

# Are Level of Education and Employment Related to Symptoms of Common Mental Disorders in Current and Retired Professional Footballers?

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Received 2015 March 05; Revised 2015 August 28; Accepted 2015 September 06.

## Abstract

**Background:** Mental disorders have become a topic of increasing interest in research due to their serious consequences for quality of life and functioning.

**Objectives:** The objective of this study was to explore the relationship of level of education, employment status and working hours with symptoms of common mental disorders (distress, anxiety/depression, sleep disturbance, adverse alcohol behaviour, smoking, adverse nutritional behaviour) among current and retired professional footballers.

**Materials and Methods:** Cross-sectional analyses were conducted on baseline questionnaires from an ongoing prospective cohort study among current and retired professional footballers. Based on validated scales, an electronic questionnaire was set up and distributed by players' unions in 11 countries across three continents.

**Results:** A total of 607 current professional footballers (mean age of 27 years) and 219 retired professional footballers (mean age of 35 years) were involved in the study. Among retired professional footballers, statistically significant negative correlations were found between employment status and symptoms of distress and anxiety/depression ( $P < 0.05$ ), as well as between number of working hours and symptoms of anxiety/depression ( $P < 0.05$ ). No other statistically significant associations were found among retired players. Among current professional footballers, level of education was not associated with symptoms of common mental disorders.

**Conclusions:** Among retired professional footballers, employment status as well as a higher number of working hours was weakly correlated to symptoms of distress and anxiety/depression. Combining a football career with sustainable attention for educational and career planning might be important and of high priority.

**Keywords:** Soccer, Elite Athletes, Mental Disorders, Substance-Related Disorders

## 1. Background

In the past decade, mental disorders have become a topic of increasing interest in research due to their serious consequences for quality of life and functioning (1, 2). Symptoms of distress, depression, sleeping disturbance or substance abuse/dependence, typically referred to as common mental disorders (CMD), have been shown to be highly prevalent in general and working populations (3-8). Being more frequently reported in young adults compared to any other stage of the lifespan, symptoms of CMD are associated with stressors such as low social support, low level of education, occurrence of life events or being unemployed (1, 2, 6, 7, 9).

In elite and competitive sports, studies have shown that athletes are confronted during their career and just after it with more than 600 distinct stressors, among which

are the lack of career planning, lack of education and vocational resources, financial problems and low social support (10-12). Because they are exposed to all these stressors, it is not surprising that athletes report symptoms of CMD, both during and after their career (13-16).

To date, little information has been acquired regarding the prevalence of CMD symptoms and potential stressors that could affect current and retired professional footballers (17). In 2013, a pilot study initiated by the world players' union (FIFPro) showed that the prevalence of CMD symptoms among current male footballers was as follows: 7% for smoking, 10% for distress, 19% for adverse alcohol behaviour and 26% for anxiety/depression and adverse nutritional behavior (18). Compared to the current male footballers, these prevalence rates were considerably higher among the retired male professional footballers:

12% for smoking, 18% for distress, 32% for adverse alcohol behaviour and around 40% for anxiety/depression and adverse nutritional behavior (18). Although a few predictors of the CMD symptoms among the current and retired professional footballers were reported by the pilot study, including low social support and injuries, it seems that more investigations are needed to better predict the occurrence of CMD symptoms, especially in terms of level of education and employment status (18). The impact of level of education and employment status on sustainable mental health and well-being has been emphasized by previous studies and theoretical models: being unemployed was shown to be unfavourable for well-being, while unemployed individuals are likely to report mental health problems (6, 7, 9-12, 19).

## 2. Objectives

Therefore, the aim of this study was to explore the relationship of level of education, employment status and working hours with the prevalence of symptoms of CMD (distress, anxiety/depression, sleep disturbance, adverse alcohol behaviour, smoking, adverse nutritional behaviour) among both current and retired male professional footballers.

## 3. Material and Methods

### 3.1. Design, Setting and Participants

This study was based on cross-sectional analyses of the baseline questionnaires from an ongoing observational prospective cohort study. Ethical approval for our study was obtained from the board of St. Marianna University school of medicine (Kawasaki, Japan), and the study was conducted in accordance with the declaration of Helsinki (2013). Participants were current and retired professional footballers. Inclusion criteria were: (i) being a member of a national players' union as a current or retired professional footballer, which means committing (current player) or having committed (retired player) significant time to football training and competing (current player) or having competed (retired player) at professional football level; (ii) aged between 18 and 45 years (period just after retirement being considered a sensible period for professional athletes) (11, 12); (iii) male; and (iv) being able to read and comprehend texts fluently in either English, French or Spanish.

### 3.2. Level of Education and Employment Status

Level of education among current and retired players was examined using a single question scored on a 5-point scale ('no school completed' to 'college, university or equivalent').

