significantly more likely to gamble online because it is convenient, for the availability, accessibility, comfort, the high speed of game play, better value for money, the ability to 'bet-in-play', the greater flexibility in stake size, the ability to play multiple games, for the wide variety of games available, to win money, because it is enjoyable, because offline venues are too far away, for stimulation, for the competition, and for the challenge. Compared to males, females were significantly more likely to gamble online because they were influenced by the gambling advertisements, for the ability to spend less gambling online, to practice for free, and out of boredom.

Reasons for ending an online gambling session

Participants could tick as many options that applied to them as to why they end a gambling session online (bored; tired; something else to do; reaching a target; lost too much money; run out of money; won a lot of money; frustration; other). The most frequently cited reason was boredom (45.3%), followed by having something else to do (34.1%), feeling tired (32%),

and reaching a predetermined target (28.6%). Females were significantly more likely to end a gambling session due to boredom ($X^2 = 21.61$, d.f.=1, $p < 0.01$), and running out of money ($X^2 = 24.13$, d.f.=1, $p < 0.01$) compared to males. Males were significantly more likely to end a gambling session due to reaching a predetermined target ($X^2 = 21.33$, d.f.=1, $p < 0.01$), winning a lot of money ($X^2 = 4.71$, d.f.=1, $p < 0.05$), or for some other reason ($X^2 = 16.84$, d.f.=1, $p < 0.01$) compared to females.

Choosing a gambling website

The most frequently cited reason for choosing a particular gambling website was the brand name, followed by the free offers on the websites, and the ease of use. The total responses for each option can be seen in Table 4. Significant differences were found between gender and reasons for choosing a gambling website. Compared to males, females were significantly more likely to choose a website because their friends use it, and because of an advertisement. Compared to females, males were significantly more likely to choose a website based on the brand name, recommendations from online forums, ease of use, and other.

INSERT TABLE 4

Age first gambled online

The majority of the participants first gambled online between the ages of 18 and 24 years ($n = 376$, 38.6%), and between 25 and 44 years ($n = 352$, 36.1%). A small percentage (7.7%) first gambled online under the age of 18 years. A variable was created for all those who first gambled online at age 24 years or younger, and all those who first gambled online at age 25 years or older. A chi-square test of independence was performed to examine the relation between gender and first gambling online at 24 years or younger. The relation between these

variables was significant ($X^2=28.19$, d.f.=1, $p<0.01$). Compared to males, females were significantly more likely to first gamble online at age 24 years or younger.

Multi-gambling, practice games and autoplay features

Among the total sample, just under a half (47.7%) said they have engaged in multi-gambling online (always, very often or sometimes). Just over a third (35.6%) reported playing the free practice games online, and 17.8% reported using the autoplay features. These variables were created into dichotomous variables with ‘always’ and ‘very often’ combined to indicate a regular gambler, i.e. engaging regularly in multi-games, practice games and/or using autoplay features. The categories ‘sometimes’, ‘rarely’ and ‘never’ were combined to indicate a non-regular user of those features. A chi-square test of independence showed that males were significantly more likely to regularly engage in multi-gambling compared to females ($X^2=36.91$, d.f.=1, $p<0.01$). Females were significantly more likely to regularly play practice games online compared to males ($X^2=30.05$, d.f.=1, $p<0.01$). There were no significant differences between males and females in terms of regularly using autoplay features ($X^2=0.47$, d.f.=1, $p>0.01$).

Opinions and perceptions of online gambling

The survey also contained 18 attitude statements rated on a Likert scale from 1 to 5, where 1 is ‘strongly agree’, 2 is ‘agree’, 3 is ‘neither agree nor disagree’, 4 is ‘disagree’ and 5 is ‘strongly disagree’ (see Table 5). Overall participants agreed with all of the statements except statement 5 (*‘I am attracted by the graphics on gambling websites’*) and statement 18 (*‘I tend to spend more gambling using virtual money (online) than gambling using real money (offline)’*). A *t*-test was carried out on each of the attitude statements to see whether there was a difference between gender and attitude towards each statement (see Table 5).

