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Mental health and well-being during COVID-19 lockdown: A survey case report of high-level male and female players of an Italian Serie A football club

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ABSTRACT

Objectives: To describe high-level footballers' levels and changes in mental health and well-being throughout a 8-week period of lockdown and restricted training during the COVID-19 pandemic.

Method: One-hundred and one players belonging to four teams (women's and men's, first and U19 teams) of the same Italian Serie A club participated in the study. Data were collected through an online questionnaire, and administered at 2, 3, 5, 7 and 9 weeks after the start of the lockdown . Well-being, positive and negative affects measurements were examined.

Results: Across the five measures, 36% of players reported clinical levels in depressive symptoms (scores ≤50) on at least one occasion. Thirteen percent of the players reported clinical levels on > 50% of the occasions. There was a decrease in depressive symptoms and negative affects over the period. No change was found in positive affects.

Conclusions: High number of players reportedclinical levels of depressive symptoms compared to what was found previously in high-level athletes. The number decrease during the 8-week period. A similar trend was found for negative affects.Despite a higher prevalence in depressive symptoms earlier during lockdown, this improved as players progressed towards fewer restrictions.

Introduction

The SARS-Coronavirus-2 (COVID-19) pandemic is a current global crisis that is affecting people's lives in several different ways (e.g., mentally, physically, socially, etc.). High-level athletes are one group who have also experienced extreme changes in their daily habits, rituals, and routines, particularly during the initial lockdown period with complete isolation in homes during 8 weeks in Italy.

It is common for football players to spend time together whilst training (or preparing for training in the dressing/team rooms) and travelling to play matches. Football is a team sport; therefore, the lifestyle for the players is based on social aspects and relationships as well as interactions between players or support staff (coaches, strength and conditioning coaches, physiotherapists, doctors). The daily routine of an elite football player is frequently scheduled with a variety of appointments: team meals; physiotherapy; football (pitch); gym training sessions; technical/tactical meetings; and other social events, in addition to individual routines while players are preparing to compete or train.

Regular routine has been shown to enhance feelings of safety, confidence and well-being in everyday life (Avni-Babad, 2011); disruption may risk athletes' mental health and well-being. Numerous definitions have been used to define mental health and well-being (for a comprehensive summary of definitions, see McCartney et al. (McCartney et al., 2019). To capture the multidimensionality of health, the World Health Organization (WHO 2005), suggests that mental health can be defined as a 'state of well-being in which every individual realizes her or his own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community'. In this definition, health is not only described as the absence of ill-health, but also captures positive facets of well-being. In line with this, the dual continuum model proposes that mental health (e.g., distress, anxiety, depression) and well-being (e.g., happiness, satisfaction with life, purpose in life, optimism, personal growth, autonomy, positive affects, negative affects) (Giles et al., 2020, Iasiello et al., 2020, Ryff and Keyes, 1995), while separate phenomena are, nevertheless, closely related (Diener et al., 2017). More specifically, the relationships between mental health and well-being can be illustrated using two separate continuums. On the horizontal axis, the continuum is ranging from 'serious mental illness' to 'having no mental illness'. On the vertical axis, the continuum is ranging from 'high well-being' to 'low well-being'. To facilitate increased levels of the different dimensions of well-being, several antecedent conditions have been suggested; goal achievement, social interaction, and perceived competence (Ryan and Deci, 2001).

For a high-level athlete, the fulfillment of all of these conditions is closely related to their sporting context. As stated in the WHO's definition of mental health and well-being, the person's

ability to cope with their current situation will influence the odds of fulfilling the different dimensions of health and well-being in the abovementioned definition. It is, therefore, important that individuals can perform meaningful actions that are in line with their goals and values. When a person is not coping with their current situation there is an increased risk for poorer mental health as well as reduced levels of well-being. The COVID-19 situation represents a situation with various disruptions to normal routine, including lockdowns, periods of quarantine, limited social interaction and communication. This situation may be an at risk scenario for athletes (Facer-Childs et al., 2021). A recent review showed that longer duration of quarantine, frustration, boredom, financial loss, and stigma were all risk factors for increased levels of distress symptoms during quarantine (Brooks et al., 2020).

