Prevalence of Anxiety and Depression Symptoms Among Football Players at a Top Level in Iceland

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Foreword

Submitted in partial fulfillment of the requirements of the BSc Psychology degree, Reykjavík University, this thesis is presented in the style of an article for submission to a peer-reviewed journal.
Abstract

Recent studies have shown that prevalence of anxiety and depression symptoms are as similar among athletes, as they are among the general public. The aim of the study was to examine the prevalence of anxiety and depression symptoms among both male and female football players in Iceland. A survey was conducted through social media and a chain referral sampling technique was used to collect the biggest sample as possible. The instruments used were two self-report questionnaires, GAD-7 to measure severity of anxiety symptoms, and PHQ-9 to measure severity of depression, alongside 8 background questions. The participants were 103 players from 22 teams playing at the highest level in Iceland. The results of the study were that 37.9% of the players had mild to severe anxiety symptoms and 45.7% had mild to severe depression symptoms. There was no gender difference on GAD-7 and PHQ-9 scores, but younger participants experienced more anxiety and depression symptoms than older participants (25 years and older). Recently injured players did not report more symptoms of depression than those who had been injury free last months and training intensity did not increase anxiety. High self-confidence correlated with fewer symptoms of both anxiety and depression. These results indicate that anxiety and depression symptoms are frequent among football players in Iceland.

Keywords: football players, anxiety symptoms, depression symptoms,

Útdráttur

Nýlegar rannsóknir hafa sýnt fram á að algengi kviða- og þunglyndiseinkenna séu í það minnsta jafn algengar meðal þróttamanna og almennings. Rannsóknin var framkvæmd í þeim tilgangi að meta algengi kviða- og þunglyndiseinkenna hjá knattspyrnufólki í efstu deild á Íslandi. Könnun var lögð fyrir leikmenn í gegnum internetið og snjóboltaúrtak notað til að búa til eins stórt þýð og mágulegt var. Páttakendur voru 103 leikmenn úr 22 liðum í efstu deild karla og kvenna.

Niðurstöður rannsóknarinnar voru þær að 37.9% leikmanna voru með væg til alvarleg kviðaeinkenni og 45.7% voru með væg til alvarleg þunglyndiseinkenni. Ekki var munur á þunglyndis- og kviðaeinkennunum karla og kvenna, en yngri leikmennirnir sýndu bæði meiri þunglyndis- og kviðaeinkenni en eldri leikmennirnir. Leikmenn sem höfðu nýlega orðið fyrir erfiðum meðslum höfðu ekki meiri þunglyndiseinkenni en þeir sem höfðu ekki meiððið nýlegu og ekki fannst samband milli aðingaálags og kviðaeinkennna. Hinsvegar fannst samband á milli sjálfstrauts og kviða- og þunglyndiseinkennna. Út frá þessum niðurstöðum er hægt að álykta að þunglyndis- og kviðaeinkenni séu algeng meðal íslenskra knattspyrnumanna.

Lykilorð: Knattspyrnufólk, kviðaeinkenni, þunglyndiseinkenni
Prevalence of anxiety and depression within football players at a top level in Iceland

Regardless of numerous studies on the prevalence of mental disorders, there have not been many systematic attempts performed to describe the prevalence of these disorders in Europe (Wittchen & Jacobi, 2005). Community studies from 16 European countries were used to determine the prevalence of mental disorders in Europe. Over 150,000 people were established and the results estimated that 27% of the general population, aged 18-65 years old, had been affected by at least one mental disorder in the past 12 months (Wittchen & Jacobi, 2005). Anxiety and depression were among the most frequent disorders. Stefánsson and Líndal conducted a research in 2009 to estimate the prevalence of mental disorders in the Greater-Reykjavík area in Iceland. The lifetime prevalence of mental disorders in the adult population was 49.8%, thereof was prevalence of anxiety 14.4% and any mood disorder 13%. Gender difference in the prevalence of anxiety and depression has been largely examined. In general public, females are diagnosed with depression and anxiety disorders nearly twice as often as men (Schaal et al., 2011). Women suffer 6 to 10 times more often from eating disorders, such as anorexia, bulimia or binge eating. On the other hand, the males show superiority in externalizing disorders like alcohol and drug abuse. It is generally assumed that a lifetime prevalence of mental disorders increases with age, however, studies have shown that they typically occur with younger age groups (WHO, 2000; Kessler et al., 2007).

Few studies have been done on the prevalence of anxiety and depression among athletes. Most of the studies on mental illnesses in athletes have been performed on high school or college athletes, whom hardly reach the top level in their sport (Schaal et al., 2011). However, in recent years there has been an increase in this field of study. Vincent Gouttebarge, Haruhito Aoki and Gino Kerkhoffs did a research
PREVALENCE OF ANXIETY AND DEPRESSION SYMPTOMS AMONG FOOTBALL PLAYERS IN ICELAND

(2015c) on the symptoms of common mental disorders in current male professional football players. Their findings showed that out of 607 players, 38% had symptoms of anxiety or depression. They also presented another research in 2015, which addressed the prevalence of mental disorders in retired male professional football players. Among 219 retired professional football players, there were 35% with symptoms of either anxiety or depression. Forced retirement and career dissatisfaction were identified as potential causes for the mental disorders (Gouttebarge, Aoki, & Kerkhoffs, 2015a).

