Associations between retirement reasons, chronic pain, athletic identity, and depressive symptoms among former professional footballers

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Abstract

Background: Retirement from professional sport has been recognised as a major psychological stressor, and there is a need to identify factors that increase the risk of mental health problems after career termination. The current study examined associations between career-ending injury, chronic pain, athletic identity and depressive symptomology in retired professional footballers. Methods: A cross-sectional study was performed with 307 retired male footballers who had played within a professional United Kingdom league. Participants completed measures of depressive symptoms (Short Depression-Happiness Scale), chronic pain (Pain Intensity Numerical Rating Scale), and athletic identity (Athletic Identity Measurement Scale), and reported their reasons for retirement. Results: A total of 48 participants (16%) met the cut-off score for possible cases of clinically-relevant depression. These participants were more recently retired, and had higher athletic identity than those without depressive symptoms. Former players with depressive symptoms were more likely to cite injury as a retirement reason, and report higher levels of ongoing injury-related pain. Multivariate logistic regression revealed that presence of depressive symptoms was independently associated with retirement through injury (OR = 3.44; 95% CI = 1.39, 8.51), higher pain levels (OR = 1.38; 95% CI = 1.02, 1.86), and increased athletic identity (OR = 1.28; 95% CI = 1.14, 1.44). Conclusions: Career-ending injury is strongly associated with higher odds of depressive symptomology during retirement, while experiencing chronic pain, and maintaining a high sense of athletic identity, are additional potential contributors.

Key words: football; retirement; depression; injury; pain; athletic identity
Introduction

According to the Professional Footballers Association (2015) as many as 900 professional players retire each year from leagues in England. Retirement from sport has been recognised as a significant career transition that is associated with decreased psychological wellbeing for some athletes (Wylleman, Alfermann, & Lavallee, 2004). This has been particularly noted when retirement is perceived as involuntary, that is forced, for example due to injury, rather than through personal choice (Kuettel, Boyle, & Schmid, 2017).

Recent studies in retired footballers have highlighted the prevalence of psychological problems, and revealed the uncertainty over the role of injury as a contributor. A preliminary study including an international sample of 104 retired professional footballers found that symptoms of anxiety or depression were reported by 39% of respondents (Gouttebarge, Frings-Dresen, & Sluiter, 2015). A subsequent study of 219 former players across 11 countries had similar results with 35% reporting anxious or depressed symptoms (Gouttebarge, Aoki, & Kerkhoffs, 2016). However, presence of these symptoms was not associated with the severity of previous injuries, or the number of surgeries undergone.

Another study included 220 retired European footballers as part of a sample of 602 former elite athletes across five sports to examine the relationship between the presence of osteoarthritis and symptoms of mental disorders (Schuring et al., 2016). Overall there was an association between osteoarthritis and distress, sleep problems, and adverse alcohol use, but not anxiety/depression. Among the footballers, no associations were observed between osteoarthritis and any of the symptoms measured. A more pertinent factor may be the experience of chronic pain rather than the history of injury or presence of musculoskeletal conditions per se. A strong association has been demonstrated between depression and pain...
symptoms in general populations (Ohayon & Schatzberg, 2003; Ohayon & Schatzberg, 2010). An earlier study of the long-term health of 284 former professional footballers in the United Kingdom revealed that 49% had been diagnosed with osteoarthritis, and 28% took pain medication for football injuries (Turner, Barlow, & Heathcote-Elliott, 2000). Pain or discomfort was frequently reported across the sample, but among significantly more former players with osteoarthritis (89%) than those without (60%). Similarly, symptoms of anxiety/depression were reported by more participants with osteoarthritis (37%), than by those without arthritis (19%), although the relationship between pain and psychological symptoms was not examined. These results suggest that chronic pain may be an important variable to examine in the attempt to further understanding of the factors contributing to psychological health after retirement.

Although not investigated in footballers, research in other sports has suggested that athletic identity is an important construct associated with psychological wellbeing after retirement. Athletic identity represents an element of self-concept among sportspeople and refers to the degree to which individuals identify with their athlete role, and includes perceived values and social networks (Brewer, Van Raalte, & Linder, 1993). Longitudinal research with elite athletes suggests that athletic identity generally declines towards retirement, and is lower among former athletes who experienced a positive adjustment to career termination (Martin, Fogarty, & Albion, 2014). However, where careers were terminated involuntarily, those displaying high levels of athletic identity were more likely to experience negative reactions including dissatisfaction, depression, and loneliness (Alfermann, Stambulova, & Zemaityte, 2004; Lally, 2007).
The current study aimed to increase understanding of the determinants of depressive symptoms among male retired professional footballers in the United Kingdom by specifically examining the relationship with retirement reasons, chronic pain, and athletic identity. Based on the existing literature in football and other sports, it was hypothesised that participants reporting depressive symptoms would be more likely to have retired for injury-related reasons, experience chronic pain, and have high levels of athletic identity.

