Promoting athlete mental health

Bird, Georgia; Quinton, Mary; Cumming, Jennifer

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Abstract

This study investigated the relationship between reappraisal and suppression with depression and mental wellbeing amongst university athletes. It was hypothesised reappraisal would associate with lower depression and greater mental wellbeing, whereas suppression would associate with greater depression and reduced mental wellbeing. Employing a cross-sectional design, 427 participants (Mage = 20.18, SD = 1.52; 188 males, 239 females) completed questionnaires assessing mental health and strategy use. Hierarchical multiple regressions revealed reappraisal was positively associated, and suppression negatively associated, with mental wellbeing (ΔR^2 = 4.8%, $\Delta F(2, 422) = 17.01$, p = <.001, suppression β = -.08, p = .028, reappraisal β = 0.21, p = <.001) but neither were associated with depression (ΔR^2 = 0.4%, $\Delta F(2, 422) = 1.33$, p = .267, suppression β = .06, p = .114, reappraisal β = 0.03, p = .525). Results highlight reappraisal as correlated with mental wellbeing in student athletes and therefore, reappraisal could be beneficial for managing stress in sport. Reappraisal may implicate how wellbeing is promoted through sport, but future experimental research is needed to confirm causal relationships.

***Keywords*: reappraisal, suppression, depression, mental health, dual career**

Promoting Athlete Mental Health: The Role of Emotion Regulation

Young adults (16-24 years) are at an increased vulnerability for mental illness because of biological, social, and psychological changes (Gore et al., 2011; Kessler et al., 2007; Rigby et al., 2020). Depression is a particular mental health concern for this age group, especially those enrolled in university. In a recent study, Jenkins et al. (2020) found 34.5% of students at UK universities were experiencing depression, with greater prevalence amongst females (37.2%) than males (16.7%). Although university is a challenging environment for young adults, particularly for student athletes who face additional demands and risk factors compared to non-athletes (Drew & Matthews, 2019), it also presents an opportunity for improving the mental health of this at-risk age group.

As well as common risk factors such as relationship stressors and academic competition (Hunt & Eisenberg, 2010), having a dual career means student athletes may also experience high expectations from coaches (Hwang & Choi, 2016), burnout (De Francisco et al., 2016), and risk of injury (Appaneal et al., 2009). Although findings are inconsistent, it is generally agreed that student athletes experience similar incidences of depressive symptoms than their non-athlete counterparts (Reardon & Factor, 2010; Sullivan et al., 2019).

Despite the prevalence of depressive symptoms in athlete populations, it is thought that sport also has the potential to benefit mental health through psychosocial, behavioural, and neurobiological mechanisms (Lubans et al., 2016; Stubbs & Rosenbaum, 2018). Although understanding of how these mechanisms may promote athlete mental health is limited, participating in university sport could provide student athletes with an opportunity to develop adaptive emotion regulation and behaviours beneficial for adult life, thus helping to reduce their risk for depression (Snedden, 2019). Consequently, understanding the emotional

regulation strategies employed by student athletes and how this is associated with mental illness and wellbeing would fill a gap in the literature.

Currently, extant sport mental health research focuses on prevalence rates of mental illness in elite sport or understanding the barriers and facilitators for seeking support (Uphill et al., 2016). Recently, the British Association of Sport and Exercise Sciences (BASES) released an expert statement calling for improved mental health literacy (MHL) within elite sport by increasing understanding and recognition of mental illness, enhancing social support seeking, and reducing stigma (Gorczynski et al., 2019). Nevertheless, non-elite athletes also have limited understanding and awareness of mental health and often have negative perceptions of mental illness (Uphill et al., 2016; Vella & Swan, 2021). Therefore, all levels of sport would benefit from research and interventions that aim to protect them from mental illness and promote mental health (Breslin et al., 2019). Consequently, research on emotion regulation use across all competitive levels is needed and will also support calls for action in elite sport.

