



**Lokaverkefni til BS-prófs  
í Sálfræði**

**The effects of unemployment on gambling behaviour in Iceland:**  
Are gambling rates higher in unemployed populations?

Eilíf Magnusson Arge  
Steinþór Kristjánsson

**Júní 2015**



**HÁSKÓLI ÍSLANDS**  
**HEILBRIGÐISVÍSINDASVIÐ**

SÁLFRÆÐIDEILD

# **The effects of unemployment on gambling behaviour in Iceland:**

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Leiðbeinandi: Daníel Þór Ólason

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## **Abstract**

The aim of this study is to shed a light on the effects of employment status on gambling behaviour, with relation to problem gambling. The handful of previous studies on the subject have not found any consistent association between unemployment and gambling behaviour. However, none of these studies have had employment status in relation to gambling as their main focus. This lack of research in the field calls for further research and the study at hand was made in light of this paucity of previous research on the subject. The current study used a simple random sample of 1887 participants from Registers Iceland used in an Icelandic population survey in 2011. The age of the participants varied from 18-70 years with the mean age being 41.5 years (SD = 14.5 years). The data was gathered through telephone using a 180 question survey which covered several background variables and an extensive number of questions concerning gambling. The first objective was to see whether unemployment relates to gambling patterns. The second objective was to reveal whether EGM gambling is more prevalent among those who are unemployed than amongst those who are employed or in school. The third and final objective was to see whether problem gamblers were more likely to be unemployed than employed or in school. None of the objectives were fully supported in this study. Unemployment was found to have a quite weak and inconsistent association to gambling patterns. Significant effect sizes varied between gambling types from -0.05 to -0.07 while 7 of 12 gambling types showed a non-significant association with unemployment. The second objective was not supported as EGM gambling was not more prevalent among those unemployed. The third objective was also not supported as problem gambling was not found to be associated with employment status. The results indicate that unemployment is in little or no way associated with gambling patterns, that EGM gambling is not more prevalent among those unemployed and that problem gamblers are not more likely to be unemployed than employed or in school.

### **Author note**

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## Introduction

In the wake of the 2008 economic crisis in Iceland, many people lost their jobs and had great difficulties handling their expenses due to increasingly higher debts and the fall of the Icelandic currency. For a large proportion of Iceland's population, the recession that followed meant different times. People had to adapt to new ways of living, as the effects of the crisis were widespread. Job opportunities plunged and for some professions they went to as few as none. Rates of unemployment more than doubled and, needless to say, times were different (Hagstofa Íslands, 2015; Olason, Hayer, Brosowski & Meyer, I.P.). The current study examines the association between unemployment and gambling patterns.

### What is gambling?

Gambling is defined as an activity where a person risks something of value, usually money, to obtain something that is of greater value (American Psychiatric Association, 2013). Gambling can include a range of activities from small-scale events like playing a casual staked game of cards with friends to larger scale events like betting high amounts on sporting events or participating in a poker tournament. Most people are able to gamble without any real problems and are able to continue on with their daily routine afterwards. For others, however, gambling poses a bigger threat as a small percentage of the population experiences difficulties with their gambling behaviour, something known as problem gambling. By definition, this group suffers some adverse consequences of gambling yet do not meet criteria for pathological gambling. Problem gambling means that their gambling has become so time consuming that it has started to impact other aspects of their life. Problem gamblers tend to spend more time gambling than they had intended to initially, neglecting other aspects of their lives when gambling. Subsequently, problem gamblers also spend a great deal of time trying to win back what they've lost, a concept known as *chasing* (American Psychiatric Association, 2013). In addition to these symptoms, problem gamblers can also experience a wide range of mental issues, such as depression, anxiety and stress (Wardle & Seabury, 2013). A proportion of these individuals may then be diagnosed with a gambling disorder, a serious problem where the individual's gambling behaviour significantly interferes with his or her financial, psychological, social and vocational life. Gambling disorder can have dire consequences for the individual, resulting in bankruptcy, interpersonal conflict, job loss, marital breakdown or at worst, suicide. A gambling disorder is classified by the following

diagnostic criteria from the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5) seen in table 1 (American Psychiatric Association, 2013):

Table 1. Diagnostic criteria for a gambling disorder from the DSM-5

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A. Persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12-month period:
1. Needs to gamble with increasing amounts of money in order to achieve the desired excitement.
2. Is restless or irritable when attempting to cut down or stop gambling.
3. Has made repeated unsuccessful efforts to control, cut back, or stop gambling.
4. Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).
5. Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed).
6. After losing money gambling, often returns another day to get even (“chasing” one’s losses).
7. Lies to conceal the extent of involvement with gambling.
8. Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling.
9. Relies on others to provide money to relieve desperate financial situations caused by gambling.
B. The gambling behaviour is not better explained by a manic episode.

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(American Psychiatric Association, 2013).

When considering the DSM-5 diagnostic criteria, it lists nine items that describe symptoms of someone with a gambling disorder, although to be diagnosed with the disorder only four symptoms have to be met. The nine criteria describe patterns that are also commonly found in drug dependence, such as tolerance, compulsive use and withdrawal symptoms (becoming annoyed and preoccupied when attempting to reduce gambling). Pathological gamblers also tend to maintain cognitive distortions that both work to minimise the adverse effects of



gambling on their self-esteem and to motivate them to continue playing, despite past losses. In a relatively recent Vietnamese study on monozygotic twins, Xian and colleagues explained that pathological gambling symptoms were indeed positively correlated with higher scores on cognitive distortion items, even when controlling for shared environments during childhood as well as genetics (Xian et al., 2008). Among these cognitive distortions are illusion of control, selective memory (remembering wins rather than losses) and the gambler's fallacy: the falsely maintained belief that following a sequence of losses, hard earned winnings are sure to be around the corner (Toneatto, 1999).

