

# Gender Differences in Problem Gamblers in an Online Gambling Setting

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**Background:** Problem gambling traditionally is markedly more common in men than in women. However, recent data in online gamblers have indicated at least a comparable risk of problem gambling in women in this sub-group. The present study aimed to compare the characteristics of male and female moderate-risk and problem gamblers in online gamblers in Sweden.

**Methods:** In a web survey addressing online gamblers (past-year online gambling on 10 or more occasions), women and men with moderate-risk or problem gambling (n=327) were compared with respect to gambling severity, financial consequences, comorbidity, socio-demographic characteristics, and fulfilled screening items.

**Results:** Female gender was associated with psychological distress, over-indebtedness, higher problem gambling severity and with screening items indicating financial consequences and guilt, with no gender difference for the self-reported need to seek treatment for substance use problems. In the sub-group of problem gamblers, female gender remained associated with psychological distress.

**Conclusion:** In a setting displaying high rates of online gambling and novel findings of a higher risk of problem gambling in women than previously seen, psychological distress appears to separate female and male problem gamblers. Given the higher level of severity and financial consequence, these findings call for screening and early intervention in female at-risk gamblers.

**Keywords:** problem gambling, gender, comorbidity, gambling disorder, behavioral addiction

## Background

Research on problem gambling and gambling disorder traditionally has addressed men more than women, whereas in recent years, authors have argued that more research in female gamblers is needed, and that gendered preventive and intervention efforts in gambling may require particular intervention.<sup>1-3</sup> Problem gambling, including the diagnostic construct of gambling disorder, typically has been shown to be markedly more common in men than in women,<sup>4</sup> both in the general population<sup>5-9</sup> and in the clinical setting.<sup>10-13</sup> In recent years, however, female gambling has been increasing, such that male and female participation in gambling may be comparable in some contexts.<sup>3</sup> Gambling, as a traditionally masculine activity, has gradually changed and approached women to a larger extent. Also, gambling is increasingly perceived as more acceptable also to women, often referred to as a “feminization” of gambling.<sup>14</sup> A study published in 2014 demonstrated that in women and men who do gamble to at least some extent, women may be as likely as men to be problem gamblers.<sup>15</sup> In addition, in the same setting in

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recent years, in a recent telephone and web survey made by the Public Health Institute in the general population, it was even demonstrated that the prevalence of problem gambling (defined by the Problem Gambling Severity Index, PGSI)<sup>16</sup> in women had increased and was comparable to that in men.<sup>17</sup>

Female gamblers may be a group with particular vulnerability,<sup>18</sup> and it has been suggested that women may develop gambling problems particularly from chance-based games, which are used more frequently than in men in order to alleviate heightened levels of psychological distress.<sup>19</sup>

The introduction and increase of online gambling during the past years are likely to present specific challenges; online gambling has characteristics which particularly enhance the addictive properties of gambling, such as high availability and rapid access.<sup>20</sup> A previous study in online gamblers in the present setting demonstrated that in past-year online gamblers responding to a web survey, in unadjusted analyses, the risk of being a problem gambler was more than twice as large in women as in men, and in the adjusted analysis, problem gambling was unrelated to gender, such that the previously expected risk increase in men was not seen.<sup>21</sup> Also, a relatively recent general population survey indicated an increasing number of female problem gamblers.<sup>22</sup> Likewise, in the present setting, online casino gambling has been suggested to be more common in treatment-seeking women than in men, where sports betting is more common,<sup>13</sup> and in a recent study of television advertising in the same setting, advertisements addressing women specifically were more likely to promote online casinos than other patterns of gambling.<sup>23</sup> Recently, researchers have argued in favor of a gender-specific focus on women's risk gambling and needs for more knowledge and policy interventions in female gambling.<sup>2,3</sup>

The present study is based on a project in which problem gambling was markedly more common in women than in men, within a group of online gamblers.<sup>21</sup> As this study indicates an even more pronounced "feminization" of problem gambling than previous studies, we here aimed to assess which differences could be detected between women and men within the group of online gamblers with at least moderate-risk gambling. These comparisons aimed to detect potential differences in sociodemographic characteristics, comorbid health, the type and modality of gambling and its consequences, as well as differences regarding the screening

criteria endorsed by these moderate-risk or problem gamblers.