Athlete mental health is often viewed through a lens of mental illness and conceptualised differently across studies (Uphill et al., 2016). Mental wellbeing is also an important feature of mental health that is increasingly recognised and reflected in Keyes' (2002) two-continuum model of mental health. The model posits that mental illness and health exist on two correlated yet distinct dimensions, with wellbeing indicating higher levels of mental health. Accordingly, mental health does not mean an absence of mental illness, in the same way that the presence of depression does not mean the absence of wellbeing and flourishing. Thus, strategies employed to reduce depressive symptoms may not be effective at increasing mental wellbeing or vice versa. There is a lack of empirical research simultaneously investigating negative and positive indicators of mental health within sport, with research only starting to address this gap (Küttel et al., 2021). Aligned with Keyes'

(2002) model, there is a need for research to simultaneously measure mental illness and wellbeing to ensure mental health is examined as a complete state. Investigating these dimensions together would ensure optimal mental health is promoted by providing clearer guidance to those working directly with student athletes and offer a less stigmatizing approach to athlete mental health (Uphill et al., 2016).

Emotion Regulation

Emotion regulation is "the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (Gross, 1998a, p. 275). The process model of emotion regulation (PMER) is one of the most popular models of emotion regulation and has been used in the developmental and adult literature. As posited by the PMER, there are five families of processes that make up emotion generation, and these are: situation selection, situation modification, attentional deployment, cognitive change, and response modulation (Gross & Thompson, 2007). The first four processes are antecedent-focused (i.e., occurring before the generation of emotion) whilst the final process, response modulation, is response-focused because it occurs after the emotion has been generated. Many emotion regulation strategies fall under these processes; however, this study focused on a cognitive change strategy (reappraisal) and a response modulation strategy (suppression). These strategies were selected because they are frequently used by athletes and reflect the emotional experience and expression of emotion (Kubiak et al., 2019; Uphill et al., 2012).

Cognitive change describes strategies that aim to change one's appraisal of a situation to "alter its emotional significance" (Gross & Thompson, 2007, p.14). Cognitive reappraisal is typically conceptualized as an "adaptive" strategy for mental health and therefore has received substantial interest in emotion regulation literature (Sheppes et al., 2014). Efforts to

reappraise would reflect attempts to change how one thinks; for example, instead of allowing anger to develop, the athlete may reframe the situation to elicit a different emotional response. Response modulation describes strategies that aim to regulate one's response to an emotion eliciting situation. A key strategy of response modulation is suppression, which is typically considered a "maladaptive" strategy for mental health (Sheppes et al., 2014). Suppressing emotions within sport may reflect an athlete's attempts to avoid outwardly expressing internal anger. Considerable research demonstrates that reappraising negative emotions such as anger and anxiety are more effective than suppressing them and involves lower physiological, cognitive, and interpersonal costs (Brooks, 2014). Athletes typically use antecedent-focused strategies (e.g., reappraisal) during competition to control intrusive thoughts and anxiety (Balk et al., 2013; Martinet et al., 2015), whereas uses of expressive suppression were found to inhibit performance (Wagstaff, 2014).

Sport is a demanding and stressful environment in which athletes experience many emotions during training and competition (Röthlin et al., 2016). To succeed, athletes must regulate emotions effectively as undesirable emotions (i.e., those that the athlete perceives, or appraises, to debilitate performance) may adversely affect performance (Uphill et al., 2012). For example, Lane et al. (2016) found that running performance could be improved if athletes downregulated any unpleasant emotions, such as intense anxiety or anger. In other domains of psychology, emotion regulation has received increased attention as an important feature of mental health (Preece et al., 2018). However, little is known about how athletes' attempts to regulate their emotions in sport is associated with their mental health as the focus of previous research has been on performance-related outcomes (Balk et al., 2013; Martinet et al., 2015; Stanley et al., 2012). Due to the dynamic nature of emotions in sport, this context presents an opportunity for the study of emotion regulation and could subsequently advance our understanding of emotion regulation in other fields of psychology (Uphill et al., 2012).

Study Purpose and Hypotheses

Underpinned by Keyes (2002) model, this cross-sectional study investigated how strategies reflecting separate stages of the PMER (i.e., reappraisal and suppression) are associated with depression and mental wellbeing in student athletes. It was hypothesised that reappraisal would be associated with lower depressive symptoms and greater levels of mental wellbeing, whereas suppression would be associated with greater depressive symptoms and lower levels of mental wellbeing (Aldao & Nolen-Hoeksema, 2010; Hu et al. 2014; Schäfer, 2017). This novel investigation was undertaken to extend mental health research in sport by: a) including a full range of competitive levels and not limiting the scope to elite athletes; and b) including indicators of both mental illness and mental health. This study was an initial descriptive study as part of a larger programme of work.