### **Other diagnostic tools and criteria**

Among other criteria commonly used is the National Opinion Research Centre DSM Screen (NODS) that builds upon DSM-IV criteria. NODS was developed as a screening device for telephone use in identifying gambling problems. The NODS tool is composed of 17 items, which include lifetime and past-year questions. These items are then compared to DSM-IV criteria and given a total score on the scale of 0-10. A total score of 5 and above indicates a pathological gambler, while a total score of 3-4 indicates a problem gambler and a total score of 1-2 indicates a person at risk. The test-retest reliability of the NODS has proven to be very high or  $r = 0.99$  for lifetime items and  $r = 0.98$  for past-year items (Hodgins, 2004). Another tool widely used is the Problem Gambling Severity Index (PGSI). The PGSI is a tool used for measuring gambling problems among the general population. It consists of nine items, four of which assess problem gambling behaviours and five of which assess adverse consequences related to gambling behaviour (Holtgraves, 2008). Scores are given for each item on the scale of 0-3 with the total score ranging from 0-27. Scores of 8 or higher indicate a pathological gambler, scores of 3-7 indicate moderate-risk/potential problem gambler and scores of 1-2 indicate low risk (Currie, Hodgins & Casey, 2012). The test-retest reliability of the PGSI has been found to be moderately high or  $r = 0.78$  (Holtgraves, 2008). The PGSI has also been shown to be highly correlated ( $r = 0.83$ ) with scales relying on DSM criteria (Currie et al., 2012), such as the NODS  $r = 0.81$  (Walker & Blaszczynski, 2011).

### **General prevalence of gambling**

The gambling market in Iceland is rather small compared to other countries in Europe. Casinos and all forms of card games involving money are considered illegal, although electronic gaming machines (EGM's), bingo, scratch cards, lottery type games and different kinds of betting games are among those that are legal. The only legal way to run a gambling

operation in Iceland is with a licence from the Ministry of Justice and Ecclesiastical Affairs. These licences are only procurable if the profit from the lottery or gambling operation goes to a charity. An example of this is the University of Iceland's lottery that started in 1933. Its profit has, by law, been used to fund the running of the university, including construction of the university buildings (Alþingi, 1973). There are several other examples of gambling operations in Iceland, which are contributing to a variety of causes. One of these is the Icelandic sweepstakes and *Lottó* that has been running since 1952 – the profits generated from its earnings go to organising youth work, sports and helping the disabled (Íslensk getsþá, 2015). Then there is *Íslandsspil*, which organises many of the EGM's in Iceland. Beneficiaries from *Íslandsspil* gambling operations are the Icelandic Association for Search and Rescue, Red Cross Iceland and SÁÁ (Alþingi, 1994; Íslandsspil, 2015). Another example is the Icelandic monthly lottery, which since 1940 has helped and funded research on a number of diseases such as asthma, allergies and heart problems (Happdrætti SÍBS, 2015). There is also the DAS weekly lottery, which since 1954 has been funding retirement homes in Iceland (Happdrætti DAS, 2015). Beside donating money to charity, a lottery licence holder may also be required to fund research and measures to help with gambling prevention (Alþingi, 2005). The most popular gambling type or at least the one creating the biggest revenue are EGM's. Other popular gambling methods are the various lotteries, scratch cards and in some sense, the betting pools (Ólason & Gretarsson, 2009).

One of the earliest studies on gambling in Iceland dates back to the year 2000. The study included 1500 participants ranging from 16-75 years of age and showed that 0.6% had suffered from gambling addiction and that 0.7% had had problems due to gambling at some point in their lives (Ólason, 2007). The first epidemiological study with particular focus on gambling was conducted in 2005 in the form of a survey that included 3284 participants at the average age of 41.5 years. This study was the first of three more or less identical epidemiological studies on gambling performed yet in Iceland. The second study was conducted in 2007 and included 3009 participants. The third one was conducted in 2011 and included 1887 participants. The rate of problem gamblers, as measured by the PGSI, went up from 1.6% in 2005 to 2.5% in 2011. The rate of people getting a score of a gambling addiction on the PGSI also went up from 0.5% to 0.8% in the same period (Sigríður Karen Bárudóttir, 2005; Ólason, 2007; Ólason, 2012). Roughly 51% of the respondents in the 2011 study had experienced a reduction in their monthly salaries due to the economic crisis. The

reduction was 192.907 Icelandic krona (ISK) on average ( $SD = 224.787$ ). Only 7.1% responded that their salaries had increased with an average of 231.281 ISK ( $SD = 202.300$ ).

One interesting point in the 2007 and 2011 comparison was that although more than half of respondents estimated their income to be reduced, there weren't any great differences in estimated family income. In the study conducted in 2007, 20.74% of participants fell into the lowest family income category with less than 250.000 ISK per month. In 2011, the same category had gone up to 21.7% of participants. In 2007, 7.55% fell into the highest income category with more than million ISK per month and in 2011, this number had risen to 9.6%. These studies were conducted by the Icelandic Social Science Research Institute and funded by the Icelandic Ministry of the Interior. The results have been subject to several studies and research articles, but no study yet has looked at the association between the increase in gambling prevalence and the great increase in unemployment caused by the financial crisis in Iceland. The fact that studies were made both just before and after the economic crisis leaves open the opportunity to discover whether or not the crisis had an effect on the gambling market in Iceland (Ólason, 2007; Ólason, 2012).