In 2015, Viðarsdóttir did a study on the prevalence of depression and anxiety among Icelandic professional athletes. Her results indicated that female athletes had higher scores on GAD-7 and PHQ-9 questionnaires than male athletes. Approximately 23.2% of the players had mild symptoms of anxiety, and 17.5% had moderately severe anxiety symptoms. Only 2% had severe symptoms of anxiety. In the depression symptoms there were 33.7% with mild symptoms, 2.8% with moderately severe and 3.7% with severe symptoms.

One of the most frustrating accompaniments for athletes in sports, are injuries. It is nearly inescapable for an athlete to go through his whole career without getting injured. Some athletes are lucky enough to get away with only minor injuries, while others have to deal with more serious injuries (Green & Weinberg, 2001). According to a study done in 2009, the proportion of athletes with ankle or knee injuries are higher in females, compared to male football players (Ristolainen, Heinonen, Waller, Kujala, & Kettunen, 2009). Severe injuries within professional football players are considered to have a major influence on both physical and psychosocial stressors (Gouttebarge, Frings-Dresen, & Sluiter, 2015b). Injuries, especially when serious, can cause traumatic emotional reactions within athletes. Most often these reactions are
based on the athlete’s perception of loss (e.g. mobility, playing time, career).

When athletes are experiencing these reactions they are more vulnerable to mental disorders like anxiety and depression (Ardern, 2012). Athletes do not only get these symptoms following the injuries or during the recovery, but also when they are returning to their sport after the injuries. The symptoms differ through the recovery phase, but Morrey et al (1999) proposed a U-shaped emotional response pattern where the players experience negative feelings immediately after the injuries, then they cease while the recovery progresses, and then they become prominent again when the athlete is almost ready to return (Morrey, Stuart, Smith, & Wiese-Bjornstal, 1999). Injuries can therefore, increase the development of anxiety symptoms and depression among athletes (Ardern, 2012).

There are quite a few studies that have shown that physical activity enhances well being (Fox, 1999; Scully, Kremer, Meade, Graham, & Dudgeon, 1998). However, are there any boundaries to how much each person can train? Does well being increase constantly no matter how hard the exercise is? Studies have shown that athletes can get negative symptoms from exercise dependence that can lead to lower qualities in life (Modoio et al., 2011). Exercise dependence can in a certain way, be compared to drug abuse. The exercise has produced tolerance in the athlete so they feel the need to train more to satisfy themselves in their own way (Hausenblas & Symons Downs, 2002). The symptoms from exercise dependence after an intense workout can be euphoria, an urge to increase the dose of exercise, difficulties in social circumstances or shifts in mood when unable to exercise (Modoio et al., 2011). These mood changes can be psychological disorders (e.g. anxiety or depression). Based on these results, exercise dependence can lead to the development of mental disorders and obsessions in athletes.
When athletes have good self-confidence it means that they have trust in their own abilities and judgment (Koivula, Hassmén, & Fallby, 2002). There is a relationship between self-confidence and competitive anxiety. High self-confidence can increase perception of control and decrease anxiety symptoms and the physiological arousal that players experience under high intensity (Hanton, Mellalieu, & Hall, 2004). Low self-confidence can decrease the perception of control, leading to less focus and concentration, which increases the odds of failure. Males have more often been reported to have higher self-confidence than women, being more secure about their physical appearance, body fat, coordination, sports competence and strength (Klomsten, Skaalvik, & Espnes, 2004).

The aim of the current study was to examine the prevalence of anxiety and depression symptoms among male and female football players in Iceland. Based on the above literature it was hypothesized that: 1) Females have more anxiety and depression symptoms than males; 2) The younger players (18-24 years old) would have more anxiety and depression symptoms than the older players (25 and older); 3) Players who trained more than 20 hours a week would show more symptoms of depression and anxiety than those who trained less than 20 hours a week; 4) Depressive symptoms would be more frequent among the players who had been seriously injured in the last six months than the players who had not; 5) Players with high self-confidence were more likely to have less anxiety symptoms than players with low self-confidence.

**Method**

**Participants**

The participants in this study were male and female football players in the highest division in Iceland called the ”Pepsi deildin”. Every player in the league was
offered to take part in the study through social media. Introduction, alongside, with informed consent was posted on a Facebook page (Appendix A), which only included the players of each team and they volunteered by answering the survey. Total of 103 players stated to answer the questionnaires, but 96 completed them. Thus, the final sample consisted of 96 players. Of these, 57 were females and 39 males. The age of the participants ranged from 18 to 38 years old, most of the players were aged between 18-24 years old and the fewest were 30 years or older.

