`Research article`

Symptoms of Common Mental Disorders in Professional Football (Soccer) Across Five European Countries

Vincent Gouttebarge,[1,2,3,4] ✉**, Frank J.G. Backx** [5]**, Haruhito Aoki** [6] **and Gino M.M.J. Kerkhoffs** [2,3,4]
[1] World Players' Union (FIFPro), Hoofddorp, The Netherlands; [2] Academic Center for Evidence based Sports medicine (ACES), Academic Medical Center, Amsterdam; [3] Amsterdam Collaboration for Health & Safety in Sports (ACHSS), Academic Medical Center / VU University Medical Center, Amsterdam, The Netherlands; [4] Department of Orthopaedic Surgery, Academic Medical Center, Amsterdam, The Netherlands; [5] Department of Rehabilitation, Nursing Science and Sports, University Medical Center, Utrecht, The Netherlands; [6] St. Marianna University School of Medicine, Kawasaki, Japan

Abstract

Evidence on the prevalence of symptoms related to distress, anxiety/depression or substance abuse/dependence, – typically referred to as symptoms of common mental disorders (CMD) – is lacking in European professional football (soccer). The aims of the present study were to investigate the prevalence of symptoms related to CMD (distress, anxiety/depression, sleeping disturbance, adverse alcohol behaviour, and adverse nutrition behaviour) in professional footballers from five European countries, and to explore associations of the outcome measures under study with life events and career dissatisfaction. A cross-sectional design was used. Questionnaires were distributed among professional footballers by the national players' unions in Finland, France, Norway, Spain and Sweden. The highest prevalence of symptoms related to common mental disorders were 18% for distress (Sweden), 43% for anxiety/depression (Norway), 33% for sleeping disturbance (Spain), 17% for adverse alcohol behaviour (Finland), and 74% for adverse nutrition behaviour (Norway). In Finland, France and Sweden, both life events and career dissatisfaction were associated with distress, anxiety/depression, adverse alcohol behaviour, and adverse nutrition behaviour. Results suggest the need for self-awareness in professional football about common mental disorders and a multidisciplinary approach by the medical team.

Key words: Professional football, mental disorders, life events, career dissatisfaction.

Introduction

Due to the serious consequences for quality of life and functioning, the occurrence of mental disorders in general and occupational populations have been intensively investigated in the past decade (Krueger et al., 1998; Lahelma et al., 2015). Symptoms related to distress, anxiety/depression or substance abuse/dependence – typically referred to as symptoms of common mental disorders (CMD) – are more frequently reported in young adults than at any other stage of the lifespan (American Psychiatric Association, 2013; Krueger et al., 1998; Korten and Henderson, 2000; King et al., 2008;). In sport, a recent literature study has shown that young elite athletes are confronted with 640 distinct stressors related to different issues such as leadership and personal issues, cultural and team issues, logistical and environmental issues, and performance and personal issues (Arnold and Fletcher,

2012). Consequently, the report of the occurrence of symptoms related to CMD among elite athletes during their sport career is not surprising (Gulliver et al., 2015; Schaal et al., 2011; Shuer and Dietrich, 1997; Walker et al., 2007). For example, 17% of French Olympic athletes reported having encountered mental problems in the past while nearly 45% of Australian elite athletes reported having experienced symptoms of CMD (Gulliver et al., 2015; Schaal et al., 2011).

In European football (soccer), scientific information about the occurrence of symptoms related to CMD among professional footballers across different European countries remains scarce (Gouttebarge and Aoki, 2014). This contrasts with the extensive amount of information available on the occurrence of musculoskeletal injuries among football players. In 2013, a pilot study among male professional footballers revealed that symptoms related to CMD were as prevalent as in other populations, ranging from 10% for distress to 19% for adverse alcohol use, and 26% for anxiety/depression (Gouttebarge et al., 2015a). These findings were recently supported in a large international study that demonstrated male professional footballers reported CMD symptoms that ranged from 9% for adverse alcohol use to 38% for anxiety/depression (Gouttebarge et al., 2015b; 2015c). In these studies, significant associations were found between symptoms related to CMD and both life events and career dissatisfaction (Gouttebarge et al., 2015a; 2015b). At the present time, a study on symptoms related to CMD among European professional footballers from different countries has not been published; nor is there one about the potential relation of these outcomes with major life events and career dissatisfaction. Accordingly, the aims of the present study were: (i) to determine the prevalence of symptoms related to CMD (distress, anxiety/depression, sleeping disturbance, adverse alcohol behaviour, adverse nutrition behaviour) in professional footballers from five European countries; and (ii) to explore associations of the outcome measures under study with life events and career dissatisfaction among professional footballers from five European countries.

