

# Mental Health Profiles of Danish Youth Soccer Players: The Influence of Gender and Career Development

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The purpose of this study was (a) to investigate gender differences in mental health among Danish youth soccer players, (b) to discover the mental health profiles of the players, and (c) to explore how career progression and mental health are related. A total of 239 Danish youth elite soccer players ( $M = 16.85$ ,  $SD = 1.09$ ) completed an online questionnaire assessing mental well-being, depression, anxiety, along with other background variables. Female players scored significantly lower on mental well-being and had four times higher odds of expressing symptoms of anxiety and depression than males. Athletes' mental health profiles showed that most athletes experience low depression while having moderate mental well-being. Depression, anxiety, and stress scores generally increased when progressing in age, indicating that the junior–senior transition poses distinct challenges to players' mental health, especially for female players. Different strategies to foster players' mental health depending on their mental health profiles are proposed.

**Keywords:** anxiety, depression, elite sport, screening, well-being

Research within the field of sport psychology has traditionally been more focused on psychological skills enhancement, optimal performance, and/or functioning, rather than psychological disorders or distress (e.g., Moore & Bonagura, 2017). However, mental health in elite sport has received increased attention in the 10 past years, both in terms of public and academic interest (Gouttebarga et al., 2019; Kuettel & Larsen, 2020; Reardon et al., 2019). Even though sport and movement, in general, has a beneficial impact on individuals' well-being (Lundqvist, 2011), it has been shown that injury and overtraining (e.g., Gouttebarga et al., 2017), expectations

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and pressure from sponsors or the media (e.g., Coyle, Gorczynski, & Gibson, 2017), lack of support from the personal and private environment (Gouttebarga, Frings-Dresen, & Sluiter, 2015), and chronic stress to balance the demands from different life domains (McLoughlin, Fletcher, Slavich, Arnold, & Moore, 2021; Nixdorf, Frank, Hautzinger, & Beckmann, 2013) can trigger symptoms of mental ill-health in athletes. A range of studies have determined significant levels of mental ill-health among athlete populations (Foskett & Longstaff, 2018; Kilic et al., 2017; Schaal et al., 2011), and numerous famous athletes (e.g., Clarke Carlisle, Ian Thorpe, Lindsay Vonn) have made their struggles with common mental disorders (i.e., anxiety, mood, psychotic, and eating disorders) public.

Prevalence rates of mental disorders in athletes are debated in the literature, and numbers (e.g., symptoms of depression) vary heavily between studies, also due to the different screening instruments used (Golding, Gillingham, & Perera, 2020; Tahtinen, Shelley, & Morris, 2021). Several studies have investigated the prevalence of mental illness among soccer players in different countries and on different levels. For example, Gouttebarga et al. (2015) found that 26% of current and 39% of former national players from six countries expressed anxiety and depressive symptoms, and up to 42% of former athletes had adverse nutrition behavior. Furthermore, in another study by Gouttebarga, Aoki, Verhagen, and Kerkhoffs (2016), both active and former players expressed sleep disturbance and adverse alcohol behavior in addition to their symptoms of distress, anxiety, and depression. Gender differences and prevalence rates of depression and anxiety among Swiss top-level male and female soccer players were studied by Junge and Feddermann-Demont (2016). Male first league players had significantly lower average depression scores than male U-21 and female players; whereas, other studies found that younger athletes had lower stress levels and higher well-being than older athletes (e.g., Belz et al., 2018). A study with Icelandic team-sport athletes suggested that although female athletes may be more likely than males to experience moderate levels of depressive symptoms, the rates of more severe symptomatology may be comparable between the sexes (Tahtinen, Kristjansdottir, Olason, & Morris, 2021). Prinz, Dvorak, and Junge (2016) found that average depression scores differed significantly between playing positions and levels of play in the German league, and conflicts with management contributed additionally to higher scores. Jensen, Ivarsson, Fallby, Dankers, and Elbe (2018) showed that perfectionistic concerns among Danish and Swedish male elite soccer players had a positive indirect effect on depression via competitive anxiety. Another study in the Danish context (Kilic et al., 2017) found that players having had severe injuries and experienced critical life events were 20% more likely to report symptoms of common mental disorders. When examining Danish athletes with different mental health profiles from a variety of sports, Kuettel, Pedersen, and Larsen (2021) found that flourishing athletes experienced better social support (both within the sporting domain and from their private environment) and expressed fewer stressors than athletes with higher symptomatology of depression and anxiety.