Other Icelandic studies have been conducted that mainly focused on gambling habits in adolescents rather than adults. In 2004 a prevalence study was conducted in 25 primary schools in Reykjavík with 3511 pupils aged 13-15. The findings from this study showed that 93% of participants had gambled at least once in their lives (Olason, Skarphedinsson, Jonsdottir, Mikaelsson and Gretarsson, 2006). More recently there have also been studies conducted on internet gambling habits among adolescents in Iceland. Results from these studies show that more than half of all 13-18 year olds had gambled at least once in the previous 12 months and around 25% had at some point gambled on the Internet (Olason et al., 2011).

### **Demographics of gambling**

There are different games and gambling types that are popular within the various age groups. Older people are more likely to play the lottery, bingo and other slow gambling types, while younger people prefer fast-paced gambling - often with instant rewards - such as scratch cards, EGM's, internet games and poker. English, Danish and Icelandic studies show fairly similar results as there is a general tendency for gambling frequency to increase with younger age. It is particularly those under 30 who gamble the most and this age group also has the

highest risk of problem gambling (Ólason, 2007; Ólason, 2012; Bjerg Kommunikation, 2014; Wardle & Seabury, 2013).

There are undoubtedly several reasons for why we gamble, but there probably isn't very much rationality behind the participation in cash games such as lottery and scratch cards since the outcome is unpredictable and always determined by chance alone. According to Blalock, Just and Simon (2007) the so-called entertainment hypothesis explains participation in lottery games by stating that people simply buy tickets for the fun of it and as a way of creating excitement in their otherwise dull lives. On the other hand, people may see lotteries as a way out of poverty and therefore be willing to lower their wealth slightly more and spend a small amount on a - very small - chance to win the big prize. Using the *Reason for Gambling Questionnaire* an Australian study concluded that the main reasons people gamble are for the fun of it, the chance of winning a large sum of money and as a way of being sociable (Francis, Dowling, Jackson, Christensen & Wardle, 2014). In Denmark, the most common reasons for gambling were the chance to win some money, for the fun of it and because of the excitement (Bjerg Kommunikation, 2014). This is fairly consistent with results from the 2007 and 2011 study by Ólason (2007, 2012) in which the three most common reasons for gambling were to support a good cause, for the fun of it and to win some money. When looking at people's attitudes towards gambling, Ólason's study of 2011 shows that the younger generation are generally more inclined to have a more positive and laid-back attitude towards gambling with money. Respondents asked whether they agreed or disagreed (on a seven point scale) with 14 statements concerning attitudes towards gambling, seven positive and seven negative, on a translated version of The Attitudes Towards Gambling Scale (ATGS) (Orford, Griffiths, Wardle, Sproston & Erens, 2009). This included statements such as "*People should have the right to gamble whenever they want*" and "*It would be better if gambling was in all its forms banned*". The results showed that the 18-25 years old and 26-40 years old age groups scored on average highest with 37.73 and 36.88, respectively. The age groups of 41-55 averaged 31.52 and the oldest group of 56-70 years old averaged 28.38. Here higher scores indicate a more open and accepting attitude towards gambling and lower scores indicate a more strict and conservative attitude towards gambling (Ólason, 2012).

There have been a number of comparable studies in the neighbouring countries such as England and Denmark. The English gambling figures were collected in 2012 as a part of the annual health survey for England and included both children and adults (Wardle & Seabury,

2013). There were 8291 participants, excluding children, which were not relevant for the gambling part of the survey. The Danish data was obtained through a smaller population study in 2014, which included 1005 adult participants (Bjerg Kommunikation, 2014). As their Icelandic counterpart, both of these studies focused on the general demographics of gambling in their respective country and also tried to shed a light on problem gambling. One difference however, is that both the Danish and Icelandic studies were made specifically with gambling research in mind, whereas the English data are a small part of a national health survey. As a result, the English data is not as comprehensive, but nonetheless more than sufficient for the purpose of this study (Bjerg Kommunikation, 2014; Wardle & Seabury, 2013; Ólason, 2012). Within Europe the prevalence rates of past-year gambling varies somewhat between countries. In Denmark these rates were 77% for males and 73% for females (Bjerg Kommunikation, 2014), in England they were 68% for males and 61% for females (Wardle & Seabury, 2013) and in Iceland the prevalence rates for past-year gambling were 76.2% with 14.9% playing at least weekly. In Iceland the proportion of people that had gambled at least once in the previous 12 months had increased almost 8% in 2011 from being 68.4% in the 2005 (Ólason, 2012).

When it comes to different types of games, by far the most common cash game is lottery as more than half of all gamblers in the three countries had participated in the lottery once or more in the previous 12 months. In England, 50-55% of gamblers had bought lottery tickets at least once in the previous 12 months. In Denmark, the proportion was 51% and in Iceland 60% had participated in some kind of lottery game in the previous 12 months (Ólason, 2012; Bjerg Kommunikation, 2014; Wardle & Seabury, 2013). Although lottery games are by far the most popular type of gambling there are also other alternative gambling types in which a significant proportion of the population participates. Scratch tickets have been the second most popular gambling type in all the above-mentioned countries with an estimated 20% of the British, 31% of the Danish and 21% of the Icelandic population having bought a scratch ticket at least once in the previous 12 months. Examples of other popular gambling types are slot machines, sports betting and card games. Although many of the gambling types already presented tend to be very popular, some types of gambling tend to carry greater adverse effects than others. In Ólason's 2011 study, respondents were asked in which game, if any, they felt most dysphoric. When looking at these results it must be considered that the vast majority did not experience gambling dysphoria in any way, as only 84 of the total 1887

participants responded to this question. The results however, demonstrated that for these 84 respondents, EGM's proved to be the type of gambling mostly labelled as the cause of dysphoric feelings, such as anxiety, stress or depression. While 38.1% of the respondents mentioned EGM's, 22.1% said that poker card games were the most salient cause of their dysphoric feelings (Ólason, 2012).

