The Mental Health of Elite Athletes in the United Kingdom

Abstract

Objectives**:* The purpose of this study was to investigate the prevalence of signs of anxiety/depression and distress among a sample of elite athletes in the United Kingdom (UK). A secondary aim was to identify the variables associated with signs of anxiety/depression and distress in the same sample. ***Design**:* A cross-sectional survey was distributed to a sample of elite athletes in the UK. ***Methods: A total of 143 elite athletes completed an online survey that consisted of demographic questions, the Greenhaus Scale assessing career satisfaction, the 12-Item General Health Questionnaire assessing signs of anxiety/depression and a distress screener based on the Four-Dimensional Symptom Questionnaire. ***Results**:* 47.8% of the overall sample met the cut-off for signs of anxiety/depression and 26.8% met the cut-off for signs of distress. A significant association was found between gender and signs of distress (x^2 = 8.64, df = 1, p = 0.003). Career dissatisfaction was a significant independent predictor of signs of anxiety/depression (OR = 0.836, p = 0.001) and distress (OR = 0.849, p = 0.003). ***Conclusions**:* The percentage of a sample of elite athletes in the UK showing signs of anxiety/depression and distress indicate that further cross-sectional research is required to understand the prevalence of mental issues in the elite athlete population in the UK. Findings indicate that screening elite athletes for career dissatisfaction may support the early detection of signs of anxiety/depression and/or distress. Emphasis should be placed on understanding and improving the mental health of elite athletes in the UK.

Keywords: Mental disorders, sports, anxiety, depression, distress

1. Introduction

The World Health Organisation (WHO) estimated that in 2015, 322 million people in the global population (4.4%) had depression and 264 million people (3.6%) were living with some form of anxiety disorder (WHO, 2017).[1] These disorders are often referred to as Common Mental Disorders (CMDs).[2] Recent research has suggested that the elite athlete population are particularly susceptible to CMDs.[3] Within male professional football, the prevalence of anxiety and depression symptoms have been found to range from between 25-43%, and distress symptoms between 11-18%, across Finland, France, Norway, Spain and Sweden.[4] Further research discovered that 8.6% of elite French athletes from a range of sports had an anxiety disorder and 3.6% had experienced a depressive episode.[5] Additionally, 19% of elite German athletes were found to be experiencing depressive symptoms.[6] More recently, 44.7% of current Dutch Olympic athletes from a range of sports (n=203, male=36%, female=64%) reported signs of anxiety/depression and 26.6% reported signs of distress.[7] Finally, 46.4% of Australian elite athletes (n=224, male=47.3%, female=52.7%) recruited from numerous sports reported symptoms of at least one of the mental health problems assessed (e.g. symptoms of depression and anxiety).[8]

Investigations into the prevalence of CMDs in sub-groups of elite athletes is limited. However, female French elite athletes have been found to be 1.3 times more likely to be diagnosed with at least one mental disorder than male French elite athletes.[5] Additionally, German elite athletes competing in individual sports displayed more depressive symptoms than those competing in team sports.[6] Although this research sheds light on the prevalence of CMDs in elite athlete sub-groups, no comparable research has been conducted in the UK.

There are a multitude of reasons as to why elite athletes may be particularly susceptible to CMDs.[8] Firstly, elite athletes have been found to be exposed to more than 600 distinct stressors (e.g. competing through injury or inadequate financial support)[9], and must make many mental and physical investments into their sport and overcome pressures to succeed.[5] Furthermore, the growing media interest in elite sport has increased the pressure placed on

elite athletes as it has created a platform for their performance to be publicly scrutinised.[10] Additionally, the physical demands placed upon elite athletes mean they are at greater risk of injury than other populations.[11] Injuries have been found to be associated with CMDs in elite athletes across a range of sports.[7, 8, 12] It has been suggested that this is because athletes may not have developed an identity outside that of the athlete.[13] Consequently, suffering an injury can threaten an elite athlete's identity which may result in the athlete experiencing a great loss.[13] Career dissatisfaction is another variable found to correlate with levels of anxiety/depression and distress in elite athletes across a range of sports within Europe.[4, 7] Career satisfaction may be influenced by an athletes' perceived success. Previous research has indicated that elite athletes experience depressive symptoms after losing competitions[14] or when they have failed to achieve their performance goals.[15]

A recent review of mental health and well-being among elite athletes suggested that more research needs to be conducted to inform the development of appropriate mental health support systems in elite sport.[3] Although recent investigations have begun to shed light on the prevalence of CMDs in elite athletes in numerous countries, to our knowledge there have been no explorations of this nature among elite athletes in the UK. In 2013 the Office for National Statistics found that 18.3% of the general population in the UK reported symptoms of anxiety or depression, with a higher percentage of females (21%) reporting anxiety/depression than males (16%).[16] The purpose of this study was to gain an understanding of the prevalence of signs of CMD's among a sample of elite athletes in the UK.