## How Can Mental Health Be Understood in Elite Sport?

Current views on mental health and well-being have shifted the focus from a negative conceptualization of mental health as the absence of mental illness to

definitions that encompass positive mental aspects and include the level of functioning and flourishing of individuals (Tennant et al., 2007; Uphill, Sly, & Swain, 2016). Despite the lack of a universally agreed definition of well-being (Giles, Fletcher, Arnold, Ashfield, & Harrison, 2020), it is principally understood to encompass a combination of both hedonic and eudaimonic components, which are crucial for flourishing across life domains (Lundqvist, 2011). The hedonic perspective typically relates to general happiness and life satisfaction, which is achieved through the striving for rewarding and pleasurable experiences that reinforce positive feelings and satisfaction. The eudaimonic perspective focuses more broadly on the personal quality of life together with the social and psychological well-being that promote living well (Keyes, 2007).

Mental health in the current study is informed by the two-continua model of *mental health* and *mental illness* proposed by Keyes (2002, 2007). In this model, mental health and mental illness are not opposing ends of one spectrum, but rather sit as separate but interrelated continua. The first continuum relates to the absence or presence of mental health where individuals can be classified as flourishing, moderate mentally healthy, or languishing, while the second relates to the absence or presence of mental illness (e.g., depression). According to Keyes' theoretical model and empirical studies, all three categories (flourishing, moderate, and languishing) can occur in the presence or absence of depression. Hence, athletes could simultaneously be flourishing and experience mental illness or could be free from mental illness and be languishing. Therefore, it is important to take measurements of both the mental health and illness continuum. Consequently, different support (i.e., prevention, treatment, continuing care) to promote mental health is needed depending on the mental health profile of athletes (Purcell, Gwyther, & Rice, 2019). Even though Keyes' model has been proposed as useful for understanding mental health in sport (Uphill et al., 2016), mental health as a complete state has not been explored with soccer players thus far. Instead of only focusing on mental health or mental illness in athletes, the current study aimed to enhance the understanding of youth soccer players' mental health profiles characterized by their positive mental health (i.e., well-being) and their mental illness (i.e., symptoms of depression and/or anxiety).

## **A Holistic View on Players' Career Progression in Denmark**

Athletes' career development, based on a holistic lifespan and ecological perspectives, positions mental health as an important resource for athletes' career decisions and transitions (Schinke, Stambulova, Si, & Moore, 2018). According to the Holistic Athletic Career Model (Wylleman, Reints, & De Knop, 2013), youth soccer players must deal with normative career transitions (i.e., simultaneous transition in sport and education), quasi-normative transitions (e.g., move to a training academy or club abroad), and nonnormative transitions (e.g., injury) on their pathway to the professional level. A career transition is a turning phase in athletes' development that brings a set of demands (usually appraised as stressors) and requires relevant coping strategies in order to continue in athletic and parallel careers (Van Rens, Borkoles, Farrow, & Polman, 2018). The central direction of

athletes' development depends on how effectively athletes can cope with major transitions in sport and life.

Danish society is characterized by ideals of equality and welfare. These ideals also permeate the history and culture of sport in Denmark, where early mass sport participation and a sport-for-all concept serve as the fundamentals (Kuettel, Christensen, Zysko, & Hansen, 2020). The Danish elite sports law states that athletes' careers should be promoted in a socially responsible manner by pursuing education and providing job opportunities. Grassroots football is based on the sport-for-all ideal in local clubs; however, young footballers around the age of 13 striving for fulfilling their potential make the transition into professional academies that are increasingly characterized by professionalization providing sport psychological services to players. The junior-to-senior transition within these academies is a crucial phase in the career of soccer players (Morris, Tod, & Eubank, 2017; Rosenkilde, Christiansen, & Rossing, 2019), and many Danish soccer clubs and academies try to create environments that make it possible to combine a (potential) professional soccer career with education (Larsen, Alfermann, Henriksen, & Christensen, 2013; Thomsen & Nørgaard, 2018). However, the logics of striving toward a professional sports career while simultaneously endeavoring in the educational domain are often conflicting, adding an additional source of stress to prospering athletes (Christensen & Sørensen, 2009; Cosh & Tully, 2014, Henriksen, Storm, Kuettel, Linnér, & Stambulova, 2020). Despite the benefits of a dual career (DC) often highlighted in the literature (e.g., more balanced lifestyle and identity, building up competencies; Aquilina, 2013; Kuettel et al., 2020), pursuing a DC can be very demanding and eventually lead to burnout and negative implications for athletes' mental health (Sallen, Hemming, & Richartz, 2018; Sheehan, Herring, & Campbell, 2018).

The current study responds to the call for a more in-depth understanding of the mental health of athletes combining sport and education from a holistic and developmental perspective (Kuettel & Larsen, 2020; Stambulova & Wylleman, 2019). Even though some of the studies mentioned above investigated mental health in soccer, most of them have only examined common mental disorders and their associated factors with little focus on well-being and age progression concerning mental health in a holistic perspective. This is where the current study adds additional knowledge to the existing literature.