Methods

Design and participants

Ethical approval was provided by Loughborough University Ethics Approvals (Human Participants) Sub-Committee (SSEHS-28415) to perform a cross-sectional study administered online of former professional male footballers. Access to participants through official player organisations was not possible, making a formal sampling frame unavailable for recruitment. Therefore social media sources were used to circulate links to the study information to former players using purposive and snowball sampling. To be eligible for inclusion, participants had to be male, 18 years old or over, and have previously competed in a professional football league in the United Kingdom. Participation was voluntary with no incentives provided.

Measures

The online questionnaire was administered via Bristol Online Survey software, with participants providing informed consent online and completing measures anonymously.
Participant information collected was current age, duration of professional football career, level of play (highest league played), year of retirement, and reasons for retirement.

Depressive symptoms were assessed through the Short Depression-Happiness Scale (SDHS; Joseph, Linley, & Harwood, 2004). This measure asks participants to judge their feelings over the past seven days with reference to six items representing depression (e.g. ‘I felt that life was meaningless’) and happiness (e.g. ‘I felt happy’), scored on a four-point (0-3) Likert scale. Total possible scores range from 0 to 18, with lower scores indicating greater depression. The SDHS has shown acceptable levels of internal consistency (Cronbach’s $\alpha = 0.77$ to 0.92) and test-retest reliability ($r = 0.68$) over two weeks (Joseph et al., 2004).

Convergent validity was demonstrated with correlations of 0.68 with the Beck Depression Inventory (Beck, Rush, Shaw, & Emery, 1978), and 0.74 with the depression scale of the Crown-Crisp Experiential Index (Crown & Crisp, 1979). Based on a comparison of scores on the Beck Depression Inventory (Beck et al., 1978), a total below 10 on the SDHS is recommended as the cut-off indicating possible cases of clinically relevant depression (Joseph et al., 2004). Cronbach’s alpha in the current study was 0.87.

Pain levels were assessed with the 11-point pain intensity numerical rating scale (PI-NRS; Farrar, Young, LaMoreaux, Werth, & Poole, 2001). Respondents were asked to report the intensity of any pain attributable to past football injuries on a scale anchored by “no pain” (score of 0) and “worst imaginable pain” (score of 10). High test-retest reliability ($r = 0.96$) and construct validity ($r = 0.86$) has been reported for the PI-NRS (Hawker, Mian, Kendzerska, & French, 2011).

Athletic identity was assessed via the 10-item Athletic Identity Measurement Scale (AIMS; Brewer et al., 1993). Respondents indicate their level of agreement with ten
statements on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The total score ranges from 10 to 50, with higher scores indicating stronger identification with the athletic role. Sound psychometric properties were demonstrated of the AIMS (Brewer et al., 1993), with good internal consistency (Cronbach \( \alpha = 0.93 \)), test-retest reliability (\( r = 0.89 \)), and convergent validity (\( r = 0.83 \)) against a measure of perceived importance of sport competence (Fox & Corbin, 1989). Cronbach’s alpha in the current study was 0.90.

Reasons for retirement were ascertained by asking participants to select from a list of five common reasons for retirement (shown in Table I) identified from previous research of former UK footballers (Drawer & Fuller, 2002). Multiple reasons could be selected, and there was an option to indicate other reasons via a free-text box. They were also asked to indicate one reason that they regarded as their main reason for retirement.

**Data analysis**

All data analyses were performed using IBM SPSS Statistics for Windows version 22.0 (IBM Corp, Armonk, NY). Descriptive statistics (frequency, mean, standard deviation) were calculated for participant characteristics and measured variables. Participants were dichotomised on possible depression status using the recommended cut-off score for the SDHS (<10 = cases with depressive symptoms; \( \geq 10 \) cases without depressive symptoms).

