Stressor Reflections and Elite Athlete Psychological Well-being and Ill-being: Cross-sectional and Experimental Tests of Self-distancing

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Stressor Reflections and Elite Athlete Psychological Well-being and Ill-being: Cross-sectional and Experimental Tests of Self-Distancing

The sporting environment is characterised by numerous potential stressors for athletes, which may occur in training (e.g., team atmosphere and support, coaching interactions; Arnold & Fletcher, 2012; Hanton et al., 2005) or competition (e.g., risk of injury, ability to perform; Mellalieu et al., 2009) settings or because of organisational factors (e.g., competition format, career transitions; Arnold & Fletcher, 2012). Psychologically, stress occurs when individuals assess the associated demands of a potential stressor (i.e., an event that represents risk for disruption of optimal functioning; Cohen et al., 2019) as outweighing the personal and social-contextual resources available to them (e.g., Hobfoll, 1989; Lazanis, 1999). Athletes' volitional efforts to regulate their thoughts, feelings, and behaviours when confronted with stressors have important implications for performance (Hase et al., 2019; Sammy et al., 2017), mental health (e.g., Laurin et al., 2008), and injury (e.g., Singh & Conroy, 2017). It is therefore essential that athletes are able to self-regulate their engagement with stressors to optimise learning, development, performance, and well-being. Stress regulation interventions informed by a transactional perspective of stress (Lazarus & Folkman, 1984) typically target athletes' psychological interpretations of stressors or building capacities of individuals (e.g., self-regulatory skills) and/or their environment (e.g., access to counselling). Such efforts often adopt a "one size fits all" approach in which individuals are taught specific skills thought to be effective for all people and all types of stressors. We test an alternative, yet complementary approach in which athletes engage proactively with stressor experiences as a means by which to maximise the individualisation of stress regulation efforts. Methodologically, we address limitations of past research (e.g., underpowered studies) to generate new evidence regarding stress regulation efforts for athletes in ways that will advance theory (e.g., role of meta-cognition, boundary

conditions and mediating effects) and practice (e.g., individualisation of strategies and techniques).

Stress Regulation Interventions for Athletes: What is Currently Known?

An integrative understanding of the effectiveness of stress regulation interventions for athletes is limited to a narrative review of the literature (Rumbold et al., 2012). Accordingly, a statistical synthesis is warranted to provide insight into the magnitude of effect and extent to which the effects generalise across contexts. Accordingly, we systematically reviewed and meta-analysed randomised controlled trials of stress regulation interventions on athletes' performance and their perceptions of psychological stress (https://osf.io/qjtfv). The overall effect of stress regulation interventions on performance was moderate in magnitude (65 effect sizes, k = 21, N = 2022; g = .56, se = .16, 95% CI = .19, .84), yet was small in magnitude and statistically inconsequential for psychological outcomes (28 effect sizes, k = 10, N = 787; g = .35, se = .23, 95% CI = -.12, .81). Stress regulation interventions assessed in the meta-analysis included cognitive (n = 3), relaxation (n = 2), biofeedback (n = 5), multimodal (n = 7), mindfulness (n = 5), and meditation (n = 1). Moderator analyses indicated that intervention effects on performance were significantly stronger when assessed at long-term follow-up (g = 1.32, 95% CI = .78, 1.86) rather than immediately post-intervention (g = .44, 95% CI = .15, .74). Despite these promising findings regarding the pooled effect on performance, prediction intervals indicated a 95% chance that the effect of a new study will lie between -1.00 and 2.03 for performance and -1.10 and 1.80 for psychological outcomes. Essentially, the prediction intervals suggest that the likely effect in future trials is noisy or imprecise and potentially in the opposite direction to the overall pooled effect.

Our narrative review of this body of work identified several important considerations for the interpretation of these meta-analytic data and future research on the effectiveness of stress regulations interventions with athletes. First, there was a reliance on a one size fits all

approach to stress regulation interventions, with the majority of the programs characterised by a broad array of self-regulation skills and strategies, even for the interventions we categorised as targeting a single substantive area. For example, relaxation programs often complemented traditional relaxation techniques such as breathing exercises, progressive muscle relaxation, and yoga with cognitive-based strategies such as coping and positive self-talk (Kramar, 2008; Pelka et al., 2017; Whitmarsh, 1992). Further, researchers often presented the same material (e.g., workbooks) to all participants; by doing so there was little to no individualisation of interventions to athletes, which is inconsistent with recommendations such as those reported in the Template for Intervention Description and Replication (TIDieR) checklist (Hoffmann et al., 2014). Second, the quality of reporting intervention components was often vague and lacked specific details on the active ingredients of the programs and, where relevant, how theory informed the nature of the intervention. The absence of this information limited our ability to draw conclusions on the processes by which stress regulation interventions influenced human behaviour. Third, the overall quality and therefore certainty of evidence was low due to serious concerns regarding risk of bias (e.g., randomisation poorly described), large heterogeneity, inconsistency in point estimates and non-overlap of several confidence intervals, and some reporting bias as we were unable to access data for four eligible studies. Perhaps most importantly, sunset enhanced funnel plots indicated that statistical power of eligible studies was poor (22.4% for performance and 24.4% for psychological outcomes), presuming a true effect of g = .50 (Kossmeier et al., 2020). For these reasons, there remains a need for additional research on stress regulation interventions with athletes that alleviates these substantive, methodological, and reporting concerns.

Engaging Proactively with Stressor Experiences via Systematic Reflections

Our systematic review revealed that existing work has focused primarily on equipping athletes with skills presumed to be effective for regulating stressor experiences. Given the prevalence of stressors in the sporting environment, leveraging stressor experiences as a means by which to acquire and refine self-regulatory skills and strategies represents an untapped approach that could benefit athletes. Exposure to stressors alone is insufficient for optimising the likelihood of resilient outcomes; engaging proactively with stressors via introspection and self-reflections is key in this regard (e.g., Crane, Searle, Kangas, et al., 2019; Richardson, 2002) because it fosters psychological skills and strategies that promote resilience to future stressor experiences (Crane, Searle, Kangas, et al., 2019; DeRue et al., 2012; Fletcher & Sarkar, 2016). Self-reflection is a meta-cognitive approach whereby individuals evaluate whether their self-regulatory processes enacted during past experiences align with their values, and learn from this process how best to manage future similar situations (Anseel et al., 2009; Ellis et al., 2014). This meta-cognitive approach differs from a purely cognitive strategy in which mental processes (e.g., attentional engagement or distraction) are implemented to regulate one's thoughts to achieve a goal (Cameron & Jago, 2013).