## Objectives

The purpose of this study was to (a) investigate the *general prevalence* of symptoms of anxiety and depression in Danish youth soccer players along with their levels of positive mental health with a focus on gender differences, (b) uncover *individual players'* complete mental health profiles (i.e., their levels of positive mental health in combination with their levels of depressive symptoms), and (c) explore how age, cumulative stress, and mental health are related. Based on the previous literature, it was hypothesized that female soccer players would report lower mental health and higher mental illness symptoms (i.e., anxiety and depression) than male players. Based on the contradictory findings regarding the relationship between age and mental health in athletes, an explorative approach

was chosen to examine the interplay between career progression and mental health, and no directive hypothesis was stated.

## Materials and Methods

### Procedures and Participants

After receiving approval from the regional ethics committee, potential youth soccer players aged 15–19 years were contacted to participate in the study. To be eligible for the study, players had to (a) be part of a national youth or elite sports program and (b) participate in international games or games at the highest national level in their age category. Potential players were first contacted by their club or talent academy and informed about the purpose of this study. Athletes then received a general link to the online survey from their club or academy. This recruitment procedure was deemed relevant to meet the standards of the EU's general data protection regulations and safeguard the privacy rights of personal data. This procedure did not allow for the calculation of response rates since it was a "not-list-based" survey (Bryman, 2012). Participants were informed that participation was voluntary, their anonymity would be protected, and their data would be stored and treated according to the general data protection regulations. Data were collected in 2019. A total of 239 athletes completed the survey ( $n = 57$  female players,  $M_{\text{age}} = 16.98$  years,  $SD = 1.25$ ; and  $n = 182$  male players,  $M_{\text{age}} = 16.08$  years,  $SD = 1.03$ ). In terms of their sporting level, most players played at the national youth or senior level, while a few players already made their debut on the international scene. Table 1 provides an overview of the participants.

### Measures

**Demographics and sports career information.** Players reported age and current sporting level. They were further asked how much time per week they used for their sport, education, and work, respectively. Athletes rated how much they were negatively affected by stressors from the sports domain (e.g., training, competition, selection, pressure); the school/work domain (e.g., exams, deadlines, income); and the private life domain (e.g., relationships, living situation, daily hassles) on a scale from 1 (*not at all affected*) to 5 (*very much affected*). Based on the holistic ecological approach, a cumulative stress score was calculated by summing up the stressors encountered in the sporting, school, and private domains (Cronbach  $\alpha = .70$ ).

**Mental well-being.** To assess athletes' mental health, the Danish seven-item version of the Short Warwick–Edinburg Mental Well-Being Scale (Tennant et al., 2007) was used, which was validated in age groups similar to our sample (Koushede et al., 2019). The scale covers both feeling and functioning (hedonic and eudaimonic) aspects of well-being, which represent the mental health component of Keyes' two continua model. The Short Warwick–Edinburg Mental Well-Being Scale instructs participants to indicate the level of occurrence of statements (e.g., "I've been feeling useful" and "I've been feeling optimistic about the future") over a 2-week period on a 5-point Likert scale from 1 (*none of the time*) to 5 (*all of*

**Table 1** Participants' Characteristics by Age, Sporting Level, Time Effort, and Perceived Stress in Different Life Domains

Characteristics	Female (n = 57)	Male (n = 182)	t	Effect size Cohen's d
Age 15–16 years	25 (43.9%)	75 (41.2%)		
Age 17 years	12 (21.1%)	57 (31.3%)		
Age 18 years	11 (19.3%)	43 (23.6%)		
Age 19 years	9 (15.8%)	7 (3.8%)		
National youth level	37 (64.9%)	151 (82.9%)		
National senior level	15 (26.4%)	2 (1.1%)		
International level	5 (8.8%)	29 (15.9%)		
Total effort for sport (hr/week), mean (SD)	15.96 (5.90)	18.49 (8.23)	2.71**	0.35
Total effort education (hr/week), mean (SD)	30.67 (9.94)	27.84 (10.04)	1.31	0.28
Total effort work (hr/week), mean (SD)	4.40 (8.66)	0.58 (2.29)	5.22**	0.60
Stress sport (1–5), mean (SD)	3.53 (1.04)	2.88 (1.16)	3.43**	0.59
Stress school (1–5), mean (SD)	3.88 (1.02)	3.34 (1.16)	2.61**	0.49
Stress private (1–5), mean (SD)	2.93 (1.37)	2.53 (1.27)	1.83	0.30

Note. The *t* test for comparison of means between gender based on 1,000 bootstrap samples. Effect sizes (Cohen, 1988): .20 = small; .50 = medium; .80 = large.

\*\*Differences between means are significant at the .01 level.

the time). Scores  $\leq 23$  indicate below average well-being, scores from 24 to 29 indicate average well-being, and scores  $\geq 30$  indicate above average well-being (Nicholls, Madigan, Fairs, & Bailey, 2020). The Cronbach  $\alpha$  in this study was a satisfactory .81.