Methods

Design

This study was based on a cross-sectional design invol-

ving the baseline questionnaires from an on-going observational prospective cohort study.

Study setting and participants

Participants were professional footballers from five European countries: Finland, France, Norway, Spain and Sweden. Inclusion criteria were: (i) being a member, as an active player, of the national players' union from either Finland, France, Norway, Spain or Sweden. This means committing significant time to football training and competing at the highest and second highest professional football level within one of these countries; (ii) being 18 years or older; (iii) being male; and (iv) being able to read and comprehend texts fluently in either English, French or Spanish. With regard to the second aim of the study and with a preferred sample size requirement of 50 times the number of the independent variable (Woodward, 2013), the intended sample size was set at 50 participants per country. The World Players' Union (FIFPro) asked the national players' unions in Finland, France, Norway, Spain and Sweden to select potential participants from their members' lists at random (random numbers being provided by the responsible researcher). Potential participants were identified and invited between April and September 2014 to participate in the study by the national players' unions, procedures being blinded to the responsible researchers for reasons of privacy and confidentiality.

Symptoms related to common mental disorders

Distress: Distress in the previous four weeks was measured using the Distress Screener (3 items scored on a 3-point scale), which is based on the four-dimensional symptom questionnaire (4DSQ) (Braam et al. 2009; Terluin et al., 2006). The 4DSQ, i.e. Distress Screener, has been validated in several languages, including English, French and Spanish (test-retest coefficients ≥ 0.89; criterion-related validity: Area Under ROC Curve ≥ 0.79) (Terluin et al., 2006; Braam et al. 2009). A total score ranging from 0 to 6 was obtained by summing up the answers on the three items, a score of 4 or above indicating the presence of distress (Braam et al. 2009; Terluin et al., 2006).

Anxiety/depression: The 12-item General Health Questionnaire (GHQ-12) was used to assess psychological symptoms related to anxiety/depression in the previous four weeks (Goldberg et al., 1997). The GHQ-12 has been validated in several languages, including English, French and Spanish (criterion-related validity: sensitivity ≥ 0.70, specificity ≥ 0.75, Area Under ROC Curve ≥ 0.83) (Goldberg et al., 1997). Based on the traditional scoring system, a total score ranging from 0 to 12 was calculated by summing up the answers on the 12 items, with a score of 2 or above indicating signs of anxiety/depression (Area Under Curve = 0.88) (Goldberg et al., 1997).

Sleeping disturbance: Based on the PROMIS (short form), sleep disturbance in the previous four weeks was assessed through two single questions scored on a 4-point scale (0 for favourable answers, 1 for unfavourable answers) (Yu et al., 2011). The PROMIS has been validated in several languages, including English, French and Spanish (construct validity: product-moment correlations ≥ 0.96), (for detailed information, see www.nihpromis.org). A total score ranging from 0 to 2 was obtained by summing up the answers to the two questions, a score of 1 or above indicating the presence of sleep disturbance (www.nihpromis.org).

Adverse alcohol behaviour: Current level of alcohol consumption was detected using the 3-item AUDIT-C (Dawson et al., 2005). The AUDIT-C has been validated in several languages, including English, French and Spanish (criterion-related validity: Area Under ROC Curve $0.70 - 0.97$) (Dawson et al., 2005; De Meneses-Gaya et al., 2009). A total score ranging from 0 to 12 was obtained by summing up the answers on the three items, a score of 5 or above indicating the presence of adverse alcohol behaviour (Dawson et al., 2005).

