

## What is this Thing called "Post-Olympic Blues"? An Exploratory Study Among Danish Olympic Athletes

Diment, Gregory Michael; Stagis, Nina Due; Küttel, Andreas

*Published in:*  
Scandinavian Journal of Sport and Exercise Psychology

*Publication date:*  
2023

*Document version:*  
Final published version

*Document license:*  
CC BY

*Citation for pulished version (APA):*  
Diment, G. M., Stagis, N. D., & Küttel, A. (2023). What is this Thing called "Post-Olympic Blues"? An Exploratory Study Among Danish Olympic Athletes. *Scandinavian Journal of Sport and Exercise Psychology*, 5, 21-30.  
<https://tidsskrift.dk/sjsep/article/view/134527/181733>

Go to publication entry in University of Southern Denmark's Research Portal

### Terms of use

This work is brought to you by the University of Southern Denmark.  
Unless otherwise specified it has been shared according to the terms for self-archiving.  
If no other license is stated, these terms apply:

- You may download this work for personal use only.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying this open access version

If you believe that this document breaches copyright please contact us providing details and we will investigate your claim.  
Please direct all enquiries to [puresupport@bib.sdu.dk](mailto:puresupport@bib.sdu.dk)

# What is This Thing Called “Post-Olympic Blues”? An Exploratory Study Among Danish Olympic Athletes

Gregory M. Diment<sup>1</sup>, Nina Due Stagis<sup>1</sup> & Andreas Kuettel<sup>2</sup>

<sup>1</sup>Team Danmark, <sup>2</sup>Department of Sports Science and Clinical Biometrics, University of Southern Denmark.

Corresponding author: Gregory M. Diment

E-mail: [gmdi@teamdankmark.dk](mailto:gmdi@teamdankmark.dk)

Work place: Team Danmark, Brøndby Stadion 20, 2605 Brøndby, Denmark

## Abstract

The post-Olympic period is a challenging and stressful period in which many athletes can experience a range of negative psychological reactions. This has led to the coining of the term ‘post-Olympic blues.’ The purpose of this study is to explore the post-Olympic mental health of Danish athletes with the specific aim to investigate the number of Danish athletes experiencing ‘post-Olympic blues’ after the Tokyo Olympics. Forty-nine Olympic athletes completed measures of well-being (Short-Warwick-Edinburg-Mental-Wellbeing-Scale), depression (Patient-Health, Questionnaire-9), and anxiety (Generalized-Anxiety-Disorders questionnaire) one month after the Olympics Games. The results indicated that 27% of athletes reported either below average well-being or moderate to severe depression scores, with 16% reported both below average well-being and moderate to severe depression scores. Female athletes reported significantly higher depression than male athletes, with no significant gender difference in well-being or anxiety. No significant age differences were found. No statistically significant results were found between athletes’ goal achievement and mental health, however, there was a tendency that athletes who failed to meet performance expectations reported more negative experiences post-Games. The current results are discussed with regards to developing a clear definition of post-Olympic blues, practical implications, and future research.

**Keywords:** *Post-Olympic blues, Mental health, Olympic Games, Well-being, Depression, Anxiety*

The Olympic Games are the ultimate goal for many elite athletes. It is seen by many as the pinnacle of an athletic career and can be the culmination of years of hard training and sacrifices. Whilst competing at the Olympics is often associated with positive experiences such as national and international recognition, fulfillment of life-long goals, and sponsorship opportunities or financial benefit (Wylleman, Reints & Van Aken, 2012), numerous studies have also identified the Olympics Games as a challenging environment where athletes experience a range of negative psychological reactions (e.g., Gould et al., 2002; Gordin & Henschen, 2012; Jensen et al., 2014; McCann, 2008; Wylleman et al., 2012;). In recent years, several studies have further examined the period after the Games, identifying several challenges associated with post-Games reality and associated negative psychological reactions which have led to the coining of the term ‘post-Olympic blues’ (e.g., Bennie et al., 2019; Bradshaw, Howells, & Lucassen, 2021). Whilst recent qualitative studies have given insight into the nature of ‘post-Olympic blues,’ no study has explored the extent to which this phenomenon is experienced among Olympic athletes. Therefore, the purpose of this study is to explore the post-Olympic mental health of Danish athletes with the specific aim to

investigate the extent of which ‘post-Olympic blues’ is experienced amongst Olympic participants.

## Mental Health in Elite Sport

Across an Olympic cycle – before, during, and after the Games – athletes can experience a range of psychological reactions that can impact their mental health. There has been an increased academic interest in the mental health of elite athletes in recent years. Kuettel and Larsen (2020) defined mental health as “a dynamic state of well-being in which athletes can realize their potential, see a purpose and meaning in sport and life, experience trusting personal relationships, cope with common life stressors and the specific stressors in elite sport, and are able to act autonomously according to their values” (p. 23). According to this definition, mental health is not a fixed state and is more than the absence of mental illness. Sport-specific factors for poor mental health have been identified including injury, concussions, and chronic stress (Golding et al., 2020; Kuettel & Larsen, 2020), and recent reviews have concluded that elite athletes appear to experience a broadly comparable risk of high-prevalence mental

disorders (e.g., anxiety and depression) relative to the general population (Golding et al., 2020; Rice et al., 2016).

Most people overcome stressful life situations without developing pathological conditions, but major stressful life events are known as a general risk situation for the onset of clinical depression (e.g., Hagen, 2011). Despite all the glamour and glory surrounding the Olympics, participating in the Games represents a unique situation and a potential stressor for many athletes (e.g., Jensen et al., 2014). Henriksen et al. (2020) reported how athletes in their Olympic pursuit are at increased risk of disappointment, identity foreclosure, and high life stress, all of which can negatively impact their mental health. At the Tokyo Games, U.S. gymnast and former Olympic medalist Simone Biles made headlines by openly talking about the pressures of competing at the Games, and her poor mental health up to and during the Games (Keal et al., 2022; Park & Gregory, 2021). Similarly, Olympic swimmer Michael Phelps and tennis champion Naomi Osaka shared their personal struggles with the aim of destigmatizing mental struggles in elite sports (Tardelli, et al., 2021). These popular media reports, in combination with the scientific literature, highlight the growing focus on athlete mental health, and in particular, the impact of the Olympics – both during and after – on mental health.

### After the Olympics and 'Post-Olympic Blues'

In recent years, there has been an increased focus on the phase immediately following the Olympic Games which represents a potentially challenging time for Olympic athletes (e.g., Bradshaw et al., 2021; Henriksen et al., 2020). Numerous studies have reported how athletes during this post-Games period can experience periods of negative emotions (e.g., anxiety, irritability), behavioral responses (e.g., crying, interpersonal hypersensitivity), physical responses (e.g., burn-out, tiredness), social challenges (e.g., loneliness), challenges to athletic identity, as well as a decrease in motivation (Bennie et al., 2019; Henriksen et al., 2020; Howells & Lucassen, 2018; Jackson et al., 1998; Samuel, Tenenbaum & Bar-Mecher, 2016). The findings of these studies have led to the term 'post-Olympic blues' being coined.