In their Systematic Self-Refection (SSR) model, Crane, Searle, Kangas and colleagues (2019) formalised one conceptualisation of this meta-cognitive approach as a means by which to strengthen individual resilience via a number of means. These include self-awareness of emotional, cognitive, and behavioral reactions, and the situations that may trigger these reactions; self-evaluation of the effectiveness of coping and emotion regulatory strategies, coping resources, and beliefs; and self-development or improvement of one's potential for action in alignment with their values and goals. Operationally, the approach encourages self-reflective practices following stressor exposure with regard to one's (1) cognitive, emotional, and behavioural responses to situational triggers; (2) values and goals in

relation to the stressor; (3) strategies applied to address the stressor; (4) evaluation of strategy effectiveness in relation to one's values and goals; and (5) constructive adaptions of one's strategies to improve their coping and emotion regulatory approach for future stressors. Experimental research with university students (Crane, Kangas, Karin, et al., 2020), employees (Crane, Kho, Kangas, et al., 2020), and military cadets (Crane, Boga, Karin, et al., 2019) provides preliminary support for the effectiveness of this systematic approach to stressor reflections in terms of reduced anxiety, depression (Crane, Boga, Karin, et al., 2019), negative affect, and task-related stress (Crane, Kangas, Karin, et al., 2020) and stable levels of perceived stress during increased exposure to stressors (Falon et al., 2020). This experimental evidence also offers preliminary support for the range of beneficial outcomes possible from engaging in systematic self-reflection, and the effectiveness of this approach across contexts.

Initial evaluations of the SSR approach are promising, yet there remain several important considerations for ongoing work in this space. We focus on two considerations in the current study. First, there is a need to examine the extent to which the effectiveness of SSR generalises to new populations and contexts, given much of the available evidence stems from work in military settings (Crane, Boga, Karin, et al., 2019; Crane, Rapport, Callen, et al., 2019). We focus on elite athletes because the SSR approach aligns well with the overarching framework of 'plan-perform-review' widely adopted in sport settings and the prevalent nature of stressors in training, performance, and organisational contexts in sport. Second, there is a need to consider the nuances of the reflection process that might optimise outcomes for individuals, given the inconsistent findings of systematic stressor reflections with regard to immediate and long-term effects (Crane, Boga, Karin, et al., 2019; Crane, Kho, Kangas, et al., 2020). We consider the vantage point or lens through which people enact systematic reflections as one possibility in this study. Existing applications of the SSR

process required individuals to adopt a ‘self-immersed’ perspective in which they reflect on a stressor experience from a first-person point of view on specific situational details as if one were reliving the experience. Self-immersed reflections of negative experiences are known to narrow thinking (Grossmann & Jowhari, 2018), cue negative emotionality, depressive symptomatology, and distress (Tackman et al., 2018), and enhance physiological stress, emotional reactivity, and vulnerability to rumination (Kross & Ayduk, 2017). Self-distanced reflections, in contrast, prompt individuals to consider stressor experiences from a third-person perspective in which they ‘step back’ to remove themselves psychologically from the event to focus on elements from the experience most salient to their broader, abstract goals (Kross et al., 2005; MacGregor et al., 2017; Rees et al., 2018). In so doing, people are well positioned to view the situation constructively and with ‘eyes wide open’ rather than focus on the highly arousing features of the experience. Observational and experimental evidence supports the adaptiveness of self-distanced reflections in the short- and long-term in relation to cognitive (e.g., increased reconstrual and decreased recounting), and emotional (e.g., reduced negative emotionality and momentary distress; for a review, see Kross & Ayduk, 2017) outcomes.

Systematic Stressor Reflections and Psychological Ill- and Well-Being

The SSR approach is designed to orient people towards the challenge appraisal pathway as a means by which to engage adaptively with stressful experiences (Crane, Searle, Kangas, et al., 2019). Engaging in systematic stressor reflections fosters individualised, adaptive coping via the development of self-awareness, self-evaluation, and self-development (Crane, Searle, Kangas, et al., 2019). The key distinguishing feature of SSR from existing stress regulation and resilience training is the individualised approach to the identification and application of personalised skills and strategies. Essentially, as individuals engage in the process of self-reflection they maximise opportunities to identify strengths and limitations of

their coping and emotion regulation in response to stressors, and as a result learn to seek out and formulate new strategies to cope with future stressors (Falon et al., 2020). In this way, individuals are empowered to figure out what works for them and identify areas for improvement that align with their own needs and personal values. As one general indicator of resilience functioning, individuals who engage in SSR are best positioned to maximise psychological well-being and minimise psychological ill-being (Crane, Searle, Kangas, et al., 2019; Crane, Kangas, Karin, et al., 2020; Crane, Kho, Kangas, et al., 2020). For the purposes of this study, we defined well-being and ill-being as the subjective experience of positive mental health or poor mental health, respectively (Marsh et al., 2020). This conceptualisation aligns with the well accepted view of mental health as lying on a continuum from languishing to flourishing (Keyes, 2002; 2005). We therefore focus on these two indicators of human functioning as primary outcomes for our tests of the robustness of the SSR approach.

An important consideration for experimental or interventional research concerns the mechanisms by which the manipulation or intervention exerts an influence on the primary outcomes. In this study, we examine coping insight as one potential mediator of the effect of SSR on psychological well-being and ill-being. As a psychological concept, coping insight reflects the degree to which individuals are consciously aware of existing capacities or resources available to them and their strengths and weaknesses for dealing with stressful circumstances (Grant et al., 2002; Padesky & Mooney, 2012). Broadly, insight is considered a valuable outcome of meta-cognitive processes because it is positively associated with self-regulation, positive affect, and cognitive flexibility, and negatively related with depression, anxiety, stress and negative affect (Cowden & Meyer-Weitz, 2016; Grant et al., 2002; Lyke, 2009; Silvia & Phillips, 2011). In reference to SSR, coping insight is characterised by enhanced self-awareness of response patterns to stressors encountered, and principles on the nature of stress and coping across time and context (Falon et al., 2020; Grant et al., 2002).

Engaging in SSR provides individuals with insights on their coping responses to experienced stressors, which in turn strengthens capacities that maximise resilient outcomes to future stressors (Crane, Kangas, Karin et al., 2020). Adopting a self-distanced perspective during the reflection process is expected to augment one's coping insight obtained via SSR because psychologically distancing oneself from the event allows people to focus on elements from the experience most salient to their broader, abstract goals (Kross et al., 2005; MacGregor et al., 2017; Rees et al., 2018).