Current employment status (e.g. employed or unemployed) among retired players was explored using a single question. In our study, being employed was defined as having a paid job for at least 8 hours per week. Number of working hours per week was explored using a single question.

### 3.3. Symptoms of CMD

#### 3.3.1. Distress

Distress in the previous four weeks was measured using the Distress screener (three items scored on a 3-point scale) which is based on the four-dimensional symptom questionnaire (4DSQ) (20, 21). The 4DSQ i.e. Distress screener has been validated in several languages, including English, French and Spanish (test-retest coefficients  $\geq 0.89$ ; criterion-related validity: Area under ROC curve  $\geq 0.79$ ) (20, 21). A total score ranging from 0 to 6 was obtained by summing up the answers on the three items, a score of 4 or more indicating the presence of distress.

#### 3.3.2. 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. The GHQ-12 has been validated in several languages, including English, French and Spanish (criterion-related validity: sensitivity  $\geq 0.70$ , specificity  $\geq 0.75$ , area under ROC curve  $\geq 0.83$ ) (22). 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 more indicating signs of anxiety/depression (area under curve = 0.88) (22).

#### 3.3.3. 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) (23). The PROMIS has been validated in several languages, including English, French and Spanish (construct validity: product-moment correlations  $\geq 0.96$ ) (for detailed information, see [www.nihpromis.org](http://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 more indicating the presence of sleep disturbance.

#### 3.3.4. Adverse Alcohol Behavior

Current level of alcohol consumption was detected using the 3-item AUDIT-C (24). 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) (24, 25). A total score ranging from 0 to 12 was obtained by summing up the answers on the three items, a

score of 5 or more indicating the presence of adverse alcohol behaviour.

### 3.3.5. Smoking

Current smoking behaviour was assessed with a single question (e.g. 'Do you smoke?'; yes or no).

### 3.3.6. Adverse Nutritional Behavior

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 how many days per week (from 0 to 7) this is the case (26). Consuming healthy meals less than five days per week and eating regularly throughout the day less than three days per week and having breakfast before 10:30 less than three days per week and having a final meal before 20:30 less than three days per week was reported as adverse nutritional behaviour.

### 3.4. Procedures

An anonymous electronic questionnaire available in English, French, Japanese and Spanish was created. Information about the purpose and procedures of the study was sent by email to potential participants by the national players' unions in Belgium, Chile, Finland, France, Japan, Norway, Paraguay, Peru, Spain, Sweden and Switzerland. Interested participants gave their informed consent and completed their questionnaires online. Questionnaires were distributed between April and September 2014.

### 3.5. Data Analyses

All data analyses were performed separately for the group of current professional footballers and the group of retired professional footballers using the statistical software IBM SPSS Statistics 22.0 for Windows. Descriptive analyses (mean, standard deviation, frequency, range) were performed for the different variables. Correlation coefficients (Phi, Point Biserial, Rank Biserial, Spearman) were used to explore the direction and relative strength of the potential relationship between level of education (no schooling completed, nursery/elementary school, high school, vocational/technical school, college, and university or equivalent), employment status (employed/unemployed) and working hours (number of hours) with symptoms of CMD (presence/absence) (27). Univariate logistic regression analyses (with dichotomised symptoms of CMD) expressed as odds ratio (OR) and related 95% confidence interval (95% CI) were conducted to explain the potential relationship between level of education, employment status and working hours with the presence/absence of the outcome measures under study (27).

## 4. Results

### 4.1. Participants

A total of 607 current professional footballers (mean age of 26.8 years; mean career duration of 7.8 years) and 219 retired professional footballers (mean age of 35.0 years; mean career duration of 11.6 years; mean duration since retirement of 4.4 years) participated in the study. Characteristics of both current and retired professional footballers are presented in Table 1.

**Table 1.** Characteristics of the Participants

	Current Players (N = 607)	Retired Players (N = 219)
Age, y	26.8 ± 4.4	35.0 ± 6.4
Career duration, y	7.8 ± 4.4	11.6 ± 5.0
Duration of retirement, y	-	4.4 ± 3.6
Working hours per week	-	34.8 ± 14.7
Level of play (top league), %	54	64
Level of educational, %		
No schooling completed	2	2
Nursery/elementary school	3	2
High school	52	24
Vocational/technical school	12	24
College, university or equivalent	31	48
Currently (self-employed), %	-	76

Abbreviations: cm, centimetres; kg, kilograms; N, number of participants.

### 4.2. Prevalence of Symptoms of CMD

Prevalence of symptoms of CMD among current professional footballers ranged from 4% for smoking and 9% for adverse alcohol behaviour to 38% for anxiety/depression and 58% for adverse nutritional behaviour. Prevalence of symptoms of CMD among retired professional footballers ranged from 11% for adverse smoking behaviour and 18% for distress, to 35% for anxiety/depression and 65% for adverse nutritional behaviour. All prevalence rates are presented in Table 2.