Adopting the PMER also offered the potential for new theoretical understanding as sport is a context with limited emotion regulation and mental health research. That is, to improve understanding of whether these strategies serve similar adaptive and maladaptive functions in sport compared to extant non-sport research. By including strategies representing different emotion regulation processes (i.e., cognitive change and response modulation), this study also enabled the comparison of how antecedent-focused vs. response-focused strategies may differently associate with athlete mental health. This research could therefore have important implications for applied sport psychology practice and preventative initiatives for protecting the mental health of student athletes.

Methods

Participants

The sample consisted of 427 athletes aged 18-25 (M = 20.18, SD = 1.52), representing a range of sports (n = 54). Participants were 188 males and 239 females competing at either

elite (those who represent their country; $n = 33$), regional (those who represent their county; $n = 209$), club (competition at a local level; $n = 131$) or recreational (non-competitive; $n = 53$) level. This information was obtained from the demographic portion of the questionnaire pack.

Measures

Emotion Regulation

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) was used to measure athletes use of reappraisal and suppression during training and competition (Uphill et al., 2012). This 10-item scale has 6 items pertaining to reappraisal, and 4 items to suppression, and asks participants to rate each statement against a 7-point Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*). A mean score was created for each subscale. This study found Cronbach's alpha coefficients of .75 and .68 for reappraisal and suppression, respectively. Previous authors have also found coefficients of .70 or above, demonstrating good internal consistency (Gross & John, 2003; Uphill et al., 2012).

Depression

The depression subscale of the Depression, Anxiety and Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995) was used to measure depressive symptomatology. Participants were asked to reflect on how they had felt over the last week when rating each of the 7 items against a 4-point scale from 0 *(did not apply to me at all)* to 3 *(applied to me very much or most of the time)*. Interpretation of the depression subscale was conducted following the guidance of Lovibond and Lovibond (1995) where normal levels of depression are considered ≤ 9, and ≥ 28 considered extremely severe once the mean sum of items had been multiplied by two. The depression sub-scale produced a Cronbach's alpha coefficient of .85 demonstrating very good internal consistency. Bottesi et al. (2015) reported similarly high Cronbach alphas of .90 within a community sample and .92 within a clinical sample.

Mental Wellbeing

The Warwick Edinburgh Mental Wellbeing Scale (WEMWBS; Tennant et al. 2007) was used to measure mental wellbeing, an important feature of mental health. Participants rated their recent experiences against a 5-point scale from 1 *(none of the time)* to 5 *(all of the time)*. A Cronbach's alpha of .86 was found for the present study, similar to that found by Tennant et al. (2007) with a sample of students (.89). Due to researcher error, this scale was reduced to a 13-item scale. Scores were summed and the possible range was 13-65, with higher scores representing greater levels of mental wellbeing.

Procedures

Participants were recruited by methods of convenience (e.g., online announcements and directly approaching sports clubs), following ethical clearance granted by the University of Birmingham, UK. Participants were provided with an information letter, consent form, and were given the chance to ask any questions regarding the study. Following informed consent, participants were provided with a questionnaire pack with additional measures used as part of a wider study. Participants were also reminded that there were no right or wrong answers, they could withdraw at any point, and were provided with a debrief letter. Completion of the questionnaire pack took approximately 30 minutes. Data were then stored in a secure location and on a password protected computer.

Data Analyses

Data were coded and analyzed using SPSS version 25. Following cleaning and screening checks for missing data and outliers, 4 univariate and 9 multivariate outliers were removed (Tabachnick & Fidell, 2019). Descriptive and frequency statistics were also produced, followed by two one-way between groups multivariate analysis of variance tests (MANOVA) for investigating differences in reappraisal and suppression use by gender and

competitive level. Two independent samples T-tests investigated differences in depression and mental wellbeing by gender, and a one-way between groups analysis of variance test (ANOVA) investigated differences in depression and mental wellbeing by competitive level. The Benjamini-Hochberg correction was adopted to minimise the risk of type 1 error and monitor for false discovery rates (Benjamini-Hochberg, 1995). In addition to *p* values, 95% confidence intervals (Supplement table 1) and effect sizes were also reported (Greenland et al., 2016; Wasserstein & Lazar, 2016).