In Ólason's 2007 and 2011 study as well as the 2012 British Health Survey the definition of problem gambling was a score on PGSI of 3 or higher. In the Danish population survey the NODS was used and a score of 5 or higher indicated a potential gambling problem. The NODS tool has been shown to correlate strongly with the PGSI, making it easy to compare results on problem gambling prevalence in different countries using different screening tests. Problem gambling rates in England were 7.1% for men and 2.1% for women, in Denmark these rates were 2.87% (the Danish numbers are 80% males but no numbers were given for both genders) and in Iceland the rates were 4.3 for men and 0.7 for females (Ólason, 2007, 2012; Walker & Blaszczynski 2011).

In the year 2012, a comprehensive report was published on the prevalence of problem gambling (Williams, Volberg & Stevens, 2012). Its main purpose was to standardise problem gambling prevalence rates in order to simplify the process of comparing different countries as well as comparing prevalence over time within each country. The researchers first collected a total of 202 studies conducted between 1975 and 2012, they then extracted relevant information from those studies and examined how they differed in their methodological approach, such as which instruments were used for measurement and the time frame used to assess problem gambling. Afterwards the data was combined to form standardised past-year prevalence rates of problem gambling for each of these studies. These rates covered a wide range from 0.5% at its lowest to 7.6% at its highest with the average prevalence rate for problem gambling at 2.3%. When looking at the distribution between continents, the lowest rates were usually seen in Europe, moderate rates tended to be in North America and Australia, while the highest rates were seen in Asia. Problem gambling prevalence rates also vary considerably across countries and are seen lowest in countries such as the Netherlands and Denmark where past-year rates of problem gambling are as low as 0.5%. Great Britain, South Korea, Iceland, Hungary, Norway, France along with New Zealand experience lower than average numbers in the prevalence rates of problem gambling. Sweden, Switzerland, Canada, Australia, United States, Estonia, Finland and Italy all have around average rates.

Whereas Belgium and Northern Ireland have above average prevalence rates it's in Singapore, Macau, Hong Kong and South Africa where these rates reach their highest, in fact as high as 7.6% in Hong Kong (Williams et al., 2012). Due to lack of research, there is very limited empirical knowledge of gambling in other countries such as the Czech Republic, Greece, Ireland, Poland and Portugal (Griffiths, 2009). Overall, the problem gambling prevalence seems to vary somewhat between countries with Iceland seemingly being somewhere in the middle to lower end of these rates.

If one were to try to explain the potential reasons for the differences in these numbers, there would undoubtedly be a substantial amount of factors that have to be taken into consideration. A possible trend is that higher rates of problem gambling are seen in less developed countries whereas lower rates are seen in more developed countries. One could speculate that European problem gambling rates, for example, would be lower than other places due to mostly well-established healthcare systems but as Griffiths (2009) points out, European rates are quite similar to those seen elsewhere.

When it comes to pathological gambling, as defined by the PGSI by a score of 8 or higher or the NODS tool by a score of 5 or higher, the numbers are also similar between countries. In England 0.6% of men and 0.1% of women scored 8 or higher on the PGSI in the 2012 national health survey. In Denmark the rates of people scoring 5 or higher on the NODS was 0.4% for women, 1.82% for men and 1.1% overall (Wardle & Seabury, 2013; Bjerg Kommunikation, 2014). In the Icelandic study from 2011 the gambling addiction prevalence was slightly lower with 1.6% of men and no woman scoring 8 or higher on the PGSI. The overall gambling addiction prevalence in Iceland was therefore determined to be around 0.8% (Ólason, 2012).

### **Risk factors for problem gambling**

Possible risk factors for problem gambling include a wide array of factors, starting from age or gender to impulsivity, accessibility, mental health as well as comorbidity with other problems, such as alcohol or drug abuse. However, here only relevant factors will be discussed to stay within the confines of this study. A study made in Sweden showed that men are more likely than women to gamble when it comes to sports pools and horse races, but women more likely when it comes to bingo and lottery. Adolescents (age 15-17) were also less likely than adults to participate in gambling and spending less money on gambling in general. But those adolescents that do gamble were more likely to be male than female and

are more likely than adults to gamble on particular games such as slot machines, arcade machines, card games and games of skill. The lifetime rates were similar for both males and females although males were considerably more likely to have gambled in the previous year. Males were also more likely to play certain types of games than women, such as sport pools, games of skill and gambling machines, whereas women were only equally or less likely to play every type of game. In fact, the study indicates that when controlling for other variables, males have a 271% higher risk of developing problem gambling behaviour at some point during their lifetime than females, indicating that gender is an important risk factor for problem gambling (Volberg, Abbott, Rönnberg & Munck, 2001).