Adverse nutrition behaviour: Current eating habits were examined using four statements validated in English and Dutch (e.g., 'I eat regularly throughout the day'), each to be answered by the number of days per week (from 0 to 7) (Van der Veer et al., 2011). Consuming healthy meals fewer than five days per week and eating regularly throughout the day fewer than three days per week and having breakfast before 10:30 fewer than three days per week and having a final meal before 20:30 fewer than three days per week was reported as adverse nutrition behaviour (Van der Veer et al., 2011).

Stressors

Life events (LE): Based on the validated Social Athletic Readjustment Rating Scale, the occurrence of life events (e.g. 'Death of spouse', 'Change in financial state') was explored by 13 single questions (yes or no) (Bramwell et al., 1975). We chose to explore the occurrence of life events either in the previous six months (LE<6) or more than six months ago (LE>6) as one might assume that some life events (for instance 'conflict with coach/trainer') might be more relevant if they occurred recently rather than three years ago. Two scores (LE<6 and LE>6) were calculated by summing up the life events occurred.

Career dissatisfaction: Professional football career dissatisfaction was explored through the validated Greenhaus scale (e.g. 'I am satisfied with the success I have achieved in my career') (5 items on a 5-point scale) (Greenhaus et al., 1990). A total score ranging from 5 to 25 was obtained by summing up the answers to the five items, a lower score indicating a higher level of dissatisfaction.

Procedures

Based on the stressors and outcome measures under study, an electronic questionnaire was set up (FluidSurveys[TM]) in English (for Finland, Norway and Sweden), French (for France) and Spanish (for Spain). The electronic questionnaire also involved the following descriptive variables: age, length, body mass, duration of professional football career, level of play, squad position, and level of education. Information about the study was sent per email to potential participants by the national players' unions. Players interested in participating in the study gave their informed consent and were asked to fill in their

questionnaires anonymously online within two weeks, a reminder being sent two and four weeks after the first invitation. Once completed (around 15 minutes was required), the electronic questionnaires were saved automatically on a secured electronic server that was accessible only by the research team. Players participated voluntarily in the study and did not receive any reward for their participation. Official ethical approval for our ongoing prospective cohort study in 11 countries (including the five countries involved in the present study) was obtained by the board of St. Marianna University School of Medicine (Kawasaki, Japan). The present research was conducted in accordance with the Declaration of Helsinki (2013).

Statistical analysis

All data analyses were performed using the statistical software IBM SPSS Statistics 22.0 for Windows. Analyses were conducted separately for the five countries involved in the study. In order to secure the validity of the collected data, only questionnaires sufficiently completed were eligible for analysis, which means that 50% of the scales related to our outcome measures needed to be completed. Descriptive data analyses (mean, standard deviation, frequency, range) were performed for the different variables involved in our study. Prevalence of symptoms related to CMD (distress, anxiety/depression, sleep disturbance, adverse alcohol behaviour and adverse nutrition behaviour) were calculated using the adjusted Wald method (sample size of 150 persons or less) for confidence intervals (Portney and Watkins, 2008). For each country, Pearson's or Point Biserial correlation coefficients were used to explore the direction and relative strength of the potential relationship between stressors (life events and career dissatisfaction) and the outcome measures under study (Portney and Watkins, 2008). Cor-

relation coefficients were interpreted as follows: <0.1 as trivial, 0.1-0.3 as small, 0.3-0.5 as moderate, and >0.5 as large (Cohen, 1988). In addition, under the assumption of a sample size of 50 participants or more per country, univariate logistic regression analyses expressed as odds ratio (OR) and related 95% confidence interval (95% CI) were performed within each country to explain the potential relationship between a stressor (life events, career dissatisfaction) and the presence/absence of the outcome measures under study (Portney and Watkins, 2008).