Knowledge of the conditions in which and people for whom intervention effects are strongest also has important implications for theory and practice. We consider curiosity and stress mindsets as individual difference factors that have the potential to alter the effects of stressor self-reflections on psychological well-being and ill-being. Curiosity as an individual difference factor reflects an internalised desire to learn new information and engage in new experiences (Grossnickle, 2016). Behaviourally, curiosity functions in terms of seeking out, exploring, and immersing oneself in situations where there is an expectation of expanding upon one's knowledge and existing competencies (Grossnickle, 2016; Kashdan et al., 2018; von Stumm & Ackerman, 2013). Conceptualised in this way, we might expect athletes with higher levels of curiosity to benefit most from stressor self-reflections because the meta-cognitive activity itself is likely to be perceived as intrinsically motivating (e.g., enjoyable, satisfying; Sheldon, 2014). In other words, individuals with higher levels of curiosity are most likely to embrace stressor experiences proactively via the SSR approach tested here, which in turn is expected to foster resilient capacities (e.g., psychological flexibility) and beneficial outcomes in terms of psychological well-being (Kashdan et al., 2018).

Athletes' stress mindsets are another individual difference variable that we expect will alter the strength of the effect of stressor reflections because they fundamentally change the nature of stress regulation efforts for people. Formally defined, stress mindsets reflect one's

cognitive frame or lens regarding the adaptive or maladaptive nature of stressful circumstances for learning, growth, development, and functioning (Crum et al., 2013a). In other words, stress mindsets reflect people's interpretations of stressful circumstances as either 'good' or 'bad' for them. People who believe stressful situations provide opportunities for optimising learning, growth, development, and functioning are said to hold a 'stress-as-enhancing' mindset, whereas individuals who view stressors primarily as threats to them are described as 'stress-as-debilitating' mindset (Crum et al., 2013a). Observational and experimental evidence supports the adaptive nature of stress-as-enhancing mindsets for a broad range of cognitive (e.g., greater cognitive flexibility, increase in attentional bias towards positive stimuli), emotional (e.g., increases in positive affect), and behavioural (e.g., greater persistence through training) outcomes (Crum et al., 2013a, 2013b; Crum et al., 2017; Smith et al., 2020).We therefore expect individuals who hold a 'stress-as-enhancing mindset' will engage proactively and optimally with stressor self-reflections because the meta-cognitive process provides a means by which to optimise future experiences with stressors and therefore achieve value goals.

Overview of the Current Study

The aims of this study are to test the effectiveness of two types of stressor reflection approaches on psychological well-being and ill-being, and examine potential mediators (coping insight) and moderators (curiosity and stress mindsets) of this primary effect. We also aim to examine the moderating effect of self-distanced reflections on the association between stressor experiences and psychological well-being and ill-being.

Primary Study Hypotheses

1. Guided by recent evidence (e.g., Kross & Ayduk, 2017; Orvell et al., 2019), we expect athletes who reflect from a self-distanced perspective for 5 weeks to report greater (a) psychological well-being, (b) coping insight, and (c) lower psychological

ill-being post-intervention, when compared to individuals who reflect from a self-immersed perspective.

2. We expect the experimental effect of self-distanced reflections on psychological well-being and ill-being will be mediated by coping insight.
3. It is expected that self-distanced reflections will moderate the effect of stressor experiences on psychological well-being and ill-being, such that (i) the negative effect of stressor experiences on psychological well-being, and the (ii) positive effect of stressor experiences on psychological ill-being will be weakened when athletes engage in self-distanced reflections.
4. Curiosity and stress mindsets will moderate the effect of stressor reflections on psychological well-being and ill-being, such that the experimental effect of a self-distanced perspective will be strongest when individuals report higher levels of these individual difference factors.

Methods

Participants and Sample Size Justifications

[name blinded for peer-review] Human Research Ethics Committee approved this study prior to implementation. Athletes from the baseline assessment who express an interest to participate in the 5-week reflections program and provide consent will determine the available sample size for this study. For context, power simulations for a design and test combination that excludes clustering indicated that ~200 and ~120 participants will provide 80% power to detect moderate effects (SMD = .40 and .50, respectively) with regard to the primary hypothesis (H1) [see the OSF project page: https://bit.ly/3g0SIHK]. The sensitivity of our design and test combination is reduced if we apply an adjustment for clustering using the formula $1 + (m\text{-}1)\rho$, where m is the number of participants per team or squad and ρ is the intra-class correlation (ICC; Campbell et al., 2004). For example, if we estimate the size of a

team or squad as six athletes with an ICC of .05, we would require ~250 and ~150 to achieve 80% power to detect moderate effects (SMD = .40 and .50, respectively). Although we expect some degree of attrition across the study period, the use of linear mixed effects models enables all participants who provided baseline assessments to be retained thereby minimising loss of power.

Research Design

We will conduct a single blind, parallel group, cluster randomised controlled trial encompassed by a 2 (condition: self-distanced, self-immersed) x 2 (time: baseline and post-intervention) mixed factorial design. Participants will be requested to complete the intervention and survey package online via Qualtrics.

Experimental Conditions

Athletes will be cluster randomised into experimental groups by sporting team or squad to minimise potential contamination effects (e.g., discussing reflection strategies with athletes in their team or squad). We generated the blocked allocation sequence using Sealed Envelope™ (https://www.sealedenvelope.com/simple-randomiser/v1/lists). The randomisation schedule will be concealed from the project manager (EM) until the moment of group assignment, all of which will occur electronically (e.g., email invitations). Participants in both conditions will be asked weekly to reflect on and write down their reflections of the most stressful event or situation they experienced over the past week for a period of 5 weeks. Participants in the self-distanced group will be asked to reflect on their experience from a third-person perspective (e.g., visualising yourself as a sports coach standing on the sidelines watching yourself experiencing the event from afar). For the self-immersed condition, participants will be asked to reflect on the experience from a first-person perspective, as if they are reliving the experience. Questions in both conditions focus on core elements from the systematic self-reflection model (Crane, Searle, Kangas, et al., 2019)

including: (1) self-awareness and triggers, (2) awareness of one's values in relation to the stressor, (3) awareness of strategies applied to the stressor, (4) evaluation of strategy effectiveness considering one's values, and (5) constructive adaptions of one's strategies in order to improve their coping and emotion regulatory approach to future stressors. Full details of each experimental condition is provided in the supplementary material. Both conditions will complete their reflections once a week online via Qualtrics.