Despite being less likely to gamble, adolescents were actually more likely than adults to have gambling-related problems (Volberg et al., 2001), this has also shown to be true in other more recent studies (Bastiani et al., 2013; Ólason, 2012). When it comes to youth gambling however, another study shows that 96.5% of 16-18 year old Icelandic students had gambled at least once during their lifetime and 79.1% had gambled at least once in the previous year (Ólason, Sigurdardottir & Smari, 2006). This indicates that a large proportion of youths start to gamble at an early age. It is therefore important to increase awareness in regards to adolescents and gambling as a number of factors such as alcohol use, smoking and illegal drug use have been associated with youth gambling (Purdie et al., 2011). As Ólason and colleagues have pointed out these studies indicate that gambling is relatively common and generally accepted as pastime behaviour among adolescents (Ólason et al., 2006). Volberg and colleagues also note that those at the age of 15-24 are at 151% higher risk than those of age 25 and older to experience lifetime problems with their gambling (Volberg et al., 2001). These studies demonstrate that gender and age may be important risk factors for problem gambling although some have debated age as a risk factor for pathological gambling (Wu, Lai & Tong, 2014).

A few studies have also shown a possible relationship between education levels and problem gambling. The trend is not conclusive, but those with less education tend to pursue gambling more often than those with higher forms of education. A Canadian study indicates that those with less than post-secondary education are far more likely to be at risk or be problem gamblers than those with post-secondary education (Marshall & Wynne, 2004). A more recent study done in Iceland reveals that those with secondary education (2.5%) are less likely to experience problems with their gambling than those with primary education (5.4%).



Those with post-secondary education (0.9%) are then even less likely to experience problems than their secondary education counterparts. Yet education level did not seem to have a linear relationship with gambling rates as those with secondary education generally gambled more than those with primary or post-secondary education (Ólason, 2012). This is consistent with other studies, one of which is a study done in Sweden where those with a university education (15.8%) were far less likely than those with primary (40.9%) or secondary education (43.4%) to experience lifetime problem and pathological gambling (Volberg et al., 2001). Another study made in Macau, a region of China, now generally considered the most densely populated area of the world, indicates that lower educational attainment significantly increases the risk of gambling disorder symptoms (Wu et al., 2014).

Another risk factor to consider related to socioeconomic status is household income, when comparing household income for 1385 participants in a study by Ólason, gambling rates tended to spread where 10.6% of those with a household income of 250 thousand ISK or less a month played weekly or more frequently. Of the same household income group, 24.5% played at least once a month. Even though playing less than the other four household income groups on both occasions, those with 250 thousand ISK or less a month were considerably more likely to experience problems with their gambling than those included in other household income groups. The study indicates that household income correlates negatively with gambling problems, where those with less income are more likely to have problems with their gambling. The only deviation is in the highest income group where those who have a household income of one million ISK or more experience more problems with their gambling than those in the 550 thousand to a million group (Ólason, 2012). What could cause lower income families to participate more in gambling than higher income families? Well, as Fong stated in his 2005 review, those with lower household income could be more vulnerable to develop gambling problems simply because for them it takes fewer losses for gambling problems to arise (Fong, 2005).

### **The negative effects of unemployment**

Even though gambling has been studied extensively there seem to be little empirical evidence on the relationship between gambling and unemployment. The lack of studies on these subjects is peculiar as unemployment is sure to have immense sociological as well as psychological impact on those experiencing it. The financial crisis and economic collapse had a huge impact on virtually everyone in Icelandic society. As corporate banks fell, thousands

lost their jobs and unemployment rates rose from being 2.3% in 2007 up to 7.1% in 2011 (Hagstofa Íslands, 2015). The crash undoubtedly had a negative financial and social impact on those affected. There seem to be several negative factors associated with unemployment including increased smoking and drinking habits. A Study by Mossakowski (2008) showed that involuntary long-term unemployment was a good predictor for increased alcohol consumption. Another longitudinal study on British men showed that those who had been unemployed for longer periods of time were more likely to smoke cigarettes and experience problems with their drinking (Montgomery, Cook, Bartley & Wadsworth, 1998).

Studies on unemployment and mental health have also shown that unemployment increases the risk of depression. A Lithuanian cross-sectional study with 429 unemployed participants showed a clear relationship between a prolonged period of unemployment and depression where those who had been unemployed for more than 12 months were significantly more at risk of being depressed (Stankunas, Kalediene, Starkuviene & Kapustinskiene, 2006). Comparable results were found in a meta-analysis with 324 studies and more than 450.000 participants which showed that unemployment had a negative effect on overall mental health with the effect size being Cohen's  $d = 0.55$ . The same study also showed a significant difference for unemployed people with several health features such as stress, anxiety, psychosomatic symptoms and self-esteem. In addition, the researchers pointed out that on average, 34% of the unemployed group had some psychological problems compared with only 16% of those currently employed (Paul & Moser, 2009).

Long-term unemployment also increases the risk of suicide. The results of a meta-analysis of Danish, Finnish and Swedish studies in which they did a follow up (average follow up time was 7.8 years) on employed versus unemployed people found the risk of suicide to be 1.70 times higher in people that had been experiencing long-term unemployment (Milner, Page & LaMontagne, 2013).

Although the subject has not been as thoroughly studied as mental health, there is some evidence that shows a trend towards unemployment having an effect on physical health. A Swedish ten year long longitudinal study consisting of 3500 individuals showed that physical health had an effect on becoming and staying unemployed, but also showed there was unequivocal evidence that long term unemployment had an overall negative effect on physical health (Korpi, 2001). An American meta-analysis, which included 104 studies on unemployment and health, concluded that unemployment had a significant negative effect on

both subjective and objective measures of physical health (McKee-Ryan, Song, Wanberg & Kinicki, 2005).