Results

Participants

From a total of 3174 players who were members of one of the five national players' unions involved, 1732 professional footballers were contacted: 475 from Finland, 168 from France, 454 from Norway, 145 from Spain and 490 from Sweden. A total of 594 players gave their written informed consent and started to complete the questionnaire. As 54 questionnaires were insufficiently completed and thus excluded from the analysis, 540 professional footballers were involved in the analyses: 121 from Finland (response rate of 25%), 81 from France (response rate of 48%), 119 from Norway (response rate of 26%), 70 from Spain (response rate of 48%) and 149 from Sweden (response rate of 30%). The flowchart of the participants' recruitment is presented in Figure 1. The mean age of the participants ranged from 25.0 (Finland) to 28.2 (France) years old. Participants had been playing professional football for 6.9 (Finland) to 8.6 (Spain) years on average. Descriptive characteristics were not statistically different from one country to another (p > 0.05). All characteristics of the participants are presented in Table 1.
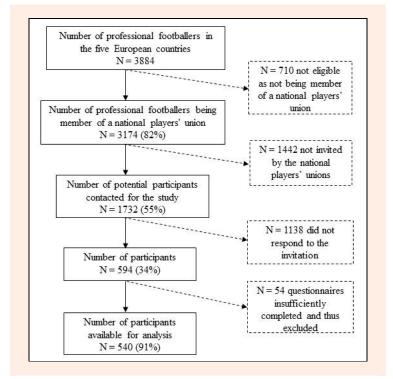

Figure 1. Recruitment of European professional footballers in five European countries.

Table 1. Characteristics of the professional footballers from five European countries (N = 540).

Variables	Finland n = 121	France n = 81	Norway n = 119	Spain n = 70	Sweden n = 149
Age (yrs)	25.0 (± 4.2)	28.2 (± 4.4)	26.9 (± 4.8)	27.6 (± 4.0)	26.8 (± 4.2)
Height (m)	1.80 (± .08)	1.83 (± .06)	1.83 (± .06)	1.82 (± .06)	1.80 (± .09)
Weight (kg)	75.2 (± 9.0)	77.7 (± 6.6)	78.6 (± 7.3)	77.2 (± 6.8)	76.0 (± 9.8)
Body Mass Index (kg·m^{-2})	23.2 (± 1.5)	23.3 (± 1.2)	23.3 (± 1.3)	23.4 (± 1.3)	23.3 (± 1.3)
Professional football career (yrs)	6.9 (± 4.1)	8.3 (± 4.7)	7.9 (± 4.8)	8.6 (± 4.6)	7.8 (± 3.9)
Level of play (top league; %)	57.9	54.3	52.9	41.4	55.7
Field positions					
Goalkeeper	13.2	13.6	10.9	5.7	19.5
Defender	33.9	39.5	39.5	38.6	38.9
Midfielder	33.1	29.6	32.8	35.7	29.5
Forward	19.8	17.3	16.8	20.0	12.1
Educational level (%)					
No schooling completed	2.5	1.2	3.4	0.0	0.7
Nursery/elementary school	5.8	1.2	3.4	0.0	3.4
High school	52.9	49.4	50.4	51.4	54.4
Vocational/technical school	4.1	30.9	5.0	28.6	4.7
College, university or equivalent	34.7	17.3	37.8	20.0	36.8
Stressors					
LE<6 (mean; min - max)	1.0 (0-5)	1.8 (0-9)	.9 (0-4)	2.3 (0-9)	.7 (0-6)
LE>6 (mean; min - max)	1.6 (0-6)	2.3 (0-14)	2.0 (0-8)	2.0 (0-8)	2.0 (0-9)
Career dissatisfaction	10.5 (±3.4)	12.8 (± 4.4)	11.0 (± 3.2)	11.4 (± 3.6)	11.7 (± 3.5)

LE<6, life events in the previous six months; LE>6, life events longer than six months ago

Prevalence of symptoms related to common mental disorders

Prevalence of symptoms related to CMD ranged from 11% (Spain) to 18% (Sweden) for distress, from 25% (Spain) to 43% (Norway) for anxiety/depression, from 19% (Finland) to 33% (Spain) for sleeping disturbance, from 6% (Sweden) to 17% (Finland) for adverse alcohol behaviour, and from 47% (France) to 74% (Norway) for adverse nutrition behaviour. All prevalence rates of symptoms related to CMD among professional footballers in the five European countries are presented in Table 2.