## Methods

The present study is a post-hoc analysis of a study previously published,<sup>21</sup> and which addressed problem gambling and over-indebtedness in a population sample of online gamblers in Sweden. The survey was addressed to an existing web panel of potential participants in market surveys, political opinion polls and similar studies, conducted by the company Ipsos, with the target to reach a sample of about 1000 individuals. The inclusion criterion used for recruitment within the web panel was a screening question about how often a person had gambled during the past year on either online sports betting or online casino, and where only individuals reporting at least 10 occasions were offered to be included in the study. If eligible for the study, the respondent received online written information about the study, and the survey was opened only in case the respondent provided written informed consent to study participation. For the completion of a web survey from the survey company used here (Ipsos), a respondent is compensated within a credit system corresponding to one SEK (around 0.11 USD) per minute of duration of the survey (a median of 6 min in the overall study).<sup>21</sup> These credits could be collected (and potentially added to credits received from other surveys) and translated into purchases in the Ipsos web shop. In the overall study, 1004 online gamblers were included, and in the total sample, 327 were either problem gamblers or moderate-risk gamblers, as defined by the PGSI (score >2). Among them, 132 individuals were problem gamblers (PGSI score >7).

The variables included in the present study include over-indebtedness during the past year or expected over-indebtedness during the next 2 months. Over-indebtedness was measured using the subjective definition, where over-indebtedness is defined as an individual endorsing that she/he has had substantial difficulties (for herself/himself or the individuals living together) to fulfill her/his financial obligations. These questions follow the same definition as previous national reports from the Swedish Enforcement Authority.<sup>24</sup> Additional questions were asked about whether the individual had debts which – during the past year – were moved either to collection services or to the enforcement authority. Problem gambling was measured using the Problem Gambling Severity Index (PGSI),<sup>16</sup> which includes nine questions answered on a four-level scale ranging from "never" to "almost always". The PGSI has established

cut-off values for moderate-risk gambling (a total of three points or more) or problem gambling (eight points or more). In addition to the overall score, the endorsing of each PGSI item was compared across genders. Psychological distress was measured with the Kessler-6,<sup>25,26</sup> a scale including six core symptoms of poor mental health, and here, the cut-off for suspected severe psychological distress (19 or more from a total score ranging between 6 and 30) was used. Alcohol and drug problems were examined with questions about whether the individual had ever felt a need to seek treatment for alcohol or drug problems, respectively. Tobacco use (including cigarettes or Swedish “snuff”, a smokeless type of tobacco for buccal use) was assessed by a question about current daily use. Gambling pattern was examined for the past 30 days, with a list of questions where the individual could endorse or deny each of the gambling types and modalities (land-based vs online whenever relevant) are listed (included in both Tables 1 and 3). In addition, age (in age groups), gender and income (in categories) were addressed (see Tables 1 and 3 for a list of all variables).

In total, 786 respondents (78%) were men, and 218 (22%) were women. In the overall study, as previously published, the prevalence of problem gambling (PGSI > 7)<sup>16</sup> was higher in female (24%) than in male respondents (10%,  $p < 0.001$ ). The broader description of moderate-risk gambling and problem gambling, altogether, was seen in more female (48%) respondents than male respondents (28%,  $p < 0.001$ ).<sup>21</sup>

Statistical comparisons were made between women and men, using the chi-square test for categorical variables and the Mann–Whitey  $U$ -test for continuous data (only the absolute PGSI values and the absolute Kessler-6 values). In the comparison of PGSI items, the chi-square test (linear-by-linear) was used. Given the primarily descriptive purpose of the paper, describing both a range of possible characteristics and consequences of gambling, no multivariate analysis was performed. Comparisons were made both including the broader group of all individuals who fulfilled a PGSI value of three or more (moderate-risk gamblers and problem gamblers together), and in only the narrower group of problem gamblers (PGSI > 7).