Pearson correlations were conducted to investigate bivariate relationships between study variables and underpinned checks for violations of the assumptions of normality, linearity, and homoscedasticity prior to conducting the main analyses. For the main analyses, two hierarchical multiple regressions were conducted. The first explored whether reappraisal or suppression associated with depression after controlling for mental wellbeing and gender. The second regression investigated whether reappraisal or suppression were associated with mental wellbeing after controlling for depression and gender. Depression, mental wellbeing, and gender were entered at step 1, and reappraisal and suppression at step 2. Gender was included as a control variable as previous research has reported gender differences in depression, mental wellbeing and emotion regulation use and therefore may influence the relationship between emotion regulation and indicators of mental health (Kubiak et al., 2020; Nolen-Hoeksema & Aldao, 2011). Due to the cross-sectional design adopted in the present study, the results from the regression analyses do not imply causation, but rather an association between variables and are interpreted as such in the discussion. It is for this reason that the term “associate” rather than “predict” is used throughout the manuscript.

Results

Preliminary Analyses

Missing data for reappraisal (χ^2 = 10.39, df = 15, p = .795) and mental wellbeing (χ^2 = 96.97, df = 93, p = .368) were missing completely at random (MCAR; Little, 1998). Suppression had no missing values and although missing values for the depression variable were not MCAR (χ^2 = 46.34, df = 24, p = .004), only 3.2% of data was missing and thus, expectation maximisation values were used to impute missing data.

Descriptive statistics were calculated for the two ERQ subscales (reappraisal and suppression), depression, and mental wellbeing by gender and competitive level and can be seen in Table 1. Average scores for wellbeing (M = 45.55, SD = 6.73) highlight moderate levels of mental wellbeing within the sample when compared to population norms (M = 51.61, SD = 8.71; Health Survey for England, 2011)[1]. Similarly, when considering depression (M = 7.63, SD = 6.97), athletes exhibited "normal" levels of depression (Lovibond & Lovibond, 1995).

Group Differences

Descriptive statistics (Table 1) show that athletes used reappraisal (M = 4.86, SD = 0.83) more than suppression (M = 3.63, SD = 1.05) within their sports. Further, females used more reappraisal (M = 4.91, SD = 0.84) whereas males used more suppression (M = 3.77, SD = 1.01). A MANOVA showed these differences were significant at the multivariate level, Pillai's trace = .017, F(2,424) = 3.63, p = .027, n^2_p = .017, observed power = 66.9%. At a univariate level, this difference was only statistically significant for suppression following the Benjamini-Hochberg correction, F(1,425) = 5.19, p = .023, n^2_p = .012, observed power = 62.3%. Males also reported higher levels of depression and mental wellbeing compared to females, however, these were not significant: mental wellbeing, t(367) = .888, p = .375, n^2 = .001 depression, t(425) = .995, p = .321, n^2 = .002.

[1] The scale range for population norms is 14-70, for the present study this range is 13-65.

There was a trend for elite athletes to reappraise the most (M = 5.12, SD = .97) and recreational athletes to suppress the most (M = 3.69, SD = 1.14). Nevertheless, the differences in emotion regulation use between competitive levels were non-significant at the multivariate level, Pillai's trace = .012, $F(6,844) = .817$, $p = .557$, $n^2_p = .006$, observed power = 32.7%. Further, there was a trend for elite athletes to report both the highest rates of depression (M = 10.48, SD = 8.12) as well as the lowest rates of mental wellbeing (M = 44.98, SD = 7.14). Nevertheless, results revealed that these differences were not statistically significant for depression, $F(3,422) = 2.22$, $p = .086$, $n^2_p = .016$, observed power = 56.1%, or mental wellbeing, $F(3,422) = .279$, $p = .841$, $n^2_p = .002$, observed power = 10.3%.

Relationships Between Variables

Results highlight that reappraisal was associated with mental wellbeing and depression through a small, positive relationship with mental wellbeing (r = .284, $p < .001$) and a small, negative relationship with depression (r = -.149, p = .002). In contrast, suppression shared a small, negative relationship with mental wellbeing (r = -.168, $p < .001$) and a small, positive relationship with depression (r = .166, $p < .001$). That is, greater reappraisal use was associated with greater wellbeing and lower depressive symptoms. Further, greater suppression use was associated with more depressive symptoms and poorer mental wellbeing. Reappraisal and suppression did not significantly correlate (r = -.007, p = .882), whereas wellbeing and depression shared a strong and negative relationship (r = -.600, $p < .001$). That is, greater levels of mental wellbeing were associated with lower levels of depression.