**Anxiety.** To assess players' symptoms of anxiety, we used a Danish version of the Generalized Anxiety Disorder questionnaire (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006), which is a widely used and validated screening tool for generalized anxiety disorders in the general population. Athletes answered statements such as "Feeling nervous, anxious, or on edge" or "Worrying too much about different things," using a scale from 0 (*not at all*) to 3 (*nearly every day*) to indicate how often they have been bothered by problems within the past 2 weeks. The proposed cutoff points were 0–4 (*minimal symptoms*), 5–9 (*mild symptoms*), 10–14 (*moderate symptoms*), and 15–21 (*severe symptoms*) (Spitzer et al., 2006). The Cronbach  $\alpha$  coefficient for the GAD-7 in this study was .83.

**Depression.** The athletes completed a Danish version of the Center for Epistemological Study Depression Scale (CES-D; Radloff, 1977), which is a commonly used valid and reliable 20-item instrument to assess depressive symptoms. Even though the CES-D has not been validated among athletes, it is the most used instrument to measure depressive symptoms in athletes (Golding et al., 2020). Statements, such as "I felt awful," "People were unfriendly," and "I talked less than usual," related to the past week were answered on a scale from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). The proposed cutoff points (Radloff, 1977) were

0–15 (*no to mild symptomatology*), 16–23 (*moderate symptomatology*), and 24–60 (*severe symptomatology*). The Cronbach  $\alpha$  for the CES-D in this study was .87.

## Data Analysis

Data were tested for missing cases, distributions, and assumptions of univariate and multivariate analyses (Field, 2013; Tabachnick & Fidell, 2014). The following statistical analyses were conducted using SPSS (version 25.0; IBM Corp., Armonk, NY): (a) Cronbach  $\alpha$  tests to assess the internal consistency of the scales; (b) nonparametric correlation analyses between the main study variables; (c) descriptive statistics of mental well-being, anxiety, and depression to assess the general prevalence according to the scales' cutoff points; (d) independent-sample *t* tests and chi-square tests to detect gender differences concerning well-being, anxiety, and depression along with odds ratios; and (e) analysis of variance tests for age-group differences concerning player's mental health and stress levels.

## Results

### Mental well-being

Table 2 displays the mental well-being scores separately for female and male soccer players. Female players ( $M = 25.07$ ,  $SD = 3.57$ ) expressed significantly

**Table 2 Danish Youth Soccer Players' Scores for Mental Well-Being, Anxiety, and Depression by Gender**

Characteristics	Female ( $n = 57$ )	Male ( $n = 182$ )	<i>t</i>	Cohen's <i>d</i>
Well-being (SWEMWBS), mean ( <i>SD</i> )	25.07 (3.57)	27.15 (3.75)	3.73**	0.57
Below average (score $\leq 23$ )	17 (29.8%)	30 (16.5%)		
Average (score 24–29)	36 (63.2%)	108 (59.3%)		
Above average (score $\geq 30$ )	4 (7.0%)	44 (24.2%)		
Anxiety (GAD-7), mean ( <i>SD</i> )	6.32 (4.67)	4.05 (3.74)	3.47**	0.54
Minimal/mild symptoms (score $\leq 9$ )	41 (71.9%)	168 (92.3%)		
Moderate symptoms (score 10–14)	14 (24.6%)	9 (4.9%)		
Severe symptoms (score $\geq 15$ )	2 (3.5%)	5 (2.7%)		
Depression (CES-D), mean ( <i>SD</i> )	14.06 (8.83)	9.40 (7.13)	3.70**	0.57
Minimal/mild symptoms (score $\leq 15$ )	34 (59.6%)	157 (86.3%)		
Moderate symptoms (score 16–23)	15 (26.3%)	16 (8.8%)		
Severe symptoms (score $\geq 24$ )	8 (14.0%)	9 (4.9%)		

*Note.* The *t* tests for mean comparison between gender based on 1,000 bootstrap samples. Effect sizes: .20 = small; .50 = medium; .80 = large (Cohen, 1988). GAD-7 = Generalized Anxiety Disorder questionnaire; CES-D = Center for Epistemological Study Depression Scale; SWEMWBS = Short Warwick–Edinburg Mental Well-Being Scale.

\*\*Differences between means are significant at the .01 level.

lower mental well-being than male players ( $M = 27.15$ ,  $SD = 3.75$ ),  $t = 3.73$ ,  $p = .001$ , Cohen's  $d = 0.57$  (medium effect size). Most players ( $n = 144$ , 60%) expressed average well-being scores, while 30% of female players ( $n = 17$ ) and 17% of male players ( $n = 30$ ) scored below the average score range of the Short Warwick–Edinburg Mental Well-Being Scale (score  $\leq 23$ ). Roughly one fourth of the male players ( $n = 44$ ) scored above average (score  $\geq 30$ ), while it was only the case for four female players (7%). The odds ratio to express above average mental well-being was 4.25 higher for males (44/138) than for female soccer players (4/53).

