Intensity and gambling harms: Exploring breadth of gambling involvement among esports bettors

Sally M. Gainsbury*, Brett Abarbanelb, Alex Blaszczynski*

a Gambling Treatment and Research Clinic, The University of Sydney; 94 Mallet St, Camperdown, NSW 2050, Australia
b International Gaming Institute, University of Nevada Las Vegas; 4505 S. Maryland Parkway, Box 456037, Las Vegas, NV, 89154, USA


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Abstract
Esports bettors may represent an emerging cohort of gamblers. Concerns have been expressed about the vulnerability of these gamblers because of their young age and potential high engagement in Internet and game use. It is important to investigate whether esports bettors represent a cohort migrating to include other forms of gambling, or existing online gamblers adopting esports into their gambling repertoire. The current study aimed to specifically look at the overall gambling involvement and problem gambling severity of esports bettors as compared to sports bettors. An online survey of 501 Australian sports bettors (n=160 esports and sports; n=341 sports only) found that esports bettors participated in significantly more forms of gambling (breadth), and in each form more often (intensity). Esports bettors had significantly higher problem gambling severity scores on a self-report measure. These results are consistent with previous findings that Internet problem gamblers have a high overall gambling involvement. This study suggests that Australian online gamblers have adopted esports betting in addition to other gambling activities, rather than representing a new group of online gamblers. As esports betting is a relatively new product increasingly offered by licensed operators, ongoing research is needed to monitor trends in use. Online gambling sites should include play management tools and the ability to self-exclude from all online gambling forms offered and educational campaigns may be needed to educate consumers on the risks associated with high gambling involvement.

Keywords: online gambling, esports, betting, intensity, involvement, frequency, gambling problems
Gainsbury - Breadth and intensity of gambling involvement and harms

Introduction
Esports is one of the most rapidly growing sporting products. It is estimated that in 2017, 191 million consumers will watch esports frequently, and another 194 million, occasionally. Esports betting is becoming one of the newest forms of gambling offered by regulated online operators, and land-based casinos are increasingly interested in hosting esports tournaments. In addition, there is a large offshore, unregulated esports gambling market in existence. In this context, concerns have been raised over the rapid rise of expenditure on esports wagering, implications for threats to the integrity of games, and the young age of esports fans and potential for these youth to access gambling, particularly through unregulated sites. Additional concerns are that, by introducing a new cohort of gamers to gambling, migration to other forms of gambling might facilitate increased expenditure and the development of gambling problems.

In Australia, esports betting is only available through online gambling sites. The role of Internet gambling in the development and exacerbation of gambling problems has been widely debated. Although higher rates of gambling problems are found among Internet gambling, these rates have largely been explained by greater overall gambling participation among those who gamble online. Nonetheless, for a notable proportion of online gamblers with problems, this mode of access is related to the development of gambling problems.

Esports bettors may have other unique risks of developing gambling problems. There is a tendency among some to view gambling games with a skill component as a purely skill game, rather than

gambling. Skill-gamblers often view themselves as different from other types of gamblers, in that they use their skill and experience to increase their odds of winning. However, these activities can still lead to excessive expenditure and negative consequences, particularly if individuals overestimate the role of skill and subsequently their chances of winning.

In addition to gambling problems, there are increasing reports of individuals experiencing significant disruption and distress from the use of online games, to the extent that it has been proposed for consideration as a type of pathological condition in future editions of DSM. Problematic Internet use has also been shown to be related to problem online gambling in some samples, suggesting a potential underlying vulnerability to these excessive behaviours. The many structural similarities between online gaming and gambling and cross-over in player markets might suggest that there are risks for individuals experiencing problems related to the online use of both activities. Australian research suggests that gamblers who also play online gambling-themed games are more likely to experience gambling-related problems. One Australian study found that social casino gamers who gambled were younger, less educated, spoke a non-English language, and experienced psychological distress and were more likely to report greater problems associated with those games than gamers who did not gamble. Playing games to escape or relieve a negative mood was the most commonly reported symptom, suggesting that those experiencing psychological distress may use online games as a diversion/escape from problems. As esports viewing consumption is motivated by tension release, esports enthusiasts may be vulnerable to engaging in excessive gambling to further emotional regulation. Given the greater ability for financial expenditure in online gaming, the possibility of vulnerable individuals migrating to online gambling could generate or exacerbate significant problems.

A previous study of Australian online wagerers found that compared to sports and race bettors, esports bettors were younger, more likely to be from an Asian background, engage in a greater number of

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gambling activities, and use offshore gambling sites\textsuperscript{13}. There is some evidence that young adults are at greater risk for developing problems related to online gambling\textsuperscript{14}, although age is not a consistent predictor of online gambling problems\textsuperscript{15}. Being from an ethnically diverse and non-English speaking background has also been identified as a risk factor for gambling problems\textsuperscript{16}. Finally, use of offshore gambling sites has been linked to gambling problems\textsuperscript{17}, although further research is needed to identify whether this is related to fewer consumer protection measures offered by these sites, or the tendency for online problem gamblers to engage in a greater number of gambling behaviours\textsuperscript{18}.