According to Howells and Lucassen (2018), the term 'post-Olympic blues' has its origination in the post-natal academic nomenclature of the 1970s and 1980s. Researchers began to distinguish between a relatively common, mild, and transient mood disturbance in the period following childbirth (Buttner et al., 2012), and the more severe and diagnosable postpartum depression or major postpartum depressive episodes (DSM-5; American Psychiatric Association, 2013). This literature highlights key elements in differentiating between post-natal 'blues' and a diagnosable depression including the nature, severity, and duration of symptoms. However, despite 'post-Olympic blues' being a well-documented phenomenon in elite sports (Bennie et al., 2019; Howells & Lucassen, 2018), there is no clear definition of 'the blues,' and little research on how, or if, post-Olympic 'blues' is different to a diagnosable depression. Additionally, the academic world has yet to explore the prevalence of 'post-Olympic blues' amongst Olympic athletes.

### Factors Affecting the Post-Olympic Experience

Numerous studies have presented a range of factors that can affect how athletes experience the period after the Olympics (e.g., Bradshaw et al., 2021; Henriksen et al., 2020; Jackson et al., 1998; Samuel et al., 2016). Factors contributing to a positive experience include structured post-Games planning, time for rest after the Games, continued financial support, as well as strong social support

from family, teammates, and sporting governing bodies. Similarly, factors contributing to a negative experience in the period after the Olympic Games include poor planning, lack of support both social and from sporting organizations, the challenge of transitioning back to reality and everyday life, making decisions regarding retirement, coming to terms with the Games experience and outcomes, as well as avoidant or ineffective coping strategies (Bennie et al., 2019; Bradshaw et al., 2019; Henriksen et al., 2020; Howells & Lucassen, 2018).

A specific factor that has been identified as having a significant effect on the post-Games experience is the extent to which an athlete feels that he or she has met their performance expectations. Howells and Lucassen (2018) reported athletes who failed to meet performance expectations from the 2016 Rio Olympic Games demonstrated a variety of negative effects, including anxiety, crying, and interpersonal hypersensitivity. Similarly, athletes achieving personal bests or setting national records have reported experiencing increased motivation, improved self-confidence, as well as positive media attention in the immediate phase following the Olympics (Wylleman et al., 2012). This builds on research that showed that Olympic gold medalists perceived positive experiences post-Games to include financial gains, lifestyle changes, enhanced recognition, and a sense of accomplishment (Jackson et al., 1998). However, Jackson et al. (1998) also found that 33% of the Olympic athletes who won gold medals demonstrated difficulties (e.g., burnout, exhaustion, loss of motivation to compete, confusion and personal life problems) after returning home. These results indicate a complex and unclear relationship between achieving performance goals and post-Games experiences, and that achieving success at the Olympics may not necessarily be a protective factor against experiencing 'post-Olympic blues.'

### Study Aims

Several studies have investigated athlete experiences after the Olympic Games, however, most of these studies have adopted a qualitative approach relying on athlete interviews, case studies, or practitioner reflections (e.g., Samuel et al., 2016; Bennie et al., 2019; Howells & Lucassen, 2018). These studies have given us a rich insight into the many challenges that athletes experience, as well as the many psychological reactions to these challenges. However, no study has explored the scope of this issue and we are yet to identify how many Olympic athletes experience psychological difficulties after the Olympic Games. Therefore, the current exploratory study adopted a quantitative approach to investigate athlete mental health after the Tokyo 2020 Olympic Games. Specifically, the current study aimed to explore the number of athletes that experience 'post-Olympic blues', and the relationship of 'post-Olympic blues' with gender, age, and goal achievement.

### Method

#### Participants

The sample in the current study consisted of 49 Danish Olympic athletes ( $n = 34$  female athletes,  $M_{age} = 25.62$ ,  $SD = 4.21$ ; and  $n = 15$  male athletes,  $M_{age} = 31.33$ ,  $SD = 8.64$ ), representing both Olympic ( $n = 40$ ; 82%) and Paralympic athletes ( $n = 9$ ; 18%). The sample was comprised of athletes from 15 different sports (e.g., athletics, badminton, cycling, fencing, handball, rowing, sailing, and swimming) participating at the Tokyo Olympics that took place in July-August 2021.

## Procedure

One month after the conclusion of the Tokyo 2020 Olympics the questionnaires were sent directly to all Olympic participants from Team Denmark (the Danish elite sports organization). To ensure anonymity, all participants were asked to create an identification number so that no individual could be identified. Participants were informed that participation was voluntary, and data would only be used for research purposes. A total of 111 athletes were contacted to participate in the study. The current project was conducted as a part of a larger project exploring athlete mental health over an extended period of time.

## Measures

**Demographic variables and goal-achievement:** Athletes were asked to complete a range of demographic questions with regards to age, gender, sport, and previous Olympic participation. Additionally, athletes were also asked to report the extent to which they believe they achieved their Olympic goals ("To what extent do you feel you achieved your goals at the Olympics?") providing three response options: (a) achieved my goals, (b) somewhat achieved my goals, and (c) did not achieve my goals.

**Mental well-being.** To assess athletes' mental well-being, the validated seven-item Danish version of the Short-Warwick-Edinburg-Mental-Wellbeing-Scale (SWEMWBS, Tennant et al., 2007) covers both the hedonic and the eudemonic dimensions of well-being was used (Koushede et al., 2019). On a 5 point-Likert scale ranging from 1 (*none of the time*) to 5 (*all the time*), athletes answered items such as "I've been feeling useful" and "I've been feeling optimistic about the future". The instrument has been shown to have good internal consistency and has been tested in similar age groups as our sample (Koushede et al., 2019). Scores  $\leq 23$  indicate below average well-being, scores from 24 to 29 indicate average well-being, and scores  $\geq 30$  above average (Kuettel, Pedersen, & Larsen, 2021; Nicholls, Madigan, Fairs, & Bailey, 2020).

**Depression.** To assess athletes' depressive symptoms, the Patient-Health-Questionnaire-9 (PHQ-9; Kroenke et al., 2001) was used. Athletes responded to nine statements (e.g., "Little interest or pleasure in doing things"; "Feeling down, depressed, or hopeless"), each representing one of the symptoms characterizing a depressive episode (American Psychiatric Association, 2013) concerning how often these symptoms were experienced within the last two weeks on a scale from 0 (*not at all*) to 3 (*nearly every day*). Scores from 0-9 indicate no to mild symptoms, scores from 10-14 moderate symptoms, and scores from 15-27 severe symptoms. At cut-off 10 (generally used as an indicator if someone experiences depressive symptoms), sensitivity was 88% and specificity 88% (Kroenke et al., 2001).