In response to the pandemic and effects on athletes, there has been an increase in scientific studies focusing on mental health and well-being of high-level athletes. One of these studies revealed an increased risk of anxiety and depressive symptoms in professional football players during *versus* prior to the pandemic (Gouttebarge et al., 2020). Another study showed that, in a mixed sample of elite athletes, experiences of the COVID-19 situation (i.e., worries over the financial situation and lack of routines) were associated with increased risk of mental health problems (i.e., anxiety, depression). In addition, concerns over the length of the COVID-19 restrictions as well as worries over the financial situation have been associated with decreased levels of well-being (i.e., satisfaction with life) in the athletic population (Pensgaard et al., 2021).

Overall, research in response to the pandemic has found that both internal as well as external factors might influence personal health and well-being. Given that both a person´s ability to cope with a given situation as well as the societal restrictions (e.g., lockdown, quarantine) can change rapidly during the COVID-19 pandemic it is likely that also mental health and well-being might change as a function of the other changes. Given that most previous studies have been cross-sectional (Violant-Holz et al., 2020), more information is needed prospectively on how psychological health and well-being might change during different phases of the COVID-19 pandemic.

The objective of the study was to describe the levels and changes in mental health and well-being of high-level senior and junior football players from both men's and women's teams' through a 8-week period, from complete lockdown to a gradual return to restricted training at the football club's training facility.

Material and methods

Participants

A convenience sample of 101 players (mean ± SD; age 22.4 ± 5.2 yrs, body mass 69.3 ± 12.0 kg, height 174.9 ± 10.3 cm) originating from four different teams (26, 28, 21 and 26 players from the women's first team and U19 , as well as the men's first and U19 team , respectively) of the same Italian Serie A club were involved in the study. As data was collected as a condition of employment in players monitoring

program, ethical approval was not required (Winter and Maughan, 2009). None of the included players were, at the start of the study, diagnosed with depression. In addition, as the study was designed, created and piloted within one week of the COVID-19 pandemic, an ethics application would not have been possible. Players provided informed consent to participate.

Measures

2.2.1 WHO-5 Well-Being Index

was used to measure the player's perceived well-being (Topp et al., 2015). The players were asked to consider for the previous two weeks, the extent to which they had experienced psychological states as listed on a Likert type scale, ranging from "never" (0) to "all the time" (5). An example of a question was 'I've felt happy and in a good mood'. The scores for each question was multiplied with 4 and then added to give a final score ranging from 0 (worst imaginable well-being) to 100 (best imaginable well-being). The WHO-5 is validated as a screening tool for depressive symptoms, with a suggested cut-off at ≤50 (for a summary of studies) (Topp et al., 2015). The validated versions of the WHO-5 in Italian, English, Spanish, French and Portuguese were available for the players. The Cronbach's alpha in the current study ranged between .764 and .867 for the different time points.

2.2.2 The Positive and Negative Affects Schedule – Short version

was used to measure the players self-reported positive and negative affect levels (Mackinnon et al., 1999). The players were asked to indicate as to what extent they had experienced different affects during the previous week, on a Likert type scale, ranging from 'very slightly or not at all' (1) to 'extremely' (5). The results were summarized to two subscales; positive affects (inspired, alert, excited, determined, enthusiastic) and negative affects (afraid, upset, nervous, scared, distressed). The validated versions of the PANAS in Italian, English, Spanish, French and Portuguese were available for the players. The Cronbach's alpha in the current study ranged between .674 and .720 for positive affects and from .767 to .810 for negative affects between the different time points.