Main Analyses

Depression

A hierarchical multiple regression was conducted to explore correlates of depression (Table 2). Mental wellbeing and gender were entered at step 1 to account for their potentially confounding nature. Together, they explained 36.2% of the variance in depression within the sample population, $F(2, 424) = 120.55$, $p < .001$. With reappraisal and suppression included at step 2, the model significantly explained 36.6% of the variance in depression, $F(4, 422) = 61.03$, $p < .001$. The ΔR^2 of 0.4% suggests emotion regulation strategies contribute a small amount of unique variance after controlling for gender and mental wellbeing, however, this additional variance was not statistically significant, *F change* (2, 422) = 1.33, $p = .267$. In step 2, only mental wellbeing was significantly associated with depression ($\beta = -.60$, $p < .001$), and remained significant following the Benjamini-Hochberg correction.

Mental Wellbeing

A second hierarchical multiple regression was conducted to explore correlates of mental wellbeing (Table 2). Depression and gender were entered at step 1, explaining 36.2% of the variance $F(2, 424) = 120.41$, $p < .001$. Step 2 included reappraisal and suppression and was significant $F(4, 422) = 73.26$, $p < .001$. The inclusion of these two variables, coupled with the variables entered at step 1, explained 41% of the observed variance in wellbeing. Therefore, reappraisal and suppression contributed a further 4.8% to this variance $\Delta R^2 = 4.8\%$, *F change* (2, 422) = 17.01, $p < .001$. Depression ($\beta = -.56$, $p < .001$) and gender ($\beta = -.09$, $p = .013$) remained significant correlates in step 2 with reappraisal and suppression also providing a new significant contribution to the model (reappraisal $\beta = .21$, $p < .001$; suppression $\beta = -.08$, $p = .028$). These findings remained significant following the Benjamini-Hochberg correction.

Discussion

The aim of the study was to understand the relationship between reappraisal and suppression with athletes' experiences of depression and mental wellbeing. The results highlight that these strategies play an important role in mental wellbeing but not depression in this context. This finding could have implications for how we promote mental health in sport and may also contribute to our understanding of emotion regulation in clinical and non-clinical psychology (Uphill et al., 2012). Nevertheless, further experimental research is needed to confirm causal relationships, particularly as the ΔR^2 (4.8%) was small.

Consistent with the PMER and previous findings, student athletes reported using both strategies during training and competition (Stanger et al., 2018; Uphill et al., 2012). Elite athletes have been found to favour antecedent-focused strategies when competing, which provides a greater mental capacity for focusing on the task at hand (Martinet et al., 2015; Molina et al., 2018). Extending this finding in the present study, all levels of athletes (i.e., recreational, club, regional, and elite) reported a greater use of reappraisal than suppression in training and competition. Therefore, as a novel contribution to the PMER, this study suggests that in a sporting context, athletes indicate a preference for antecedent-focused strategies.

Similar to previous findings, there were no gender differences in reappraisal use; however, males' use of suppression was significantly greater than females (Gross & John, 2003). This finding may reflect notions of masculinity in that the expression of certain emotions is often deemed unacceptable (Brody, 2000). Nevertheless, the effect size (n^2_p = .012) for gender differences in suppression was small, suggesting only 1.2% of the variance could be explained by gender. Therefore, there are likely other factors influencing athletes' use of strategies that require further investigation. Surprisingly, there were non-significant gender differences in depression and mental wellbeing scores, despite male athletes using the ostensibly "maladaptive" strategy of suppression more so than females. The present finding contrasts to previous studies in athlete and non-athlete samples which more typically report

that females experience greater levels of depressive symptomatology (Tahtinen & Kristjansdottir, 2018). Therefore, it may be argued that, despite males using more suppression, this does not increase their risk of experiencing higher depressive symptoms and the potential benefits of sport participation hold true, independent of gender.