**Measures**

The questionnaire addressed three different aspects. *Background information* about the players was gathered with questions concerning demographic information (Appendix B), such as, age, gender, how many hours the players trained each week, if the players had been seriously injured in the last six months (e.g. bone fractures, knee injuries or ankle injuries), how the relationship was between them and their coach, and finally assessment of self-confidence. The survey was created on a website called *Google Forms* which is an online software designed to create and publish online surveys.

*The severity of anxiety* was addressed with a 7-item standardized anxiety questionnaire, General Anxiety Disorder-7 (GAD-7), which was retrieved from Spitzer RL et al (2006). GAD-7 is a self-reported questionnaire that measures the severity of generalized anxiety disorder and anxiety symptoms in general (Appendix C). The scale uses a normative system of scoring, ranging from 0-3 points for each question and the score combined measures the severity of the anxiety. The caseness for GAD-7 is 8 points, but caseness stands for the threshold at which it is appropriate to initiate treatment. The seven questions in the questionnaire addressed the well-being of the players in the last 2 weeks, for example, if they had been worrying too
much, had trouble relaxing or felt afraid, as if something awful might happen.

Coefficients alpha indicated good internal consistency, $\alpha_{GAD-7} = .878$. Psychometric properties of GAD-7 had been tested, both in Icelandic and English, and the results were good internal validity, as well as criterion, construct, factorial, and procedural validity (Spitzer et al. 2006; Ingólfsdóttir, 2014).

The severity of depression was gathered with a standardized 9-item questionnaire called Patient Health Questionnaire-9 (PHQ-9), retrieved from Kroenke et al. (2001). The PHQ-9 is a multipurpose instrument for screening, diagnosing, monitoring and measuring the severity of depression (Appendix D). It has a normative scoring system like GAD-7. The scoring system in both GAD-7 and PHQ-9 contain four scores (0 = Not at all, 1 = Several days, 2 = Over half of the days, 3 = Nearly every day). PHQ-9 does also address the last two weeks of the participant’s well-being with questions concerning negative emotions, appetite, concentration and self-injury. The caseness for PHQ-9 is 10 points. Coefficients alpha indicated good internal consistency, $\alpha_{PHQ-9} = .866$. Kroenke et al. (2001) tested psychometric properties of the English version of PHQ-9, and Pálsdóttir (2007) tested the Icelandic version, and the results showed that PHQ-9 is a reliable and valid measure of depression severity.

Procedure

After an ethical application was approved from both Reykjavík University and National Bioethics Committee of Iceland; one player in each team was contacted and informed about the research. This player, who was either the captain of the team or a good friend of the researcher, was asked to post the survey into a closed Facebook group, which only contained players of his team. A total of 22 players were contacted and the survey was distributed into 22 groups.
The procedure was entirely computer directed where information sheet and informed consent was presented in the first section of the survey. The players were encouraged to answer the questions conscientiously, but were also reminded that they could refuse to answer questions that made them uncomfortable. Anxiety symptoms and depression were examined separately in all the participants with GAD-7 and PHQ-9 questionnaires, along with, background questions. To get as big sample as possible from a population of over 400 players, a chain referral sampling was used where, in this case, the players inspired other players to participate. The participation was voluntary and it was emphasized that they could withdraw their consent at any time during the participation. If the players experienced any inconvenience when answering the survey they were offered to contact a psychologist, free of charge. There was no funding for the participation in this study.

**Design and Data analysis**

Numerous variables were used in the study, the independent variables were; gender, age, training intensity, injuries and self-confidence. The dependent variables were; anxiety symptoms and depression symptoms. Independent t-test was used to test hypothesis 1, hypothesis 2 and hypothesis 3. At first, total scores on the GAD-7 and PHQ-9 were compared between the males and the females. Secondly, the scores were compared between the players who had been seriously injured in the last six months, to those who had not. Finally, the total scores of the age groups were compared and they differed in both anxiety and depression.

A one-way analysis of variance (ANOVA) was used for testing hypothesis 4 by comparing the means of the four categories of training hours each week. The assumptions for One-way ANOVA were tested by; using Shapiro-Wilk for normality and Levene’s test for homogeneity of variance. The dependent variable was on ratio
scale, the independent variables were categorical, independent groups and there was independence of observations. Lastly, was hypothesis 5, which was tested by using Kendall’s tau correlation.

Results

Anxiety

Table 1 provides means and standard deviations on the GAD-7 questionnaire ($M = 5.42, \ SD = 4.37$). The minimum value obtained was 0 and the maximum value was 19. A Kolmogorov-Smirnov test showed that in anxiety symptoms, the percentage of females, $D(93) = 0.15, p = .004$, and the males, $D(93) = 0.24, p = .000$, were both significantly non-normal.