The overall study was approved by the regional ethics board, Lund, Sweden (file number 2018/495).

## Results

In the larger study group involving both problem gamblers and moderate-risk gamblers ( $n = 327$ ), women were significantly more likely than men to score positive for severe

**Table 1** Past-Year Online Gamblers Defined as Either Problem Gamblers (PGSI >7) or Moderate-Risk Gamblers (PGSI >2,  $N = 327$ )

	Women ( $n = 104$ ), % ( $n$ )	Men ( $n = 223$ ), % ( $n$ )	$p$ value
Subjective over-indebtedness, past-year	31 (32)	20 (45)	0.04
Subjective future over-indebtedness, next two months	25 (26)	16 (35)	0.04
Debts to enforcement authority, past-year	20 (21)	14 (31)	0.15
Debts to collection services, past-year	23 (24)	17 (39)	0.23
Psychological distress, severe	30 (31)	14 (32)	<0.001
Kessler-6 score	15 (11–20)	13 (9–17)	<0.01
Alcohol problem	13 (14)	13 (29)	0.91
Tobacco use <sup>a</sup>	56 (57)	54 (119)	0.73
Drug problem	11 (11)	7 (16)	0.30
Problem gambling (PGSI > 7)	50 (52)	36 (80)	0.02
PGSI	7.5 (4–12)	5 (4–10)	0.02
Post-high school education	51 (53)	47 (104)	0.47
Monthly income (SEK/month)			0.04 <sup>b</sup>
<10,000	11 (11)	6 (13)	
10,000–15,000	9 (9)	7 (16)	
15,000–20,000	14 (15)	8 (18)	
20,000–25,000	13 (13)	11 (24)	
25,000–30,000	18 (19)	21 (47)	
30,000–35,000	14 (15)	16 (35)	
35,000–40,000	5 (5)	12 (26)	
40,000–45,000	5 (5)	7 (16)	
45,000–50,000	2 (2)	6 (13)	
>50,000	10 (10)	7 (15)	
Age			0.07 <sup>b</sup>
18–24 yrs	10 (10)	5 (12)	
25–29 yrs	16 (17)	13 (29)	
30–39 yrs	34 (35)	28 (62)	
40–49 yrs	15 (16)	28 (62)	
50–59 yrs	15 (16)	14 (32)	
60–69 yrs	7 (7)	6 (13)	
70+ yrs	3 (3)	6 (13)	
Online casino, past 30 days	79 (82)	54 (120)	<0.001
Sports live betting, past 30 days	42 (44)	67 (150)	<0.001
Sports, non-live betting	35 (36)	63 (141)	<0.001
Land-based casino	33 (34)	15 (34)	<0.001
Horse racing – online	36 (37)	44 (98)	0.15
Horse racing – land-based	32 (33)	32 (71)	0.98
Online poker	34 (35)	29 (65)	0.41

(Continued)

**Table 1** (Continued).

	<b>Women (n=104), % (n)</b>	<b>Men (n=223), % (n)</b>	<b>p value</b>
Poker – land-based	23 (24)	18 (40)	0.28
Electronic gambling machines – land-based	29 (30)	21 (47)	0.12
Bingo online	39 (41)	25 (55)	0.01
Past-30-day gambling losses (SEK)			0.25 <sup>b</sup>
<50	9 (9)	11 (23)	
50–100	9 (9)	4 (9)	
100–200	7 (7)	9 (21)	
200–400	14 (15)	9 (21)	
400–600	17 (18)	13 (30)	
600–1000	12 (12)	13 (28)	
1000–2000	13 (13)	21 (46)	
2000–5000	13 (13)	8 (17)	
5000–10,000	5 (5)	4 (10)	
>10,000	3 (3)	8 (18)	

**Notes:** <sup>a</sup>n = 323 (four individuals excluded because of response “prefer not to answer”). <sup>b</sup>chi-2, linear-by-linear association.