Procedure

Data were collected through an online survey platform (SurveyMonkey, California, USA) and assessments were performed 2, 3, 5, 7 and 9 weeks after the start of the lockdown period (start of the lockdown for all the teams: March the 12th; assessment 1: 26–30 March; assessment 2: 2–6 April; assessment 3: 16–20 April; assessment 4: 1–4 May; assessment 5: 15–18 May). Pre-testing was performed on a pilot sample of subjects (players and staff members) to examine if the questions were understandable. A survey introduction (via a cover letter) explaining the aims of the study was sent to each player before the start of each assessment. During the data collection, if players did not answer the survey for two days, a reminder

was sent out. Responses were downloaded to Microsoft Excel, with each player subsequently given a random personal ID for anonymization before the data analysis.

Analyses

Descriptive statistics were calculated using SPSS (version 26). To investigate potential change within the depression symptoms, positive affects, and negative affects during the study period, three latent growth curve models, using a Bayesian estimator, were specified in Mplus (version 8.4). More specifically, initial value was estimated at baseline, as well as the average linear change in these three variables. In comparison to the frequentist approach, one of the advantages with the Bayesian approach is that it has an increased likelihood of producing reliable estimates with small sample sizes (Song and Lee, 2012, Yuan and MacKinnon, 2009). Markov Chain Monte Carlo simulation procedures with a Gibbs sampler were performed with 200,000 iterations. The recommendations were followed, and a potential scale reduction factor around 1 was considered as an indicator of convergence (Kaplan and Depaoli, 2012). Model fit was assessed using the posterior predictive *p* (PP*p*) value and its accompanying 95% confidence interval (Muthén and Asparouhov, 2012). Credibility interval (CI) was estimated for all parameters within the models. The recommendations from Zyphur and Oswald (Zyphur and Oswald, 2015) were followed, meaning that the null hypothesis was rejected if the 95% CI did not include zero.

Results

Response rate was 88% and mean duration for complete the survey was 249 ± 74 s. Across the five measures, 36% of the players (n = 100) reported clinical levels in depressive symptoms (WHO-5 scores ≤50) on at least one occasion. Also, 13% of the players reported clinical levels on more than 50% of the measurement occasions. In all four groups, there was higher prevalence of clinical levels of depressive symptoms during the first measurement points in comparison to the later ones

(Figure 1). Smaller percentage of players within the two professional teams (men's and women's) were, in comparison to the two U-19 teams, at risk for clinical levels of depression symptoms in the end of the study period.

The latent growth analysis, containing all players, showed that the model had adequate fit to data (PP*p* = 0.23, 95% Confidence Interval = −.10.83, 29.24). More specifically, the result showed a credible decrease in depressive symptoms over the five measurement occasions (Δ = −0.27, 95% CI = [−0.60, −0.02]).

The model specified for positive affects showed adequate fit to the data (PP*p* = 0.11, 95% Confidence Interval = [−.7.83, 24.28]). The average initial level of positive affects was 31.96 (95% CI = [30.66, 33.14]). There was a marginal, and not credible, increase in positive affects during the study period (Δ = 0.18, 95% CI = [−0.15, 0.53]). There was, however, heterogeneity in change within the sample (σMcCartney et al., 2019 = 0.60, 95% CI = [0.08, 1.44]). Mean and confidence interval for the different measurement occasions are presented in Figure 2.

For negative affect the model showed good fit to the data (PP*p* = 0.74, 95% Confidence Interval = [−.24.66, 10.81]). The average initial level of negative affects was 20.89 (95% CI = [19.50, 22.15]). There was a credible decrease in negative affects during the study period (Δ = − 0.74, 95% CI = [−1.10, −0.40]). There was also large heterogeneity in change within the sample (σMcCartney et al., 2019 = 1.78, 95% CI = [0.93, 2.99]). Mean and confidence interval for the different measurement occasions are presented in Figure 3.