Depression

In other fields of psychology, research indicates that reappraisal is an adaptive strategy whereas suppression is a maladaptive strategy for depressive symptomatology in general populations (Aldao & Nolen-Hoeksema, 2010; Hu et al., 2014; McRae & Gross, 2020) and specifically within university students (Gross & John, 2003; Haga et al., 2009). Nevertheless, this study found neither strategy to be associated with depression. Thus, the results align with recent arguments that reappraisal may not always be adaptive (Brockman et al., 2017), and further suggests that suppression may not always be maladaptive for depressive symptomatology. A key difference between previous research and the present study was the focus on student athletes. These findings have implications for university students who engage in sport and use suppression, as they may not experience the same maladaptive effects associated with depression as non-athletes. Nevertheless, these findings should be interpreted cautiously, and future research would benefit from investigating whether contextual and individual differences moderate the relationship.

Within this study, athletes exhibited “normal” levels of depression (Lovibond & Lovibond, 1995), similar to that reported by Drew and Matthews (2019) in their student-athlete sample. Those experiencing depression are thought to regulate emotions maladaptively (Joorman & Gotlib, 2010) and therefore, the ‘normal’ levels of depression reported in the present study may explain why strategies were not associated with changes in depressive symptomatology (Aldao & Nolen-Hoeksema, 2010). This finding aligns with arguments that effective emotion regulation depends on the context and needs of the

individual (Gross, 2015). If athletes exhibit normal levels of depressive symptomatology, it appears that using reappraisal and suppression to regulate their emotions has neither adaptive nor maladaptive associations, and therefore could be used for performance without maladaptive consequences. Nevertheless, it is necessary for future research to investigate this relationship in athletes presenting with elevated levels of depressive symptoms before conclusive recommendations can be made**.**

Mental Wellbeing

Consistent with previous studies, reappraisal was associated with higher mental wellbeing after controlling for depression, suggesting that the adaptive benefits of reappraisal on mental wellbeing were upheld even for those presenting with higher depressive symptoms. Contrastingly, suppression was significantly associated with lower mental wellbeing after controlling for depression and gender differences, suggesting that athletes' use has maladaptive consequences for mental wellbeing.

These findings support the PMER by demonstrating a different pattern of association for antecedent-focused vs. response-focused emotion regulation with the mental health measures, and that antecedent-focused strategies typically have a greater relationship with mental health outcomes than response-focused strategies (Gross, 1998a; Gross, 2001). That is, athletes' use of reappraisal had greater associations with increased mental wellbeing than did suppression with reduced mental wellbeing. Previous findings suggest reappraisal requires less cognitive effort and is associated with enhanced sport performance (Gross, 2001; Martinet et al., 2015). Consequently, it may be beneficial to promote reappraisal when dealing with stressors in sport, rather than focusing on reducing suppression, as it would enable athletes to preserve cognitive effort for focusing on task-relevant cues in training and competition. This could then enable sport as a context in which athletes are able to develop effective emotional regulatory abilities and more specifically, use reappraisal adaptively for

performance benefits whilst protecting their mental health. Since athletes reported similar levels of reappraisal use regardless of gender and competitive level, interventions promoting the use of reappraisal may not need to consider such individual differences. Nevertheless, future research would benefit from adopting qualitative methods that capture the experiences and perspectives of student athletes to further investigate this suggestion.

A possible explanation for the maladaptive effects of using suppression on mental wellbeing could be that one's suppression of emotions does not result in a reduced mental experience of those emotions (Gross & John, 2003). Due to cultural and contextual needs, there are many occasions where an athlete might need to suppress their emotional expressions in pursuit of their goals (i.e., to avoid being carded, kicked off a team, losing focus), and in this context, it is plausible that using suppression flexibly could be adaptive for performance, despite the potential detriments to mental wellbeing. Nevertheless, expressive suppression has typically been found to reduce performance (Wagstaff, 2014). Further, the beta weight for suppression was small in the present study, suggesting this emotional regulation strategy was associated with small decreases in mental wellbeing and thus, additional research is required to investigate the nuances of suppression and its relationship with athlete mental health. Nevertheless, the finding provides some preliminary evidence that suppression used to manage stressors in sport performance may have adverse associations with mental wellbeing. Therefore, it may be beneficial for clinicians and others who work with athletes to target those who habitually suppress and support them to reappraise effectively.

These findings tie together two BASES expert statements considering the role of emotion regulation in sport (Lane et al., 2012) and mental health promotion for elite athletes (Gorczynski et al., 2019), as it highlights that strategies used for performance goals and outcomes are also associated with mental health outcomes. It appears beneficial to encourage athletes to use reappraisal when coping with stressful sporting situations as it is associated

with adaptive properties for performance and mental wellbeing. Reappraisal has also been found to be adaptive in other contexts (Gross & John, 2003) and therefore, if athletes can use this strategy effectively within the stressful sporting context, then they may also be better equipped to transfer these skills and effectively manage stressors in wider life.