Accordingly, the aim of this study was to undertake a cross-sectional survey of mental health among elite athletes in the UK. A secondary aim was to identify sub-groups of elite athletes at risk of the development of signs of CMDs. Consequently, associations between gender, age, sport-type, competitive level and signs of anxiety/depression and distress were explored. The final aim of this study was to explore the associations between severe injury and career satisfaction with signs of anxiety/depression and distress.

2. Methods

Participants were required to fulfil the following inclusion criteria: (1) currently competing at professional, international or national level; (2) 16 + years old; (3) based within the UK; (4) able to read and comprehend texts fluently in English. A total of 159 athletes responded to the online survey; however, 16 athletes were excluded from the sample because they did not meet the inclusion criteria (14 participants were under the age of 16, one participant only completed the demographic questions in the survey, and one participant took part in an activity that was not classified as a sport by the authors). Therefore, the data of 143 elite athletes were analysed.

Sample characteristics are presented in Table 1. Participants were recruited from 25 different sports. The total sample consisted of 81 males and 61 females (one participant did not specify their gender). Athletes participating in sports requiring three or more athletes on each side simultaneously were categorised as team athletes, whereas those competing in solo or sports where there was an option for two players in one team (e.g., table tennis doubles) were classified as individual athletes.[17] Twelve participants could not be categorised due to uncertainty regarding their sport-type (e.g., it was unclear if rowers competed in single sculling events or crews).

TABLE 1 HERE

Although participants were not required to provide any personally identifiable information, they were invited to provide some demographic information including; age, height, weight, gender, sport and competitive level. Participants were assigned to one of four competitive levels: professional international, professional national, amateur international and amateur national. In accordance with previous research, the total number of severe injuries experienced during the participants' sporting careers was examined with a single question ('How many severe injuries have you had so far in your sporting career?').[7] Participants were notified that a severe injury was defined as an injury that had occurred during team activities and led to either training or match absence for more than 28 days.[18] The number of severe

injuries were categorised into four groups for analyses: 0 injuries, 1, injury, 2 injuries, and 3 or more injuries.

Career satisfaction was assessed using the Greenhaus Scale,[19] which has previously been used in elite athlete populations[7, 20]. The internal consistency of the Greenhaus Scale in this study was acceptable (Cronbach α = .82). The Greenhaus Scale consists of 5 items (such as, 'I am satisfied with the success I have achieved in my sporting career'). Responses were made on a 5-point scale (1 = 'strongly disagree', 2 = 'disagree to some extent', 3 = 'uncertain', 4 = 'agree to some extent', and 5 = 'strongly agree').[19] A total score was obtained by summing the responses from the five items and could range from 5-25. Higher scores are indicative of higher levels of career satisfaction.

The 12-Item General Health Questionnaire (GHQ-12) was used to assess psychological signs of anxiety and/or depression experienced by the participants in the previous four weeks.[21] The psychometric properties of the GHQ-12 have been confirmed (internal consistency: 0.7-0.9; criterion-related validity: sensitivity 0.763, specificity 0.834, Area Under ROC Curve ≥0.83).[21] The internal consistency of the GHQ-12 in this study was acceptable (Cronbach α = .79). The GHQ-12 contains 12 items (such as, 'Have you recently felt constantly under strain?'). Responses are made on a 4-point scale ('not at all,' 'no more than usual,' 'rather more than usual' and 'much more than usual') and data were analysed using the traditional GHQ binary scoring method (0-0-1-1). A total score between 0-12 was obtained by summing up the answers on the twelve items. A score of ≥2 indicated signs of anxiety/depression.[21] This cut-off has previously been used with athletic and non-athletic populations in comparable research.[4, 21]

In accordance with previous research on elite athlete samples, [2, 4, 7] a three-item distress screener based on the Four-Dimensional Symptom Questionnaire (4DSQ)[22, 23] was used to assess the participants' psychological symptoms of distress experienced in the previous four weeks. The items used included; 'Have you recently suffered from worry?', 'Have you recently suffered from listlessness? (lack of interest, energy, or spirit)', and 'Have you

recently felt tense?'. Each item was responded to on a 4-point Likert scale and scored as follows; absence of symptoms ('no': 0 points), doubtfully present ('sometimes': 1 point), or present at a clinically significant level ('regularly or very often': 2 points). This method of scoring has been used previously on the 4DSQ.[24] The internal consistency of the distress screener in this study was adequate (Cronbach α = .69). A total score between 0-6 was obtained by summing up the answers on the three items. In accordance with previous research in elite athlete samples score of ≥4 indicated signs of distress.[7, 22, 23] This study assessed distress alongside anxiety/depression as distress has previously been defined as being independent from anxiety and depression.[22]