Differences between the two groups and standardised effect sizes were calculated using independent samples \( t \)-tests and Cohen’s \( d \) for continuous variables, and Chi-square tests (\( \chi^2 \)) and phi coefficients (\( \varphi \)) for categorical variables. Where significant differences were identified, these variables were included as covariates in a multivariable logistic regression.
analysis. Odds ratios and confidence intervals were calculated to estimate the odds that depression status varied due to differences in explanatory variables.

Results
In total, 307 retired professional footballers provided informed consent and completed outcome measures. Participant characteristics are summarised in Table I. Mean age was 46.8 ± 15.7 years, and the mean time elapsed since retiring was 21.2 ± 14.6 years. Injury was a reason for retirement for 130 (42.3%) participants, and was the main reason for 90 (29.3%). The most common sites of chronic pain from football injuries were knee (48.2%), leg (34.2%), and groin (31.3%).

A total of 48 participants (15.6%) scored below the threshold on the SDHS indicating possible clinically-relevant depressive symptoms. Differences between participants with and without depressive symptoms for all variables are presented in Table I. Compared with the majority of the sample, those with depressive symptoms were younger (mean age of 34.2 versus 49.2 years; \( t = 6.48, p < 0.001; d = 1.02 \)), more recently retired (mean time since retirement 10.4 versus 23.5 years; \( t = 6.02, p < 0.001; d = 0.95 \)), and displayed higher athletic identity (mean score of 38.9 versus 28.8; \( t = 9.86, p < 0.001; d = 1.55 \)). They were also more likely to cite injury as one reason for retiring (79.2% versus 35.5%; \( \chi^2 = 31.60, p < 0.001, \varphi = 0.32 \)), and the main reason for retirement (72.9% versus 21.2%; \( \chi^2 = 52.20, p < 0.001, \varphi = 0.41 \)). For those retiring mainly due to injury, the prevalence of depressive symptoms was 38.9%. Finally, presence of ongoing injury-related pain was reported by more participants with depression symptoms than those without (95.8% versus 63.7%; \( \chi^2 = 19.45, p < 0.001, \varphi = 0.25 \)), and pain intensity was greater among this group (mean of 5.1 versus
3.0; \( t = 6.03, p < 0.001; d = 0.95 \). Age at retirement and career duration were not associated with depressive symptoms.

Four significant variables from the univariate analysis (time since retirement, injury as a retirement reason, pain intensity, and athletic identity) were included as covariates in the multivariable logistic regression analysis to examine the independent associations with depressive symptoms. Since age and time since retirement were strongly correlated (\( r = 0.94; p < 0.001 \)), only time since retirement was included in the multivariable analysis.

[INSERT TABLE I HERE]

Table II shows the odds ratios and 95% confidence intervals for each variable. Significant positive relationships for injury as a retirement reason, chronic pain, and athletic identity were observed. In particular, the odds of being depressed were increased by 3.44 (95% CI: 1.39, 8.51) for those retiring due to injury. Chronic pain increased the odds of depression by a factor of 1.38 (95% CI: 1.02, 1.86) for each unit increase in intensity. Similarly, each unit increase in athletic identity score was associated with a 1.28 (95% CI: 1.14, 1.44) increase in the odds of depression.

[INSERT TABLE II HERE]

**Discussion**

This study examined the psychological wellbeing of retired professional footballers, and some of the factors associated with experiencing depression symptomology. The results
suggested that 16% of the sample may have been experiencing clinically-relevant depressive
symptoms, and this was associated with retiring through injury, experiencing chronic pain,
and having higher athletic identity.

The proportion of possible cases of depression symptoms observed here is higher
than the 3% prevalence rate of depressive episodes reported among the general adult male
population in England in the Adult Psychiatric Morbidity Survey (McManus, Bebbington,
Jenkins, & Brugha, 2016). Direct comparisons are not meaningful since the current study
was not designed to ascertain prevalence, and used a different detection method (i.e. a self-
reported screening tool versus structured interviews). Nonetheless, the findings are
compatible with evidence suggesting that professional athletes may be at increased risk of
depressive symptoms after retirement (Gouttebarge et al., 2016; Schuring et al., 2016).

Notably, a previous international study by Gouttebarge et al. (2015) reported symptoms of
anxiety or depression to be more prevalent among former footballers than current players
(39% versus 26%).