INSERT TABLE 5

Sixteen of the 18 attitude statements were found to be significantly different between males and females. Females were significantly more likely than males to agree with the statements *'I would prefer to gamble on websites that have information about responsible gambling'*; *'I would prefer to gamble on websites that regularly tell me how much I have lost'*; *'I would prefer to gamble on websites that regularly tell me how long I have been playing'*; *'I am attracted by the graphics on gambling websites'*; *'I prefer gambling activities that are quick'*; *'I prefer online games that are easy to learn'*; *'I prefer online games with large jackpots'*; *'If I nearly win in an online game, then I am more likely to play again'*; *'It is easy for children to gamble on the online'* and *'Online gambling is more addictive than offline gambling'*. Males were significantly more likely than females to agree with the statements *'Online gambling is safe'*; *'Some gambling websites are more trustworthy than others'*; *'I like to gamble against other people online'*; *'I prefer online games with some element of skill'*, and *'Gambling advertisements do not influence my gambling behaviour'* and disagree with statement the *'I am attracted by the sound effects on gambling websites'*.

Disadvantages of online gambling

The most frequently cited disadvantage of online gambling was being worried about fraud (32.5%), followed by being worried that the bets might be rigged (25.5%), a lack of atmosphere (20.9%), and not wanting to give out personal information (20.5%). Additionally 22.5% reported that there are no disadvantages to online gambling. The total responses for each option can be seen in Table 6.

INSERT TABLE 6

The relationship between gender and opinions on the disadvantages of online gambling was also examined. Compared to females, males were significantly more likely to believe that there were no disadvantages of online gambling. Compared to males, females were significantly more likely to believe that a disadvantage of online gambling was the requirement of a credit card, to be worried about fraud, to think the websites are not trustworthy, to be worried about the bets being rigged, and having to give out personal information.

Discussion

This study aimed to explore the pattern of play among female online gamblers and to examine any differences between males and females in terms of the activities people gamble on, motivations, frequency and type of play, and attitudes and opinions in relation to online gambling. The study found that the majority of online gamblers were male (81.6%) supporting previous research (e.g., Gambling Commission 2010; Griffiths, *et al.*, 2009; Wood & Williams, 2009). Comparisons of online gambling with offline gambling are somewhat difficult. This is because surveys examining online gambling tend to include a wide range of nationalities (as most online gambling sites cater for a potentially global clientele), whereas surveys examining offline gambling tend to comprise national or local samples. Lloyd *et al.* (2010) conducted an international online survey on the behaviours and health experiences of people who gamble online and reported that 79.1% of the sample were male.

Previous research (e.g., Griffiths & Barnes, 2008; Griffiths, *et al.*, 2009; Wardle, *et al.*, 2011b; Wood, Williams & Lawton, 2007) suggests males are more likely to be problem gamblers and problem online gamblers than females. This survey shows there is a significant difference between gender and level of gambling, and when problem and at-risk problem gamblers were combined, this group were significantly more likely to be male than female. Clearly, the relationship between problem online gambling and gender needs further exploring. The link may not be as strong as has been found for offline gambling.

It has been speculated that there might be a shift towards more females gambling online as it is viewed as safer, and less intimidating than offline venues (Griffiths, 2001). However, the results do not support this contention as only 18.4% of the total sample participants were female. Nonetheless, there may be an emerging trend, as this study found that females were significantly younger than males (mean age 28.5 vs. 36.1 years old), and females were more likely to first gamble online at a younger age than males. However, it is worth considering that this finding may be influenced by the higher average age of male participants in this study. Nevertheless this is contradictory to the research for offline gambling which would suggest that women appear to start gambling later in life compared to men (Hing & Breen, 2001; Ladd & Petry, 2002; Potenza *et al.*, 2001; Tavares, *et al.*, 2001). However, it is thought that women typically have a faster progression to pathological gambling than men (Wenzel & Dahl, 2008), although this was not explored in this particular study. Large scale epidemiological studies are needed to assess whether the participation rates of online gambling are increasing among females.

The results of this survey show that females have been gambling online for a significantly shorter length of time than males, the majority having gambled online for less than a year.

However, given that in this sample females were significantly younger than males, this could explain why women spent shorter lengths of time gambling online. Only 14.3% of females had been gambling online for more than five years, compared to 46.7% of males. It also appears that when females are gambling online, their gambling sessions are much shorter than males, with a quarter of females (25.6%) gambling online for less than 10 minutes at a time (compared with only 10.7% of males). In this survey females were significantly more likely to be gambling online for less than 1 hour at a time compared to males.

As expected there were significant differences regarding the gambling activities that males and females are choosing to gamble online. Females were more likely to play bingo and/or slot machines, while males were more likely to play poker, horserace betting, sports betting, spread betting, and betting exchanges. This is consistent with what has been found in the offline literature (Wenzel & Dahl, 2008). Females were also more likely to indicated preferring easy games, being attracted to sound effects and graphics, and preferring games with large jackpots.