Relationships between stressors and outcome measures under study

Results indicated that small to moderate correlations were found between stressors and symptoms related to CMD. Life events were positively associated with distress (Finland OR=1.4 95%CI 1.0-2.1; France OR=1.7 95%CI 1.2-2.5; Sweden OR=2.0 95%CI 1.3-3.2), anxiety/depression (Finland OR=1.6 95%CI 1.1-2.3), sleeping disturbance (Sweden OR=1.8 95%CI 1.2-2.7), adverse alcohol behaviour (Finland OR=1.6 95%CI 1.0-2.3; France OR=1.5 95%CI 1.1-2.1) and adverse nutrition behaviour (Finland OR=1.5 95%CI 1.0-2.3). Career dissatisfaction was positively associated with distress (Sweden OR=0.8 95%CI 0.7-1.0), anxiety/depression (Finland OR=0.8 95%CI 0.6-0.9) and adverse nutrition behaviour (France OR=0.8

95%CI 0.7-1.0). All correlations and associations between stressors and symptoms related to CMD are presented for each country in Table 3.

Discussion

Perspective of the findings

Scientific research on the mental health of professional footballers is scarce. The original contribution made in the present study is that it is the only international study presenting the prevalence of symptoms related to CMD among professional footballers from five European countries. In 2013, the World Players' Union (FIFPro) – representing more than 65,000 players worldwide – initiated a pilot study on the mental and psychosocial health problems among 149 professional footballers from Australia, Ireland, the Netherlands, New Zealand, Scotland and United States (Gouttebarge et al., 2015a). Results showed that prevalence rates ranged from 10% for distress to 26% for anxiety/depression and adverse nutrition behaviour (Gouttebarge et al., 2015a). However, in contrast to the present study, the pilot study did not allow an exploration per country of the prevalence of these health conditions due to the small sample size in each country.

In professional, i.e. elite, athletes from other sporting disciplines, a study involving more than 2,000 young and adult French Olympic athletes showed that 17% of

Table 2. Prevalence (in %; 95% CI) of symptoms related to common mental disorders among professional footballers in five European countries.

	Finland	France	Norway	Spain	Sweden
Distress†	15.6 (9.6-24.35)	15.8 (9.1-25.8)	12.4 (7.3-20.2)	11.4 (5.7-21.2)	18.2 (12.6-25.6)
Anxiety/depression†	40.0 (30.0-51.0)	37.5 (27.2-49.1)	43.3 (33.6-53.6)	25.0 (16.2-36.5)	37.9 (29.8-46.7)
Sleeping disturbance†	18.8 (12.1-27.8)	27.6 (18.8-38.6)	23.8 (16.6-32.8)	32.9 (23.0-44.5)	21.2 (15.1-28.8)
Adverse alcohol behavior ‡	17.0 (10.5-26.4)	9.2 (4.5-19.0)	6.9 (3.2-13.9)	15.7 (8.8-26.2)	6.0 (2.9-11.67)
Adverse nutrition behavior ‡	58.6 (48.1-68.4)	47.4 (38.8-61.3)	74.3 (64.9-81.8)	52.9 (41.3-64.1)	54.9 (46.4-63.1)

CI, confidence of interval; †, 1-month prevalence; ‡, point prevalence

Table 3. Correlations (Pearson or Point Biserial) and associations (odds ratio and 95% confidence interval) by country between stressors and symptoms related to common mental disorders among professional footballers in five European countries.