**Anxiety.** To assess athletes' anxiety symptoms, the Generalized-Anxiety-Disorders questionnaire (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006) was used, which is a valid and efficient tool for screening generalized anxiety disorders. Athletes stated how often they have been bothered by problems such as "Feeling nervous, anxious, or on edge" or "Worrying too much about different things" within the past two weeks on a scale from 0 (*not at all sure*) to 3 (*nearly every day*). The proposed cut-off points of the GAD-7 are 0-9 (*minimal to mild symptoms*), 10-14 (*moderate symptoms*), and 15-21 (*severe symptoms*). Using the threshold score of 10, the GAD-7 has been shown to have a sensitivity of 89% and a specificity of 82% (Spitzer et al., 2006).

## Data Analyses

Data were tested for missing values, distributions, and assumptions of univariate and multivariate analyses (Field, 2013). According to Q-Q plots and Shapiro-Wilk tests, well-being scores from the SWEMWBS were normally distributed, and anxiety (GAD-7) and depression (PHQ-9) scores were non-normally distributed. The following statistical analyses were conducted in IBM SPSS 28: (a) descriptive statistics ( $M$ ,  $SD$ ) followed by a categorization of the main variables according to their cut-off points; (b) Spearman's rho bootstrapped correlational analyses between the three main variables; (c) independent t-test (SWEMWBS) and Mann-Whitney-U test (GAD-7 and PHQ-9) to reveal gender differences concerning mental health; (d) One-way ANOVA and Kruskal-Wallis-tests to explore age-group differences related to mental well-being and symptomatology; and (e) Fisher's exact test (due to the small sample sizes) to compare gender difference related to mental health cut-off points, as well as the distribution of results achieved in relation to post-Games depressive symptomatology and mental well-being. The alpha level for significance was set at  $p < 0.05$  for statistical testing. Effect sizes for  $t$ -tests (i.e., Cohen's  $d$ ) are 0.2 (*small*), 0.5 (*medium*), and 0.8 (*large*), for Fisher's exact test (i.e., Cramer's  $V$ ), effect sizes can be interpreted as weak association (0.1 to 0.3), medium association (0.4, 0.5), and strong association ( $> 0.5$ ), and for ANOVA and Kruskal-Wallis-tests (i.e., eta/epsilon squared), effect sizes are 0.01 (*small*), 0.06 (*medium*), and 0.14 (*large*) (Field, 2013).

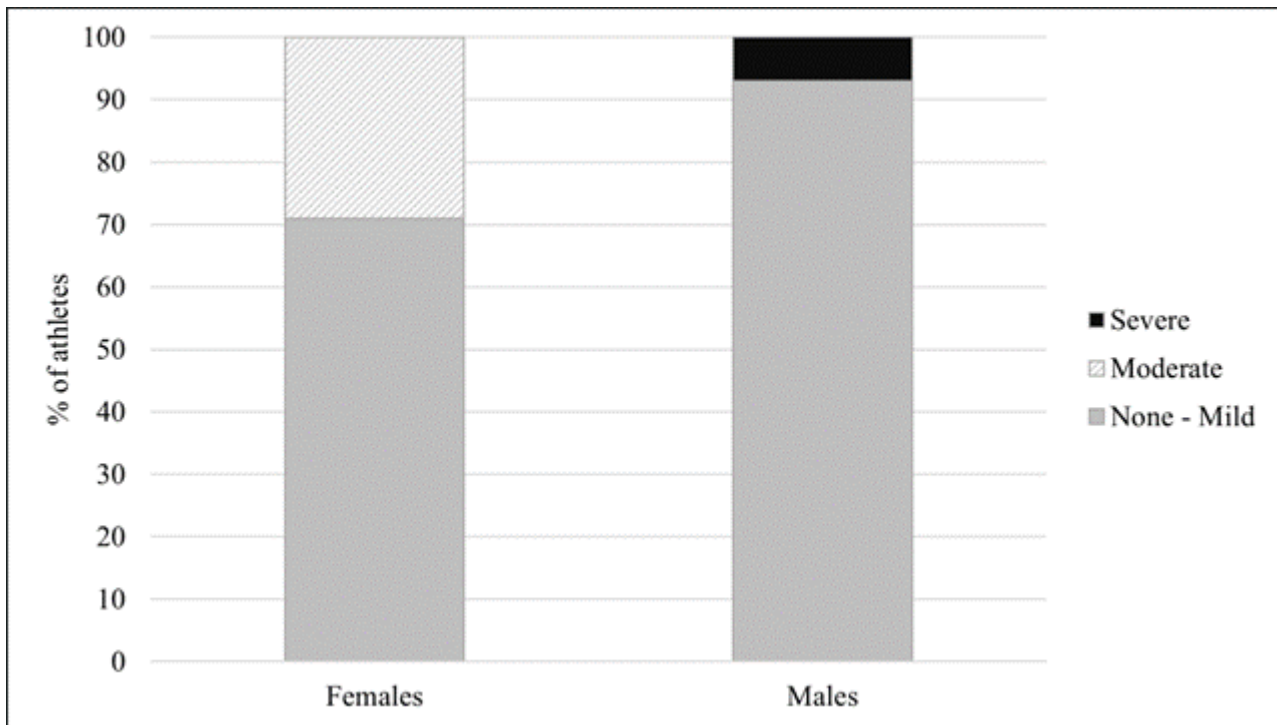
## Results

### Athletes' Mental Health Post Olympics

Regarding athletes' *mental well-being*, the overall sample ( $N = 49$ ) had a SWEMWBS mean of 26.08 ( $SD = 5.28$ ), with male athletes ( $M = 27.93$ ,  $SD = 5.46$ ) expressing higher values than female athletes ( $M = 25.26$ ,  $SD = 5.07$ ), however not statistically different ( $t(49) = 1.65$ ,  $p = .104$ , Cohen's  $d = 0.50$  (i.e., medium effect size). According to the well-being categories, 14 athletes (28.6%) were classified in the below-average well-being group (13 female and 1 male), 23 athletes (46.9%) in the average well-being group (13 female and 10 male), and 12 athletes (24.5%) in the above average group (8 female and 4 male). These difference in the gender distribution related to the well-being categories were not statistically significant, Fisher's exact test  $p = .063$ , Cramer's  $V = 0.33$  (i.e., weak association).

Regarding athletes' *depressive symptoms*, the overall sample had a PHQ-9 mean of 4.71 ( $SD = 4.35$ ) with females ( $M = 5.53$ ,  $SD = 4.04$ ) reporting significantly higher depressive scores than males ( $M = 2.87$ ,  $SD = 4.50$ ), Mann-Whitney-U = 140.5,  $p = .012$ . According to the scales' cut-off points, 38 athletes (77.6%) were classified as having no to mild symptoms (24 female and 14 male), 10 athletes (20.4%) expressed moderate symptoms (only females), and one male athlete (2%) reported severe depressive symptoms. These differences in the gender distribution related to depressive symptoms were statistically significant (Fisher's exact test,  $p = .011$ , Cramer's  $V = 0.38$ ; weak to moderate association). Figure 1 displays the percentage of male and female athletes regarding the three depression cut-off points.