One of the main findings of this survey is that males and females are clearly gambling online for different reasons. Females are more likely to be influenced by gambling advertisements, are attracted to online gambling because of the ability to spend less money online and to play the free practice games. Females were also significantly more likely to gamble due to boredom compared to males. Additionally, once engaged in gambling, they were significantly more likely to end a gambling session because they were bored compared to males. As mentioned above, their gambling sessions were generally much shorter than males suggesting that they became bored of the gambling quickly and ended the session. It may be that females experiencing boredom are looking for a quick fix to increase arousal and turn to online

gambling because it is readily available and convenient but they soon experience boredom again causing them to end the gambling session and perhaps find something else to do. This supports the view that individuals engage in gambling activities in order to increase arousal. Brown and Coventry (1997) also found that boredom was one of the main motivations for gambling among women with gambling problems.

Boredom is believed to be a predisposing factor in the development and maintenance of problem gambling (Blaszczynski, McConaghy & Frankova, 1990; Bonnaire, Lejoyeux & Dardennes, 2004; Mercer & Eastwood, 2010; Nower & Blaszczynski, 2006; Turner, Zangeneh & Littman-Sharp, 2006). However, the relationship between boredom and gambling problems has not been well explored. One view is that boredom motivates individuals to engage in gambling activities as a way of increasing arousal (Anderson & Brown, 1984; Brown, 1986; Mercer & Eastwood, 2010; Zuckerman, 1983). Conversely, the other view is problem gamblers gamble as a means of relieving or avoiding unpleasant emotional states like boredom, depression or loneliness (Blaszczynski Wilson, & McConaghy, 1986; Jacobs, 1986; Lesieur & Blume, 1987; Taber, McCormick & Ramirez, 1987). A recent study by Mercer and Eastwood (2010) in a sample of 202 undergraduate students in Canada (using measures of gambling, boredom, and sensitivity to punishment and reward) found that rather than trying to avoid the negative affect associated with boredom, individuals gamble in order to increase arousal. An area for further research would be to examine whether problem gamblers are more likely to gamble as a means of relieving or avoiding unpleasant emotional states, while non-problem gamblers are more likely to gamble in order to increase arousal.

Just as males and females have different motivations for gambling online, they also have different reasons for choosing a particular gambling website. Females were more likely to choose a particular gambling website based on what their friends use and being influenced by gambling advertisements. Males were more likely to choose a gambling website because of the brand name, the ease of use, and recommendations from gambling forums. The results of the survey also show that males and females have different reasons for ending an online gambling session. As mentioned, females are more likely to end a gambling session because they get bored, and also because they have run out of money, whereas males are more likely to end a gambling session because they have reached a target, they have won a lot of money, or for some other reason.

Furthermore, females were more likely to feel guilty and/or ashamed when gambling online compared to males, while males were more likely to feel a mixture of emotions including anger, happiness and irritability when gambling online compared to females. This up-and-down feeling among males, from anger to happiness to irritability is consistent with findings in the literature that gambling is like an emotional 'roller coaster ride', particularly among problem gamblers (Nixon, *et al.*, 2005; McCormack & Griffiths, 2012).

This survey also examined attitudes and opinions of online gambling and found that females were significantly more likely to have negative attitudes towards gambling online compared to males. Data from the 2007 British Gambling prevalence survey (Orford *et al.*, 2009) also found differences between gambling attitudes and gender in that females had more negative attitudes towards gambling. With increasing liberalisation and normalisation of gambling, it might be anticipated that the attitudes of women and of older people will become more positive over time (Orford *et al.*, 2009). However, there were significant differences in terms

of the disadvantages of online gambling. Males were significantly more likely to believe there are no disadvantages compared to females. However, females were much more concerned about fraud, the bets being rigged, having to give out personal information, not trusting the websites, and needing to use a credit card. Believing there are a number of disadvantages of online gambling could explain why more females have negative opinions towards online gambling.

It would appear that an increased number of females are gambling online (EmaxHealth, 2010; Zacharias, 2010), and this is likely to be the younger generation because gambling is now more socially acceptable and has become normalised (Abbott *et al.*, 2004; King, Delfabbro & King, 2010). Furthermore the younger generation has grown up in a technological world and is much more computer savvy (King, et al., 2010). Older females may still associate gambling as a male dominated pastime and therefore may be less likely to gamble online than younger females. However, there is a push to increase older females to online gambling and the potentially large female market has been recognised by the online gambling industry (Griffiths, 2011). Many gambling advertisements on UK television specifically focus on bingo and on encouraging older women to gamble online (Corney & Davis, 2010). The results found that females were more influenced by gambling advertisements than males, in terms of motivations for gambling in the first place and also for choosing a gambling website because of an advertisement.