We will utilise the Linguistic Inquiry and Word Count (LIWC; Pennebaker et al., 2015) program to analyse first person pronoun use (e.g., I, me) as a proxy for the thought content of participants' self-reflections. Reflections will also be analysed manually with the assistance of coding guidelines established in previous literature (e.g., Kross et al., 2005), whereby ratings on the extent to which recounting and reconstruing characterized each reflection combines to form a reconstruing index (Kross & Ayduk, 2008). Reconstruing will be operationalised as reflections that depict change in the way participants initially understood the event and their initial psychological response, and reflections that indicate participants reflected on their past experience from a broad perspective (e.g., I thought about how my behavioural response to this situation was not necessary for that time and place). In contrast, recounting will consist of reflections describing the event, behaviours, and emotions experienced by the participant (Kross & Ayduk, 2008).

Measures

Stressor experiences. Athletes will assess the nature of the stressors they experienced over the past month using the Organisational Stressor Indicator for Sport Performers (OSI-SP; Arnold et al., 2013). The OSI-SP consists of 23 stressor experiences that cover five broad areas relating to goals and development (e.g., *the development of one's sporting career*), logistics and operations (e.g., *funding allocations in one's sport*), team and culture (e.g., *the responsibilities that one has on their team*), coaching (e.g., *the relationship one has with their*

coach), and selection (e.g., *how one's team is selected*; Arnold et al., 2013). Participants assess each stressor using a 6-point response scale for frequency (0 = *never,* to 5 = *always*) and intensity (0 = *no demand,* to 5 = *very high*) dimensions; we excluded the duration (0 = *no time,* to 5 = *a very long time*) dimension to minimise participant burden. There is sufficient reliability and validity evidence for test scores obtained with the OSI-SP in a sporting context and across cultures (e.g., Arnold et al., 2013; Arnold et al., 2017; Liu et al., 2018). We will compute an average score for frequency and intensity elements for each of the five categories of stressor experiences in sport.

Self-reflective practices. Athletes will be asked to self-report their engagement in self-reflective practices using a bespoke tool designed to capture the key elements of the systematic self-reflection model of resilience strengthening (Crane, Searle, Kangas, et al., 2019). This tool is provided in the supplementary material. Briefly, participants will be asked to describe a stressful situation or event they have experienced over the past month in their sporting environment (e.g., *completing a time trial during a training session*) because reflections are optimised when they are contextualised to a specific experience or event (Hankin et al., 2004; Harkness & Monroe, 2016). Subsequently, participants will complete 12 items to assess their levels of engagement in stressor self-reflective practices. Items will capture their self-awareness and values in relation to the stressor, evaluation of self-regulatory strategy effectiveness, and future adaptations to coping and emotion regulatory strategies. All responses will be captured using a sliding scale from 0 to 100 (e.g., 0 = *completely unaware,* to 100 = *completely aware*). We will compute a composite average score of all 12 items for athletes' engagement in stressor self-reflective practices.

Spontaneous self-distancing. We will use a single item to assess participants' tendency to reflect in a self-immersed or self-distanced perspective: "When you reflect on stressor experiences, in general, to what extent did you do so as if you were a distanced

observer of what was happening (i.e., watched the event unfold from the perspective of an observer, in which you could see yourself from afar) vs. an immersed participant in the experience (i.e., saw the event replay through your own eyes as if you were right there)?" Participants will answer this question on a seven-point scale, ranging from 1 (*predominantly immersed participant*) to 7 (*predominantly distanced observer*). An 'unsure' option will be available, if participants are unaware of the reflection style they use. This item represents an adaptation of approaches utilised in past work (e.g., Ayduk & Kross, 2010; Grossman & Kross, 2010).

Coping insight. Participants will complete a bespoke scale developed for this study that is informed by a systematic self-reflection model of resilience strengthening (Crane, Searle, Kangas, et al., 2019) and which aims to capture the coping insights that emerge from adaptive self-reflection (Crane, Kangas, Karin, et al., 2020). This tool is provided in the supplementary material. Participants will complete items assessing their development of coping insights from their engagement in the five self-reflection practices of the systematic self-reflection model (e.g., self-awareness, evaluation of self-regulatory strategy effectiveness). All responses will be captured using a 7-point response scale (1 = *not at all,* to 7 = *almost always*) to indicate the degree to which each of the statements is true. We will compute a composite average score of all 13 items for athletes' coping insights.

Psychological well-being. Participants will complete the 15-item Well-Being Profile (WBP), which provides a global snapshot of one's well-being (Marsh et al., 2020). Items are assessed using a 9-point response scale (1 = *completely disagree,* to 9 = *completely agree*) to indicate the degree to which each statement reflects their personal circumstances in a sporting context over the past month. There is preliminary evidence to support the reliability and validity of test scores obtained with the WBP (Marsh et al., 2020). We will compute an average score of all 15 items that reflects athletes' global well-being.

Psychological ill-being. Athletes will complete two scales to assess the presence of depression (Patient Health Questionnaire-9 [PHQ-9]; Kroenke et al., 2001) and anxiety symptoms (Generalised Anxiety Disorder Scale [GAD-7]; Spitzer et al., 2006). For depression, athletes will assess the number of days over the past month they have experienced a particular depressive symptom in relation to their sporting experiences (e.g., *feeling tired or having little energy*) using a 4-point response scale (0 = *not at all,* to 4 = *nearly every day*). There exists adequate reliability and validity evidence of test scores obtained using the PHQ-9 in clinical settings (e.g., Gilbody et al., 2007; Kroenke et al., 2001), amongst adolescents (Richardson et al., 2010), and across cultures (e.g., Ganguly et al., 2013). We will compute a total score between 0 to 27 points that reflects athletes' severity of depression symptoms. For anxiety, participants will respond to 7-items in terms of how often, over the past month, they have experienced a particular anxiety symptom due to engagement in their sport (e.g., *feeling nervous, anxious, or on edge*) using a 4-point response scale (0 = *not at all,* to 4 = *nearly every day*). Acceptable reliability and validity evidence of test scores exists for the GAD-7 in the general population (e.g., Löwe et al., 2008) and across cultures (Hinz et al., 2017; Sousa et al., 2015). We will compute the total score between 0 to 21 points to reflect the severity of anxiety symptoms in athletes.