**Figure 1: Post-Games Depression Cut-off Scores by Gender**



Note: Depressive symptoms according to the Patient-Health-Questionnaire-9 (PHQ-9; Kroenke et al., 2001) with cut-off scores 0-9 (*none-mild*), 10-14 (*moderate*), and 15-17 (*severe*).

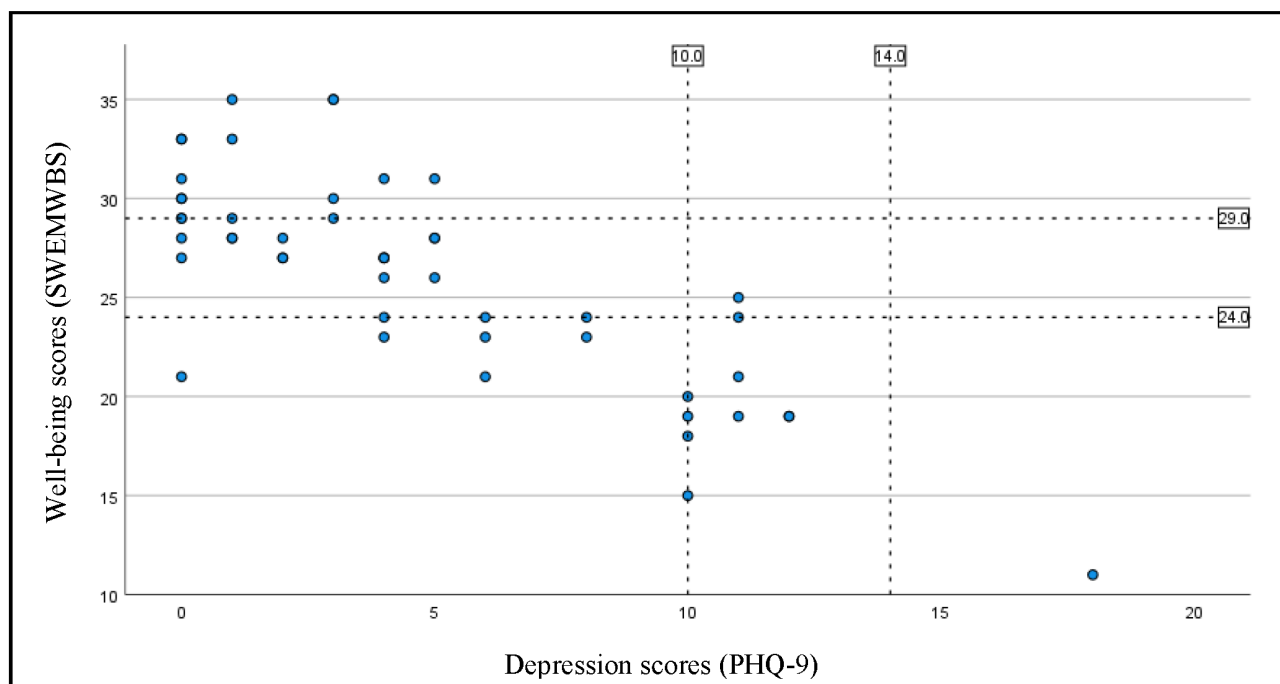
Regarding athletes' *anxiety symptoms*, the overall sample had a GAD-7 mean of 3.33 ( $SD = 4.26$ ) with females ( $M = 3.71, SD = 4.16$ ) reporting higher anxiety scores than males ( $M = 2.47, SD = 4.50$ ). This gender difference was not statistically different, Mann-Whitney-U = 182,  $p = .105$ . According to the scale's cut-off points, 46 athletes (93.9%) were classified as having no to mild anxiety symptoms (32 female and 14 male), one female athlete expressed moderate symptoms (2%), and one athlete of each gender reported severe anxiety symptoms (4%). These differences in the gender distribution related to anxiety symptoms were not statistically significant, Fisher's exact test,  $p = .675$ , Cramer's  $V = 0.13$  (i.e., weak association).

Spearman's correlational analyses showed a significant positive relation between depression and anxiety ( $r_s = .77, p < .001$ ), and a negative between depression and well-being ( $r_s = -.73, p < .001$ ), and anxiety and well-being ( $r_s = -.66, p < .001$ ), respectively. A scatterplot (Figure 2) displays the distribution of the well-being and the depression scores including the cut-off points. Figure 2 indicates that 13 athletes (27%) reported either below average well-being or moderate to severe depression scores, with 8 athletes (16%) reporting both below average well-being and moderate to severe depression scores.

### Age Group Differences and Post-Olympic Mental Health

To examine the effects of age-related mental health outcomes post-Olympics, the sample was divided into three age group categories (i.e., 18-24; 25-29; 30 and older). Means and standard deviations of the groups related to well-being, depression, and anxiety are displayed in Table 1. ANOVA tests showed no statistical differences in SWEMWBS scores between age groups  $F(2, 46) = 1.38, p = 2.63$  ( $\eta^2 = .056$ ). Kruskal-Wallis tests revealed that the distribution of PHQ-9 scores  $H(2, 46) = 2.32, p = .313$  ( $\epsilon^2 = .007$ ) and GAD-7 scores  $H(2, 46) = 5.52, p = .063$  ( $\epsilon^2 = .076$ ) was the same across age group categories. Since there was a difference in the distribution of male and female athletes in the age groups (significantly more females in age group 18-24 and more male athletes in the age group  $\geq 30$ ), the same tests were calculated separately for both genders with age groups and mental health, yielding similar results (not reported here).

**Figure 2: Participants Post-Olympics Well-being and Depression Scores**



Note. The vertical dotted lines indicate the cut-off points related to the well-being categories of the Short-Warwick-Edinburg-Mental-Wellbeing-Scale (SWEMWBS) with values  $\leq 23$  (below average), 24-29 (average), and 30-35 (above average). The vertical lines represent the cut-off points related to depressive symptoms of the Patient Health Questionnaire (PHQ-9) with values 0-9 (no to mild), 10-14 (moderate), and 15 and higher (severe).