## Anxiety

Significant differences were found between female ( $M = 6.32$ ,  $SD = 4.67$ ) and male players ( $M = 4.05$ ,  $SD = 3.74$ ), with females expressing higher anxiety scores,  $t = 3.47$ ,  $p = .001$ ,  $d = 0.54$ . In total, 28.1% of female ( $n = 16$ ) and 7.6% of male players ( $n = 14$ ) expressed either moderate or severe anxiety symptoms according to the GAD-7 cutoff points ( $\chi^2 = 19.50$ ,  $df = 2$ ,  $p < .001$ , Cramer's  $V = 0.29$ ). Odds ratio for female players (16/41) to develop moderate/severe anxiety symptoms was 4.68 times higher than for male players (14/168).

## Depression

A significant difference in the depression scores between female ( $M = 14.06$ ,  $SD = 8.83$ ) and male players ( $M = 9.40$ ,  $SD = 7.13$ ) was found with females reporting higher depression scores,  $t = 3.70$ ,  $p = .001$ ,  $d = 0.57$ . In total, 40.3% female ( $n = 23$ ) and 13.7% male players ( $n = 25$ ) expressed either moderate or severe depressive symptoms according to the CES-D cutoff points ( $\chi^2 = 19.16$ ,  $df = 2$ ,  $p < .001$ , Cramer's  $V = 0.28$ ). Odds ratio to develop moderate/severe depressive symptoms was 4.24 times higher for female (23/34) than for male players (25/157).

## Characteristics and Correlations of Study Variables

Descriptive statistics and Spearman correlations ( $r_s$ ) between the study variables are displayed in Table 3 together with the Cronbach  $\alpha$  coefficient of the scales. Mental well-being was negatively correlated with anxiety ( $r_s = -.49$ ,  $p < .001$ ) and depression ( $r_s = -.58$ ,  $p < .001$ ); whereas, anxiety correlated positively with depression ( $r_s = .62$ ,  $p < .001$ ). Other medium ( $r_s = .3$ ) to large ( $r_s = .5$ ) correlation effect sizes (Cohen, 1988) were found between the three main study variables and the total stress variable. Gender (male as the reference group) was positively correlated with well-being ( $r_s = .24$ ) and negatively with anxiety ( $r_s = -.22$ ), depression ( $r_s = -.23$ ), and stress ( $r_s = -.23$ ). Age (i.e., older) was negatively correlated with well-being ( $r_s = -.19$ ) and positively with stress ( $r_s = .16$ ).

## Mental Health Profiles of Danish Youth Soccer Players

In line with Keyes' (2002) framework, mental health profiles of players are displayed in a scatterplot with mental well-being on the vertical and symptoms of depression (as a proxy for mental illness) on the horizontal axis for both female

**Table 3 Means, SDs, and Correlations Between Study Variables for Danish Youth Soccer Players (N = 239)**

Variable (range)	Mean (SD)	$\alpha$ (items)	Gender	Age	Well-being	Anxiety	Depression
Gender (0 = female; 1 = male)	76% male		1				
Age (15–19) years	16.85 (1.09)		-.05	1			
Well-being SWEMWBS (7–35)	26.66 (3.80)	.80 (7)	.24**	-.19**	1		
Anxiety GAD-7 (0–21)	4.59 (4.09)	.83 (7)	-.22**	.09	-.49**	1	
Depression CES-D (0–60)	10.52 (8.00)	.87 (20)	-.23**	.09	-.58**	.62**	1
Cumulative stress (3–15)	9.12 (2.86)	.70 (3)	-.23**	.16*	-.43**	.47**	.51**

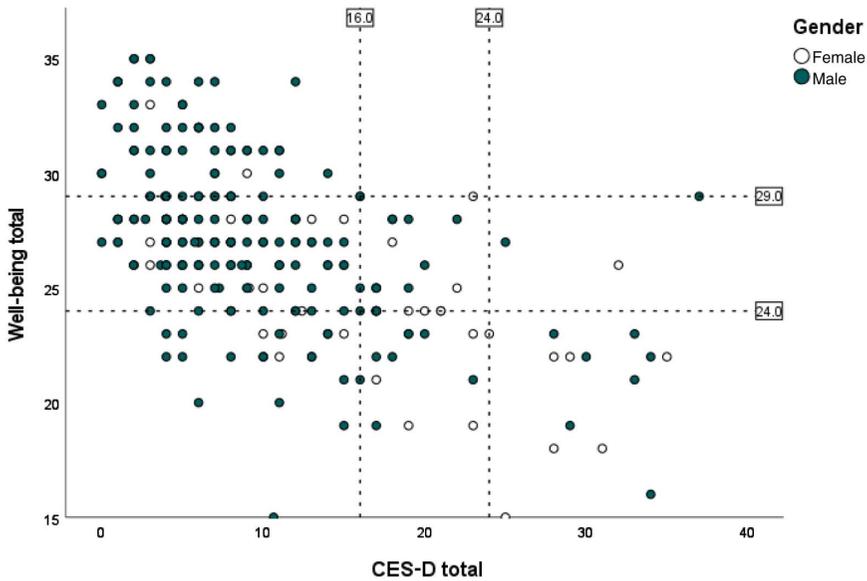
Note. GAD-7 = Generalized Anxiety Disorder questionnaire; CES-D = Center for Epistemological Study Depression Scale; SWEMWBS = Short Warwick–Edinburg Mental Well-Being Scale.