Given the complexity of the potential relationship between esports betting and gambling problems, this study aimed to examine this topic. The current study will expand on a dataset reported in an adjacent paper published in this special issue\textsuperscript{19}. Specifically, this study aimed to examine the broader gambling behaviour of esports bettors and determine whether esports bettors are more likely to have greater problem gambling severity levels than sports bettors. Although little research has been conducted on this topic, it was hypothesised that esports bettors would have 1) greater gambling involvement in terms of breadth of activities and frequency of gambling, than sports bettors, and 2) greater problem gambling severity levels.

\textbf{Methods}

Data was collected in the online survey described in [authors deidentified for review] in this special issue, and statistical analysis followed the same procedures and criteria described in the same paper for chi-square and t-tests omnibus examinations and follow-up comparisons.

Data from 501 survey participants who had wagered on sports in the past four weeks were included in the sample. Within this sample, 160 respondents (31.9\%) indicated they had also wagered on esports. For ease of reporting, ‘esports’ refers to the sample reporting both esports and sports betting, and


\textsuperscript{14} Gainsbury et al., “The Prevalence and Determinants of Problem Gambling in Australia.”


\textsuperscript{18} Philander and MacKay, “Online Gambling Participation and Problem Gambling Severity.”

\textsuperscript{19} Gainsbury, Abarbanel, and Blaszczynski, “Game on: Comparison of Demographic Profiles, Consumption Behaviours, and Gambling Site Selection Criteria of Esports and Sports Bettors.”
‘sports’, to the sample engaged in sports betting only. However, it is important to be mindful that these labels do not preclude participation in other forms of gambling. Respondents were mostly male (67.8%), married (52.6%), and employed full-time (53.6%). Household income was fairly evenly spread across all income brackets. Age ranged from 18 to 83, with a significant difference in mean age for males ($M = 45.5, SD = 14.8$) and females ($M = 38.1, SD = 12.7$), $t(362.98) = 5.74, p < .001, d = 0.53$.

**Measures**

**Gambling behaviour.** Fixed choice questions assessed online and offline gambling by activity (lottery-type, gaming machines, sports betting, esports betting, race wagering, poker, non-poker casino card or table games, or other, including non-regulated gambling and skins betting) and frequency (at least once per day, per week, in the last 4 weeks). Data was also collected on the age first gambled and year first gambled online.

**Problem Gambling Severity Index.** (Ferris & Wynne, 2001). Questions assessed the extent of gambling-related harm experienced over the previous 12 months with response options of ‘never’, ‘sometimes’, ‘most of the time’, and ‘almost always’. Total scores range from 0-27 and are used to classify respondents into the following groups: non-problem gamblers (PGSI = 0), low-risk gamblers (PGSI = 1 to 2), moderate-risk gamblers (PGSI = 3 to 7) and problem gamblers (PGSI = 8 to 27). Cronbach’s alpha for the PGSI in this sample was 0.95. The PGSI has been independently validated and shown to have excellent reliability, dimensionality, external/criterion validation, item variability, practicality, applicability, and comparability.  

**Results**

**Gambling Involvement**

Table 1 displays the past four weeks involvement in all gambling games, as well as games for which the bettors had daily involvement. Esports participants were most likely to gamble on electronic gaming machines (EGMS) (94.3%) and lottery-type games (93.7%) in addition to their esports and sports betting involvement. Sports bettors were most likely to also gamble on lottery-type games (62.5%) and race wagering (60.1%).

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Table 1 – Past four weeks and daily gambling involvement, N = 500 respondents

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<thead>
<tr>
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<th>Any past four weeks involvement</th>
<th>Daily involvement in the past four weeks</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Esports bettors (N = 159) (%)</td>
<td>Sports bettors (N = 336) (%)</td>
</tr>
<tr>
<td></td>
<td>Esports bettors (N = 159) (%)</td>
<td>Sports bettors (N = 336) (%)</td>
</tr>
<tr>
<td>Lottery-type games</td>
<td>93.7</td>
<td>62.5</td>
</tr>
<tr>
<td>Slot machines, pokies,</td>
<td>94.3</td>
<td>42.9</td>
</tr>
<tr>
<td>electronic gaming machines</td>
<td></td>
<td>10.1</td>
</tr>
<tr>
<td>Race wagering</td>
<td>88.1</td>
<td>60.1</td>
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<tr>
<td>Poker</td>
<td>84.9</td>
<td>16.7</td>
</tr>
<tr>
<td>Casino card or table games</td>
<td>83.6</td>
<td>18.8</td>
</tr>
<tr>
<td>(not including poker)</td>
<td></td>
<td>10.7</td>
</tr>
<tr>
<td>Total valid responses</td>
<td>159</td>
<td>336</td>
</tr>
</tbody>
</table>