	Distress	Anxiety/depression	Sleeping disturbance	Alcohol behaviour	Nutrition behaviour
Finland (n = 121)					
LE<6	.07	.25 *	.09	.27 *	.21
	1.3 (.8-1.9)	1.6 (1.1-2.3)	1.2 (.8-1.7)	1.6 (1.0-2.3)	1.5 (1.0-2.3)
LE>6	.22 *	-.13	-.03	-.26 *	.10
	1.4 (1.0-2.1)	.8 (.6-1.1)	1.0 (.7-1.3)	.6 (.4-1.0)	1.2 (.9-1.6)
Career dissatisfaction	-.17	-.35 **	.01	.03	-.03
	.9 (.7-1.0)	.8 (.6-.9)	1.0 (.9-1.2)	1.0 (.8-1.2)	1.0 (.9-1.1)
France (n = 81)					
LE<6	.43 **	.06	.14	-.02	.03
	1.7 (1.2-2.5)	1.1 (.8-1.4)	1.2 (.9-1.6)	1.2 (.7-2.0)	1.1 (.8-1.4)
LE>6	-.17	.06	.04	.37 **	.08
	.9 (.6-1.3)	1.1 (.9-1.3)	1.1 (0.9-1.3)	1.5 (1.1-2.1)	1.1 (.9-1.3)
Career dissatisfaction	-.05	-.09	.07	-.01	-.33 **
	1.0 (.8-1.1)	1.0 (.9-1.1)	1.0 (.9-1.2)	1.0 (.8-1.2)	.8 (.7-1.0)
Norway (n = 119)					
LE<6	.15	.10	.04	.01	.09
	1.4 (.8-2.3)	1.2 (.8-1.7)	1.0 (.7-1.6)	1.0 (.5-2.1)	1.1 (.7-1.8)
LE>6	.06	-.09	.01	.37 **	.14
	1.1 (.8-1.6)	.9 (.7-1.2)	1.0 (.8-1.3)	2.0 (1.3-3.2)	1.3 (1.0-1.7)
Career dissatisfaction	-.10	-.08	-.12	-.02	-.18
	.9 (.8-1.1)	1.0 (.8-1.1)	.9 (.8-1.1)	.9 (.7-1.2)	.9 (.7-1.0)
Spain (N=70)					
LE<6	-.07	.10	.10	.19	-.39**
	1.0 (.6-1.6)	1.0 (1.0-1.1)	1.1 (.8-1.4)	1.4 (1.0-2.0)	.6 (.4-.8)
LE>6	.22	.10	-.02	.04	.03
	1.4 (1.0-2.0)	1.0 (1.0-1.1)	1.1 (.8-1.4)	1.2 (.8-1.7)	.9 (.7-1.2)
Career dissatisfaction	.00	.08	.11	-.04	.11
	1.0 (.8-1.3)	1.0 (1.0-1.1)	1.1 (.9-1.2)	1.0 (.8-1.2)	1.1 (.9-1.3)
Sweden (N=149)					
LE<6	.31 **	.18 *	.28 **	-.06	-.05
	2.0 (1.3-3.2)	1.4 (1.0-2.0)	1.8 (1.2-2.7)	.7 (.3-1.7)	.9 (.6-1.3)
LE>6	.02	-.03	.03	-.01	-.11
	1.0 (.8-1.3)	1.0 (.8-1.2)	1.0 (.8-1.3)	1.0 (.7-1.4)	.9 (.7-1.1)
Career dissatisfaction	-.25 **	-.19 *	-.04	-.07	-.03
	.8 (.7-1.0)	.9 (.8-1.0)	1.0 (.9-1.1)	.9 (.7-1.1)	1.0 (.9-1.1)

$* \; p < 0.05$; $** \; p < 0.01$; LE<6, life events in the previous six months; LE>6, life events longer than six months ago.

them reported having encountered mental problems in the past (Schaal et al., 2011). A recent study by Gulliver et al. (2015) explored the prevalence of symptoms of general psychological distress and CMD among Australian elite athletes (Gulliver et al., 2015). The authors found that around 45% of athletes were experiencing symptoms of at least one of the mental health problems under study such as anxiety, depression or distress, which is in line with the prevalence rates (especially symptoms of anxiety/depression) found among professional footballers from five European countries (Gulliver et al., 2015). In the European population, it has been estimated that each year 38.2% suffer from a mental disorder (Wittchen et al., 2011). However, it is relevant to mention that in those studies, outcome measures related to CMD were not measured using the same scales as those used in our study, which makes an accurate comparison between studies difficult. In other studies using similar scales to our study, prevalence of anxiety/depression was found to range from 13% to 19% in Australia (general population), from 17% to 21% in Denmark (practice population), and from 17% to 25% in the Netherlands (general and practice population, young male employees) (Bültmann et al.,

2002; Korten and Henderson, 2000; Lynge et al., 2004; Verhaak et al., 2005). Prevalence of distress in both young and older working populations was reported to range from 5% to 18% (Bültmann et al., 2002). This suggests that symptoms related to CMD might be slightly more prevalent among professional footballers than in these other study populations. Whether these symptoms related to CMD are football-specific health problems and whether those negatively affect the performance and quality of life of professional footballers remains difficult to answer. However, the increasing attention given to mental health by important stakeholders such as FIFPro and the Fédération Internationale de Football Association (FIFA) emphasizes that symptoms related to CMD among professional footballers should not be underestimated (Junge, 2015).