Discussion

In our study, 36% of all players reported clinical levels of depressive symptoms during the five measurement points (8 weeks). In three of the four teams studied, i.e., men's first, women's first, and female U-19, a smaller percentage of the players reported clinical levels of depressive symptoms at the end of the study period. An opposite trend was present for the Male U19 team. The level of
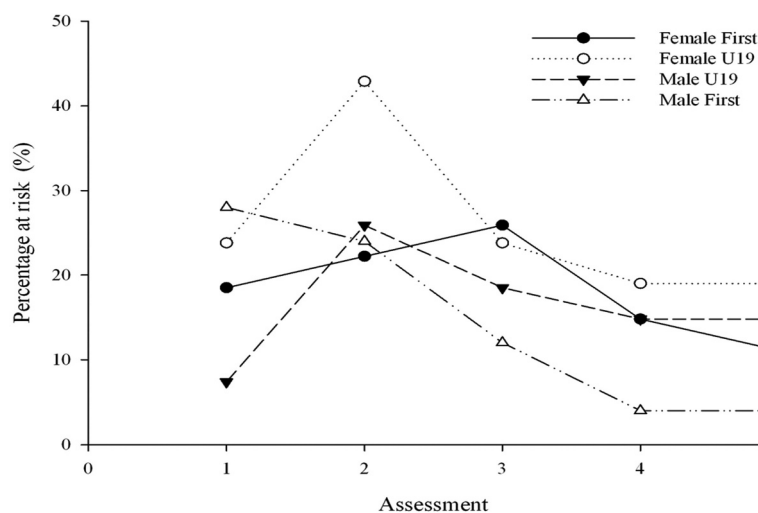

Figure 1. Percentages of, for each of the four teams, players at risk for clinical levels of depressive symptoms.
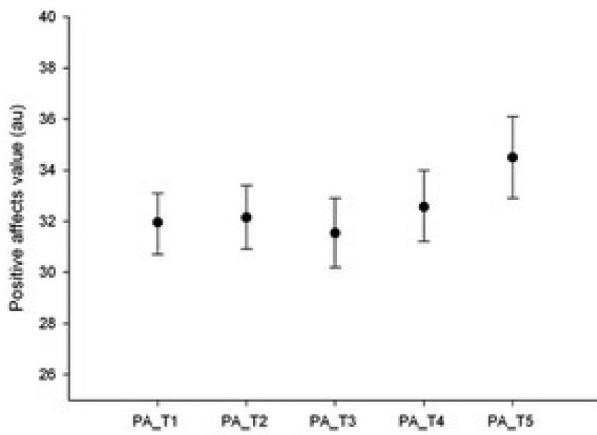
Figure 2. Mean and 95% Confidence Interval for the positive affect assessments.

negative affects decreased as the restrictions gradually lifted. No credible change was found in positive affects during the full 8 weeks study period.

Mental health and well-being are receiving greater attention (and importance) in high-level athletes, including footballers, and studies during this COVID-19 pandemic has shown an increased risk of anxiety and depressive symptoms in professional men and women elite athletes (Gouttebarge et al., 2020). Our study extends the findings of Gouttebarge and colleagues (Gouttebarge et al., 2020), where they found an overall prevalence of players with clinical levels of depressive symptoms (36%), higher than reported in previous studies in high-level athletes. In the Goutterbarge et al.'s (Gouttebarge et al., 2020) study focusing on senior professional men and women football players, depressive symptom prevalence was reported at 21.6%, which is also less than in our cohort. In both studies, however, the prevalence of depressive symptoms is higher than in other studies conducted before the COVID-19 pandemic.