Curiosity. Athletes will indicate their motivation and willingness to seek out new information and novel and uncertain experiences using the 10-item Curiosity and Exploration Inventory II (CEI-II; Kashdan et al., 2009). Items are assessed using a 5-point scale (1 = *very slightly* or *not at all,* to 5 = *extremely*) to reflect one's general tendencies for each statement. There exists sufficient reliability and validity of test scores obtained with the CEI-II in the general population (Kashdan et al., 2011, 2013). We will compute the average of all 10 items to create an overall curiosity score.

Stress mindsets. Athletes will rate the extent to which they believe the effects of stress are enhancing or debilitating using the 8-item Stress Mindset Measure (SMM; Crum et al., 2013). Participants will report their degree of endorsement of 8 items (e.g., *the effects of stress are negative and should be avoided*), using a 5-point scale (0 = *strongly disagree,* to 4 = *strongly agree*). There exists sufficient reliability and validity evidence for test scores obtained with the SMM (Horiuchi et al., 2018; Jiang et al., 2019; Kilby & Sherman, 2016). We will compute an average score of all 8 items to reflect athletes' stress mindset.

Treatment expectations. Using an adaptation from previous work (Boot et al., 2013), athletes will assess their expectations of the self-reflection strategy to which they are assigned using a single item as follows: "To what extent do you believe that *writing reflections on stressor experiences from a first person/third person point of view* will enable you to better deal with stress in the future?" Both groups will assess this item on a sliding scale from completely useless [0%] to completely beneficial [100%].

Procedure

All study procedures will be executed online using the Qualtrics platform. Consenting participants will first complete baseline assessments of stressor experiences, self-reflective practices, spontaneous self-distancing, coping insight, psychological well-being and ill-being, curiosity, stress mindsets, and treatment expectations. Subsequently, athletes will be grouped by their sporting team and cluster-randomised to one of two experimental conditions in which they will be asked to complete a 15 min reflection at the end of each week for a period of 5 weeks using either a self-immersed or self-distanced reflection perspective. Text message reminders will be sent to participants on Thursday, Friday, and Saturday mornings to prompt them to complete the reflection over the weekend in their own time. On completion of the 5-week reflection period, participants will complete post-intervention assessments of stressor

experiences, self-reflective practices, spontaneous self-distancing, coping insight, psychological well-being and ill-being.

Statistical Analyses

We will assess the study hypotheses using a mixed-effects analysis of covariance (ANCOVA; H1), whereby the baseline score of the outcome variable (e.g., psychological well-being) will be included as a covariate and the sporting team or training squad as the clustering factor (see here for an example: https://gamlj.github.io/mixed_example2.html). Moderator analyses will be performed to examine the differential effects of stressor experiences on psychological well-being and ill-being as a function of reflection type (H3), and the effect of self-distanced reflections on psychological well-being and ill-being as a function of self-reported curiosity and stress (H4). We will use jamovi (The jamovi project, 2020) to examine H1 and H3-4 (modmed package). Mediation analyses (H2) will be performed to assess the degree to which the effect of self-distanced reflections on psychological well-being and ill-being occurs via athletes' coping insights. Consistent with recommendations (MacKinnon & Pirlott, 2015), we will examine mediation effects within a structural equation modelling framework via M*plus* (Muthén & Muthén, 2017) and apply two statistical approaches to optimise causal interpretations. First, we will conduct sensitivity analyses to estimate confounder bias via average causal mediation effect and the left out variables error (LOVE) method. Second, we will statistically adjust the mediation effect of M on Y with participants' treatment expectations, and compare this adjusted model with an unadjusted model. We will execute assumption tests prior to the main analyses using existing guidelines for ANCOVA (e.g., Field et al., 2012), including the Shapiro-Wilko test to assess normality of residual variances, Levene's test to assess homogeneity of variances between conditions, homogeneity of regression slopes, and ANOVA to test independence of the covariate and experimental effect.

References

Anseel, F., Lievens, F., & Schollaert, E. (2009). Reflection as a strategy to enhance task performance after feedback. *Organizational Behavior and Human Decision Processes, 110,* 23–35. https://doi.org/10.1016/j.obhdp.2009.05.003

Arnold, R., & Fletcher, D. (2012). A Research synthesis and taxonomic classification of the organizational stressors encountered by sport performers. *Journal of Sport and Exercise Psychology, 34,* 397–429. https://doi.org/10.1123/jsep.34.3.397

Arnold, R., Fletcher, D., & Daniels, K. (2013). Development and validation of the Organizational Stressor Indicator for Sport Performers (OSI-SP). *Journal of Sport and Exercise Psychology, 35,* 180–196. https://doi.org/10.1123/jsep.35.2.180

Arnold, R., Ponnusamy, V., Zhang, C.-Q., & Gucciardi, D. F. (2017). Cross-cultural validity and measurement invariance of the Organizational Stressor Indicator for Sport Performers (OSI-SP) across three countries. *Scandinavian Journal of Medicine & Science in Sports, 27,* 895–903. https://doi.org/10.1111/sms.12688

Ayduk, O., & Kross, E. (2010). From a distance: Implications of spontaneous self-distancing for adaptive self-reflection. *Journal of Personality and Social Psychology, 98,* 809–829. https://doi.org/10.1037/a0019205

Boot, W. R., Simons, D. J., Stothart, C., & Stutts, C. (2013). The pervasive problem with placebos in psychology: Why active control groups are not sufficient to rule out placebo effects. *Perspectives on Psychological Science, 8*(4), 445-454. https://doi.org/10.1177/1745691613491271

Cameron, L. D., & Jago, L. (2013). Cognitive Strategies. In Gellman M.D., Turner J.R. (Eds) *Encyclopedia of Behavioral Medicine.* Springer, New York, NY. https://doi.org/10.1007/978-1-4419-1005-9_1120

Campbell, M. K., Elbourne, D. R., & Altman, D. G. (2004). CONSORT statement: Extension to cluster randomised trials. *BMJ : British Medical Journal*, *328*, 702–708. https://doi.org/10.1136/bmj.328.7441.702

Cohen, S., Murphy, M. L. M., & Prather, A. A. (2019). Ten surprising facts about stressful life events and disease risk. *Annual Review of Psychology*, *70*(1), 577–597. https://doi.org/10.1146/annurev-psych-010418-102857

Cowden, R. G., & Meyer-Weitz, A. (2016). Self-reflection and self-insight predict resilience and stress in competitive tennis. *Social Behavior and Personality: An International Journal*, *44*(7), 1133–1149. https://doi.org/10.2224/sbp.2016.44.7.1133