Table 1

Descriptive statistics for anxiety symptoms

<table>
<thead>
<tr>
<th>Variables</th>
<th>$n$ (%)</th>
<th>$M (SD)$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>57 (59.4%)</td>
<td>5.28 (4.16)</td>
</tr>
<tr>
<td>Males</td>
<td>39 (40.6%)</td>
<td>4.28 (4.73)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-25 years old</td>
<td>57 (60%)</td>
<td>6.33 (4.55)</td>
</tr>
<tr>
<td>25 and older</td>
<td>38 (40%)</td>
<td>2.71 (3.21)</td>
</tr>
<tr>
<td><strong>Relationship</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bad</td>
<td>11 (11.5%)</td>
<td>8.27 (5.14)</td>
</tr>
<tr>
<td>Neither good or bad</td>
<td>20 (20.8%)</td>
<td>4.65 (3.51)</td>
</tr>
<tr>
<td>Good</td>
<td>65 (67.7%)</td>
<td>4.37 (4.33)</td>
</tr>
<tr>
<td><strong>Training intensity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 10 hours</td>
<td>10 (10.4%)</td>
<td>4.40 (4.88)</td>
</tr>
<tr>
<td>10-14 hours</td>
<td>56 (58.3%)</td>
<td>5.02 (4.45)</td>
</tr>
<tr>
<td>15-19 hours</td>
<td>26 (27.1%)</td>
<td>4.15 (3.37)</td>
</tr>
<tr>
<td>More than 20 hours</td>
<td>4 (4.2%)</td>
<td>8.75 (7.76)</td>
</tr>
<tr>
<td><strong>Injuries last six months</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>26 (27.1%)</td>
<td>5.92 (4.72)</td>
</tr>
<tr>
<td>No</td>
<td>70 (72.9%)</td>
<td>4.49 (4.25)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>96 (100%)</td>
<td>5.42 (4.37)</td>
</tr>
</tbody>
</table>
Independent samples t-test and analysis of variance (ANOVA) were robust to violations of the normality assumption.

Even though the females reported higher means ($M = 5.28, SD = 4.16$) than the males ($M = 4.28, SD = 4.73$), the difference was not significant $t(94) = 1.92, p = .277$. The age of the participants was split in two groups, 18-24 years old and 25 and older. The younger group had 62 players and there were 39 players in the older group. On average, the younger group experienced significantly greater anxiety symptoms than the older group did, $t(93) = 4.25, p = .000$.

Kendall’s tau correlation showed a significant negative relationship between anxiety symptoms and how good the player’s relationship was with their coach ($r = -.170, p = .000$) and ANOVA allowed the assumption that there was a significant effect of the relationship between a coach and his player, on anxiety symptoms $F(2,93) = 5.33, p = .022$. Post hoc comparisons using the Bonferroni test indicated that the mean score for bad relationship ($M = 8.27, SD = 5.13$) was significantly different than the good relationship ($M = 4.37, SD = 4.33$). However, the neither good or bad group did not significantly differ from the other two groups. There was not a difference between groups in training intensity and anxiety symptoms, $F(3,93) = 1.33, p = .267$.

Approximately 27% of the players had been seriously injured in the last six months but their anxiety symptoms did not differ from the players who had not been injured, $t(94) = -1.43, p = .156$. In self-confidence, the score ranged from 0-10, where, 0 was very low and 10 was very high. Around 75% of the players reported their self-confidence 5 or higher. The relationship between self-confidence and anxiety symptoms was observed with Kendall’s tau correlation. The results showed a negative correlation, which indicates that players with lower self-confidence were more likely
PREVALENCE OF ANXIETY AND DEPRESSION SYMPTOMS AMONG FOOTBALL PLAYERS IN ICELAND

to have anxiety symptoms than players with higher self-confidence ($r = -.365, p = .000$).

**Depression**

Table 2 illustrates the means and standard deviations on the PHQ-9 questionnaire. The minimum value obtained was 0 and the maximum value was 23. The distribution observed in the depression category was also a deviation from normality proven by Kolmogorov-Smirnov test for the females, $D(54) = 0.14, p = .013$, and the males, $D(39) = 0.23, p = .000$.