Strengths and limitations

A number of potential strengths and limitations of the study should be acknowledged. Importantly, the cross-sectional analyses conducted do not allow the establishment of a causal relationship between stressors (life events and career dissatisfaction) and the outcome

measures under study. Another limitation might be related to the five samples of players involved in our study; these are limited in terms of size compared to the high number of professional footballers per nationwide league, while both response rate and sample size vary from one country to another. This may limit the generalizability of our findings. In addition, the question might be raised as to why these five countries were involved in the study and not others. We strove to collaborate with other countries where possible and where our English, French or Spanish validated scales could be used (for instance England). We were able to include only five countries as other countries were not ready to participate. Professional footballers are often surveyed by FIFPro and its national players' unions (for instance about match fixing) and it was not possible to overload players from some countries with an additional survey on such a sensitive topic. Nevertheless, we believe that the involvement of five European countries remains unique and are happy with the effort that was put into this survey by all who participated. The authors would like to emphasize how difficult it is to gather scientific information about mental health in professional football, since such a topic remains a kind of taboo. For privacy and confidentiality reasons, the procedure of participants' recruitment was blind to the researcher. Consequently, non-response analysis could not be conducted, which is always a limitation in epidemiological studies. Mention must also be made of the different response rates between the five countries, ranging from 25% to 48%. This difference is difficult to explain as the recruitment procedure was standardized and thus the same for all countries. An additional aspect worth discussing is the potential influence of social desirability and undesirability on the report of symptoms of CMD and adverse health behaviours in our study. Because mental health is rather a taboo in professional football, one might hypothesize that the prevalence rates found in our study are likely to be underestimated. This assumption cannot be substantiated as we did not involve a measure of social desirability/undesirability in our study. However, we feel that the anonymous recruitment procedures and anonymous electronic survey, in combination with the validated scales used in our study, might have limited the influence of social desirability/undesirability. A final potential limitation worth mentioning is directed towards the screening instruments used in our study. While the Distress Screener (distress),GHQ-12 (anxiety/depression), PROMIS (sleeping disturbance) and AUDIT-C (adverse alcohol behaviours) have been used for decades in research and are nowadays validated in several languages (including the three languages used in our study, namely English, French and Spanish), the four statements used to explore adverse nutrition behaviour have not been validated in French and Spanish (simply translated). Also, professional footballers from Finland, Norway and Sweden did not complete the scales in their native language but in English. This might be seen as a limitation of our study. However, in addition to their career, many members of national players' unions follow online education through the FIFPro academy that is given either in English, French or Spanish. Furthermore, being able to read and compre-

hend texts fluently in either English or French or Spanish was a clear inclusion criteria in our study. Consequently, it might be assumed that the validity of our findings has been minimally threatened. Our study might also emphasize the need for screening instruments for symptoms of CMD specifically developed for, and validated in, professional footballers, since this is still lacking today.

The strengths of this study rely especially on the topic being explored in a study group that is difficult to reach, and the availability of data across five European countries. While many scientific studies have been conducted across all continents about the occurrence of musculoskeletal injuries among players, studies about mental health are lacking as it still remains a taboo in professional football. The findings of our study form a necessary step in raising the self-awareness of all stakeholders in professional football about the potential problems related to CMD among players. In addition, it should certainly empower the development of preventive and supportive measures for the players.

Future directions

Our epidemiological study justifies a multidisciplinary approach to the care of professional footballers, especially when a player faces life events such as lengthy periods without training or competition. In addition to the attention given to the diagnosis, potential surgery, rehabilitation programme and return to play process of injured players, the team doctor and physical therapist as well as the orthopaedic surgeon should also focus especially on potential symptoms related to CMD that might occur among professional footballers. This multidisciplinary approach might enable detection and care in an early stage of symptoms that might otherwise develop into severe mental health disorders in the long term, while also perhaps leading to better and safer sustainable return to play. Preventive and supportive measures should therefore be developed and implemented.