*Career-ending injury and chronic pain*

In line with the findings of a previous study of retired British footballers that reported
anxiety/depression symptoms in 37% of players with an osteoarthritis diagnosis (Turner et
al., 2000), the current study identified depressive symptoms among 39% of those who had
retired mainly due to injury. The regression analysis indicated that involuntary retirement of
this nature was strongly associated with depressive symptoms, with the odds three times
higher than for non-injury reasons. As well as terminating sporting careers, injuries can lead
to long-term pain. In an earlier study of retired British professional footballers by Drawer
and Fuller (2001), 80% reported some degree of pain during daily activities. As with the
current study, the knee was the most common pain location. Pain is a recognised correlate of depression (Bair, Robinson, Katon, & Kroenke, 2003), and in this study its presence significantly increased the odds of reporting depressive symptoms. These results are compatible with a study of 1617 retired professional American footballers, which recorded a similar proportion of possible depression cases (15%) based on a self-report screening tool (Schwenk, Gorenflo, Dopp, & Hipple, 2007). Furthermore, 29% of the study sample retired due to injury, and experiencing chronic pain was strongly associated with depression status. Studies in general population have also demonstrated the relationship between pain and depression. Among 18,980 European adults, the odds of a depression diagnosis for those reporting chronic pain was more than three times higher than for those without pain (Ohayon & Schatzberg, 2003).

**Importance of athletic identity**

The strength of athletic identity has been shown to predict difficulties with the emotional adjustment to career termination across a range of sports (Kuettel et al., 2017; Ronkainen, Kavoura, & Ryba, 2016; Willard & Lavallee, 2016). In the current study athletic identity was associated with depressive symptomology among retired football players. The high profile status of footballers and media constructions of them as sporting heroes can lead to strongly defined athletic identities (Lines, 2001). This was illustrated in a study of youth footballers in professional academies, where even at age 16 years, players had developed high levels of athletic identity (Mitchell et al., 2014). In another study involving interviews with young footballers who were not selected for professional contracts, having a strong athletic identity was a contributor to experiencing emotional distress when released (Brown & Potrac, 2009). The current findings provide further support for the difficulties involved for
some individuals in adjusting to a different lifestyle after careers are terminated when their
sense of identity is closely tied to their athletic status (Kuettel et al., 2017).

Considerations for provision of player welfare services

Previous studies have shown that key negative influences on successful transitions out of sport include low educational attainment, inadequate vocational and life skill development, and limited career planning (Park, Lavallee, & Tod, 2013). Young footballers in particular report that the commitment required to achieve, and maintain, professional status, often overrides their attention to educational or vocational development, leaving players ill-equipped for life after football (Parker, 2000). A study of retired UK footballers in 2002, revealed high levels of dissatisfaction with the educational and welfare services available during their careers to prepare for retirement (Drawer & Fuller, 2002).

One successful example of an intervention addressing adjustment to career termination involved British professional footballers at the point of retirement (Lavallee, 2005). The programme involved assessment of life events and counselling to help develop coping skills, and led to significant improvements in psychological adjustment outcomes, compared with a control group. Other programmes have been implemented at earlier stages, before retirement is reached, to ensure that the support provided is proactive (e.g. education and employment opportunities), as well as reactive (e.g. coping skills, emotional support) (Park, Lavallee, and Tod, 2012). Evidence-based interventions of this nature are increasingly being implemented within professional sport, including football. Within the United Kingdom, both the English and Scottish Professional Football Associations dedicate considerable efforts to raising awareness of mental illness, and providing resources and
support services for current and former players (Professional Footballers Association, 2016; Professional Footballers Association Scotland, 2016).

**Study limitations**

It is important to note several limitations of this research. Notably, the cross-sectional design of the study ensures that the findings represent associations between depressive symptoms and the other variables, rather than imply a causal relationship. Furthermore, the number of cases identified was based on reaching a specific score on a screening measure to indicate possible clinically-relevant symptoms, rather than an actual diagnosis of a depressive disorder. Self-report screening instruments generally overestimate the likelihood of depression compared with a criterion-based diagnosis based on a structured clinical interview (Valenstein, Vijan, Zeber, Boehm, & Buttar, 2001).