**Table 2**

*Descriptive statistics for depression symptoms*

<table>
<thead>
<tr>
<th>Variables</th>
<th>n (%)</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>56 (58.9%)</td>
<td>5.71 (4.70)</td>
</tr>
<tr>
<td>Males</td>
<td>39 (41.1%)</td>
<td>4.87 (5.43)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-25 years old</td>
<td>56 (59.6%)</td>
<td>6.52 (5.40)</td>
</tr>
<tr>
<td>25 and older</td>
<td>38 (40.4%)</td>
<td>3.68 (3.90)</td>
</tr>
<tr>
<td><strong>Relationship</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bad</td>
<td>12 (12.6%)</td>
<td>9.58 (6.04)</td>
</tr>
<tr>
<td>Neither good or bad</td>
<td>19 (20%)</td>
<td>4.63 (4.28)</td>
</tr>
<tr>
<td>Good</td>
<td>64 (67.4%)</td>
<td>4.80 (4.68)</td>
</tr>
<tr>
<td><strong>Training intensity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 10 hours</td>
<td>9 (9.5%)</td>
<td>3.89 (3.66)</td>
</tr>
<tr>
<td>10-14 hours</td>
<td>56 (58.9%)</td>
<td>5.82 (4.96)</td>
</tr>
<tr>
<td>15-19 hours</td>
<td>26 (27.4%)</td>
<td>4.08 (4.29)</td>
</tr>
<tr>
<td>More than 20 hours</td>
<td>4 (4.2%)</td>
<td>10.75 (9.03)</td>
</tr>
<tr>
<td><strong>Injuries last six months</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25 (26.3%)</td>
<td>5.92 (5.91)</td>
</tr>
<tr>
<td>No</td>
<td>70 (73.7%)</td>
<td>5.17 (4.67)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>95 (100%)</td>
<td>6.01 (5.16)</td>
</tr>
</tbody>
</table>
Independent samples t-test and analysis of variance (ANOVA) were robust to violations of the normality assumption. Likewise regarding the results of anxiety symptoms, the means for depression were higher within the females, ($M = 5.71, SD = 4.70$) than the males, ($M = 4.87, SD = 5.43$) but the difference was non-significant, $t(93) = .80, p = .422$.

There was a significant difference in the scores for the age groups and depression symptoms, $t(92) = 2.78, p = .007$. There was not a difference between the players who had been injured and the players who had not, $t(93) = -.64, p = .524$. The symptoms of depression, in relation to the relationship between a player and his coach, were examined with both Kendall’s tau correlation and ANOVA. The correlation showed a significant negative relationship between depression and how good the player’s relationship was with their coach ($r = -.161, p = .047$), and ANOVA showed a significant effect of the relationship between a coach and his players on symptoms of depression. The Bonferroni test indicated that the mean scores for bad relationship ($M = 9.58, SD = 6.03$), the neither good or bad relationship ($M = 4.63, SD = 4.28$) and the good relationship ($M = 4.80, SD = 4.68$) were all significantly different, $F(2,92) = 5.33, p = .006$, which indicates that depression symptoms increase if the relationship is bad between the player and his coach.

There was a marginally significant effect between the groups in training intensity and depression symptoms, $F(3, 91) = 2.67, p = .052$. A significant relationship was observed between self-confidence and depression ($r = -.299, p = .000$), stating that lower self-confidence correlates with more depression symptoms.

**The severity of the anxiety and depression symptoms**

Table 3 describes how frequent and severe anxiety and depression symptoms were among female and male football players in Iceland. In GAD-7 the possible range
PREVALENCE OF ANXIETY AND DEPRESSION SYMPTOMS AMONG FOOTBALL PLAYERS IN ICELAND

was from 0-21, and in PHQ-9 the range was from 0-27. Roughly 56% of the players had no symptoms of anxiety (0-4) and almost 47% didn’t experience any symptoms of depression (0-4). There were 35 players that had either mild or moderate anxiety symptoms, and 4 players had severe anxiety symptoms. In PHQ-9, there were 40 players that had either mild or moderate depression symptoms, 4 that had moderately severe and 3 who had severe depression symptoms. In conclusion, there were 37.9% that experienced any kind of anxiety symptoms, and 45.7% that experienced symptoms of depression.

Table 3

Severity categories for GAD-7 and PHQ-9

<table>
<thead>
<tr>
<th></th>
<th>GAD - 7</th>
<th></th>
<th>PHQ - 9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 – 9</td>
<td>10 - 14</td>
<td>15 - 21</td>
</tr>
<tr>
<td>Mild</td>
<td>22 (21.4%)</td>
<td>13 (12.6%)</td>
<td>4 (3.9%)</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td></td>
<td>Severe</td>
</tr>
</tbody>
</table>

A total of 21 players (20.4%) scored over 8 points on the GAD-7 which is cut off for caseness and 15 players (14.6%) scored over 10 points on the PHQ-9 which cut off for caseness.

Discussion

The aim of the current study was to observe the prevalence of anxiety and depression among football players at a top level in Iceland. The symptoms of anxiety and depression were examined in relation to gender, age, training intensity, injuries and self-confidence. The main finding of the present study was that the prevalence of anxiety symptoms, ranging from mild to severe, was 37.9% in anxiety symptoms and
45.7% in depression. Most of the players had mild symptoms. In anxiety there were 20.4% that scored over the caseness for GAD-7, and 14.6% that scored over caseness for PHQ-9. Caseness is the threshold, which it is appropriate to initiate treatment. These results indicate that 36 players out of 103 need psychological treatment for either depression or anxiety symptoms.