Crane, M. F., Searle, B. J., Kangas, M., & Nwiran, Y. (2019). How resilience is strengthened by exposure to stressors: The systematic self-reflection model of resilience strengthening. *Anxiety, Stress, & Coping*, *32*(1), 1–17. https://doi.org/10.1080/10615806.2018.1506640

Crane, M. F., Boga, D., Karin, E., Gucciardi, D. F., Rapport, F., Callen, J., & Sinclair, L. (2019). Strengthening resilience in military officer cadets: A group-randomized controlled trial of coping and emotion regulatory self-reflection training. *Journal of Consulting and Clinical Psychology*, *87*(2), 125–140. https://doi.org/10.1037/ccp0000356

Crane, M. F., Kangas, M., Karin, E., Searle, B., & Chen, D. (2020). Leveraging the experience of stressors: The role of adaptive systematic self-reflection. *Anxiety, Stress, & Coping*, 1–17. https://doi.org/10.1080/10615806.2020.1732359

Crane, M. F., Kho, M., Kangas, M., Griffin, B., Karin, E., Earl, J. K., & Harris, C. B. (2020). Strengthening resilience in over 50's: A nested clustered-randomized controlled trial of adaptive systematic self-reflection. *Anxiety, Stress, & Coping*, *33*(6), 623–641. https://doi.org/10.1080/10615806.2020.1768375

Crane, M. F., Rapport, F., Callen, J., Boga, D., Gucciardi, D. F., & Sinclair, L. (2019). Military police investigator perspectives of a new self-reflective approach to strengthening resilience: A qualitative study. *Military Psychology*, *31*(5), 384–396. https://doi.org/10.1080/08995605.2019.1645537

Crum, A. J., Akinola, M., Martin, A., & Fath, S. (2017). The role of stress mindset in shaping cognitive, emotional, and physiological responses to challenging and threatening stress. *Anxiety, Stress, & Coping*, *30*(4), 379–395. https://doi.org/10.1080/10615806.2016.1275585

Crum, A. J., Salovey, P., & Achor, S. (2013a). Rethinking stress: The role of mindsets in determining the stress response. *Journal of Personality and Social Psychology*, *104*(4), 716–733. https://doi.org/10.1037/a0031201

Crum, A. J., Salovey, P., & Achor, S. (2013b). Rethinking stress: The role of mindsets in determining the stress response. *Journal of Personality and Social Psychology*, *104*(4), 716–733. https://doi.org/10.1037/a0031201

DeRue, D. S., Ashford, S. J., & Myers, C. G. (2012). Learning agility: In Search of conceptual clarity and theoretical grounding. *Industrial and Organizational Psychology*, *5*(3), 258–279. https://doi.org/10.1111/j.1754-9434.2012.01444.x

Ellis, S., Carette, B., Anseel, F., & Lievens, F. (2014). Systematic reflection: Implications for learning from failures and successes. *Current Directions in Psychological Science*, *23*(1), 67–72. https://doi.org/10.1177/0963721413504106

Falon, S. L., Karin, E., Boga, D., Gucciardi, D. F., Griffin, B., & Crane, M. F. (2020). A clustered-randomized controlled trial of a self-reflection resilience-strengthening intervention and novel mediators. https://doi.org/10.1037/ocp0000268

Field, A., Miles, J., & Field, Z. (2012). *Discovering Statistics Using R.* SAGE Publications: London.

Fletcher, D., & Sarkar, M. (2016). Mental fortitude training: An evidence-based approach to developing psychological resilience for sustained success, *Journal of Sport Psychology in Action, 7*(3), 135–157. https://doi.org/10.1080/21520704.2016.1255496

Ganguly, S., Samanta, M., Roy, P., Chatterjee, S., Kaplan, D. W., & Basu, B. (2013). Patient Health Questionnaire-9 as an effective tool for screening of depression among Indian adolescents. *Journal of Adolescent Health, 52*(5), 546–551. https://doi.org/10.1016/j.jadohealth.2012.09.012

Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences, 102,* 74–78. https://doi.org/10.1016/j.paid.2016.06.069

Gilbody, S., Richards, D., Brealey, S., & Hewitt, C. (2007). Screening for depression in medical settings with the Patient Health Questionnaire (PHQ): A diagnostic meta-analysis. *Journal of General Internal Medicine, 22*(11), 1596–1602. https://doi.org/10.1007/s11606-007-0333-y

Grant, A. M., Franklin, J., & Langford, P. (2002). The self-reflection and insight Scale: A new measure of private self-consciousness. *Social Behavior and Personality: An International Journal, 30*(8), 821–835. https://doi.org/10.2224/sbp.2002.30.8.821

Grossmann, I., & Kross, E. (2010). The impact of culture on adaptive versus maladaptive self-reflection. *Psychological Science, 21,* 1150–1157. doi: 10.1177/0956797610376655

Grossmann, I., & Jowhari, N. (2018). Cognition and the self: Attempt of an independent close replication of the effects of self-construal priming on spatial memory recall. *Journal of Experimental Social Psychology, 74,* 65–73. https://doi.org/10.1016/j.jesp.2017.08.005

Grossnickle, E. M. (2016). Disentangling curiosity: Dimensionality, definitions, and distinctions from interest in educational contexts. *Educational Psychology Review, 28*(1), 23–60. https://doi.org/10.1007/s10648-014-9294-y

Hankin, B. L., Abramson, L. Y., Miller, N., & Haeffel, G. J. (2004). Cognitive vulnerability-stress theories of depression: Examining affective specificity in the prediction of depression versus anxiety in three prospective studies. *Cognitive Therapy and Research, 28*(3), 309–345. https:// doi.org/10.1023/B:COTR.0000031805.60529.0d

Hanton, S., Fletcher, D., & Coughlan, G. (2005). Stress in elite sport performers: A comparative study of competitive and organizational stressors. *Journal of Sports Sciences, 23*(10), 1129–1141. https://doi.org/10.1080/02640410500131480

Harkness, K. L., & Monroe, S. M. (2016). The assessment and measurement of adult life stress: Basic premises, operational principles, and design requirements. *Journal of Abnormal Psychology*, *125*(5), 727–745. https://doi.org/10.1037/abn0000178

Hase, A., O'Brien, J., Moore, L. J., & Freeman, P. (2019). The relationship between challenge and threat states and performance: A systematic review. *Sport, Exercise, and Performance Psychology*, *8*(2), 123–144. https://doi.org/10.1037/spy0000132