### Goal Achievement and Post-Olympic Mental Health

Figure 3 displays the relations between goal achievement at the Olympics and athletes' depressive symptoms. Concerning post-Olympic depression, moderate symptoms were stated in athletes regardless of goal achievement. Among the athletes who reached their goals were 12 with no-to mild symptoms, two with moderate, and one had severe symptoms. Among the 12 athletes who did not achieve their goals were four with moderate depressive symptoms, but none with severe symptoms. Fisher's exact test showed no statistical difference in the distribution of depressive symptoms and goal achievement,  $p = .651$ ,

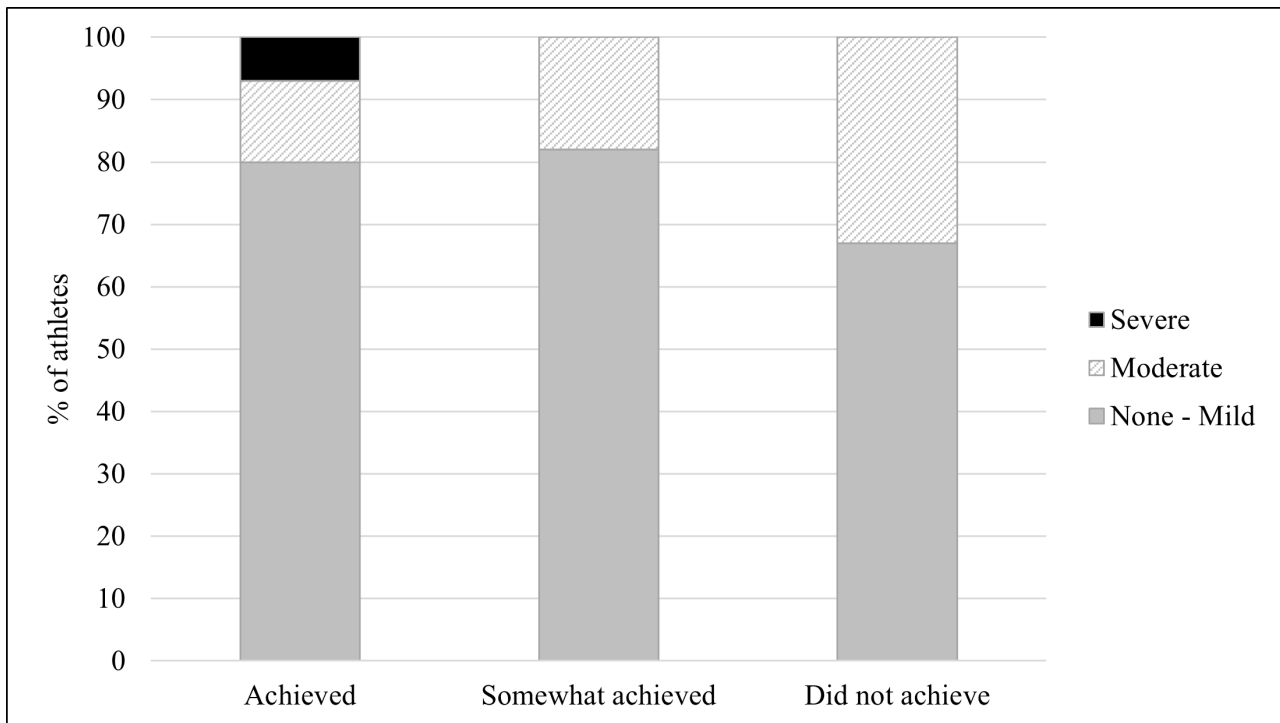
Cramer's  $V = 0.20$  (i.e., weak association). With regards to goal achievement and post-Games mental well-being, Figure 4 shows that relatively more athletes who achieved their goals are either in the below average ( $n = 6$ ) or above average group ( $n = 6$ ). Among the 12 athletes who did not achieve their goals, there was no one scoring above average well-being values. Fisher's exact test revealed that the relation of goal achievement and mental well-being was significant,  $p = .041$ , Cramer's  $V = 0.35$  (weak to moderate association).

**Table 1: Post-Olympic Average Scores for Well-being, Depression, and Anxiety by Age-group**

Age group	<i>n</i>	Well-being	Depression	Anxiety
18 - 24	16	27.38 ± 5.08	3.94 ± 4.17	2.56 ± 4.57
25 - 29	21	24.67 ± 4.64	5.48 ± 4.01	4.19 ± 3.47
30 +	12	26.83 ± 6.36	4.42 ± 5.25	2.83 ± 5.13
Total	49	26.08 ± 5.28	4.71 ± 4.35	3.33 ± 4.26

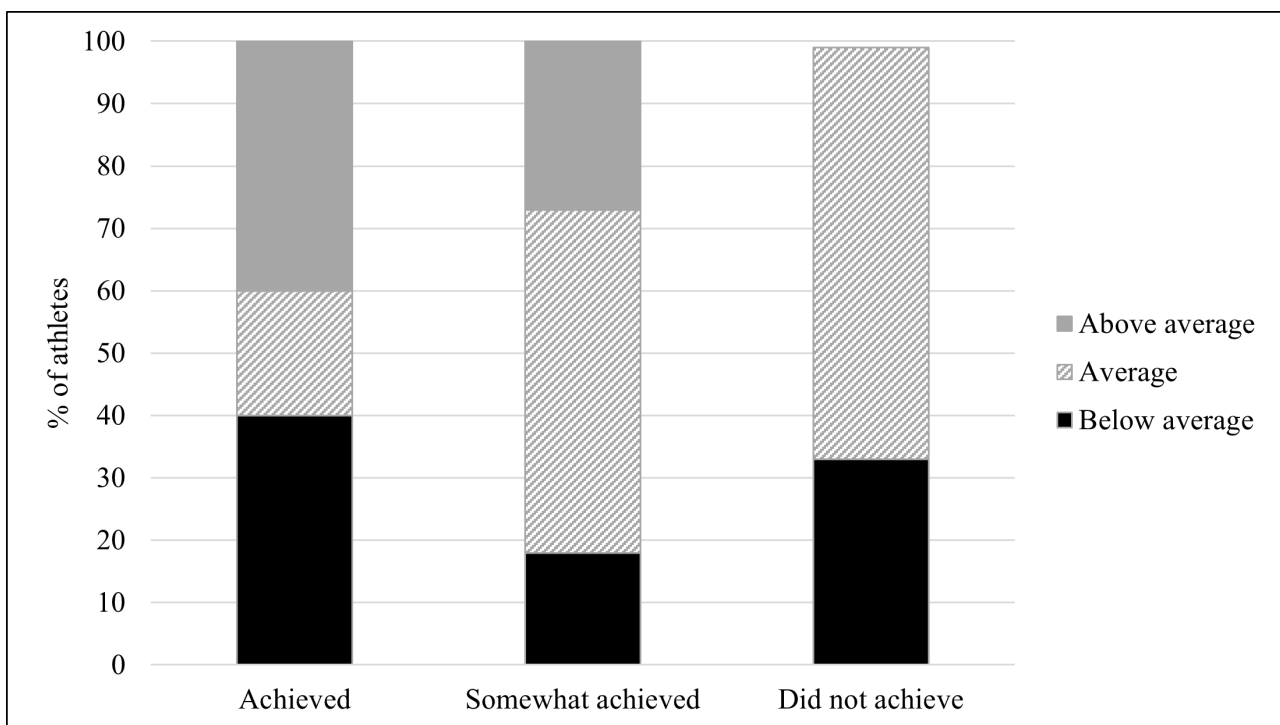
Note. Well-being was assessed with the Short-Warwick-Edinburg-Mental-Wellbeing-Scale (SWEMWBS, Tennant et al., 2007). Depressive symptoms were measured with the Patient-Health-Questionnaire-9 (PHQ-9; Kroenke et al., 2001). The Generalized-Anxiety-Disorders questionnaire (GAD-7; Spitzer, Kroenke, Williams, & Lowe, 2006) was used to assess symptoms of anxiety.