It is important to note that the sample used is not representative of any particular population, and the fact that poker was the most popular activity among females could reflect the fact that a larger number of people responded from poker sites. Additionally, as the sample is recruited from online forums and websites, some forums and sites may be related to specific online

gambling activities, and as such have the potential to skew the sample. There is no way of knowing how participants accessed the survey, and what's more, gamblers engaging with online forums may be different to online gamblers who do not use forums. It is also necessary to keep in mind that the results are based on self-reported gambling habits. As a self-selected sample the data may reflect the respondents in particular rather than online gamblers/online female gamblers in general. However, this limitation is widely acknowledged in online research (Wood, Griffiths & Parke, 2007). Additionally, retrospective self-reports are limited in terms of the reliability and validity of information they provide about changes in gambling behaviour over time. As the survey asked people to think back over the course of their online gambling past, the results could be subject to recall bias. It is well known that people's accounts of their actions are not always associated with their actual behaviours (Baumeister, Vohs & Funder, 2007).

To overcome this problem, online behavioural tracking could examine online gambling participation and activity without having to rely on self-report data. Some researchers have already begun to look at this (e.g. LaBrie et al., 2008). Another issue to consider is the nationality of the respondents since there are national variations in the popularity of different types of gambling, and variations in regulations surrounding gambling advertising. While in the UK, gambling advertising may be acceptable and geared to attracting more females to online gambling (Corney & Davis, 2010), it may not be so in other countries. This could explain why a greater proportion of females were from the UK compared to the males. A comparison between ethnicity was not possible in this study due to the small numbers of people in the different ethnic groups and nationality.

To conclude, it seems that females have been gambling online for a shorter duration of time than males, typically have much shorter online gambling sessions than males, have different motivations to males for gambling online, and experience online gambling differently to males, with increased feelings of guilt and feeling ashamed for gambling online. This suggests there is still a stigma around gambling particularly evident among females. Additionally females have more negative opinions of online gambling compared to males. Females were more likely to agree with the negative statements of online gambling (i.e. that online gambling is more addictive than offline gambling, and that it is easy for children to gamble online). Evidently, clinicians and treatment providers need to be aware of these potential gender differences in the experience of online gambling and motivations for gambling. Policy makers need to consider the impact gambling advertising is having on gambling participation rates as these findings suggest that females (a previously thought 'less risk' population) are attracted to online gambling partly because of the advertisements. Tailored intervention and treatment measures can be developed based on the gender differences identified in this study.

References

- Abbott, M., Volberg, R., & Ronnberg, S. (2004). Comparing the New Zealand and Swedish national surveys of gambling and problem gambling. *Journal of Gambling Studies, 20*, 237-258.
- Anderson, G., & Brown, R. (1984). Real and laboratory gambling, sensation-seeking and arousal. *British Journal of Psychology, 75*, 401-410.

Baumeister, R., Vohs, K., & Funder, D. (2007). Psychology as the science of self-reports and finger movements: Whatever happened to actual behaviour? *Perspectives on Psychological Science*, 2, 396-403.

Blaszczynski, A., McConaghy, N., & Frankova, A. (1990). Boredom proneness in pathological gambling. *Psychological Reports*, 67, 35-42.

Blaszczynski, A., Wilson, A., & McConaghy, N. (1986). Sensation seeking and pathological gambling. *British Journal of Addiction*, 81, 113-117.

Bonnaire, C., Lejoyeux, M., & Dardennes, R. (2004). Sensation seeking in a french population of pathological gamblers: Comparison with regular and non-gamblers. *Psychological Reports*, 94, 1361-1371.

Brown, R. (1986). Arousal and sensation-seeking components in the general explanation of gambling and gambling addictions. *International Journal of the Addictions*, 21, 1001-1016.

Brown, S., & Coventry, L. (1997). *Queen of hearts: The needs of women with gambling problems*. Melbourne: Financial and Consumer Rights Council.

Corney, R., & Davis, J. (2010). The attractions and risks of internet gambling for women: A qualitative study. *Journal of Gambling Issues*, 24, 121-139.