**Abbreviations:** PGSI, Problem Gambling Severity Index (Wynne and Ferris, 2001); SEK, Swedish Krona (local currency).

psychological distress, and more likely to belong to the sub-group of problem gamblers (PGSI>7), whereas no significant difference was seen for tobacco use, alcohol problems or drug problems. Past-year over-indebtedness and future expected over-indebtedness were significantly more common in women, while no significant gender difference was seen with respect to debts being forwarded to collection services or to the enforcement authority. Female gender was associated with a lower monthly income, whereas no significant gender differences were seen with respect to age or education. Women were significantly more likely than men to report recent online casino gambling, land-based casino and online bingo gambling, and significantly less likely to report sports betting (Table 1). Women had significantly higher scores on items describing gambling for more money than you can afford to lose ( $p<0.001$ ), increased tolerance ( $p=0.047$ ), having borrowed money or sold anything for money related to gambling ( $p=0.003$ ), financial problems for oneself and one’s household ( $p=0.004$ ), and feelings of guilt related to gambling ( $p=0.004$ ), whereas there were no significant gender differences with respect to the “chasing losses” item, one’s own feeling that gambling is a problem, gambling-related health consequences, and having been criticized for one’s gambling (Table 2).

In the sub-group of problem gamblers ( $n=132$ ), women remained significantly more likely to screen positive for severe psychological distress. No other significant differences were demonstrated between women and men, except for the difference in gambling pattern, where women were less likely to report sports betting and more likely to report land-based casino gambling (Table 3). In this sub-group of the sample, no significant gender differences were seen with respect to the endorsing of PGSI items (data not shown).

## Discussion

The present study was a post-hoc analysis from a previous study of online gamblers, where women’s risk of being a problem gambler was higher than what is traditionally seen and markedly higher than in men in the unadjusted analyses. In this post-hoc study, findings shed light on to the surprisingly pronounced connection between female gender and gambling problems in this group of online gamblers. Women with at least moderate-risk gambling displayed a more severe picture than men; they had a higher reporting of PGSI items describing financial consequences and feelings of guilt, worse mental health, and in contrast to most previous findings, they were not less likely than their male counterparts to report treatment-requiring alcohol or drug problems, further contributing to the picture of increased distress. Also, women with at least moderate-risk gambling were more likely to report online casino gambling, whereas sports betting was more common in men.

Women were more likely to report chance-based games such as online or land-based casino games, and online bingo, whereas males were more likely to report sports betting. This is consistent with the previous report of men preferring strategy-based and sports-related gambling, and women preferring chance-based games.<sup>15</sup> Previous research indicates that women and men are likely to engage in online gambling for different reasons. Stark and co-authors suggest that internalizing symptoms in female problems’ gamblers may increase their likelihood of engaging in chance-based games such as online casino slots, and that gambling types preferred by individuals with negative emotions may be chance-based and monotonous games.<sup>19</sup> Boredom susceptibility has been described as related to gambling in women but not in men,<sup>27</sup> and loneliness more related to problematic gambling in women.<sup>28</sup> Also, following the well-recognized pathways model of gambling, women more often than

**Table 2** Distribution of PGSI Items (Problem Gambling Severity Index) in Women and Men. N=327. Chi-Square Analyses (Linear-by-Linear)