The overall mortality risk also seems to be increased for unemployed people. The results from a ten-year long Danish population study that included the total workforce in the age range of 20-64 showed that unemployed people had a higher mortality rate than those employed. These same results showed that suicide rates for unemployed people was 2.51 times higher and death from diseases was 2.26 times higher for unemployed people than for those in jobs. When controlling for variables such as age, gender and occupation the overall mortality rates were 1.58 times higher for those without jobs (Iversen, Andersen, Andersen, Christoffersen & Keiding, 1987). In a more recent meta-analysis of 42 studies performed by Roelfs, Shor, Davidson and Schwartz (2011) a variety of health risks were reviewed. The results were somewhat similar to the Danish population study and showed that men were at more risk than women and people early in their careers were also at more risk, but when controlled for age, gender and other variables the overall mortality risk was found to be 1.63 times higher for unemployed people than for those who had employment. Regarding the effects of unemployment duration, the previously mentioned meta-analysis by Paul and Moser concluded that short-term unemployment does not seem to involve as pronounced health risks but that the negative effects of unemployment on mental health became more evident as the duration of unemployment increased. This effect, however, was not linear, but showed there was a sharp increase in mental health symptoms during the first year of unemployment with a peak after nine months without a job. Following the initial year of unemployment the results showed a stabilisation, but after 30 months of unemployment there was another increase in mental health symptoms. The last results which showed a second increase should however be taken with a grain of salt as there were only 6 of the 324 studies included in the final duration studies (Paul & Moser, 2009).

Apart from mental and physical depletion, there is likely to also be a depletion of financial resources after an extended duration of unemployment. This further increases the coercion to find new ways of income and it therefore would be only natural to entertain the thought of gambling and winning the big prize that would solve all problems.

### **Unemployment and gambling**

One of very few studies on unemployment and gambling used a German population sample ( $n = 1586$ ) and looked at different types of gambling (German lottery games, TV-lotto, EGM's,

casinos and horse race betting). The results from this study showed a non-significant negative relationship between unemployment and gambling patterns as those who were out of jobs had a tendency to gamble less frequently in most gambling types except EGM's which was the only type of gambling on which unemployment had a positive effect (Albers & Hübl, 1997). Another study from Sweden, which also examined unemployment in relation to gambling, found a non-significant negative relationship between unemployment and lifetime prevalence of problem gambling. Nonetheless, there was a significant positive relationship between social welfare status and lifetime prevalence of problem gambling, with receiving social welfare payments being a risk factor for problem gambling (Volberg et al., 2001).

Two American studies focusing on drug and alcohol addicts also looked at unemployment in relation to gambling in drug addicts. The first one consisted of 220 participants currently in rehabilitation and showed a negative correlation ( $r = -0.15$ ,  $p = 0.02$ ) between unemployment and gambling (Feigelman, Kleinman, Lesieur, Millman & Lesser, 1995). The second American study consisted of 313 participants in rehabilitation and showed that pathological gamblers were significantly more likely to be unemployed than those who were not pathological gamblers ( $t = 11.09$ ,  $p < 0.001$ ) (Hall et al., 2000). The unemployment segment was only minor in these studies and it is thus difficult to generalise as the samples are hardly representative of their respective populations. Nonetheless, the researchers in both of these studies concluded that unemployment was significantly related to problem gambling even though the two studies showed a significant relationship in opposite directions. All the above-mentioned results most certainly call for further research on the subject in order to fully reveal the nature of unemployment as a risk factor for gambling and how it affects gambling patterns in general.

### **Objectives of the current study**

In the previously mentioned research on the relationship between unemployment and the increased risk of depression and overall mental health, there is no doubt the effects of unemployment are severe. However, the subject of gambling in relation to unemployment has only been looked at briefly in the literature and hasn't to our knowledge been studied in the previous ten years. Only a few studies have found any significant relationship between gambling and unemployment. However, those who are receiving social welfare payments are in all likelihood not currently employed, so it's perhaps possible to interpret the connection as a potential indication that those unemployed are more likely to be gamblers.

With the growth of the internet and mobile based games, the gambling market has changed dramatically since the turn of the millennia and due to the scarcity in relevant research, it would be interesting to see whether the same results are still as applicable as they were more than ten years ago. Another factor possibly contributing to a previously unseen gambling pattern is the Icelandic financial collapse which quite suddenly and over a comparatively short time left several thousand Icelanders unemployed. With all this in mind we will attempt to evaluate the idea that unemployment is associated with gambling and gambling habits. EGM gambling has been the only specific gambling type, which has shown a significant positive relationship with unemployment in previous research. Therefore, we will evaluate whether or not EGM gambling is more prevalent among those unemployed. Not only has gambling behaviour in general shown to be affected by employment status, but some studies have also shown associations between unemployment and problem gambling. Lastly, therefore, we shall evaluate whether or not those who are unemployed are more likely to be pathological gamblers than those employed or in school.

## Method

### Participants

The sample of 3227 was a simple random sample (SRS) from Registers Iceland (Þjóðskrá). In total, 173 people were unable to participate due to various reasons and the net sample was therefore 3054 participants. Of the 3054 participants there were 62% or 1887 people that agreed to participate. Gender ratio was quite suitable, even though males were slightly underrepresented at 47.1% with females at 52.9%. The mean age was 42.4 years and there was no significant age difference between males ( $m = 42.33$ ) and females ( $m = 42.48$ )  $t(1885) = 0.225$ ,  $p = 0.822$ . However, the youngest age group (18-25) was a bit harder to reach and as a result, this group was too small in proportion to the population. The respondents covered both the urban and rural parts of Iceland and there were only slight deviations in the sample - population proportion. Overall, the sample was very appropriate and adequate. To correct the deviations in the sample the results were weighted in accordance to information about gender, age and residence from *Statistics Iceland*. A full overview of gender, age and residence distribution of the sample in comparison to the population can be seen in table 2.