**Table 2.** Prevalence of Symptoms of Common Mental Disorders Among Current and Retired Professional Footballers

	Current Professional Footballers		Retired Professional Footballers	
	Prevalence (95% CI)	Prevalence (95% CI)	Prevalence (95% CI)	Prevalence (95% CI)
Distress <sup>a</sup>	14.8	(11.8 - 17.8)	18.4	(13.2 - 23.7)
Anxiety/depression <sup>a</sup>	37.9	(33.7 - 42.2)	35.3	(28.4 - 42.1)
Sleeping disturbance <sup>a</sup>	23.4	(19.8 - 26.9)	28.2	(22.0 - 34.3)
Adverse alcohol behaviour <sup>b</sup>	9.4	(7.0 - 11.9)	24.6	(18.7 - 30.6)
Adverse smoke behaviour <sup>b</sup>	3.8	(2.2 - 5.4)	11.4	(7.0 - 15.8)
Adverse nutritional behaviours <sup>b</sup>	58.1	(53.9 - 62.3)	64.5	(58.0 - 71.1)

Abbreviations: CI, confidence of interval; N, number of participants.

<sup>a</sup>Month prevalence.

<sup>b</sup>Point prevalence.

#### 4.3. Relationship of Level of Education and Employment Status With Symptoms of CMD

Among retired professional footballers, statistically significant negative correlations were found between employment status and symptoms of distress and anxiety/depression ( $P < 0.05$ ), as well as between number of working hours and symptoms of anxiety/depression ( $P < 0.05$ ): a higher number of working hours was related to the absence of symptoms of CMD. However, no statistically significant odds ratios were found between these (employment status and working hours) and symptoms of CMD. Among both current and retired professional footballers, level of education was not associated with symptoms of CMD. All relationships are presented in [Table 3](#).

## 5. Discussion

The principal findings of the present study were that: (i) prevalence of symptoms of CMD ranged from 4% for smoking to 38% for anxiety/depression and 58% for adverse nutritional behaviour among current professional footballers and from 11% for smoking to 35% for anxiety/depression and 65% for adverse nutritional behaviour among retired players; (ii) among retired professional footballers, statistically significant negative correlations were found between employment status and symptoms of distress and anxiety/depression, as well as between number of working hours and symptoms of anxiety/depression; level of education was not associated with symptoms of CMD among current professional footballers.

Among retired professional footballers, we found that employment status as well as a higher number of working hours was negatively correlated to symptoms of distress and anxiety/depression. While these correlations were weak in our study, scientific evidence has shown that being unemployed is unfavourable for well-being and that

unemployed individuals are likely to report mental health problems (19). Consequently, and as previously advocated, our study might suggest that attention to career planning should be given in all professional clubs (including youth academies) in order to prepare players optimally for post-football life and potentially secure future employment outside football (17). Career planning has been recognized as essential for the development of athletes, focussing on the athletic, psychological, psychosocial and academic/vocational domains (11, 12). In the period around retirement from professional sports, retiring/retired professional athletes can face several challenges, including adapting to a new life and new lifestyle, being suddenly “like anyone else” outside sports (11, 12). Attention to career planning might enable professional athletes to find a good balance between elite sport and other important life domains, starting with an adequate level of education and leading ultimately to a better vocational transition.

In our study, contradictory to our expectation, we did not find statistically significant associations between level of education and symptoms of CMD among current professional footballers nor among retired players. Previous studies in adults have suggested that lower level of education was significantly associated with an increased CMD prevalence, while adolescents having a proper engagement with learning and doing well on the level of educational were less likely to report symptoms of CMD (28, 29). By contrast, this relationship was not found in our study. A possible explanation for this might be that the occurrence of symptoms of CMD among professional footballers is principally induced by other stressors closely related to football, for instance severe injuries: a recent study showed that professional footballers who had sustained one or more severe musculoskeletal injuries during their career were two to nearly four times more likely to report symptoms of CMD than professional footballers who

**Table 3.** Correlation Coefficients and Odds Ratio (With the Corresponding 95% CI) for the Association Between Level of Education and Employment Status and CMD Symptoms for Current and Retired Professional Footballers, Separately<sup>a</sup>