Esports bettors were significantly more varied in their gambling involvement than sports bettors. Esports bettors participated in 4.45 (SD = 1.11) of the five additional reported forms of gambling (not including esports and sports betting) in the past four weeks, which was significantly higher than the 2.01 (SD = 1.34) mean forms for sports bettors, t(367.75) = -21.29, p < .001, d = 1.97. Esports bettors were also significantly more involved with regard to daily gambling behaviour, averaging 0.61 (SD = 1.19) daily gambling games compared to 0.13 (SD = 0.41) for sports bettors, t(175.58) = -5.02, p < .001, d = 0.55.

In terms of gambling history, sports bettors indicated they have been gambling for longer (M = 20.92 years, SD = 12.50) than esports bettors (M = 13.53 years, SD = 9.71), t(390.84) = -7.16, p < .001, d = 0.66. When controlling for age, however – since esports bettors were found to be significantly younger than sports bettors – there was no significant difference between the two groups in the number of years gambled (p > 0.05). There was no significant difference between the groups in terms of years gambled online.

**Problem gambling severity**

The PGSI was completed by 500 of the 501 participants. Esports bettors had a significantly higher average PGSI score (M = 9.64, SD = 6.65) than did sports bettors (M = 3.44, SD = 4.90), t(242.04) = -10.49, p < .001, d = 1.06.

**Discussion**

As predicted and consistent with the previous study, the esports bettors had significantly greater gambling involvement both in terms of breadth of activities used and frequency of use. Of interest, esports bettors also bet on gambling activities that were entirely chance determined, rather than demonstrating a preference for activities with a skill component. The higher overall gambling involvement is likely related to the higher rates of problem gambling severity among esports bettors.
This is consistent with previous research on Internet gambling\textsuperscript{21}. Therefore, it is likely that this overall gambling involvement contributes to the gambling problems rather than esports specifically.

Esports bettors appear to be more recent adopters of gambling, although this appears to be relative to their age. Despite esports betting becoming popular in the few years prior to this study being conducted, esports betting respondents appear to have been gambling on other forms and likely more recently adopted this form of gambling. This suggests that highly involved gamblers have begun betting on esports, rather than this activity attracting a new cohort of non-gamblers. This is consistent with previous studies of online gambling finding a notable proportion of those with some gambling problems reported that they had problems prior to commencing gambling online\textsuperscript{22}. This is a cross-sectional study, however, so no claims can be made about causation and future studies should include longitudinal components to investigate the aetiology of problems.

Caution is needed in interpreting these results due to methodological limitations. The sample was a convenience sample taken from an online panel and is not intended to be representative of all online bettors. Panel surveys are useful for recruiting regular gamblers, but they are likely to over represent highly involved gamblers, and individuals with gambling problems. It was a requirement that all participants had gambled online in the past month, meaning that respondents were likely more frequently engaged in gambling than overall online gamblers. Further, the survey was described as a gambling study, which is more likely to interest gamblers, rather than esports enthusiasts, or esports bettors who do not view themselves as gamblers. As such, the results should not be interpreted as representing an accurate level of gambling involvement or gambling problems among all esports bettors.

The next step in research is to explore whether the new cohort of gamblers engaging in esports betting are highly active gamblers before they commence esports betting, or whether esports betting is a gateway to other forms of gambling. This would guide studies exploring which intervention and prevention techniques are optimally relevant for this group of gamblers, rather than maintaining the presumption that existing interventions can be effectively applied reducing harms in this subpopulation. Consistent with other online gambling forms, esports betting sites should include consumer protection measures, including the ability to set limits on expenditure, have cooling-off periods without gambling, and more permanent self-exclusion options. These should be applied across all forms of gambling offered on the site. As breadth of gambling involvement represents a risk factor for problematic involvement, consumer protection measures should be developed that allow consumers to limit, or block gambling across a range of gambling sites and products. Gambling regulators need to continue to consider the implications of new forms of gambling on policy, particularly the potential impact on the

\textsuperscript{21} LaPlante, Nelson, and Gray, “Breadth and Depth Involvement”; Philander and MacKay, “Online Gambling Participation and Problem Gambling Severity”; Gainsbury et al., “Greater Involvement and Diversity of Internet Gambling as a Risk Factor for Problem Gambling.”

\textsuperscript{22} Gainsbury et al., “How Risky Is Internet Gambling?”
levels of gambling problems among various vulnerable populations. Education campaigns regarding the risks associated with gambling across multiple products and with high frequency may be useful in allowing individuals to recognise their risky practices, and potentially limit their gambling involvement.
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All professional dealings have been conducted with the aim of enhancing responsible gambling and harm minimisation policies and practices, training counsellors in the treatment interventions, and advancing our understanding of the psychology of gambling.