The first hypothesis, that females would experience more symptoms of anxiety and depression then males, was rejected. This hypothesis was based on a fact from Schaal et al. (2011) that females were diagnosed with depression and anxiety almost twice as often as men. In the current study, the females reported higher means in both anxiety symptoms and depression, but the difference between the genders was not significant. These results were consistent with the results of an earlier study performed by Viðarsdóttir in 2015, where the females scored higher than the males on GAD-7 and PHQ-9 but the difference was not significant. What Viðarsdóttir observed in her study was the prevalence of depression and anxiety within Icelandic professional ball sports athletes (handball, football and basketball). Of the professional athletes, only 6.5% were over caseness in depression and 23.1% in anxiety symptoms, when, 20.4% of the players playing in Iceland were over caseness in anxiety symptoms and 14.6% in depression. These results indicate that Icelandic football players experience more severe depressive symptoms than Icelandic professional ball sports athletes, but prevalence of anxiety symptoms are similar between those two groups of athletes.

The results supported hypothesis 2, where the age groups differed significantly in both depression and anxiety symptoms. The World Health Organization pointed out, in a study conducted in 2000 that it is more common that mental disorders have early-onsets and people often wait for decades before they get treatment. Kessler et al.
(2007) argued that methodological factors, such as age-related differential recall or differential willingness to disclose the disorders could play a big role in the occurrence of mental disorders within young people. Therefore, it is important that young athletes are informed about mental disorders and the importance of treatment to prevent the development of the disorders and the onset of secondary disorders.

Hypothesis 3 stated that the players that trained more than 20 hours a week would have more anxiety and depression symptoms than the players who trained less than 20 hours a week. Hypothesis 3 was rejected. There was no difference in anxiety symptoms between the groups, although, there was a marginally significant difference between the groups in depression. Most of the players that took part in the study trained between 10-19 hours a week. There were only 9 players that trained less than 10 hours, and 4 that trained more than 20 hours. Therefore, the results between the groups are not very consistent but it was interesting how the players with the highest training intensity had the highest means, and the mean difference was substantial. These results support, partially, the findings of Modoio et al. (2011) where it is explained that exercise dependence can increase symptoms of mood disorders.

In the current study, the players were asked whether they had received serious injuries in the last six months, such as, bone fractures, knee injuries or ankle injuries. Hypothesis 4 was that the players who had been seriously injured in the last six months would be more depressed than the players who had not gotten seriously injured in the last six months. Hypothesis 4 was rejected, but the difference was not significant in depression between the groups, which, indicates that severely injured players in Iceland do not experience more depression than the players who have not been injured. These findings are not consistent with Gouttebarge, Frings-Dresen, & Sluiter (2015), which argued that players who had been severely injured in their
Hypothesis 5 concerned the self-confidence of the players in relation with anxiety symptoms. It was hypothesized that players with high self-confidence would experience fewer anxiety symptoms than the players with low self-confidence. The results of a Kendall’s tau correlation showed a highly significant negative relationship, which indicates that when self-confidence decreases, the anxiety symptoms increase. These results are consistent with a study by Hanton, Mellalieu & Hall (2004) as their results showed that high self-confidence increases the perception of control and reduces anxiety symptoms. Players with low self-confidence lose the perception of control, have problems with focus and concentration, and become more nervous under high intensity and pressure.

The relationship between the players and their coach was also examined but it was not included in the hypothesis due to the little research that has been done in that field. However, the results showed that there was a difference between the players who had a good relationship with their coach and the players that had a bad relationship. This indicates that the worse the relationship is between the player and his coach the more anxiety and depression symptoms. Therefore, it is essential that coaches try to have as good relationship as possible with their players, but it can be difficult to keep everyone happy.

This study had some limitations associated with the online survey method. Firstly, it is hard to guarantee that only current players of the teams answered the questions, when, sometimes players that used to be in the team can still be in the Facebook group or staff members of the team. Secondly, the size of the sample was not as high as expected, especially considering that there are around 440 players in the
22 teams that were contacted. Therefore, it remains doubtful whether these players can be representatives for the population of football players in Iceland and the generalizability of the findings are limited.

In conclusion, the results of this study showed that prevalence of anxiety symptoms among football players in Iceland are 37.9% and the prevalence of depression symptoms are 45.7%. Additionally, 20.4% of the players should be treated by a psychologist for anxiety symptoms, and 14.6% for depression symptoms. Compared to the general adult population in Iceland the depression is similar to the football players, but the anxiety is higher in the athletes. The strength of the study is that it investigated an important subject in Icelandic sports community and opens up discussions about mental disorders in athletes even more, which has been a taboo in recent years. The researcher hopes that this study raises self-awareness of footballers, and other athletes in Iceland about potential mental disorders related to high-level athletes. Since the prevalence of mental disorders are more common among athletes than people think, a future research should initially test what mental disorders are most common among football players and implementing evidence-based interventions to improve the mental health of players should be made a priority.
References


Prevalence of Anxiety and Depression Symptoms Among Football Players in Iceland


PREVALENCE OF ANXIETY AND DEPRESSION SYMPTOMS AMONG FOOTBALL PLAYERS IN ICELAND


Dear participant

You are invited to take part in a research about the prevalence of anxiety and depression among football players in Iceland. The research is a part of BSc project that Emil Pálsson (researcher) is working on. He studies psychology in the University of Reykjavik. The guarantor of the research is Hafrún Kristjánsdóttir, phone: 599-6389, email: hafrunk@ru.is.