Nixdorf et al. (Nixdorf et al., 2013) found an overall prevalence of 15% in German high-level athletes from both team (e.g., football, ice hockey, rugby) as well as individual (e.g., golf, athletics, swimming) sports. One explanation that depressive symptoms prevalence may be higher during the pandemic compared to normal is the low level of situational control that many of the players might have experienced during this period, which has been shown to be related with an increased risk of depressive symptoms (Facer-Childs et al., 2021, Brooks et al., 2020). This might also explain the decrease in players with clinical levels of depressive symptoms during the period we evaluated, i.e. as the lockdown and restrictions eased, players may have felt more control over the situation; however, this is currently speculation only. Another potential explanation can be that during the study period, the players developed new strategies to cope with the current situation. Specifically, the development of coping skills might be a protective mechanism that is related to decreased level of depression. Based on our findings, we can suggest that the experience of the unusual circumstances for some of the players may have led to the development of coping skills that were used to adequately confront the challenges within the enforced situation. However, coping skills or strategies were not measured in our study and these can be considered as speculation. Even if the results show an overall decrease in prevalence for the full sample, the U19 male team showed an increased number of players who report clinical levels of depressive symptoms at the end of the period compared to the first part. This is in line with the findings from a recent systematic review where it was proposed that 'children and adolescents are probably more likely to experience high rates of depression during and after enforced isolation ends' (Loades et al., 2020 (p.1218)). On inspection of the development of depressive symptoms within the four teams, the results showed that the shape of the trajectories were similar for the female teams while there were larger
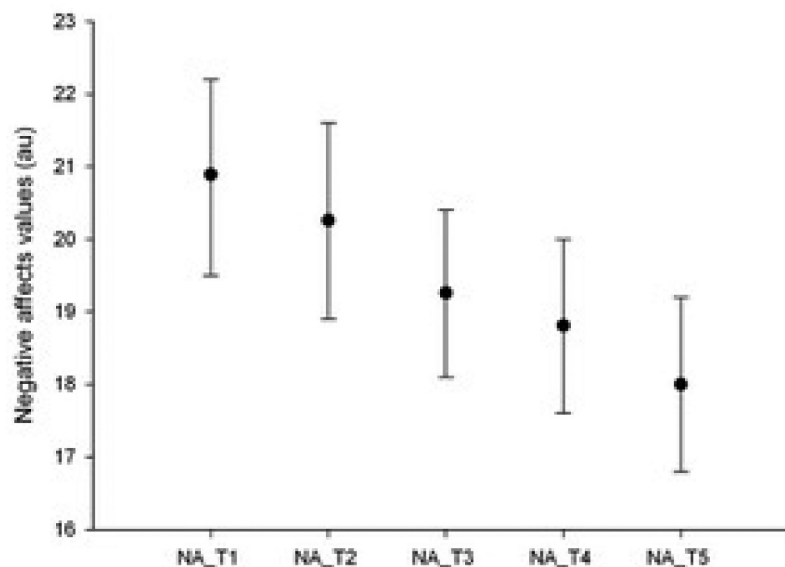

Figure 3. Mean and 95% Confidence Interval for the negative affect assessments.

differences between the two male teams. One potential explanation for this may be that the women's first and female U19 teams had full-time psychologists working both on individual and group level to provide social support (as well as mental training exercises) to those players who experienced problems during this period.

Focusing on the difference in prevalence numbers between the current study and Goutterbarge et al. one potential explanation might be that the first part of our study was conducted during lockdown. Given that being in lockdown can increase the risk for distress symptoms due to negative emotions (e.g., frustrations, boredom) (Brooks et al., 2020), the time of data collection might explain the differences in results. The decrease in prevalence numbers after the lockdown also supports this line of reasoning.

Within this study negative affects was also measured. Negative affects has been associated with a reduced quality in executive functions and an adverse effect on decision making due to autonomic nervous system responses (Shields et al., 2016). The change pattern in negative affect in our study was similar to the change pattern in depressive symptoms (i.e., decreased levels over time) we observed. As negative affect is closely related to depressive symptoms (Wichers et al., 2012), it is probably not surprising that this trajectory follows the trajectory for depressive symptoms. The change to a more 'normal' situation would feasibly increase the perceived control, as well as allow the players to move towards a more 'normal' life. All of these features are likely to increase the level of mental health and well-being (as well as reduce the level of ill-health).