An additional limitation concerns the purposeful recruitment process that prevents the calculation of a precise response rate, and may limit the representativeness of the sample. Nonetheless, key characteristics of participants in this study such as age, retirement age, and the percent reporting career-ending injury were very similar to those in the earlier survey of retired UK professional footballers recruited through a player union (Drawer & Fuller, 2001). Finally, it is also worth noting that only a limited range of participant characteristics were collected for this study. It is possible that other variables such as family history of mental disorders, marital status, employment status, or educational achievements would be associated with depressive symptoms.
Conclusion

This study contributes to the growing body of evidence on mental health problems following retirement from professional football. Findings suggest that a notable proportion of former players may be experiencing clinically-relevant depressive symptomology, and that career-ending injury significantly increases this risk. Intensity of chronic pain, and athletic identity are additional potential contributors, and are factors to consider in the provision of support services for former players.
References


Drawer, S., & Fuller, C. W. (2002). Perceptions of retired professional soccer players about the provision of support services before and after retirement. *British Journal of Sports Medicine, 36*(1), 33-88. pmid:11867490


Hawker, G. A., Mian, S., Kendzerska, T., & French, M. (2011). Measures of adult pain: Visual Analog Scale for Pain (VAS Pain), Numeric Rating Scale for Pain (NRS-Pain), McGill Pain Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), and Measure of Intermittent and Constant Osteoarthritis Pain (ICOAP). *Arthritis Care & Research, 63*(S11), S240-S252. doi:10.1002/acr.20543/full


doi:10.1080/1750984X.2012.687053


<table>
<thead>
<tr>
<th></th>
<th>Total sample (n = 307)</th>
<th>Depressed (n = 48)</th>
<th>Non-depressed (n = 259)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current age (years)</td>
<td>46.8 ± 15.7</td>
<td>34.2 ± 14.0</td>
<td>49.2 ± 14.9*</td>
</tr>
<tr>
<td>Athletic identity (AIMS)</td>
<td>30.4 ± 7.5</td>
<td>38.9 ± 5.4</td>
<td>28.8 ± 6.7*</td>
</tr>
<tr>
<td>Psychological wellbeing (SDHS)</td>
<td>12.8 ± 2.8</td>
<td>8.0 ± 1.1</td>
<td>13.7 ± 2.0*</td>
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<tr>
<td>Duration of playing career (years)</td>
<td>6.7 ± 3.7</td>
<td>5.7 ± 3.7</td>
<td>6.9 ± 3.6</td>
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<td>Highest level played*</td>
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<td></td>
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<td>Premier League</td>
<td>59 (19.2%)</td>
<td>14 (29.2%)</td>
<td>45 (17.4%)</td>
</tr>
<tr>
<td>Football League Championship</td>
<td>49 (16.0%)</td>
<td>10 (20.8%)</td>
<td>39 (15.1%)</td>
</tr>
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<td>Football League One</td>
<td>60 (19.5%)</td>
<td>12 (25.0%)</td>
<td>48 (18.5%)</td>
</tr>
<tr>
<td>Football League Two</td>
<td>82 (26.7%)</td>
<td>9 (18.8%)</td>
<td>73 (28.2%)</td>
</tr>
<tr>
<td>National League</td>
<td>57 (18.6%)</td>
<td>3 (6.3%)</td>
<td>54 (20.8%)</td>
</tr>
<tr>
<td>Age at retirement (years)</td>
<td>25.3 ± 5.2</td>
<td>23.8 ± 5.4</td>
<td>25.6 ± 5.1</td>
</tr>
<tr>
<td>Time since retirement (years)</td>
<td>21.5 ± 14.6</td>
<td>10.4 ± 12.3</td>
<td>23.5 ± 14.1*</td>
</tr>
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<td>Reasons for retirement</td>
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<td>Family/personal</td>
<td>130 (42.3%)</td>
<td>5 (10.4%)</td>
<td>125 (48.3%)*</td>
</tr>
<tr>
<td>Injury</td>
<td>130 (42.3%)</td>
<td>38 (79.2%)</td>
<td>92 (35.5%)*</td>
</tr>
<tr>
<td>Contract end</td>
<td>128 (41.7%)</td>
<td>20 (41.7%)</td>
<td>108 (41.7%)</td>
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<tr>
<td>Declining ability</td>
<td>121 (39.4%)</td>
<td>17 (35.4%)</td>
<td>104 (40.2%)</td>
</tr>
<tr>
<td>Age</td>
<td>73 (23.8%)</td>
<td>5 (10.4%)</td>
<td>68 (26.3%)</td>
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<tr>
<td>Other</td>
<td>5 (1.6%)</td>
<td>0 (0.0%)</td>
<td>5 (1.9%)</td>
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<tr>
<td>Total number of reasons</td>
<td>1.9 ± 0.9</td>
<td>1.8 ± 0.9</td>
<td>1.9 ± 1.0</td>
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<td>1</td>
<td>136 (44.3%)</td>
<td>24 (50.0%)</td>
<td>112 (43.2%)</td>
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<td>2</td>
<td>79 (25.7%)</td>
<td>12 (25.0%)</td>
<td>67 (25.9%)</td>
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<td>3</td>
<td>76 (24.8%)</td>
<td>11 (22.9%)</td>
<td>65 (25.1%)</td>
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<td>15 (4.9%)</td>
<td>1 (2.1%)</td>
<td>14 (5.4%)</td>
</tr>
<tr>
<td>5</td>
<td>1 (0.3%)</td>
<td>0 (0.0%)</td>
<td>1 (0.4%)</td>
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Main reason for retirement
<table>
<thead>
<tr>
<th>Category</th>
<th>Number (Percentage)</th>
<th>Number (Percentage)</th>
<th>Number (Percentage)</th>
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<tbody>
<tr>
<td>Family/personal</td>
<td>112 (36.5%)</td>
<td>2 (4.2%)</td>
<td>110 (42.5%)</td>
</tr>
<tr>
<td>Injury</td>
<td>90 (29.2%)</td>
<td>35 (72.9%)</td>
<td>55 (21.2%)</td>
</tr>
<tr>
<td>Contract end</td>
<td>36 (11.7%)</td>
<td>7 (14.6%)</td>
<td>29 (11.2%)</td>
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<tr>
<td>Declining ability</td>
<td>25 (8.1%)</td>
<td>2 (4.2%)</td>
<td>23 (8.9%)</td>
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<tr>
<td>Age</td>
<td>39 (12.7%)</td>
<td>2 (4.2%)</td>
<td>37 (14.3%)</td>
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<tr>
<td>Other</td>
<td>5 (1.6%)</td>
<td>0 (0.0%)</td>
<td>5 (1.9%)</td>
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<tr>
<td>Presence of injury-related pain</td>
<td>211 (68.7%)</td>
<td>46 (95.8%)</td>
<td>165 (63.7%)</td>
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<tr>
<td>Intensity of injury-related pain (PI-NRS)</td>
<td>3.3 ± 2.4</td>
<td>5.1 ± 1.5</td>
<td>3.0 ± 2.3</td>
</tr>
</tbody>
</table>