The aim of this study is to evaluate the prevalence of depression and anxiety within football players who are playing at a top level in Iceland. Three questionnaires will be distributed, one concerning depression, one concerning anxiety and one concerning background.

The researcher does not think that there is any risk involved in the participation of this research other than stress in answering the questionnaires. Participants are encouraged to answer the questions conscientiously, however, they can refuse to answer questions that make them uncomfortable. If the participant experiences any distress, while, or after the participation he can contact Linda Bára Lýðsdóttir who is a psychologist, free of charge. Phone: 8253706, email: lindabl@landspitali.is.

The prevalence of anxiety symptoms, ranging from mild to severe, was 37.9% and the prevalence of depression symptoms, also ranging from mild to severe, was 45.7%.

Your participation is an important factor in gathering knowledge about mental disorders within athletes in Iceland but you are not bound in any way to take part in this research. Your answers will be completely anonymous and there is no way to trace them back to you. The data will be kept in a locked computer while the research is performed and all research documents will be deleted afterwards. The National Bioethics committee of Iceland has approved this research.

Best regards,

Emil Pálsson, email: emilp13@ru.is
Hafrún Kristjánsdóttir, email: hafrunk@ru.is
PREVALENCE OF ANXIETY AND DEPRESSION SYMPTOMS AMONG FOOTBALL PLAYERS IN ICELAND

Kynningarbréf um rannsóknina
Algengi þunglyndis og kviðaeinkenna meðal leikmannna í Pepsí deild karla og kvenna

Ágæti þátttakandi

Þær er boðið að taka þátt í rannsókn á algengi þunglyndis og kviðaeinkenna meðal leikmannna í Pepsí deild karla og kvenna. Rannsóknin er hlutu af BSc verkefni Emils Pálssonar (rannsakandi) við sálfræðisvið Háskólsins í Reykjavík. Ábyrgðarmaður rannsóknarinnar er Dr. Hafrún Kristjánsdóttir, sálfræðingur og lektor við Háskólan í Reykjavík, sími 894-1713. Netfang hafunkr@ru.is


Rannsakandi telur enga áhættu fylgja þátttökunni aðra en að svara þeim þremur spurningalistum sem lagðir eru fyrir. Þátttakendur eru hvattir til að svara hverri spurningu samvirkusamlega en þeir geta neitaað að svara einstökum spurningum, eða spurningalistum sem valdið hafa ofægindum. Ef þátttakandi finnur fyrir vanlíðan við þátttöku í rannsókninni getur hann haft samband við Lindu Báru Lýðsdóttur sálfræðing, sími: 8253706, netfang: lindabl@landspitali.is sér að kostnaðarlausu.

Þátttaka þín er mikilvægt framlag til frekari þekkingaröflun á andlegum sjúkdómmum innan íþróttar í Íslandi, en þér ber að sjálföggðu engin skylda til þátttöku í rannsóknini.

Algengi kviðaeinkenna, frá vægum einkennum til alvarlega einkenna, voru 37.9% og algengi þunglyndiseinkenna, einnig frá vægum einkennum til alvarlega einkenna, voru 45.7%.

Á meðan rannsókn stendur verða gögnin varðveit í læstri möppu og aðeins ábyrgðarmaður og rannsakandi hafa aðgang að. Að lokinni úrvinnslu verður öllum rannsóknargögnnum eytt. Visindasiðanefnd hefur gefið leyfi fyrir þessari rannsókn.

Í vonum góðar undirtektir,

Emil Pálsson, nemandi, við Háskólan í Reykjavík
Simi: 8490615, netfang: emilp13@ru.is
Hafrún Kristjánsdóttir, sálfræðingur, við Háskólan í Reykjavík
Simi: 894-1713, netfang: hafunkr@ru.is
Appendix B

Background information

1. **Hvert er kyn þitt? / What’s your Gender?**
   □ Karl / Male
   □ Kona / Female
   □ Annað / Other

2. **Hvaða aldursbíli tilheyrir þú? / What’s your Age?**
   □ 18 – 24 ára / 18 – 24 years old
   □ 25 – 31 árs / 25 – 31 years old
   □ 32 – 38 ára / 32 – 38 years old
   □ 39 – 46 ára / 39 – 46 years old
   □ Eldri en 30 ára / Older than 30 years old

3. **Er það markmið þitt eða ekki að fara í atvinnumennsku? / Is it your goal or not to play professional football?**
   □ Ég hef það markmið að fara í atvinnumennsku í fótbolta / It’s my goal to play professional football
   □ Ég hef ekki það markmið að fara í atvinnumennsku í fótbolta / It’s not my goal to play professional football

4. **Hversu marga klukkutíma æfir þú á viku? / How many hours do you train every week?**
   □ Færri en 10 klukkutíma / Less than 10 hours
   □ 10 – 14 klukkutíma / 10 – 14 hours
   □ 15 – 19 klukkutíma / 14 – 19 hours
   □ Fleiri en 20 klukkutíma / More than 20 hours