Hinz, A., Klein, A. M., Brähler, E., Glaesmer, H., Luck, T., Riedel-Heller, S. G., Wirkner, K., & Hilbert, A. (2017). Psychometric evaluation of the Generalized Anxiety Disorder Screener GAD-7, based on a large German general population sample. *Journal of Affective Disorders*, *210*, 338–344. https://doi.org/10.1016/j.jad.2016.12.012

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513–524. https://doi.org/10.1037/0003-066X.44.3.513

Hoffmann, T. C., Glasziou, P. P., Boutron, I., Milne, R., Perera, R., Moher, D., Altman, D. G., Barbour, V., Macdonald, H., Johnston, M., Lamb, S. E., Dixon-Woods, M., McCulloch, P., Wyatt, J. C., Chan, A.-W., & Michie, S. (2014). Better reporting of

interventions: Template for intervention description and replication (TIDieR) checklist and guide. *Research Methods, 348,* 1–12. https://doi.org/10.1136/bmj.g1687

Horiuchi, S., Tsuda, A., Aoki, S., Yoneda, K., & Sawaguchi, Y. (2018). Coping as a mediator of the relationship between stress mindset and psychological stress response: A pilot study. *Psychology Research and Behavior Management, 11,* 47–54. https://doi.org/10.2147/PRBM.S150400

Huppert, F. A., & So, T. T. C. (2013). Flourishing Across Europe: Application of a New Conceptual Framework for Defining Well-Being. *Social Indicators Research, 110,* 837–861. https://doi.org/10.1007/s11205-011-9966-7

Jiang, Y., Zhang, J., Ming, H., Huang, S., & Lin, D. (2019). Stressful life events and well-being among rural-to-urban migrant adolescents: The moderating role of the stress mindset and differences between genders. *Journal of Adolescence*, *74,* 24–32. https://doi.org/10.1016/j.adolescence.2019.05.005

Kashdan, T. B., DeWall, C. N., Pond, R. S., Silvia, P. J., Lambert, N. M., Fincham, F. D., Savostyanova, A. A., & Keller, P. S. (2013). Curiosity protects against interpersonal aggression: Cross-Sectional, daily process, and behavioral evidence. *Journal of Personality, 81*(1), 87–102. https://doi.org/10.1111/j.1467-6494.2012.00783.x

Kashdan, T. B., Gallagher, M. W., Silvia, P. J., Winterstein, B. P., Breen, W. E., Terhar, D., & Steger, M. F. (2009). The Curiosity and exploration inventory-II: Development, factor structure, and psychometrics. *Journal of Research in Personality*, *43*(6), 987–998. https://doi.org/10.1016/j.jrp.2009.04.011

Kashdan, T. B., McKnight, P. E., Fincham, F. D., & Rose, P. (2011). When Curiosity Breeds Intimacy: Taking Advantage of Intimacy Opportunities and Transforming Boring Conversations. *Journal of Personality*, *79*(6), 1369–1402. https://doi.org/10.1111/j.1467-6494.2010.00697.x

Kashdan, T. B., Stiksma, M. C., Disabato, D. J., McKnight, P. E., Bekier, J., Kaji, J., & Lazarus, R. (2018). The five-dimensional curiosity scale: Capturing the bandwidth of curiosity and identifying four unique subgroups of curious people. *Journal of Research in Personality, 73*, 130–149. https://doi.org/10.1016/j.jrp.2017.11.011

Keyes, C. L. M. (2002). Selecting outcomes for the sociology of mental health: Issues of measurement and dimensionality. *Journal of Health and Social Behavior, 43(2)*, 207-222. https://doi.org/10.2307/3090197

Keyes, C. L. M. (2005). Mental illness and/mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology, 7*3, 539-548. https://doi.org/ 10.1037/0022-006X.73.3.539

Kilby, C. J., & Sherman, K. A. (2016). Delineating the relationship between stress mindset and primary appraisals: Preliminary findings. *SpringerPlus, 5*(1), 336. https://doi.org/10.1186/s40064-016-1937-7

Kossmeier, M., Tran, U. S., & Voracek, M. (2020). Power-Enhanced Funnel Plots for Meta-Analysis: The Sunset Funnel Plot. *Zeitschrift Für Psychologie*, *228*(1), 43–49. https://doi.org/10.1027/2151-2604/a000392

Kramar, M. (2008). *The effects of mental interventions on competitive anxiety, stress resistance, cardiovascular activity and sport performance of college athletes* [Doctoral Thesis, Northcentral University]. ProQuest dissertations and theses.

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. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Kross, E., & Ayduk, O. (2008). Facilitating Adaptive Emotional Analysis: Distinguishing Distanced-Analysis of Depressive Experiences From Immersed-Analysis and

Distraction. *Personality and Social Psychology Bulletin*, *34*, 924–938. https://doi.org/10.1177/0146167208315938

Kross, E., & Ayduk, O. (2017). Self-Distancing: Theory, Research, and Current Directions. *Advances in Experimental Social Psychology*, *55*, 81–136. https://doi.org/10.1016/bs.aesp.2016.10.002

Kross, E., Ayduk, O., & Mischel, W. (2005). When Asking "Why" Does Not Hurt Distinguishing Rumination From Reflective Processing of Negative Emotions. *Psychological Science*, *16*(9), 709–715. https://doi.org/10.1111/j.1467-9280.2005.01600.x

Laurin, R., Nicolas, M., & Lavallee, D. (2008). Effects of a personal goal management intervention on positive and negative moods states in soccer academies. *Journal of Clinical Sport Psychology*, *2*(1), 57–70. https://doi.org/10.1123/jcsp.2.1.57

Lazanis, R. S. (1999). Stress and emotion, a new synthesis. *Journal of Psychiatric and Mental Health Nursing*, *6*(5), 410–411. https://doi.org/10.1046/j.1365-2850.1999.00227-9.x

Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer.