	Women, % (n)	Men, % (n)	p value	Missing Data
Gambled more than you can afford • Never • Rarely • Sometimes • Almost always	14 (15) 53 (55) 22 (23) 11 (11)	32 (72) 50 (111) 11 (24) 7 (16)	<0.001	0
Tolerance • Never • Rarely • Sometimes • Almost always	23 (24) 51 (53) 16 (17) 10 (10)	28 (63) 55 (123) 11 (24) 5 (12)	0.047	1
Chasing losses • Never • Rarely • Sometimes • Almost always	10 (10) 59 (60) 22 (22) 10 (10)	17 (38) 57 (127) 19 (42) 7 (16)	0.106	2
Borrowed or sold something for money for gambling • Never • Rarely • Sometimes • Almost always	57 (59) 26 (27) 8 (8) 10 (10)	68 (152) 24 (53) 5 (12) 2 (5)	0.003	1
Gambling is a problem • Never • Rarely • Sometimes • Almost always	25 (25) 48 (48) 18 (18) 9 (9)	28 (61) 57 (125) 9 (20) 6 (14)	0.088	7
Health consequences • Never • Rarely • Sometimes • Almost always	33 (33) 48 (48) 11 (11) 9 (9)	40 (89) 43 (97) 10 (23) 6 (14)	0.208	3
Criticized for one's gambling • Never • Rarely • Sometimes • Almost always	52 (53) 31 (31) 9 (9) 8 (8)	53 (116) 36 (79) 8 (17) 4 (8)	0.316	6
Financial problems • Never • Rarely • Sometimes • Almost always	44 (44) 37 (37) 11 (11) 8 (8)	61 (135) 27 (60) 9 (21) 3 (6)	0.004	5
Feelings of guilt • Never • Rarely • Sometimes • Almost always	12 (12) 57 (58) 15 (15) 17 (17)	22 (48) 58 (130) 12 (26) 9 (19)	0.004	2

**Abbreviations:** PGSI, Problem Gambling Severity Index (Wynne and Ferris, 2001).

**Table 3** Past-Year Online Gamblers Defined as Problem Gamblers (PGSI >7, N=132)

	Women (n=52), % (n)	Men (n=80), % (n)	p value
Subjective over-indebtedness, past-year	46 (24)	38 (30)	0.32
Subjective future over-indebtedness, next two months	40 (21)	29 (23)	0.17
Debt to enforcement authority, past-year	27 (14)	20 (16)	0.35
Debt to collection services, past-year	33 (17)	28 (22)	0.52
Psychological distress, severe	44 (23)	25 (20)	0.02
Kessler-6, score	17.5 (15–22.75)	15 (12–18.75)	<0.01
Alcohol problem	19 (10)	18 (14)	0.80
Tobacco use	65 (33)	65 (51)	0.94 <sup>a</sup>
Drug problem	15 (8)	14 (11)	0.79
PGSI	12 (10–18)	11 (9–16)	0.21
Post-high school education	63 (33)	53 (42)	0.21
Age			0.22 <sup>b</sup>
18–24 yrs	15 (8)	11 (9)	
25–29 yrs	23 (12)	15 (12)	
30–39 yrs	33 (17)	30 (24)	
40–49 yrs	12 (6)	29 (23)	
50–59 yrs	15 (8)	11 (9)	
60–69 yrs	0 (0)	4 (3)	
70+ yrs	2 (1)	0 (0)	
Monthly income (SEK)			0.43 <sup>b</sup>
<10,000	12 (6)	8 (6)	
10,000–15,000	6 (3)	10 (8)	
15,000–20,000	13 (7)	8 (6)	
20,000–25,000	10 (5)	10 (8)	
25,000–30,000	19 (10)	18 (14)	
30,000–35,000	17 (9)	15 (12)	
35,000–40,000	2 (1)	6 (5)	
40,000–45,000	6 (3)	9 (7)	
45,000–50,000	4 (2)	6 (5)	
>50,000	12 (6)	11 (9)	
Online casino, past 30 days	85 (44)	79 (63)	0.40
Sports, live betting	58 (30)	76 (61)	0.02
Sports, non-live betting	60 (31)	36 (29)	0.01
Land-based casino	54 (28)	30 (24)	0.01
Horse racing – online	42 (22)	50 (40)	0.39
Horse racing – land-based	42 (22)	39 (31)	0.68
Online poker	50 (26)	45 (36)	0.57
Poker – land-based	38 (20)	31 (25)	0.39
Electronic gambling machines – land-based	37 (19)	43 (34)	0.49
Bingo online	50 (26)	39 (31)	0.20
Past-30-day gambling losses (SEK)			<0.01 <sup>b</sup>
<50	8 (4)	4 (3)	
50–100	8 (4)	1 (1)	
100–200	8 (4)	4 (3)	
200–400	8 (4)	8 (6)	
400–600	17 (9)	14 (11)	
600–1000	10 (5)	10 (8)	