EmaxHealth. (2010). Compulsive online gambling affects growing number of women. Located at <http://www.emaxhealth.com/1275/49/35139/compulsive-online-gambling-affects-growing-number-women.html> (Last accessed September 27 2012).

Ferris, J., & Wynne, H. (2001). *The Canadian problem gambling index: Final report*. Ottawa: Canadian Centre on Substance Abuse.

Gambling Commission, (2010). Survey data on gambling participation – January 2010. Retrieved from http://www.gamblingcommission.gov.uk/research_consultations/research/survey_data_on_remote_gam/survey_data_on_remote_gambling.aspx

Grant, J., & Kim, S. (2002). Gender differences in pathological gamblers seeking medication treatment. *Comprehensive Psychiatry*, 43, 56-62.

Griffiths, M. (2001). Internet gambling: Preliminary results of the first U.K. prevalence study. *Journal of Gambling Issues*, 5. Available at: http://www.camh.net/egambling/issue5/research/griffiths_article.html (Last accessed September 27 2012).

Griffiths, M.D. (2011). Technological trends and the psychosocial impact on gambling. *Casino and Gaming International*, 7(1), 77-80.

Griffiths, M., & Barnes, A. (2008). Internet gambling: An online empirical study among student gamblers. *International Journal of Mental Health and Addiction*, 6, 194-204.

Griffiths, M., Wardle, J., Orford, J., Sproston, K. & Erens, B. (2009). Socio-demographic correlates of internet gambling: Findings from the 2007 British Gambling Prevalence Survey. *CyberPsychology and Behavior, 12*, 199-202.

Griffiths, M.D. & Whitty, M.W. (2010). Online behavioural tracking in Internet gambling research: Ethical and methodological issues. *International Journal of Internet Research Ethics, 3*, 104-117.

Hing, N., & Breen, H. (2001). Profiling lady luck? An empirical study of gambling and problem gambling amongst female club members. *Journal of Gambling Studies, 17*, 47-67.

Holtgraves, T. (2009). Evaluating the problem gambling severity index. *Journal of Gambling Studies, 25*, 105-120.

Jacobs, D. (1986). A general theory of addictions: A new theoretical model. *Journal of Gambling Studies, 2*, 15-31.

King, D.L., Delfabbro, P.H. & Griffiths, M.D. (2010). The convergence of gambling and digital media: Implications for gambling in young people. *Journal of Gambling Studies, 26*, 175-187.

LaBrie, R., Kaplan, S., LaPlante, D., Nelson, S., & Shaffer, H. (2008). Inside the virtual casino: A prospective longitudinal study of internet casino gambling. *European Journal of Public Health, 18*, 410-416.

LaBrie, R., LaPlante, D., Nelson, S., Schumann, A., & Shaffer, H. (2007). Assessing the playing field: A prospective longitudinal study of Internet sports gambling behaviour. *Journal of Gambling Studies*, 23, 231-243.

Ladd, G., & Petry, N. (2002). Gender differences among pathological gamblers seeking treatment. *Experimental and Clinical Psychopharmacology*, 10, 302-309.

LaPlante, D., Nelson, S., LaBrie, R., & Shaffer, H. (2006). Men and women playing games: gender and the gambling preferences of Iowa gambling treatment program participants. *Journal of Gambling Studies*, 22, 65-80.

Lesieur, H., & Blume, S. (1987). The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *The American Journal of Psychiatry*, 144, 1184-1188.

Lloyd, J., Doll, H., Hawton, K., Dutton, W., Geddes, J., Goodwin, G., Rogers, R. (2010). Internet gamblers: A latent class analysis of their behaviours and health experiences. *Journal of Gambling Studies*, 26, 387-399.

McBride, J., & Derevensky, J. (2009). Internet gambling behaviour in a sample of online gamblers. *International Journal of Mental Health and Addiction*, 7, 149-167.

McCormack, A., & Griffiths, M. (2012). Motivating and inhibiting factors in online gambling behaviour: A grounded theory study. *International Journal of Mental Health and Addiction*, 10, 39-53.

Mercer, K., & Eastwood, J. (2010). Is boredom associated with problem gambling behaviour? It depends on what you mean by 'boredom'. *International Gambling Studies*, 10, 91-104.

Nixon, G., Solowoniuk, J., Hagen, B., & Williams, J. (2005). "Double trouble": The lived experience of problem and pathological gambling in later life. *Journal of Gambling Issues*, 14, DOI: 10.4309/jgi.2005.14.10.