\*\*Spearman's rho correlation coefficients are significant at the .01 level.

(open circles) and male players (solid circles). Figure 1 shows that half of the players ( $n = 121$ ; 50.6%) had low CES-D scores together with average well-being scores (between 24 and 29), indicating a state of *moderate mental health*. The 48 players (20.1%) in the upper left corner had low depression scores and were high in mental well-being, hence expressing a state of *flourishing*. The 22 players (9.2%) in the lower left corner reported both low depressive symptoms and low mental well-being, expressing a state of *languishing*. Twenty players (8.4%) were located in the middle square and had a state of *moderate mental health and moderate mental illness*. Eleven players (4.6%) were languishing with moderate depressive symptoms, and 14 players (5.9%) were languishing reporting severe depressive symptoms (lower right corner: *languishing and mental illness*). Three players expressed moderate mental well-being despite scoring high on the CES-D. No player above the cutoff points for moderate or severe depressive symptoms reported above average well-being.

### Mental Health and Stressors in Relation to Players' Age

Figure 2 displays the scores of well-being, anxiety, depression, and cumulative stress for players' age categories. Since the four constructs were measured on different scales, the scores were transformed to  $z$  scores (with an  $M = 0$  and an  $SD = 1$ ) to facilitate comparison and to improve visualization. Due to the small sample sizes in the different age groups by gender (see Table 1), the scores of female and male players were combined when displaying the results graphically in Figure 2. Analysis of variance followed by a post hoc test using Bonferroni correction revealed that athletes in the age group 18 and 19 years had significantly

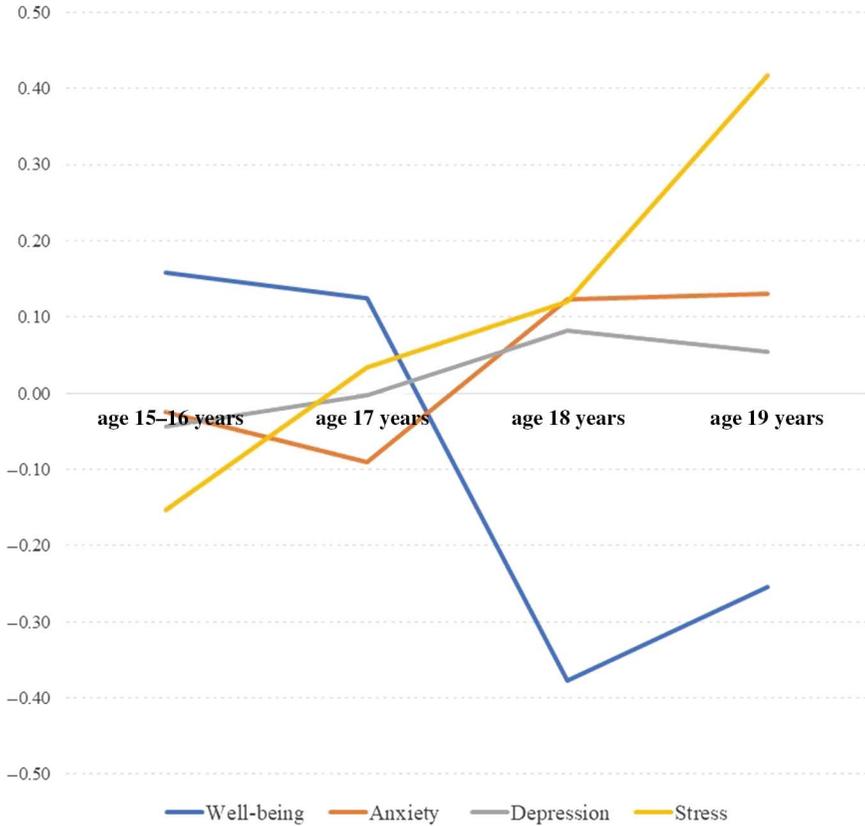


**Figure 1** — Scatterplot of mental well-being and depression scores for female and male youth soccer players. *Note:* The horizontal dotted lines indicate the range of the average well-being scores (24–29) of the SWEMWBS (Tennant et al., 2007). The vertical dotted lines indicate the cut-off points for moderate (16–23) and severe (24–60) depressive symptoms according to the CES-D (Radloff, 1977). CES-D = Center for Epistemological Study Depression Scale.

lower well-being means than the athletes in the two youngest age groups,  $F(3, 235) = 4.26, p = .006, \eta^2 = .21$ . The mean scores for anxiety, depression, and stress generally increased from age 15 to 19 years, but age group differences were not statistically significant, likely due to the small subsample sizes.