Liu, H.-Y., Lu, F. J., Zhang, X., Gill, D. L., Chiu, Y.-H., & Chan, S.-W. (2018). Cross-cultural adaptation of the Organizational Stressor Indicator for Sport Performers (OSI-SP) in Taiwan. *Measurement in Physical Education and Exercise Science*, *22*(3), 263–274. https://doi.org/10.1080/1091367X.2018.1430577

Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. Y. (2008). Validation and Standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the General Population. *Medical Care*, *46*(3), 266–274. https://doi.org/10.1097/mlr.0b013e318160d093

Lyke, J. A. (2009). Insight, but not self-reflection, is related to subjective well-being. *Personality and Individual Differences*, *46*(1), 66–70. https://doi.org/10.1016/j.paid.2008.09.010

MacGregor, K. E., Carnevale, J. J., Dusthimer, N. E., & Fujita, K. (2017). Knowledge of the self-control benefits of high-level versus low-level construal. *Journal of Personality and Social Psychology*, *112*(4), 607–620. https://doi.org/10.1037/pspp0000130

MacKinnon, D. P., & Pirlott, A. G. (2014). Statistical approaches for enhancing causal interpretation of the M to Y relation in mediation analysis. *Personality and Social Psychology Review, 19*, 30-43. https://doi.org/10.1177/1088868314542878

Marsh, H. W., Huppert, F. A., Donald, J. N., Horwood, M. S., & Sahdra, B. K. (2020). The Well-Being Profile (WB-Pro): Creating a Theoretically Based Multidimensional Measure of Well-Being to Advance Theory, Research, Policy, and Practice. *Psychological Assessment*, *32*(3), 294–313. https://doi.org/10.1037/pas0000787

Mellalieu, S. D., Neil, R., Hanton, S., & Fletcher, D. (2009). Competition stress in sport performers: Stressors experienced in the competition environment. *Journal of Sports Sciences*, *27*(7), 729–744. https://doi.org/10.1080/02640410902889834

Muthén, L. K. and Muthén, B. O. (2017). Mplus User's Guide. Eighth Edition. Los Angeles, CA: Muthén & Muthén

Orvell, A., Ayduk, O., Moser, J. S., Gelman, S. A., & Kross, E. (2019). Linguistic Shifts: A Relatively Effortless Route to Emotion Regulation? *Current Directions in Psychological Science*, *28*(6), 567–573. https://doi.org/10.1177/0963721419861411

Padesky, C. A., & Mooney, K. A. (2012). Strengths-Based Cognitive–Behavioural Therapy: A Four-Step Model to Build Resilience. *Clinical Psychology & Psychotherapy*, *19*(4), 283–290. https://doi.org/10.1002/cpp.1795

Pelka, M., Kölling, S., Ferrauti, A., Meyer, T., Pfeiffer, M., & Kellmann, M. (2017). Acute effects of psychological relaxation techniques between two physical tasks. *Journal of Sports Sciences*, *35*(3), 216–223. https://doi.org/10.1080/02640414.2016.1161208

Pennebaker, J. W., Booth, R., J., Boyd, R. L., & Francis, M. E. (2015). Linguistic Inquiry and Word Count: LIWC2015. Austin, TX: Pennebaker Conglomerates (www.LIWC.net).

Rees, H. R., Fujita, K., Han, H. A., Sherman, J. W., & Sklar, A. Y. (2018). An examination of the processes by which construal level affects the implicit evaluation of goal relevant stimuli. *Motivation Science*, *4*(3), 251–261. https://doi.org/10.1037/mot0000089

Richardson, G. E. (2002). The metatheory of resilience and resiliency. *Journal of Clinical Psychology*, *58*(3), 307–321. https://doi.org/10.1002/jclp.10020

Richardson, L. P., McCauley, E., Grossman, D. C., McCarty, C. A., Richards, J., Russo, J. E., Rockhill, C., & Katon, W. (2010). Evaluation of the Patient Health Questionnaire (PHQ-9) for Detecting Major Depression among Adolescents. *Pediatrics*, *126*(6), 1117–1123. https://doi.org/10.1542/peds.2010-0852

Rumbold, J. L., Fletcher, D., & Daniels, K. (2012). A systematic review of stress management interventions with sport performers. *Sport, Exercise, and Performance Psychology*, *1*(3), 173–193. https://doi.org/10.1037/a0026628

Sammy, N., Anstiss, P. A., Moore, L. J., Freeman, P., Wilson, M. R., & Vine, S. J. (2017). The effects of arousal reappraisal on stress responses, performance and attention. *Anxiety, Stress, & Coping*, *30*(6), 619–629. https://doi.org/10.1080/10615806.2017.1330952

Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality*, *47*(5), 609–612. https://doi.org/10.1016/j.jrp.2013.05.009

Sheldon, K. M. (2014). Becoming Oneself: The Central Role of Self-Concordant Goal Selection. *Personality and Social Psychology Review*, *18*(4), 349–365. https://doi.org/10.1177/1088868314538549

Silvia, P. J., & Phillips, A. G. (2011). Evaluating self-reflection and insight as self-conscious traits. *Personality and Individual Differences*, *50*(2), 234–237. https://doi.org/10.1016/j.paid.2010.09.035

Singh, H., & Conroy, D. E. (2017). Systematic review of stress-related injury vulnerability in athletic and occupational contexts. *Psychology of Sport and Exercise, 33*, 37–44. https://doi.org/10.1016/j.psychsport.2017.08.001

Smith, E. N., Young, M. D., Crum, A. J. (2020). Stress, mindsets and success in Navy SEALs special warfare training. *Frontiers in Psychology, 10*, 1-11. https://doi.org/10.3389/fpsyg.2019.02962

Sousa, T. V., Viveiros, V., Chai, M. V., Vicente, F. L., Jesus, G., Carnot, M. J., Gordo, A. C., & Ferreira, P. L. (2015). Reliability and validity of the Portuguese version of the Generalized Anxiety Disorder (GAD-7) scale. *Health and Quality of Life Outcomes, 13*(1), 1–8. https://doi.org/10.1186/s12955-015-0244-2

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. https://doi.org/10.1001/archinte.166.10.1092

Tackman, A. M., Sbarra, D. A., Carey, A. L., Donnellan, M. B., Horn, A. B., Holtzman, N. S., Edwards, T. S., Pennebaker, J. W., & Mehl, M. R. (2019). Depression, Negative Emotionality, and Self-Referential Language: A Multi-Lab, Multi-Measure, and Multi-Language-Task Research Synthesis. *Journal of Personality and Social Psychology: Personality Processes and Individual Differences*, *116*(5), 817–834. https://doi.org/10.1037/pspp0000187

The jamovi project (2020). jamovi (Version 1.2) [Computer Software]. Retrieved from https://www.jamovi.org

von Stumm, S., & Ackerman, P. L. (2013). Investment and intellect: A review and meta-analysis. *Psychological Bulletin*, *139*(4), 841–869. https://doi.org/10.1037/a0030746

Whitmarsh, B. G. (1992). *The role of stress inoculation training and skills acquisition in increasing athletic pain tolerance* [Master's Thesis, University of Alberta]. ProQuest Dissertations and Theses.