Nower, L., & Blaszczynski, A. (2006). Impulsivity and pathological gambling: A descriptive model. *International Gambling Studies*, 6, 61-75.

Orford, J., Griffiths, M., Wardle, H., Sproston, K., & Erens, B. (2009). Negative public attitudes towards gambling: findings from the 2007 British Gambling Prevalence Survey using a new attitude scale. *International Gambling Studies*, 9, 39-54.

Petry, N., Stinson, F., & Grant, B. (2005). Comorbidity of DSM-IV Pathological Gambling and Other Psychiatric Disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry*, 66, 564-574.

Phillips, J.G., Ogeil, R.P., & Blaszczynski, A. (2011). Electronic interests and behaviours associated with gambling problems. *International Journal of Mental Health and Addiction*. DOI: 10.1007/s11469-011-9356-2.

Potenza, M., Steinberg, M., McLaughlin, S., Wu, R., Rounsaville, B. & O'Malley, S. (2001). Gender-related differences in the characteristics of problem gamblers using a gambling helpline. *American Journal of Psychiatry*, *158*, 1500-1505.

Rockloff, M., & Dyer, V. (2007). An experiment on the social facilitation of gambling behaviour. *Journal of Gambling Studies*, *23*, 1-12.

Stewart, D. (2006). An analysis of internet gambling and its policy implications. American Gaming Association. 10th Anniversary White paper series.

Taber, J., McCormick, R., & Ramirez, L. (1987). The prevalence and impact of major life stressors among pathological gamblers. *International Journal of the Addictions*, *22*, 44-48.

Tavares, H., Zilberman, M., Beites, F., & Gentil, V. (2001). Gender differences in gambling progression. *Journal of Gambling Studies*, *17*, 151-159.

Turner, N., Zangeneh, M., & Littman-Sharp, N. (2006). The experience of gambling and its role in problem gambling. *International Gambling Studies*, *6*, 237-266.

Vitaro, F., Arseneault, L., & Tremblay, R. (1997). Dispositional predictors of problem gambling in male adolescents. *American Journal of Psychiatry*, *154*, 12.

Volberg, R., Abbott, M., Ronnberg, S., Munck, I. (2001). Prevalence and risks of pathological gambling in Sweden. *Acta Psychiatrica Scandinavica*, *104*, 250-256.

Volberg, R., Gupta, R., Griffiths, M.D., Olason, D. & Delfabbro, P.H. (2010). An international perspective on youth gambling prevalence studies. *International Journal of Adolescent Medicine and Health*, 22, 3-38.

Wardle, H., Moody, A., Spence, S., Orford, J., Volber, R., Jotangia, D., Griffiths, M., Hussey, D., & Dobbie, F. (2011a). *British Gambling Prevalence Survey, 2010*. London: HMSO.

Wardle, H., Moody, A., Griffiths, M.D., Orford, J. & Volberg, R. (2011b). Defining the online gambler and patterns of behaviour integration: Evidence from the British Gambling Prevalence Survey 2010. *International Gambling Studies*, 11, 339-356.

Wardle, H., Sproston, K., Orford, J., Erens, B., Griffiths, M., Constantine, R. & Piggot, S., (2007). *British Gambling Prevalence Survey 2007*. London: HMSO.

Wenzel, H., & Dahl, A. (2008). Female pathological gamblers – A critical review of the clinical findings. *International Journal of Mental Health and Addiction*, 7, 190-202.

Wood, R., Griffiths, M., & Parke, J. (2007). Acquisition, development and maintenance of online poker playing in a student sample. *CyberPsychology & Behavior*, 10, 354-361.

Wood, R., & Williams, R. (2009). *Internet gambling: Prevalence, patterns, problems and policy options*. Final Report prepared for the Ontario Problem Gambling Research Centre. Guelph, Ontario, Canada. January 5, 2009.

Wood, R., Williams, R., & Lawton, P. (2007). Why do internet gamblers prefer online versus land-based venues? Some preliminary findings and implications. *Journal of Gambling Issues*, 20, 235-252.

Wynne, H. (2003). *Introducing the Canadian Problem Gambling Index*. Edmonton, AB: Wynne Resources.

Zacharias, J. (2010). Internet gambling: Is it worth the risk? Located at: http://www.bcreponsiblegambling.ca/other/docs/internet_gambling_jan_zacharias.pdf (Last accessed August 25 2010).

Zuckerman, M. (1983). *Biological basis of sensation seeking, impulsivity and anxiety*. Hillsdale, NJ: Erlbaum.