## Discussion

The first aim of this study was to compare the prevalence of mental health (i.e., well-being) and mental illness (i.e., depression and anxiety symptoms) between Danish female and male youth soccer players. The hypothesis that female soccer players would express lower well-being and higher symptoms of anxiety and depression was confirmed. Medium effect sizes were detected in the mean differences and the odds ratios (Chen, Cohen, & Chen, 2010) between the players of the opposite sex. These results support the findings from Junge and Feddermann-Demont (2016) who also found higher averages in the GAD-7 and the CES-D scores for female soccer players and echo the conclusions from reviews on mental health in elite sport about gender differences (Kuettel & Larsen, 2020; Tahtinen et al., 2021). However, compared with the results from Junge and Feddermann-Demont's (2016) study, the scores from the current sample are rather elevated, indicating that the Danish youth soccer players experience higher symptoms of both



**Figure 2** — Z-scores of well-being, anxiety, depression and stress by age.

anxiety and depression than top-level players from Switzerland. The fact that 40% of the female athletes scored above the cutoff point for moderate depression (CES-D score  $\geq 16$ ; Radloff, 1977) certainly raises concern. The overall prevalence rate for depressive symptoms among all participants was 20%. These results align well with the findings of Kilic et al. (2017) and Jensen et al. (2018) who studied Danish soccer players, showing that one in five players experiences issues of a common mental disorder. These numbers are lower than prevalence rates of symptoms of anxiety and depression reported by international elite footballers, which vary between 25% and 43% (Gouttebarga et al., 2015, 2016).

Since the well-being of soccer players has not been investigated in previous studies, it is difficult to compare our results with previous findings. The average well-being scores of female soccer players ( $M = 25.07$ ) are higher than the average of females in the Danish general population ( $M = 24.10$ ), and the same was noted for male players ( $M = 27.15$ ) whose average scores are higher than those of general population peers in their age group 16–25 ( $M = 25.80$ ) years. Compared with U.K. male rugby players ( $M = 25.07$ ; Nicholls et al., 2020), the Danish male soccer

players expressed elevated well-being. Our data show that female soccer players generally express a higher stress level compared with their male counterparts. The cross-sectional design of this study does not allow making causal attribution. However, since the cumulative stress score (i.e., stressors from the sports, school, and private domain) was strongly correlated with the average score of all three main variables (Table 3), it can be assumed that stressors, in general, play an important role in both mental health and mental illness (McLoughlin et al., 2021; Schinke et al., 2018).

While mental health among athletes is an emergent topic of interest both publicly and in sport psychology research, no study has up until now displayed male and female soccer players' complete mental health profiles. In line with our second study objective, Figure 1 displays a nuanced picture of players' profiles and shows that most soccer players with medium to high well-being expressed low depression scores. However, and as described by Keyes (2002), scoring low on the mental illness continuum (i.e., absence of symptoms) does not automatically indicate high mental health. This is also the case in the studied soccer players, since 10% of our sample experienced a state of languishing without symptoms of mental illness. On the other hand, out of the 17 players who expressed severe depressive symptoms, only three players expressed moderate well-being while the rest were languishing. These findings indicate that increasing depressive symptoms scores seem to be highly related to decreased well-being, which is indicated by low life satisfaction and decreased quality of life. However, the study design does not allow stating a direction of the relationship (i.e., Is well-being low because players deal with depressive episodes, or do depressive symptoms occur because players have strongly reduced well-being?). Future (qualitative) studies are needed to better understand the interrelatedness between mental health and mental illness. Compared with Kuettel et al. (2021), who identified three overarching but distinctive mental health profiles in Danish athletes through latent profile analyses, our results present a more fine-grained picture of athletes' mental health profiles, also from a gender perspective.

## Mental Health and Players' Career Development

It has been acknowledged that the junior-to-senior transition is a critical phase in athletes' careers that impacts not only athletes' sporting development but also their general mental health state (Schinke et al., 2018; Wylleman et al., 2013). The current sample consisted of youth elite soccer players who were about to or had recently transitioned to the elite or professional leagues. Related to the third study aim and supporting the findings from Belz et al. (2018), the results in Figure 2 show that the stress level generally increases for players in their late teens, while well-being and symptoms of anxiety and depression were fluctuating, emphasizing the dynamic state of mental health (Keyes, 2002). Role change and change of relationships in connection with the severity and count of lifetime stress can be particularly harmful to athletes' mental health (McLoughlin et al., 2021). Traditionally, most soccer players in Denmark attend a talent academy or train in a club that collaborates with a gymnasium or sports school (Kuettel, Christensen, Zysko, & Hansen, 2020; Larsen et al., 2013; Thomsen & Nørgaard, 2018). The final student exam at the age of 18–19 years occurs at the same time as the junior-to-senior transition (often connected with changing clubs), which places additional

demands on the athletes and their coping resources (Rosenkilde et al., 2019; Sheehan et al., 2018). Unfortunately, the sample in the age group 19 years consisted of fewer than 20 players, which makes it difficult to state if this group of players was thriving better by using appropriate coping strategies despite their high perceived stress.