**Figure 3: Post-Games Depression Cut-off Scores and Goal Achievement at the Tokyo Olympics**



Note. Depressive symptoms according to the Patient-Health-Questionnaire-9 (PHQ-9; Kroenke et al., 2001) with cut-off scores 0-9 (*none - mild*), 10-14 (*moderate*), and 15-17 (*severe*).

**Figure 4: Post-Olympic Games Well-being Cut-off Scores and Goal Achievement at the Tokyo Olympics**



Note. Short-Warwick-Edinburg-Mental-Wellbeing-Scale (SWEMWBS, Tennant et al., 2007) cut-off points with scores 0-23 (*below average*), from 24-29 (*average*) and scores  $\geq 30$  (*above average*).

## Discussion

Numerous studies have investigated 'post-Olympic blues,' however, no study has yet reported the extent to which this phenomenon is experienced by Olympic athletes. This exploratory study aimed to adopt a quantitative approach to investigate athlete mental health after the Tokyo 2020 Olympics, more specifically, the number of athletes that experience 'post-Olympic blues.' With this aim in mind, the current results focused predominantly on the number of athletes within the cut-off ranges on the questionnaires rather than looking at mean scores which gives little indication of the number of athletes reporting specific symptomology. The results of the current study indicated that 27% reported either below average well-being or moderate to severe depression scores, with 16% reporting both below average well-being and moderate to severe depression scores.

More specifically, the results indicated that 22% of Danish athletes reported severe or moderate depressive symptoms after the Olympic games. This number is higher than the 11% reported by Kuettel, Melin, Larsen, and Lichtenstein (2022) in their investigation of mental health amongst Danish athletes<sup>1</sup>. Additionally, the current results indicated that 29% of athletes reported below average well-being after the Olympics. This number is slightly higher than the 22% reported by Kuettel et al. (2021). The current results also showed that 6% of athletes reported moderate to severe anxiety symptoms which is lower than 14% reported in Danish elite athletes from 17 sports using the same scale and cut-off points (Kuettel et al., 2021). The results indicated that few athletes suffered moderate or severe anxiety, suggesting that high anxiety may not be a common symptom reported by athletes after the Olympics, and not a factor related to post-Olympic blues.

The current study also aimed to explore the relationship of 'post-Olympic blues' with gender, age, and goal achievement. The results indicated that female athletes reported lower mental health than male athletes after the Games. Specifically, female athletes reported significantly higher average depressive scores than male athletes. More female athletes (29%) reported moderate depression symptoms compared with males (7%). More female athletes (38%) reported below-average well-being compared with male athletes (7%). These results are consistent with Kuettel et al. (2021) who found that Danish female athletes reported higher anxiety and depressive symptoms than male athletes, along with lower mental well-being scores than male athletes.

Our results showed no statistically significant differences in post-Olympic mental health regarding age, but medium effect sizes indicate that mental health symptoms were more pronounced in the age group 25-29 who expressed the highest anxiety and depressive scores together with the lowest well-being scores compared to the youngest and oldest group. Bennie et al. (2019) reported how multi-Olympians – who are likely older and more mature – were able to draw on previous experiences and better at putting things in a broader perspective on life, which could also provide an explanation for them coping better with the period after the Games. Jensen et al. (2014) also highlighted some of the unique experiences and challenges experienced by Olympic debutants. However, the average age of the debutants in this study was 27 years

old, representing a relatively older group when compared to the youngest age group in the current study. Additionally, sample sizes in the three age group categories were relatively small making it difficult to detect significant differences. There remains the need for more research into age differences and post-Olympic blues.

Studies have indicated that an athlete's performance at the Olympics can be a factor in experiencing 'post-Olympic blues' (e.g., Jackson et al., 1998; Samuel et al., 2016). The current results indicate that athletes who 'did not achieve' their goals reported proportionally more severe or moderate depressive symptoms (33%) than athletes who 'achieved' (20%) or 'somewhat achieved' (18%) their goal. Similarly, none of the athletes who 'did not achieve' their goals reported above average well-being. Despite not being statistically significant, our results indicate a tendency that is consistent with previous studies (Bennie et al., 2019; Howells & Lucassen, 2018) reporting that athletes who failed to meet performance expectations reported more negative experiences post-Games. The current study also reported that those athletes who 'achieved their goals' reported polarized well-being scores (small-medium effect size) with 40% reporting below average well-being, 40% reporting above average well-being, and only 20% reporting average well-being. These results and the conflicting existing literature indicate a complex and potentially individual relationship between goal-achievement and 'post-Olympic blues.'

### The 'Post-Olympic Blues'

Despite post-Olympic blues receiving attention in recent years, there remains no clear definition and little understanding of the true extent of the problem. The results of the current study indicate that depressive symptoms and well-being were closely related, and both were higher than a normal athlete population. However, few athletes in the current study reported elevated anxiety scores. This supports the idea that describes 'post-Olympic blues' as a period of depressed mood and a general loss of interest in life (Howells & Lucassen, 2018), where symptoms are more consistent with depression rather than anxiety. However, there still remains no clear distinction between 'the blues,' and a depression in a clinical understanding. The current study indicated that 27% of athletes reported either below average well-being or moderate to severe depression scores, with 16% of the athletes representing a specific sub-group with both below average well-being and moderate to severe depression scores. It could be that the larger group represents the athletes suffering from 'post-Olympic blues', with the smaller sub-group representing low mental health with a potentially more clinical nature.

The present study provides information regarding the number of athletes experiencing low mental health after the Olympics Games, as well as the severity of symptoms, however, it provides no insight into how long athletes experience these symptoms. Howells and Lucassen (2018) reported that all 18 of the athletes in their study reported symptoms that lasted for several weeks, with two of the athletes reporting a more enduring period of negativity lasting several months. Despite these studies, there remains a lack of understanding regarding the severity, pervasiveness, and duration of symptoms, as well as the

<sup>1</sup> Kuettel et al. (2022) used the Center for Epidemiological Studies Depression scale (CES-D; Radloff, 1977) with adjusted cut-off scores and not the PHQ-9 used in the current study.

difference between 'post-Olympic blues' and a diagnosable depression.