Table 2. Sample and population distribution divided by background factors

	Population count	Population proportion	Sample count	Sample proportion	Difference in proportion of population and sample
<b>Gender</b>					
Male	107.669	50.6%	888	47.1%	
Female	104.916	49.4%	999	52.9%	+/-3.5%
<b>Age group</b>					
18-25 years old	37.440	17.6%	299	15.8%	-1.8%
26-40 years old	67.086	31.5%	573	30.4%	-1.1%
41-55 years old	64.057	30.2%	592	31.4%	+1.2%
56-70 years old	44.002	20.7%	423	22.4%	+1.7%
<b>Area of residence</b>					
Reykjavík	81.681	38.4%	695	36.8%	-1.6%
Capital area*	55.669	26.2%	486	25.8%	-0.4%
Rural area	75.235	35.4%	706	37.4%	+2.0%
<b>Total</b>	212.585	100%	1.887	100%	

\*Capital area aside from Reykjavík.

### Measurement

The questionnaire included 180 questions, but the number of questions asked differed a lot depending on each participant's involvement in gambling. The questions covered a variety of subjects including background questions regarding age, gender, age and financial and employment status. On average each participant answered around 55 questions. Questions about gambling included, but were not limited to, attitudes, expenditure and involvement in gambling. For an exhaustive list of questions in the survey, see Ólason (2012).

### Procedure

The Social Science Research Institute gathered the data through a telephone survey in 2011. The participants were first informed about the study and consequently asked for consent in the beginning of each interview. If consent was given, the interviewer explained the gambling term before beginning. The participants were asked to answer all questions conscientiously and were also told that all answers were anonymous.

### Statistical analysis

All statistical analysis was carried out using the 20th edition of IBM's Statistical Package for Social Sciences (SPSS). For the analysis regarding unemployment and gambling all variables were merged and in that way made dichotomous. This meant that the employment variable was divided into *employed or in school* and *unemployed*. One could perhaps argue that due to the lack of income in both the *unemployed* and the *in school* groups, the two could be merged together. The rationale for not doing so is that although both situations can be financially difficult, those who are unemployed have usually not chosen to be in their situation. In addition, both students and those in jobs have an occupation that demands a great deal of time, whereas those who are unemployed do most likely have spare time on their hands.

Gambling prevalence was also divided into two groups. Firstly, the *gambled overall* variable was divided into two groups depending on whether the participant had participated in gambling the previous 12 months. The same was also done for all specific gambling types and the groups were divided into *has gambled at least once the last 12 months* and *has not gambled the last 12 months*. The same was done for the PGSI scale where those who scored less than 3 were merged into one group called *non-problem gamblers* and those who scored 3 or higher were similarly merged into one group to form the *problem gamblers* group.

In the first step of the analysis, descriptive statistics were gathered for all relevant variables. Independent sample *t*-test was used to check for differences in age between genders. As all necessary conditions were met, the Chi Square test was used to determine whether there were any significant associations between the categorical variables. As the tables were 2x2, the strength of the association was then calculated using Phi's correlation.



## Results

### Descriptive statistics

In total, 53.2% of all problem gamblers were between the age of 18-25 and 95.7% of problem gamblers were 55 years old or younger. In terms of gender, there were some differences as 4.3% of males were problem gamblers but only 0.7% of females. This resulted in a very large gender difference in the problem gambling category as 87.2% of all problem gamblers were male. Regarding depression in relation to employment status 23.1% of those unemployed had reported feeling depressed for at least two consecutive weeks the previous year whereas only 8.8% of those not unemployed had reported feeling the same way. This difference was significant  $X^2(1, n = 1845) = 43.21, p < 0.001$ .

### Gambling and unemployment

The results for objective one regarding the effects of unemployment on gambling habits are listed in table 3. There seems to be a small trend towards those employed being more likely to have participated in all gambling types at least once in the previous 12 months. However, the differences were small and this trend was quite inconclusive as it was only significant at  $\alpha < 0.05$  for 5 of 12 gambling types. Those employed or in school were more likely to have gambled at least once in the previous 12 months than the unemployed group as 76.9% of those employed or in school had gambled at least once in the previous 12 months whereas only 68.3% of those who were unemployed had done so. The difference was significant  $X^2(1, n = 1855) = 8.018, p = 0.005$ . The unemployed group did not have a significantly higher gambling prevalence rate for any of the 12 gambling types. It is therefore appropriate to say that the first objective is only partially supported as some differences in gambling patterns seemed to be associated with unemployment.