5. **Hefur þú eða hefur þú ekki orðið fyrir alvarlegum meiðslum undanfarna 6 mánuði (t.d. beinbrot, hné - eða ökklameiðsl)? / Have you or have you not gotten serious injuries in the last 6 months (e.g. bone fractures, knee injuries or ankle injuries)?**
   □ Ég hef orðið fyrir meiðslum sem héldu mér frá keppni í 6 mánuði eða lengur / I have gotten injured for 6 months or more
   □ Ég hef ekki orðið fyrir meiðslum sem héldu mér frá keppni í 6 mánuði eða lengur / I have not gotten injured for 6 months or more
6. Ertu sammála eða ósammála því að aðgangur leikmanna að sálfræðing ætti að vera sambærilegur og aðgangur leikmanna að sjúkraþjálfara. / Do you agree or disagree that players should have similar access to psychologist as they have to physiotherapist.

☐ Ég er sammála því að aðgangur leikmanna að sálfræðing ætti að vera sambærilegur og aðgangur leikmanna að sjúkraþjálfara / I agree that players should have similar access to psychologist as they have to physiotherapist.

☐ Ég er ósammála því að aðgangur leikmanna að sálfræðing ætti að vera sambærilegur og aðgangur leikmanna að sjúkraþjálfara / I disagree that players should have similar access to psychologist as they have to physiotherapist.

7. Hversu góðu eða slæmu sambandi telur þú þig vera við þjálfarann þinn? / How good or bad is the relationship between you and your coach?

☐ Mjög slæmu sambandi / Very bad relationship

☐ Slæmu sambandi / Bad relationship

☐ Hvorki slæmu nè góðu sambandi / Neither bad or good

☐ Góðu sambandi / Good relationship

☐ Mjög góðu sambandi / Very good relationship

8. Hvar á skalanum 0-10 (þar sem 0 er mjög litið og 10 er mjög mikið) meturðu eigið sjálfþyggði? / Where on a scale 0-10 (where 0 is very low and 10 is very high) do you assess your own self-confidence?

Mjög litið / 0 1 2 3 4 5 6 7 8 9 10 Mjög mikið / Very low

Very high
<table>
<thead>
<tr>
<th></th>
<th>Aldrei/Not at all (0)</th>
<th>Nokkra daga/Several days (1)</th>
<th>Oftar en helming daganna/Over half of the days(2)</th>
<th>Næstum daglega/Nearly every day (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Verið spennt/-ur á taugum, kvíðin/-n eða hengd/-ur upp á þrát / Feeling nervous, anxious, or on edge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Ekki tekist að bæga frá þer áhyggjum eða hafa stjórn á þeim / Not being able to stop or control worrying</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Haft of miklar áhyggjur af ýmsum hlutum / Worrying too much about different things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Átt erfitt með að slaka á / Trouble relaxing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Verið svo eirdarlaus að þú áttir erfitt með að sitja kyrr / Being so restless that it’s hard to sit still</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Orðið gróm/gramur eða pirruð/pirraður af minnsta tilefni / Becoming easily annoyed or irritable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Verið hrædd/-ur eins og eitthvað hræðilegt gæti gerst / Feeling afraid as if something awful might happen</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix D

**PHQ-9**

**Hversu oft hefur eftirfarandi vandamál truflað þig síðastiðnar tvær vikur?**

Over the past 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Alls ekki/ Not at all</th>
<th>Nokkra daga/ Several days</th>
<th>Meira en helming timans/ More than half the days</th>
<th>Nánast alla daga/ Nearly Every Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Litill áhugi eða gleði við að gera hluti / Little interest or pleasure in doing things</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Verið niðurdregin/n dapur/döpur eða vonlaus / Feeling down, depressed or hopeless</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Átt erfitt með að sofna eða sófa alla nóttina / Trouble falling asleep, staying asleep, or sleeping too much</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Þreyta og orkuleysir/ Feeling tired or having little energy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Lystarleysir eða ofát/ Poor appetite or overeating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Liðið illa með sjálfan þig eða fundist að þér hafi mistekist eða ekki staðið þig í stykkinu gagnvart sjálfum þér eða fjölskyldu þinni / Feeling bad about yourself – or that you’re a failure or have let yourself or your family down</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>g. Erfiðoleikar með einbeitingu við t.d. að lesa blöðin eða horfa á sjónvarp / Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>h. Hreyft þig eða taladal svo hægt að aðrir hafa tekið eftir því? Eða hún gagnstæða – verið svo eirðarlaus eða óróleg(ur) að þú hreyfir þig mikil ðeira en venjulega / Moving or speaking so slowly that other people could have noticed. Or, the opposite – being so fidgety or restless that you have been moving around a lot more than usual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Hugsað um að það væri betra að þú værir dайн(n) eða hugsað um að skáða þig á einhvern hátt / Thoughts that you would be better off dead or of hurting yourself in some way</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>