Clinical Implications

Overall, the results of this study indicate that neither reappraisal nor suppression were associated with mental illness (depression), but both were related to positive mental health (mental wellbeing). Further, reappraisal was a greater correlate of improved mental wellbeing than suppression was for reduced mental wellbeing. The findings consequently extend literature adopting the PMER in sport by considering how strategies used for performance goals also relate to mental illness and mental health outcomes. In line with the majority of the literature, antecedent-focused strategies are associated with greater mental wellbeing than response-focused strategies.

These findings contribute to Keyes' (2002) arguments around the two-continuum model of mental health as it highlights the importance of, and further supports the argument for including mental wellbeing in mental health research (Uphill, et al., 2016). Based on the present results, if interventions for improving athlete mental health focused solely on reducing mental illness (e.g., depression), then limited change would occur. By comparison, focusing on using these strategies for improving mental wellbeing may be more beneficial within the sport context. Furthermore, whilst athletes displayed "normal" levels of depression and thus were not described as clinically depressed, they only exhibited moderate levels of mental wellbeing. This lends support to the argument that an individual who is free of mental illness does not automatically have high mental health (Keyes, 2002). Improving one's mental wellbeing may also be protective against mental illnesses (Keyes, 2014) and therefore, it may be beneficial to promote understanding of flourishing (high mental wellbeing with low

mental illness), which would improve athlete MHL and potentially reduce mental health stigma in sport.

An important implication of this study is that those working with athletes need to be aware of the emotion regulation strategies athletes are using and the effects on indicators of their mental health. This suggests a need for clinical sport psychology research to continue uncovering factors that relate to increased or decreased risk for depression or poor mental wellbeing. It is important to move beyond gathering prevalence rates to also include individual and environmental level indicators (e.g., coaching styles, sport type) that can offer a more nuanced understanding of how sport can better protect and promote athlete mental health. A further clinical implication of this study is that it supports literature arguing that sport may offer support for mental health treatment (Pascoe et al., 2020). Research suggests waitlists for professional mental health support are often long and thus, treatment is delayed (MacDonald et al., 2020). Consequently, if young people participate in sport, it is possible they can learn how to use strategies adaptively and help prevent the onset of mental illness. Nevertheless, further longitudinal studies investigating the effectiveness (i.e., how successful the strategy is at attaining regulatory goals; McRae & Gross, 2020) of strategies and MHL training for stakeholders would be required. This longitudinal research would also benefit from investigating whether emotion regulation strategies are antecedents or outcomes of mental illness and wellbeing in the sport context.

Strengths and Limitations

A strength of this study is its contribution to filling a gap in the literature by considering the relationship between emotion regulation use and mental illness and mental health outcomes in student athletes. This study has also highlighted the importance of considering both positive and negative indicators of mental health in sport psychology research as strategies were found to be associated with mental wellbeing but not depressive

symptomatology. Therefore, it may be beneficial for future studies to adopt Keyes (2002) model to ensure a holistic understanding of athlete mental health is captured and improve the MHL in sport.

A limitation of the present study is in the methods of data collection as issues with retrospective recall and social-desirability bias may have been present. Mental health stigma is a major issue within sport (Gorzcynski et al., 2019) and may have been a barrier for accurate reporting of athletes' mental wellbeing, symptoms of depression, and use of emotion regulation strategies. Nevertheless, responses were anonymous, and participants were reminded that there was no right or wrong answer which may have helped minimise this risk. Further, there were only significant group differences in suppression use between male and female athletes, however, the effect size was small, suggesting that gender explained a small amount of the variance in suppression. Consequently, future research could benefit from investigating other variables that may explain the variance in suppression, such as differences between fine and gross motor sports where suppression use may be related to different goals. A further limitation included the gender imbalance in the sample, and future studies would benefit from addressing such imbalances.