### 'Post-Olympic Blues' and COVID-19

The COVID-19 pandemic had significant consequences for the Tokyo 2020 Olympic Games. The Games were postponed one year, and widespread lockdowns, canceled competitions, and training restrictions affected athletes' preparation (Håkansson et al., 2020). During this locked-down period, many athletes experienced increased depression, anxiety, and stress symptoms (Facer-Childs et al., 2021). Similarly, Schinke et al. (2020) described reactions that included decreased sleep, decreased appetite, increased rumination, and loneliness associated with social isolation. The lockdown also had consequences on the financial situation of athletes and associated financial existential fears (Fröhlich et al., 2021). However, not all responses were negative. Some athletes saw the delay as extra time to qualify for the Games, to further develop areas in performance, or focus on recovery (Şenışık, Denerel, Köyağasioğlu, & Tunç, 2021; Schinke et al., 2020). The COVID-19 pandemic undoubtedly impacted many athletes' preparation for the Tokyo Games and influenced the athletes' psychological states in the lead-up to the Games (Stambulova et al., 2020). Although it was not directly tested, it is reasonable to assume that the results of the current study were also directly affected by the pandemic and its impact on athletes' mental health in general.

### Limitations

Several limitations need to be considered when interpreting the results of the current study. Firstly, all athletes in the current study had access sports psychology support throughout the course of the project. The first and third authors of this study are employed in Team Denmark and worked as part of the team that provided sports psychology support to the participants before, during, and after the Games. For example, as part of Team Denmark's post-Olympic support plan, all athletes were contacted approximately 14 days after the Games to evaluate their experiences and assess if any additional support was needed. This intervention occurred before the questionnaires were sent to the participating athletes. It is therefore reasonable to assume that this intervention affected the way in which athletes responded to the questionnaire, and the responses could have been different if the sports psychology team had not intervened.

Another limitation of the current study is that there were relatively few athletes that completed the questionnaires after the Games. Denmark has a relatively small Olympic team with 111 athletes competing at the Tokyo Games and only 49 athletes (44%) completed the questionnaires. There is no doubt that both the stress and challenges of the post-Olympic period led to a lower response rate. Therefore, conducting statistical analyses with relatively few participants limits the power of the various analyses that can be conducted (Ibrahim & Molenberghs, 2009). Additionally, when examining gender differences in our sample, it must be noted that the groups were both different in size (34 females vs. 15 males) as well as age ( $M_{age\ female} = 25.6$  vs.  $M_{age\ male} = 31.3$ ) that potentially impacted the analyses. As previously mentioned, all athletes were contacted after the Games and the psychology team continued to provide sports psychology support to athletes in the following months. Through this close contact, several athletes told the authors that they did not feel that they were in a good mental state to commit time and energy to completing the questionnaire. Therefore, whilst the current study gives a

good insight into the scope of 'post-Olympic blues,' it must be noted that the number of athletes that reported low mental health may be lower than the actual number of athletes experiencing psychological difficulties after the Games.

### Future Research

The current research adds to the existing knowledge of athlete mental health after the Olympic Games; however, numerous areas require further investigation. A key area of investigation is further clarifying the exact nature of 'post-Olympic blues.' Existing qualitative studies provide insight into how athletes can experience 'post-Olympic blues,' and the current study supplements this knowledge with information on how many athletes may experience 'post-Olympic blues. However, future research is required to shed more light on the exact nature of 'post-Olympic blues,' and the distinction or overlap with diagnosable depression. The current study assessed mental health one month after the Games. However, future studies could assess mental health at numerous time points following the Olympic Games (e.g., two weeks after, one month, three months, etc.). This could give insight into how long 'post-Olympic blues' lasts, as well as the number of athletes experiencing it over an extended period. Additionally, qualitative studies could adopt formal assessment interviews to help shed light on the clinical nature of 'post-Olympic blues' experienced by athletes. These studies could help clarify the extent to which 'post-Olympic blues' is actually a diagnosable depression or rather a sub-clinical state of 'depressed of mood'.

The current exploratory study is a step forward in understanding the extent to which 'post-Olympic blues' is experienced among Olympic athletes, however, this study only investigated Danish athletes. Studies have been conducted in various countries such as Britain (Bradshaw et al., 2021), Australia (Bennie et al., 2019), and Israel, (Samuel et al., 2016). However, future research is required to explore the extent to which 'post-Olympic blues' is experienced across countries and cultures. As previously described, there is a considerable chance that the COVID-19 pandemic affected both athletes' mental health and the Olympic experience. Therefore, it would be relevant to repeat the current study after the Paris 2024 Olympics. This would serve both as a comparison to the current results, but also eliminate the potentially confounding effects of COVID-19 on our understanding of Olympic mental health.

### Applied Implications

The current study has numerous implications for applied sports psychology work. The study showed that approximately 27% of athletes reported signs of 'post-Olympic blues.' Therefore, it is important that responsible sporting organizations, such as National Olympic Committees (NOCs) or elite sports institutes, develop a support program for athletes during this time. These strategies could include individual and group consultations, support groups, as well as psychoeducation programs aimed at normalizing the potentially negative responses. A critical strategy could also be working with sports federations, coaches, and sports managers in developing sport-specific strategies to support the athletes. Some Olympic sports are professional (e.g., cycling and handball), whilst different sports have different competition schedules after the Games. Therefore, any support delivered to athletes must be specific and relevant to their own sport. Furthermore, both the current results and existing research indicate lower mental health amongst female athletes suggesting the need for specific support programs for this group of athletes.

## Conclusions

The Olympic Games are often seen as the pinnacle of an athletic career. However, numerous studies have shown that the period after the Games can be a difficult period for many athletes. The current exploratory study found that 27% of athletes reported low mental health after the Olympic Games, with female athletes reporting significantly lower mental health than male athletes. The findings of the current project have practical implications regarding psychoeducation of both athletes and elite sports organizations, as well as the development of support programs for athletes before, during, and after the Games. Despite the current study contributing to knowledge regarding the scope of 'post-Olympics blues', future research is required to develop a clear definition of 'post-Olympics blues.'