(Continued)

**Table 3** (Continued).

	Women (n=52), % (n)	Men (n=80), % (n)	p value
1000–2000	15 (8)	20 (16)	
2000–5000	17 (9)	9 (7)	
5000–10,000	4 (2)	10 (8)	
>10,000	6 (3)	21 (17)	

**Notes:** <sup>a</sup>n = 129 (three individuals excluded because of response “prefer not to answer”). <sup>b</sup>chi-2, linear-by-linear association.

**Abbreviations:** PGSI, Problem Gambling Severity Index (Wynne and Ferris, 2001); SEK, Swedish Krona (local currency).

men belong to the subtype of emotionally vulnerable gamblers.<sup>18</sup> McCormack et al demonstrated that boredom was markedly more likely to be cited among women than among men as a reason cited for gambling online specifically, and, although in a variable reported by few individuals, advertisements were described as a reason for gambling online in significantly more women than men.<sup>29</sup>

A recent study on televised gambling advertisements in the present setting demonstrated that during a full 24 hrs period in six commercial television channels, a gender-specific address to women was seen in 16% of online casino advertisements and only 1% of other gambling advertisements.<sup>23</sup> Availability of theoretically high-risk profile gambling types in the online modality may increase problem gambling in women specifically. Consistent with this interpretation, a Finnish general population study demonstrated that online gamblers had higher rates of problem gambling than land-based gamblers, but when controlling for a number of variables, the link between online gambling and problem gambling was significant in women but not in men.<sup>30</sup>

The finding that female problem gamblers report a more pronounced mental health distress than male problem gamblers, is not surprising. Higher psychiatric comorbidity<sup>5,31</sup> and more suicidal behavior has been reported in female, compared to male, problem gamblers.<sup>9</sup> Likewise, in patients seeking treatment, the same gender differences have been seen,<sup>11</sup> especially with respect to depression and anxiety problems.<sup>12</sup> However, the lack of a difference in reported treatment needs for alcohol and drug problems between genders is somewhat surprising. Previous research has shown higher rates of alcohol or drug use disorders in male problem gamblers, in the general population<sup>5</sup> and in clinical settings.<sup>10,12</sup> In contrast, however, the Swedish study on comorbidity with gambling disorder, using national register data from the health-care system,<sup>32</sup> did not find differences in substance use disorders between men and women. One possible interpretation is that when

examining women involved in high-risk gambling such as online gambling, or in clinical situations with a higher level of severity, gender differences expected from the general population may not remain. The present cross-sectional survey study cannot prove to demonstrate any causal associations between gender and psychological distress, and a general population study in the present setting demonstrated the bi-directional association between problem gambling and poor mental health, but also demonstrated that poor mental health was more likely to precede problem gambling in women than in men.<sup>33</sup> The present findings may deepen the understanding of problem gambling being even more severe in women than in men. The more severe consequences of gambling in women are in contrast with previous literature from Brazil,<sup>34</sup> although other research has demonstrated higher severity in female helpline callers compared to their male counterparts.<sup>35</sup> Yet other research has found that although comorbidity was more common in women, gambling problem severity did not differ.<sup>11</sup> The present findings, including the lack of a gender difference for the substance use problem description used here, highlight the need to address female problem gamblers as a particularly vulnerable group.