Upon gaining ethical approval from the Departmental Ethics Committee (protocol number 0365), gatekeepers at relevant organisations were contacted via email to invite them to circulate the survey to athletes fitting the inclusion criteria. Consequently, 208 professional or elite clubs across recognised sports, 57 national governing bodies of Olympic qualified or recognised sports, and eight elite athlete schemes in the UK were contacted. A total of 15 clubs, nine governing bodies and three elite athlete schemes agreed to assist with the data collection for this study and forwarded a standardised invitation email to their athletes along with the link to the online survey. Based on the confirmation of the number of athletes that the survey was sent to by seven organisations and the squad/elite athlete scheme size of the remaining 20 organisations, it is estimated that the link to the online survey was forwarded to approximately 548 elite athletes (response rate of 29%).

The link to the survey took the participants to an information page and they were required to provide their informed consent before beginning the survey. The online survey took approximately ten minutes to complete. Upon completion of the survey the participants were provided with debrief information where the contact details of helplines for mental health experts and organisations were provided for athletes requiring further information or assistance. All data was collected using the Bristol Online Survey between January to April 2017.

All data was analysed using the statistical software IBM SPSS Statistics 23.0 for Windows. Percentages were used to illustrate the prevalence of signs of anxiety/depression and distress in the sample. Multiple chi-squared tests were performed to determine the associations between gender, age, sport type, competitive level, and number of injuries with signs of anxiety/depression and distress. Point biserial correlation coefficients were used to explore the direction and relative strength of potential relationships between career satisfaction with signs of anxiety/depression and distress. Owing to the substantial number of statistical analyses undertaken and the concerns associated with making type 1 errors significance was taken at the $p<0.01$ rather than $p<0.05$. Two logistic regressions were undertaken to identify the independent predictors of signs of anxiety/depression and distress.

3. Results

The percentage of a sample of elite athletes in the UK showing signs of anxiety/depression is presented in table 2. A total of 138 participants were included in the data analyses for signs of anxiety/depression due to five participants providing incomplete responses. Sixty-six participants (47.8%) scored ≥2 on the GHQ-12, indicating signs of anxiety/depression. A point biserial correlation revealed that career satisfaction was significantly negatively correlated with the presence of signs of anxiety/depression ($p<0.001$, $r = -0.31$). No significant associations were found between signs of anxiety/depression and gender, age, sport-type, total number of severe injuries and competitive level.

Variables associated with signs of anxiety/depression at $p<0.1$ (career satisfaction and number of severe injuries) were entered into a logistic regression. Results revealed that as career satisfaction increased by one, the odds of experiencing signs of anxiety/depression decreased by 16.4%. (OR = 0.836, $p = 0.001$). Number of severe injuries was not a significant independent predictor of signs of anxiety/depression.

TABLE 2 HERE

The percentage of a sample of elite athletes in the UK showing signs of distress is presented in table 3. A total of 142 participants were included in the data analyses for signs of distress due to one incomplete response on the distress screener. Thirty-eight participants (26.8%) scored ≥4 on the distress screener, indicating signs of distress. A significant association was found between gender and signs of distress (x^2 = 8.64, df = 1, p = 0.003), with 39.3% of female athletes and 17.3% of male athletes meeting the cut-off point. A point biserial correlation revealed that career satisfaction was significantly negatively correlated with the presence of signs of distress (p < 0.001, r = -0.29). No significant associations were found between signs of distress and age, number of severe injuries, competitive level and sport-type.

Variables associated with distress at p<0.1 (career satisfaction, competitive level and gender) were entered into a logistic regression. Results found that as career satisfaction increased by one, the odds of experiencing signs of distress decreased by 15.1% (OR = 0.849, p = 0.003). Competitive level and gender were not found to be significant independent predictors of signs of distress at the p<0.01 level. However, it is important to note that gender was verging on being a significant predictor of signs of distress (OR = 2.9, p = 0.013) with females nearly three times more likely to show signs of distress than males.