---

## References

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Bennie, A., Walton, C. C., Dr, O'Connor, D., Fitzsimons, L., & Hammond, T. (2019). *The post-Olympic Games experience: A qualitative investigation of Australian Rio Olympians*. Sydney: Western University. <https://doi.org/10.3389/fpsyg.2021.685322>
- Bradshaw, H., Howells, K., & Lucassen, M. (2021). Abandoned to manage the post-Olympic blues: Olympians reflect on their experiences and the need for a change. *Qualitative Research in Sport, Exercise and Health*, 1-18. <https://doi.org/10.1080/2159676X.2021.1993974>.
- Buttner, M., O'Hara, M. W., & Watson, D. (2012). The structure of women's mood in the early postpartum. *Assessment*, 19, 247-256. <https://doi.org/10.1177/1073191111429388>
- Facer-Childs, E. R., Hoffman, D., Tran, J. N., Drummond, S. P., & Rajaratnam, S. M. (2021). Sleep and mental health in athletes during COVID-19 lockdown. *Sleep*, 44(5), <https://doi.org/10.1093/sleep/zsaa261>
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Thousand Oaks, CA: Sage.
- Fröhlich, S., Imboden, C., Iff, S., Spörri, J., Quednow, B. B., Scherr, J., ... Claussen, M. C. (2021). Prevalence and Risk Factors of Psychiatric Symptoms among Swiss Elite Athletes during the First Lockdown of the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health*, 18(20), 10780. <https://doi.org/10.3390/ijerph182010780>
- Golding, L., Gillingham, R. G., & Perera, N. K. P. (2020). The prevalence of depressive symptoms in high-performance athletes: a systematic review. *The Physician and Sportsmedicine*, 1-12.
- Gould, D., Greenleaf, C., Chung, Y., & Guinan, D. (2002). A survey of US Atlanta and Nagano Olympians: Variables perceived to influence performance. *Research Quarterly for Exercise and Sport*, 73(2), 175-186.
- Gordin, R. D., & Henschen, K. P. (2012). Reflections on the psychological preparation of the USA ski and snowboard team for the Vancouver 2010 Olympic Games. *Journal of Sport Psychology in Action*, 3(2), 88-97.
- Hagen, E. H. (2011). Evolutionary theories of depression: A critical review. *Canadian Journal of Psychiatry*, 56(12), 716-726. <https://doi.org/10.1177/070674371105601203>
- Henriksen, K., Schinke, R., McCann, S., Durand-Bush, N., Moesch, K., Parham, W. D., Larsen, K. H., Cogan, K., Donaldson, A., Poczwadowski, A., Noce, F. & Hunziker, J. (2020). Athlete mental health in the Olympic/Paralympic quadrennium: a multi-societal consensus statement. *International Journal of Sport and Exercise Psychology*, 18(3), 391-408. <https://doi.org/10.1080/1612197X.2020.1746379>
- Howells, K., & Lucassen, M. (2018). "Post-Olympic blues" – The diminution of celebrity in Olympic athletes. *Psychology of Sport and Exercise*, 37, 67-78. Retrieved from <https://doi.org/10.1016/j.psychsport.2018.04.008>
- Håkansson, A., Moesch, K., Jönsson, C., & Kenttä, G. (2020). Potentially Prolonged Psychological Distress from Postponed Olympic and Paralympic Games during COVID-19—Career Uncertainty in Elite Athletes. *International Journal of Environmental Research and Public Health*, 18(1), 2. <https://doi.org/10.3390/ijerph18010002>
- Ibrahim, J. G., & Molenberghs, G. (2009). Missing data methods in longitudinal studies: a review. *Test*, 18(1), 1-43.
- Jackson, S. A., Dover, J., & Mayocchi, L. (1998). Life after winning gold. Experiences of Australian Olympic gold medalists. *The Sport Psychologist*, 12(2), 119-136.
- Jensen, R., Christiansen, A. V., & Henriksen, K. (2014). The Olympic games: The experience of a lifetime or simply the most important competition of an athletic career? *Physical Culture and Sport*, 64(1), 41. <https://doi.org/10.2478/pcssr-2014-0026>
- Keal, J., McCabe, T., Wright, J., & Renshaw, P. (2022). Media portrayal of mental health at the 2020 Tokyo Olympic and Paralympic games. *Journal of Sports and Exercise Psychiatry*, 1-6. <https://doi.org/10.1024/2674-0052/a000011>

- Koushede, V., Lasgaard, M., Hinrichsen, C., Meilstrup, C., Nielsen, L., Rayce, S. B., ... Santini, Z. I. (2019). Measuring mental well-being in Denmark: Validation of the original and short version of the Warwick-Edinburgh mental well-being scale (WEMWBS and SWEMWBS) and cross-cultural comparison across four European settings. *Psychiatry Research*, 271, 502–509.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606–613.
- Kuettel, A., & Larsen, C. H. (2020). Risk and protective factors for mental health in elite athletes: A scoping review. *International Review of Sport and Exercise Psychology*, 13(1), 231–265.
- Kuettel, A., Melin, A., Larsen, C. H., & Lichtenstein, M. B. (2022). Depressive Symptoms in Danish Elite Athletes Using the Major Depressive Inventory (MDI) and the Center for Epidemiological Studies Depression Scale (CES-D). *Scandinavian Journal of Sport and Exercise Psychology*, 4(1), 1–9. <https://doi.org/10.7146/sjsep.v4i1.128360>
- Kuettel, A., Pedersen, A. K., & Larsen, C. H. (2021). To Flourish or Languish, that is the question: exploring the mental health profiles of Danish elite athletes. *Psychology of Sport and Exercise*, 52, 101837. <https://doi.org/10.1016/j.psychsport.2020.101837>
- McCann, S. (2008). At the Olympics, everything is a performance issue. *International Journal of Sport and Exercise Psychology*, 6(3), 267–276.
- Nicholls, A. R., Madigan, D. J., Fairs, L. R., & Bailey, R. (2020). Mental health and psychological well-being among professional rugby league players from the UK. *BMJ Open Sport & Exercise Medicine*, 6(1), 1–4.
- Park, A. & Gregory, S. (2021, December). Athlete of the Year 2021. Simone Biles. Time. <https://time.com/athlete-of-the-year-2021-simone-biles/>
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1(3), 385–401.
- Rice, S. M., Purcell, R., De Silva, S., Mawren, D., McGorry, P. D., & Parker, A. G. (2016). The mental health of elite athletes: a narrative systematic review. *Sports Medicine*, 46(9), 1333–1353.
- Samuel, R. D., Tenenbaum, G., & Bar-Mecher, H. G. (2016). The Olympic Games as a career change-event: Israeli athletes' and coaches' perceptions of London 2012. *Psychology of Sport and Exercise*, 24, 38–47.
- Schinke, R., Papaioannou, A., Henriksen, K., Si, G., Zhang, L., & Haberl, P. (2020). Sport psychology services to high performance athletes during COVID-19. *International Journal of Sport and Exercise Psychology*, 18(3), 269–272.
- Şenışık, S., Denerel, N., Köyağasıoğlu, O., & Tunç, S. (2021). The effect of isolation on athletes' mental health during the COVID-19 pandemic. *The Physician and Sportsmedicine*, 49(2), 187–193. <https://doi.org/10.1080/00913847.2020.1807297>
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine*, 166(10), 1092–1097.
- Stambulova, N. B., Schinke, R. J., Lavallee, D., & Wylleman, P. (2022). The COVID-19 pandemic and Olympic/Paralympic athletes' developmental challenges and possibilities in times of a global crisis-transition. *International Journal of Sport and Exercise Psychology*, 20(1), 92–101. <https://doi.org/10.1080/1612197X.2020.1810865>
- Tardelli, V. S., Parmigiano, T. R., Castaldelli-Maia, J. M., & Fidalgo, T. M. (2021). Pressure is not a privilege: what we can learn from Simone Biles. *Brazilian Journal of Psychiatry*, 43 (5), 460–461. <https://doi.org/10.1590/1516-4446-2021-0036>
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., ... Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of Life Outcomes*, 5(63), 1–13.
- Wylleman, P., Reints, A., & Van Aken, S. (2012). Athletes' perceptions of multilevel changes related to competing at the 2008 Beijing Olympic Games. *Psychology of Sport and Exercise*, 13(5), 687–692.