Positive affects is closely related to experiencing meaning in life (King et al., 2006). For the positive affects, we observed no credible overall change. There was, however, large heterogeneity in the sample, indicating that different players changed differently over the time period. One reason for the lack of an overall effect can be that even when many of the restrictions were lifted, some of the players still perceived the situation as stressful. In addition, time to return to team training after the lockdown was not the same, with U19 male and female teams returning later compared to men's first team. Another potential explanation might be that even despite the extreme situation, the players experienced aspects of life which generated positive affective responses (e.g, joy, happiness).

Overall, the results from our study (the change in depressive symptoms and negative affects, but not in positive affects) are in line with the suggestions from Henriksen et al. (Henriksen et al., 2020) highlighting the importance of measuring and discussing mental health and well-being as something more than merely the absence of mental ill health. Measuring and discussing mental health will allow a more comprehensive understanding in what support individual athletes might require to manage their mental health and well-being most effectively. Also, the change over time in two of the three variables underlines the importance of applying a repeated measure design when screening for mental health and well-being. This might be especially warranted when situational factors can rapidly change because of the influence external factors might have on health and well-being (Kuttel and Larsen, 2020), both direct as well as indirect (e.g., via change in emotions, etc.).

Limitations

Despite the prospective nature of our study, there are some limitations we would like to acknowledge. First, the use of self-report measure to collect data about mental health and well-being is related to several potential limitations. More specifically, self-report measures can still be associated with several biases, including common method bias (Podsakoff et al., 2012), social desirability (van de Mortel, 2008) and weak relationships with 'real-world' behaviours (Blanton and Jaccard, 2006).Second, a potential shortcoming with using Bayesian statistics is related to the use of priors (Gelman, 2008). The subjective selection of priors can have a strong impact on the results. Given the lack of previous results on this specific research question we decided to use weak informative priors for all analyses. Finally, because this is a case report based on one football club only, the generalizability of the findings to other teams, is not possible. However, we do provide an insight into the potential for mental-health issues in high-level footballers.

Conclusion

Our results showed a higher prevalence of players reporting clinical levels of depressive symptoms than has been shown in other high-level athletes under normal training circumstances and, also, higher than reported in other professional footballers during the COVID-19 pandemic lockdown. The prevalence did, in the full sample, decrease over time as lockdown and restrictions were lifting, and players were returning to more normal training conditions. There were, however, a opposite trend for the U19 male players. A negative trend was found for negative affects, while no linear trend was shown for positive affects.

Disclosure statement

The authors declare that they have no competing interests.

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Data availability statement

Due to the nature of this research, participants of this study did not agree for their data to be shared publicly, so supporting data is not available

Practical implications

- Scenarios such as the COVID-19 pandemic lockdown may increase the risk of mental health problems within professional men's, women's, senior and junior football players
- Mental health and well-being of professional male, female, senior and junior football players should be routinely monitored to allow within player values to be established, and identify meaningful changes, especially in extreme situations such as a pandemic
- Appropriate strategies, such as different types of stress management approaches (e.g., mindfulness) (Zhu et., al 2021) should be implemented immediately to professional men's, women's, senior and junior football players to maximise players' ability to cope with a lockdown scenario.

Authors' Contributions

AM and SM conceived the initial idea. All authors were involved in agreeing the main research question and subsequent design and analysis choice. AM, AI and SM created the electronic versions of the psychological instruments. MF, RB and AG implemented the psychological instruments, collecting all data from players. MF collated the data. AI performed the analysis on the data. AM, MF, SM verified the analysis. AI prepared the initial draft of the article. MF prepared the figures. All authors reviewed and contributed to the writing of the article.

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