The main limitation of this study is the cross-sectional design that does not allow making causal relationships between study variables or to grasp the dynamic development of the mental health state over time. Furthermore, the screening instruments (GAD-7 and CES-D) used are not tailored for the athletic population, and therefore, the suggested cutoff points of the scales must be interpreted with caution. In addition, since data were collected online with an anonymous link collector, we cannot make statements regarding the response rate and potential respondent bias. As already mentioned, the sample sizes in certain age groups were rather small to conduct inferential statistics. Finally, we did not collect information about players' current state of injury, other mental health issues (e.g., eating or sleeping disorders), their playing position, or other contextual factors (e.g., if they signed a professional contract with a team) that may have potentially impacted their mental health.

## Clinical Implications and Recommendations

Given the high prevalence of mental illness symptoms in this study (40.3% of female and 13.7% of male players reported symptoms of depression), players should be periodically screened for mental health and mental illness symptoms by qualified practitioners. Only with continuous monitoring can the fluctuating state of athletes' complete mental health be grasped, which would allow the identification of players at risk and the implementation of adequate support based on seasonal periods (e.g., play-offs, exams) and transitional demands (e.g., starting in a new club or academy). With secure digital possibilities available nowadays, such monitoring could be easily conducted via mobile phone applications that fit the targeted population.

Recognizing that players have different mental health profiles has important clinical implications to respond to athletes' needs (Purcell et al., 2019). According to Purcell et al.'s (2019) early intervention framework, mental health promotion is divided into three main parts, namely (a) prevention, (b) treatment, and (c) continuing care, and should be based on assessment and conceptualization of the individual athlete's presenting problem. *Preventive components* include building up mental health literacy, developing self-regulatory skills (e.g., appropriate coping strategies to deal with stressors), screening for mental health issues, and feedback. This is relevant for all athletes, but especially for players expressing a moderate mental health state. *Treatment and early intervention* are necessary, for example, when performance and life demands placed on players exceed their ability to cope. Both languishing players and players expressing moderate mental illness (a total of 22% of the sample) could profit from such interventions. *Continuing specialized mental health care* that takes into account the intricacies of elite sport could be appropriate for approximately every tenth player who experienced complex psychopathology in this study. The International Olympic Committee consensus statement consensus statement (Reardon et al., 2019) provides recommendations on treating athletes with mental health disorders.

Service provision for athletes can vary largely across different sport settings (Larsen et al., 2021). In Denmark (as in many other countries), there are currently no systematic protocols in place for the assessment or treatment of mental health issues in athletes. The Danish Players' Association (Spillerforening, 2019) has recognized the need to focus on the mental health of athletes since several players openly expressed problems with their mental health in the media. The Players' Association has developed a stepped care model that resembles the one described by Purcell et al. (2019), whereby players can find appropriate help according to their needs. In addition, several campaigns have started in Denmark and internationally aiming to reduce the stigma regarding mental health issues in sport while trying to create a culture that allows players to speak openly about mental health challenges. Concerning the stressors encountered in different life domains and the demands of pursuing a DC, there is value in considering all dimensions and optimizing communication between the main stakeholders supporting athletes (i.e., coaches, teachers, parents, managers) in talent academies and soccer clubs. Effective DC environments are characterized by the integration of efforts across the sport, study, and private domains, a dedicated DC support team, a focus on individualized solutions, and teaching the student-athletes DC competencies (Henriksen, et al., 2020). Interestingly, the Danish soccer association recently made it mandatory to employ a sport psychologist in all Danish male football academies. Based on our findings related to increased prevalence rates in females, the same is recommended in soccer academies hosting female players.

## Concluding Remarks

The current study is the first to investigate the mental health profiles of Danish youth elite soccer players that integrate both indices of mental health and mental illness. Results confirm findings of earlier studies conducted in elite sport showing that approximately one in five athletes discloses moderate or severe symptoms of a common mental disorder. Findings further highlight that female soccer players are more vulnerable to experiencing symptoms of mental illness than male youth players and experiencing lower mental well-being. Since most of the sampled players are engaged in a DC, they encounter stressors in sport, school, and their private life in their pursuit of a potential professional soccer career that possibly influence their mental health. Efforts to support players' mental health need to be tailored according to the players' mental health profiles, and regular screening should be offered to players from youth to elite level, so they can receive help if and when they require it.

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