	Current Players				Retired Players			
	Level of Education		Level of Education		Employment Status		Working Hours	
	Correlation	OR	Correlation	OR	Correlation	OR	Correlation	OR
<b>Distress</b>	0.07	1.1 (0.8 - 1.4)	-0.07	0.8 (0.6 - 1.3)	-0.18 <sup>b</sup>	0.6 (0.2 - 1.7)	-0.13	1.0 (1.0 - 1.0)
<b>Anxiety/depression</b>	0.05	1.0 (0.8 - 1.2)	-0.04	0.8 (0.6 - 1.2)	-0.17 <sup>b</sup>	0.4 (0.1 - 1.2)	-0.19 <sup>b</sup>	1.0 (1.0 - 1.0)
<b>Sleeping disturbance</b>	0.07	1.1 (0.9 - 1.3)	-0.04	1.0 (0.7 - 1.4)	-0.11	0.8 (0.3 - 2.4)	-0.09	1.0 (1.0 - 1.0)
<b>Alcohol behaviour</b>	0.04	1.0 (0.7 - 1.3)	-0.02	1.0 (0.6 - 1.4)	0.05	0.4 (0.2 - 1.2)	0.06	1.0 (1.0 - 1.0)
<b>Smoking</b>	0.00	1.0 (0.7 - 1.7)	0.01	0.9 (0.5 - 1.4)	-0.00	0.7 (0.2 - 2.9)	0.02	1.0 (1.0 - 1.0)
<b>Nutritional behaviour</b>	-0.05	0.9 (0.8 - 1.1)	-0.09	0.9 (0.6 - 1.2)	-0.09	1.1 (0.4 - 3.1)	-0.11	1.0 (0.9 - 1.0)

<sup>a</sup>Phi coefficient: employment status and smoking; point Biserial correlation coefficient, working hours and smoking; rank Biserial correlation coefficient, level of education and smoking, employment status and distress, anxiety/depression, sleeping disturbance, alcohol behaviour, nutritional behavior; Spearman correlation coefficient, level of education, working hours and distress, anxiety/depression, sleeping disturbance, alcohol behaviour, nutritional behaviour.

<sup>b</sup>P < 0.05.

had not suffered from severe musculoskeletal injuries (30). However, it has been suggested that educational development of elite athletes might benefit performance in their sport, which seems a relevant additional motivation for educational commitment (31, 32). At the present time, while many national players' unions have implemented an online academy, and the academies of professional clubs offer education to their young players, the focus of the professional clubs remains on the performance on the football pitch, and their commitment to education remains doubtful.

Potential limitations of our study are the cross-sectional design, which does not allow the establishment of any casual relationship between independent and dependent variables, the lack of non-response analysis, and the use of self-report for the assessment of CMD. With regard to the assessment of CMD, it seems worth noticing that the screening instruments are nowadays validated in many languages. However, these instruments were not developed especially for professional athletes and were validated within the context of professional sport. Considering the weak correlations found between the variables under study, it might be suggested those could be due to chance and consequently, more investigations seem necessary to provide further evidence in this regard. A strength of the present epidemiological study might be especially the topic being explored among two large groups of participants that are difficult to reach for scientific research, namely current and retired professional footballers. Also, such an epidemiological study is a necessary first step to propose adequate preventive and supportive measures aiming to protect a player's health and safety (33).

Existing scientific evidence emphasizes especially the

importance of combining a football career with sustainable attention for educational and career planning (11, 12, 17). Educational and vocational commitment during a professional football career might prevent mental health problems and empower future employment in post-football life. By making such a lifetime and holistic approach mandatory for its players, professional football would concur with the statements of the world health organization and international labour organization, stating that stakeholders are responsible for the protection, promotion, inspection and support of the highest level of physical, mental and social well-being of their employees long after they reach retirement age.

### Acknowledgments

The authors would like to thank the players' unions from Belgium (Sporta), Chile (Sindicato Futbolistas Profesionales De Chile SIFUP), Finland (Jalkapallon Pelaajayhdistys Ry JPY), France (Union Nationale des Footballeurs Professionnels UNFP), Japan (Japan Pro-Footballers Association JPFA), Norway (Norske Idrettsutøveres Sentralorganisasjon NISO), Paraguay (Futbolistas Agremiados del Paraguay FAP), Peru (Agremiacion de Futbolistas Profesionales del Peru SAFAP), Spain (Asociacion de Futbolistas Espanoles AFE), Sweden (Spelarforeningen Fotboll I Sverige SFS) and Switzerland (Swiss Association of Football Players SAFF). The authors are very grateful to all current and retired players for their participation in the study.

### Footnote

**Authors' Contribution:** Study concept and design: Vincent Gouttebarga, Haruhito Aoki and Gino Kerkhoffs; anal-



ysis and interpretation of data: Vincent Goutteborge, Haruhito Aoki, Evert Verhagen and Gino Kerkhoffs; drafting of the manuscript: Vincent Goutteborge and Gino Kerkhoffs; critical revision of the manuscript for important intellectual content: Vincent Goutteborge, Haruhito Aoki, Evert Verhagen and Gino Kerkhoffs; statistical analysis: Vincent Goutteborge and Gino Kerkhoffs.

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