In the present study, consequences related to debts and over-indebtedness, as well as several PGSI items describing financial consequences of gambling, were significantly more common in female problem or moderate-risk gamblers, and in the sub-group with problem gambling, these items were comparable between women and men. Here, it should be borne in mind that these items are based on self-assessment, and this subjective reporting of more severe financial and other consequences of gambling in women is in contrast with previous literature describing that debts in absolute values are markedly lower in women than in men.<sup>36</sup> In the present study, however, despite the gender difference in variables perceived to describe subjective over-indebtedness, the overall gambling losses (although restricted to a 30-day period prior to the survey) were higher

in males than in females in the narrower group of problem gamblers, and did not differ significantly in the larger group of moderate-risk and problem gamblers. Thus, it may still be possible that males exhibit larger financial losses in absolute values, although women – who also had significantly lower income than men – may be more likely to endorse the subjective description of being unable to fulfill one's financial duties. More research is needed in order to gain deeper understanding of the interplay between gender, gambling, short-term credits and over-indebtedness, and it also cannot be excluded that women and men tend to describe debts as subjectively problematic in different ways. Tavares et al, for example, described that women with problem gambling reported more financial consequences than their male counterparts.<sup>34</sup>

Women with problem or moderate-risk gambling were significantly more likely than their male counterparts to report feeling guilt related to gambling (31% of women and 20% of men reported feeling guilt related to gambling either “often” or “almost always”, data not shown). This is in line with previous data, indicating a higher degree of shame or guilt in female gamblers,<sup>29,37</sup> although no such association could be seen in an older dataset of gaming machine gamblers.<sup>38</sup> More research is needed in order to fully outline the role of guilt and shame in male and female problem gamblers, and how potential differences may translate into stigma and psychological distress.

Based on the present and previous findings, it may be reasonable to hypothesize that gender aspects of gambling change when moving from general population, where problem gambling is more common in men than in women,<sup>4-9</sup> into high-risk gamblers. In addition, although in a small sample, in the sub-group studied here with the highest PGSI scores (problem gamblers), differences between women and men were few, again suggesting that severity in women approaches that of men when moving from the general population into more clinical samples. In the smaller sub-group of problem online gamblers in the present study, this “feminization” of gambling may even be strong enough to turn women into a majority of problem gamblers.<sup>21</sup> The latter is, however, a finding in some contrast to the findings of McCormack et al, whose paper on online gambling demonstrated that male gender was independently associated with problem gambling in online gamblers (as in more traditional land-based gambling), making the female majority in the present setting more surprising.<sup>29,39</sup> However, it cannot be excluded that this may have changed in recent years, with the expansion of online gambling. For example, McCarthy et al

demonstrated that younger women may engage in other types of gambling than older women, such as sports betting and casino gambling,<sup>2</sup> and therefore that female gambling may evolve into new and more pronounced patterns. Women may develop a problematic gambling pattern more rapidly,<sup>34,40</sup> despite a later initiation in life;<sup>11,12</sup> for example, gambling and problem gambling is markedly more common in males than in females in the youngest.<sup>41,42</sup>

The present study has implications for society and for treatment settings. The difference in psychological distress may be of importance to address in active screening for problem gambling in the mental health-care setting, and for mental health problems in settings where problem gambling is treated. Likewise, comorbidity of substance use and problem gambling is equally important to screen for in women and men, as the present study did not demonstrate differences in perceived substance-related problems between genders. In addition, regulation of gambling marketing may need to take into account that trajectories towards a problematic gambling pattern may not be the same for women and men. While male-oriented gambling, such as sports betting has been studied in this context,<sup>43-45</sup> more research may need to address how women, including women with poor psychological health, may be influenced by gambling advertising. Strategies for the management of at-risk gambling may include a range of interventions, such as time- or loss-limit regulations in a gambler's involvement with a gambling operator, voluntary self-exclusion,<sup>46</sup> motivational interviewing,<sup>47</sup> cognitive behavioral therapy,<sup>48</sup> or possibly brief interventions<sup>49</sup> or even pharmaceutical treatment.<sup>50</sup> Recent data have focused on the potential for the reduction of gambling-related harm if gamblers adopt a range of safe gambling practices, such as a budget and a preset limit of how much one can afford to lose, not borrowing money in order to gamble, not using gambling as a part of emotional control, and alternative activities.<sup>51</sup>