This is an initial cross-sectional study investigating the relationships between emotion regulation strategies and indicators of mental health and mental illness at a single time point. Cross-sectional studies can provide only a 'snapshot' of a given phenomenon at one time point to discover whether two or more variables are related (Levin, 2006), and are particularly beneficial in the initial stages of a research area (Spector, 2019). The cross-sectional design employed in the present study therefore does not allow for causation to be tested and no conclusions can be made as to whether a cause-and-effect relationship exists or its nature (e.g., does using suppression cause symptoms of poor mental wellbeing or does experiencing symptoms of poor mental wellbeing lead athletes to using more suppression). It

is also not possible to know whether emotion regulation use occurs before possible symptoms of depression and mental wellbeing or vice versa. Consequently, the findings from this study represent the first stage of research into the phenomenon and we recommend researchers adopt a longitudinal design to clarify the direction of these observed relationships. Key questions to be addressed in future studies include: does emotion regulation predict wellbeing and depression, does depression and wellbeing predict emotion regulation use, or are these relationships reciprocal in nature? In sum, the present study highlights the potential value of conducting further research (e.g., experimental, qualitative) into athletes' use of emotion regulation strategies in relation to indicators of mental health and illness.

In conclusion, this study provides a novel contribution and a foundation for future research by capturing a snapshot of the relationship between athletes use of reappraisal and suppression on their mental wellbeing and depressive symptoms. Whilst reappraisal was associated with greater changes in wellbeing than suppression, suppression may still serve maladaptive functions for wellbeing. Therefore, to promote mental wellbeing in sport and reduce mental illness, athletes and those who work with them need to better understand the impact that strategies used for performance can have on their mental health at a critical age period in life. Further, this study has contributed to MHL research by highlighting potential risk factors for poor mental wellbeing. Future studies should continue to draw upon the PMER and Keyes two-continuum model of mental health to investigate these relationships with other emotion regulation strategies used in sport. This research may open up avenues for sport as a non-pharmacological treatment for mental illness and for those who use emotion regulation strategies maladaptively. More specifically, using reappraisal within the sport context may be a useful mental health promoting strategy.

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Table 1

Means and Standard Deviations for ERQ, Depression, and WEMWBS by Gender and Competitive Level.

Variable(s)	Depression (*M*)	Depression (*SD*)	Mental Wellbeing (*M*)	Mental Wellbeing (*SD*)	Reappraisal (*M*)	Reappraisal (*SD*)	Suppression (*M*)	Suppression (*SD*)
Gender								
Male	8.00	7.09	45.88	7.33	4.80	0.82	3.77*	1.01*
Female	7.33	6.87	45.28	6.23	4.91	0.84	3.54*	1.06*
Total	7.63	6.97	45.55	6.73	4.86	0.83	3.64	1.05
Competitive Level								
Elite	10.48	8.12	44.98	7.14	5.12	0.97	3.66	1.12
Regional	7.40	7.08	45.45	6.89	4.86	0.79	3.68	1.05
Club	7.12	6.51	45.94	7.11	4.79	0.86	3.56	0.98
Recreational	8.00	6.63	45.21	4.78	4.87	0.83	3.69	1.14
Total	7.63	6.97	45.55	6.73	4.86	0.83	3.64	1.04

Note. Score ranges as follows: reappraisal and suppression 1-7, depression 0-42, mental wellbeing 13-65.

* $p < .05$

Table 2

Hierarchical multiple regression for associations with depression (Model 1) and mental wellbeing (Model 2).

Variable(s)	*B*	*SE B*	β	*t*	*p*	*R*	R^2	ΔR^2
Model 1: depression								
Step 1						.602	.362	.362
WEMWBS	-.62	.04	-.60	-15.48	< .001			
Gender	-1.05	.54	-.08	-1.92	.055			
Step 2						.605	.366	.004
WEMWBS	-.62	.04	-.60	-14.52	< .001			
Gender	-.98	.55	-.07	-1.78	.076			
Reappraisal	.22	.34	.03	.64	.525			
Suppression	.39	.26	.06	1.46	.144			
Model 2: mental wellbeing								
Step 1						.602	.362	.362
Depression	-.58	.09	-.60	-15.48	< .001			
Gender	-.99	.53	-.07	-1.88	.061			
Step 2						.640	.410	.048
Depression	-.54	.04	-.56	-14.52	< .001			
Gender	-1.28	.51	-.09	-2.5	.013			
Reappraisal	1.67	.31	.21	5.45	<.001			

Suppression	-.54	.25	-.08	-2.21	.028

1

2