TABLE 3 HERE

4. Discussion

The purpose of this study was to gain insight into the prevalence of signs of CMDs in a sample of elite athletes in the UK. Results revealed that nearly half of the athletes recruited showed signs of anxiety/depression (47.8%), and just over a quarter showed signs of distress (26.8%). These findings are similar to those reported in a sample of competitive current Dutch elite athletes from a range of sports (anxiety/depression=44.7%, distress=26.6%).[7] However, the percentage of athletes showing signs of anxiety/depression and distress in this study is greater than the ranges reported (anxiety/distress = 26%-37.9%, distress = 10%-15.1%) in multiple studies investigating the prevalence of CMDs in current professional footballers across numerous countries.[2, 12, 20] Additionally, the prevalence of signs of CMDs reported in this study

is higher than those previously reported in samples of French and German elite athletes (3.6%-19%).[5, 6] However, it is important to note that the studies on French and German athletes used alternative measures of CMDs to those used in this study and the previous studies on professional footballers and Dutch athletes (e.g. GHQ-12 and a distress screener based on the 4DSQ). In order for direct comparisons of the prevalence of signs of CMDs to made across different countries and sports it is suggested that future studies should employ the use of consistent measures.

The association between gender and signs of distress was significant, with 17.3% of male athletes and 39.3% of female athletes reporting signs of distress. This discovery is consistent with previous research among elite athletes in Australia which found that 20.3% of female athletes compared with 12.3% male athletes reported experiencing general psychological distress.[8] Similarly, women have also been revealed to perceive significantly more stress than men in non-elite athlete samples.[25] It has been theorised that females are encouraged to be more socially orientated and express emotions more often than males, consequently, they may be more likely than males to report feelings of an unpleasant manner.[26] Further biological hormonal and physiological explanations for the gender differences in distress have also been proposed,[27] although these seem less applicable given that this study found no gender differences in anxiety/depression. Interestingly, gender was not found to be an independent predictor of signs of distress. Consequently, the association between gender and signs of distress may be impacted by other confounding variables (e.g. career satisfaction and competitive level).

Career dissatisfaction was an independent predictor of signs of anxiety/depression and distress within the sample of elite athletes in the UK. This finding is supportive of previous research conducted with professional footballers in several countries across the world,[4, 20] retired rugby union players in France, Ireland and South Africa,[28] and current and retired Dutch Olympic athletes.[7] Therefore, regularly screening elite athletes for career dissatisfaction may help with the early detection of signs of CMDs. Career goals and advancement are aspects

assessed by the Greenhaus Scale,[29] which were used in this study. Previously, mental health issues have been found among elite swimmers that failed to meet their goals,[15] therefore, this may be an aspect of career satisfaction that affects an athletes' mental health. Moreover, career satisfaction may also be influenced by financial income.[29] However, despite previous research identifying lack of financial support as a stressor for athletes,[30] no research has directly examined the impact that financial dissatisfaction has on the mental health of elite athletes.

Although this study shed light on the mental health of elite athletes in the UK it was not without its limitations. Firstly, we estimate that the survey was distributed to 548 elite athletes (estimated response rate of 29%). Consequently, it is unlikely that the sample is fully representative of the population of elite athletes in the UK. Secondly, the method of participant recruitment used in this study means that it is possible that athletes with past or current mental health problems may have been more willing to respond to the survey thus potentially biasing the sample. Moreover, it may be possible that the gatekeepers of sporting clubs or governing bodies who were less confident in their mental health support programmes were less inclined to distribute the survey to their athletes. Finally, the self-reported measures used in this study means that the athletes may not have been entirely honest with their responses due to the stigma attached to mental health. However, it is hoped that the protected anonymity of the participants countered this concern.

5. Conclusions

To the authors' knowledge this is the first study to investigate the mental health of a sample of elite athletes within the United Kingdom. Findings revealed that nearly half of a sample of elite athletes in the UK showed signs of anxiety/depression (47.8%), and just over a quarter showed signs of distress (26.8%). Career dissatisfaction was found to be predictive of signs of anxiety/depression and distress, therefore, screening elite athletes for career dissatisfaction may support the early detection of signs of CMDs. This is particularly important given that a higher percentage of signs of anxiety/depression (51.2%) and distress (32.2%) was found in

the 16-24 year-old age group in this sample. The association between gender and signs of distress was found to be significant, however, gender was not found to be an independent predictor of signs of distress. These findings underline the need for more research and understanding of mental health in the elite athlete population in the UK, and suggest that more importance should be placed on understanding and improving the mental health of elite athletes in the UK.

Practical Implications

- Greater emphasis should be placed on understanding and improving the mental health of elite athletes
- Regularly screening elite athletes for career dissatisfaction may help to detect early signs of CMDs
- Further cross-sectional prevalence research on the mental health among elite athletes in the UK, and assessments of mental health provisions and support systems are encouraged

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