Table 3. Effect sizes for unemployment and participation in different types of gambling by employment status ( $n = 1855$ )

	Work/school	Unemployed	Effect size for unemployment	$X^2$ df = 1
Lotto	61.3%	54.2%	-0.05*	4.25*
EGM's	9.6%	8.8%	-0.01	0.16
Scratch tickets	21.0%	17.2%	-0.03	1.77
Sport pools	8.3%	3.5%	-0.06*	6.40*
Sport betting	5.2%	2.2%	-0.05*	3.92*
Card gambling	0.6%	0.4%	-0.01	0.05
Bet on skill	2.7%	1.3%	-0.03	1.52
Bingo	10.8%	7.5%	-0.04	2.34
Illegal casinos	1.0%	0.9%	-0.00	0.02
Monthly lotteries	28.6%	33.6%	0.04	2.42
Poker	12.7%	6.2%	-0.07**	8.12**
Internet	3.3%	3.1%	-0.00	0.03
Ice internet	17.4%	9.7%	-0.07**	8.67**

\*  $p < 0.05$ , \*\*  $p < 0.01$

### **EGM gambling and unemployment**

As for the second objective, those unemployed were not shown to be more likely than those not unemployed to gamble using EGM's as 9.6% of those not unemployed had gambled using an EGM in the previous 12 months whereas only 8.8% of those unemployed had done so. As can be seen in table 3 this difference was not significant  $X^2(1, n = 1855) = 0.158, p = 0.691$ . Objective two was therefore not supported by the data.

### **Problem gambling and unemployment**

In regard to the third objective, problem gamblers had a slightly higher tendency than non-problem gamblers to be unemployed (3.6% versus 2.2%). However, these differences were not significant  $X^2(1, n = 1855) = 1.568, p = 0.211$ . Objective three was therefore not supported by the data.

## **Discussion**

### **Descriptive statistics**

The aim of this study was to evaluate the effects of employment status on gambling behaviour and its relation to problem gambling. As is clear, roughly half of the problem gambling group were between the ages of 18 and 25. This finding indicates that most problem gamblers are considerably young despite being less likely to gamble. This is possibly due to gambling being generally more accepted as a pastime among adolescents and young adults (Olason et al., 2006). They might be easily caught up by the small chance of winning a large amount but fail to see the overwhelming odds of losing. They are also possibly more inclined to forget their daily routines when gambling in light of their preference for fast-paced gambling. Even though this is only speculation, this can be supported by previous research, which has shown young people's preference for fast-paced gambling. Older age groups were less likely to have problems with their gambling but only a small percentage (4.3%) of people over the age of 55 had experienced any problems with their gambling, which is also in line with previous research (Bjerg Kommunikation, 2014; Wardle & Seabury, 2013). Although only speculation, this might in turn be due to less thrill seeking in older age groups but also possibly a more moulded lifestyle patterns seen in older people where earnings are mostly spent on necessities and other important things. With the above-mentioned points in mind, this serves as an indication that younger people possibly have more problems with their gambling than older people.

Concerning gender differences, only 12.8% of problem gamblers were female, which indicates a significant difference in gender among those who experience problems with their gambling. This is also highlighted in males having a highly increased chance of developing problem gambling behaviour at some point during their lifetime. When looking at depression and its relation to employment status, there seemed to be a clear cut connection between depression and unemployment as those unemployed were much more likely to report feeling depressed than those not unemployed. This is in line with previous research, which has shown those who are unemployed to be in greater risk of depression and other mental health problems than those who are not, especially when it comes to prolonged periods of unemployment (Stankunas et al., 2006; Paul & Moser, 2009; Wardle & Seabury, 2013).

### **Gambling and unemployment**

The first and main objective regarding how unemployment was expected to affect gambling patterns was not supported with this study not being able to draw any generalizable conclusions. When looking at specific gambling types the effects of unemployment on gambling habits seem to vary from a very small negative to a very small positive effect size. Most gambling types did not show any significant association with unemployment. This serves as an indication that most gambling types do in fact have no relationship with unemployment. However, Lottó, sport pools, poker and gambling on Icelandic websites all showed a small but significant negative relationship with unemployment. This is an indication that these gambling types are slightly affected by unemployment. In addition, overall gambling habits were shown to be significantly and slightly negatively affected by unemployment, which means that those who were unemployed were less likely to participate in gambling than those who were employed or in school. This was somewhat expected as previous research has shown unemployment to have a low and inconsistent association with gambling patterns and indeed most previous research has failed to show any significant associations between unemployment and gambling patterns.

### **EGM and unemployment**

The second objective regarding the relationship between unemployment and EGM's was not supported as no significant relationship was found. It was a rather surprising finding since previous research has shown a small, but a very significant relationship between EGM's and unemployment. The reason for this deviation from previous research could possibly have something to do with the nature of EGM's or unemployment in Iceland but this is only vague speculation. The results however clearly indicate that there is no association between unemployment and EGM's.

### **Problem gambling and unemployment**

The third objective was to look into whether problem gamblers were more likely to be unemployed than employed or in school was not supported. Without any of this being significant, there was a tendency towards a slightly higher problem gambling prevalence in the unemployment group. The lack of significance was again unexpected, as previous research conducted has shown those unemployed to be more likely to experience problems with their gambling. However, the results regarding the third objective may very well be

affected by the current sample size. Although the sample included 1887 participant there were only 41 problem gamblers found in the entire sample.

### **Conclusion**

None of the results showed a significant association between gambling and unemployment and overall, the results did not pan out as expected. There are possibly several reasons for this, one of which could be that even though the unemployment rate was at a high point at the time of the study a very large part of those unemployed had only been so for a relatively short time. This could further indicate that a part of these unemployed individuals were possibly not truly experiencing the harsh financial consequences of unemployment and therefore were not really descriptive of the unemployment population. Regarding the problem gambling component there were some difficulties as to how generalizable the conclusions are. Although the sample was in many ways as methodologically well made as one could have wanted, it was perhaps not perfectly suited to evaluate the problem gambler population. Due to that fact that this sample was meant as a population study on gambling as a whole rather than a study aimed at problem gamblers specifically the numbers of problem gamblers was very limited. Any future research would benefit from a bigger sample with a greater focus on problem gamblers and their associations with various background variables.

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