Consumer credit applications have been suggested as a window of opportunity to screen for problematic gambling,<sup>52</sup> and may be more common in problematic gambling than in non-problematic gambling.<sup>53</sup> “Chasing losses” behavior, i.e. repeated gambling aiming to compensate for prior gambling losses, has been described to have a key role in severe gambling behaviors,<sup>54</sup> and has been reported to be more common in online casino gambling,<sup>55</sup> as well as both among women and men in the present sample (31% vs 26% reporting this at least “sometimes”).



Over and above prevention efforts aimed for the general population, legislative regulations and other policy decisions may be of particular importance to the risk of problem gambling in women, also given the likely larger vulnerability in female gamblers.<sup>18,19</sup> Gambling advertising is likely to promote messages of short-term intense gambling, such as through bonus offers<sup>56</sup> or rapid cash-out messages.<sup>57</sup> Gambling may be seen as a gendered phenomenon,<sup>15</sup> and gambling advertisements may address women and men differently,<sup>23</sup> such as through objectification of women within male-oriented gambling advertising<sup>58</sup> such that regulatory intervention may need to address prevention of male and female gambling somewhat differently. In the geographical setting studied here, among treatment-seeking patients, problematic sports betting was reported only by male patients, whereas online casino was the gambling type reported by virtually all female patients.<sup>13</sup> Therefore, regulatory and preventive efforts must address the different pictures seen in female and male gambling, and this type of gendered approach to societal interventions merits further research in the area. It has been suggested that gendered policymaking from other health hazards, such as tobacco and alcohol, is a model to adopt also in societal measures and policy changes in the gambling field.<sup>2,3</sup> One such example could be the importance of adapting treatment to women's needs, given some literature indicating that treatment outcome and perceptions of treatment content may be more problematic in women.<sup>59</sup> In summary, the present study calls for policymakers to adapt gendered preventive efforts and clinical assessment to the gambling field, including in mental health and substance use screening, active advice related to customer credits and other financial support, addressing feelings of guilt, and in the regulation of gambling availability and advertising.

The present study has limitations, mainly due to the fact that data are collected in a self-report web survey, including risks of recall bias, and in a format where important clinical constructs have to be addressed with very brief instruments or separate questions. This includes, for example, the two brief questions about alcohol or drug problems, as opposed to more structured questionnaires. For this reason, the lack of an association between gender and perceived alcohol or drug problems should be interpreted with caution, and in future research with other data sources than a web survey, with the possibility of having a more extensive questionnaire, these items should be considerably elaborated. In addition, the findings of the

present study may have lower generalizability to settings where online gambling is still limited or reported by only a minority of problem gamblers, and settings with a lower level of gender equality than in the present one. This was, however, also part of the aim of the study, as it seeks to deepen the understanding of an identified progress of increased female problem gambling in a setting where online gambling constitutes the large majority of the reporting by treatment-seeking patients.<sup>13</sup> In addition, the present study is a post-hoc analysis based on and inspired by the need for further understanding of findings previously described from the same dataset, and future research may need more extensive studies aiming primarily to address gender differences in separate study designs.

## Conclusions

The present study – in a group of problem gamblers rarely assessed, i.e. a sample of online gamblers – corroborates with previous studies demonstrating higher mental health problems in female problem gamblers than in male problem gamblers. Also, the present study demonstrated a higher degree of over-indebtedness in women and higher scores on screening items related to financial consequences, and women surprisingly did not have a lower risk of substance-related problems than men. Thus, the present study in online problem gamblers demonstrates the large clinical need for assessment and treatment in female problem gamblers, and data indicating that the problem picture may be at least as severe – and possibly more severe with respect to comorbid psychological distress – compared to men. Prevention, clinical assessment and gambling market regulations need to take gender into account.

## Disclosure

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