In a recent study, young elite athletes reported that the most important perceived barriers to seeking help for CMD were stigma and the lack of documentation, i.e. information, about such a topic (Gulliver et al., 2012a). Consequently, a first future challenge for stakeholders in professional football is to raise the self-awareness about CMD that might occur during a football career. Subsequently, developing and implementing evidence-based interventions to improve the mental health of players should be made a priority as well (Gouttebarge and Aoki, 2014). Importantly, interventions available online and based on a self-management approach might be most appropriate to engage activities that protect and promote mental health, and monitor and manage symptoms related to CMD and their impacts on functioning, emotions and interpersonal relationships (Gulliver et al., 2012b). Such an approach should be the subject of further study. Further research based on longitudinal design should be conducted in order to acquire an insight into the causal relationship between symptoms related to CMD and risk factors. This information is important in order to develop and implement relevant evidence-based interventions for players to manage their symptoms related to CMD.

Conclusion

Our cross-sectional analyses among 540 professional footballers showed that the highest prevalence rates of symptoms related to CMD were 18% (Sweden) for distress, 43% (Norway) for anxiety/depression, 33% (Spain) for sleeping disturbance, 17% (Finland) for adverse alcohol behaviour, and 74% (Norway) for adverse nutrition behaviour. In Finland, France and Sweden, both life events and career dissatisfaction were associated with distress, anxiety/depression, adverse alcohol behaviour, and adverse nutrition behaviour.

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Key points

- The highest prevalence of symptoms related to common mental disorders were 18% for distress (Sweden), 43% for anxiety/depression (Norway), 33% for sleeping disturbance (Spain), 17% for adverse alcohol behaviour (Finland), and 74% for adverse nutrition behaviour (Norway).

- In Finland, France and Sweden, both life events and career dissatisfaction were associated with distress, anxiety/depression, adverse alcohol behaviour, and adverse nutrition behaviour.

- Our results suggest the need for self-awareness in professional football about common mental disorders and a multidisciplinary approach by the medical team.

- Further research based on longitudinal design should be conducted in order to acquire an insight into the causal relationship between symptoms related to common mental disorders and risk factors.

AUTHOR BIOGRAPHY

Vincent GOUTTEBARGE
Employment
World Players' Union (FIFPro), Hoofddorp, The Netherlands; Academic Center for Evidence based Sports medicine (ACES), Academic Medical Center, Amsterdam; Amsterdam Collaboration for Health & Safety in Sports (ACHSS), Amsterdam, The Netherlands; Department of Orthopaedic Surgery, Academic Medical Center, Amsterdam, The Netherlands
Degree
MSc, PhD
Research interests
Sports medicine, sports sciences
E-mail: v.gouttebarge@fifpro.org

Frank BACKX
Employment
Department of Rehabilitation, Nursing Science and Sports, University Medical Center, Utrecht, The Netherlands
Degree
MD, PhD
Research interests
Sports medicine
E-mail: f.j.g.backx@umcutrecht.nl

Haruhito AOKI
Employment
St. Marianna University School of Medicine, Kawasaki, Japan
Degree
MD, PhD
Research interests
Sports medicine
E-mail: haruhito@pj8.so-net.ne.jp

Gino KERKHOFFS
Employment
Academic Center for Evidence based Sports medicine (ACES), Academic Medical Center, Amsterdam; Amsterdam Collaboration for Health & Safety in Sports (ACHSS), Amsterdam, The Netherlands; Department of Orthopaedic Surgery, Academic Medical Center, Amsterdam, The Netherlands
Degree
MD, PhD
Research interests
Sports medicine, Orthopaedic surgery
E-mail: g.m.kerkhoffs@amc.nl

✉ **Vincent Gouttebarge**
Players' Services, World Players' Union (FIFPro), Scorpius 161, 2132 LR Hoofddorp, The Netherlands