**Pain areas**

<table>
<thead>
<tr>
<th>Pain area</th>
<th>Number (Percentage)</th>
<th>Number (Percentage)</th>
<th>Number (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee</td>
<td>148 (48.2%)</td>
<td>23 (47.95)</td>
<td>125 (48.3%)</td>
</tr>
<tr>
<td>Leg</td>
<td>105 (34.2%)</td>
<td>15 (31.3%)</td>
<td>90 (34.7%)</td>
</tr>
<tr>
<td>Groin</td>
<td>96 (31.3%)</td>
<td>11 (22.9%)</td>
<td>85 (32.8%)</td>
</tr>
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<td>Hip</td>
<td>79 (25.7%)</td>
<td>13 (27.1%)</td>
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<tr>
<td>Back</td>
<td>63 (20.5%)</td>
<td>6 (12.5%)</td>
<td>57 (22.0%)</td>
</tr>
<tr>
<td>Ankle</td>
<td>60 (19.5%)</td>
<td>13 (27.1%)</td>
<td>47 (18.1%)</td>
</tr>
<tr>
<td>Other</td>
<td>44 (14.3%)</td>
<td>7 (14.6%)</td>
<td>37 (14.3%)</td>
</tr>
</tbody>
</table>

Note: Data are mean ± standard deviation or number (percent); *Current league system in England, or equivalent earlier league systems or Scottish leagues; AIMS: Athletic Identity Measurement Scale (scored 10-50); PI-NRS: Pain intensity numerical rating scale (scored 0-10); SDHS: Short Depression Happiness Scale (scored 0-18); a significant difference (p < 0.001) between depressed and non-depressed participants.
Table II. Odds of depression among retired professional footballers in association with injury, pain, and athletic identity.

<table>
<thead>
<tr>
<th></th>
<th>Odds ratio (95% confidence intervals)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury as retirement reason</td>
<td>3.44 (1.39, 8.51)</td>
<td>0.007</td>
</tr>
<tr>
<td>Ongoing injury-related pain</td>
<td>1.38 (1.02, 1.86)</td>
<td>0.038</td>
</tr>
<tr>
<td>Athletic identity</td>
<td>1.28 (1.14, 1.44)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Years since retirement</td>
<td>1.00 (0.95, 1.05)</td>
<td>0.998</td>
</tr>
</tbody>
</table>