

Mental toughness, sport-related wellbeing, and mental health stigma among National Collegiate
Athletic Association Division I student-athletes

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Abstract

Mental toughness has been associated with factors related to psychological wellbeing, but little is known about its relationship with stigma toward mental health and mental health help-seeking. This study investigated the relationship between mental toughness, sport-related wellbeing, and personal stigma toward mental health in a sample of 154 NCAA Division I student-athletes. The moderating effect of mental toughness on the relationship between public stigma and self-stigma toward mental health help-seeking was also explored. Mental toughness was significantly and positively associated with sport-related wellbeing, but not significantly related to personal stigma toward mental health. Moderation analysis indicated that mental toughness was not a significant moderator of the relationship between public stigma and self-stigma, but higher levels of mental toughness were significantly associated with lower levels of stigma toward mental health help-seeking. Building mental toughness may be a way to increase wellbeing and reduce stigma toward help-seeking in student-athletes.

Keywords: collegiate athletes, personal stigma, public stigma, self-stigma

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The two-continuum model of mental health suggests mental health and mental illness exist on separate but related continua (Keyes, 2002). That is, an individual could be experiencing mental illness and mental health simultaneously. According to Keyes (2016), complete mental health (i.e., flourishing) is achieved when mental illness is absent and mental health is high. High mental health is indicated through the presence of wellbeing-related symptoms (Keyes & Lopez, 2009). Wellbeing is a complex, dynamic construct that encompasses three dimensions: subjective wellbeing; psychological wellbeing; and social wellbeing (Keyes, 2005). Subjective wellbeing refers to an individual's overall levels of happiness and life satisfaction, with a specific focus on people's feelings and emotions (Ryan & Deci, 2001). Psychological wellbeing is comprised of the effective daily functioning and personal growth of an individual (Ryff, 1989). Finally, social wellbeing denotes an individual's level of functioning within society (Keyes, 1998).

Wellbeing among collegiate athletes has become a paramount concern for the National Collegiate Athletic Association (NCAA), who have, in recent years, produced a number of guidelines in this area (e.g., Brown et al., 2014; NCAA, 2016). For student-athletes, global wellbeing (i.e., an overall estimate of an individuals' wellbeing) is likely to be influenced by context-specific, or sport-related wellbeing, due to their perception of the importance of sport within their life (Lundqvist, 2011). Unlike non-athletes, student-athletes are also exposed to a variety of additional stressors, which could influence their levels of wellbeing. These stressors include those associated with elite sport performance (e.g., injury, performance concerns, fatigue; Rice et al., 2016) and the pressures of performing a dual role as athletes and students

(Van Rensburg et al., 2011). Given that these stressors could be deleterious to wellbeing in student-athletes, it is important to understand the resources that can help these athletes to cope with and overcome these challenging circumstances, with the ultimate goal of protecting and improving their wellbeing.

Mental toughness is a personal resource that can help athletes to produce consistently high levels of performance and sustain goal-directed behavior, despite everyday challenges and stressors (Gucciardi et al., 2015; Hardy et al., 2014). Although there are debates concerning the nature of mental toughness, recent evidence suggests that mental toughness is a state-like construct consisting of properties that can endure and change over time (e.g., Gucciardi et al., 2015; Weinberg et al., 2017). Mental toughness has been associated with a variety of desirable outcomes in athletic and performance contexts, including: improved performance (see Cowden, 2017 for a review); behavioral perseverance (e.g., Giles et al., 2018; Gucciardi et al., in press); use of psychological skills (Ponnusamy et al., 2018); thriving (Gucciardi, Stamatis, et al., 2017); and coping with adversity (Swann et al., 2016). Furthermore, a recent narrative review suggested that mental toughness could facilitate improved mental health in sport by enabling athletes to overcome stressors and adversities that can negatively impact on human functioning and, therefore, promote increased wellbeing (Gucciardi, Hanton, et al., 2017). Studies in adolescent athletes, for example, have reported inverse associations between mental toughness and depression, anxiety, stress, and burnout (Gucciardi & Gordon, 2009; Gucciardi & Jones, 2012), and positive correlations with positive affect (Mahoney et al., 2014a).

Despite evidence of associations between mental health and a variety of positive indicators of human functioning, potential drawbacks of mental toughness have also been highlighted (Anderson, 2011; Caddick & Ryall, 2012; Coulter et al., 2010, 2016; Crust et al.,

2014, 2016; Gucciardi et al., 2008). For instance, scholars have suggested that mental toughness represents an idealized and fantasy construct that reflects the “macho” culture of sport rather than human experience (Anderson, 2011; Caddick & Ryall, 2012). In addition, qualitative studies in sport and exercise have also provided evidence of the potential downsides of mental toughness, with associations drawn between mental toughness and: training through pain and injury in exercise (Crust et al., 2014); carrying on playing sport whilst injured (Coulter et al., 2010, 2016; Gucciardi et al., 2008); and costly perseverance that can lead to poor decision-making and risk to personal safety in adventure recreation (Crust et al., 2016).

Concerns have also been raised about the potential negative mental health and wellbeing implications of mental toughness and its hindrance of athletes seeking psychological support (Bauman, 2016). Bauman (2016) suggested that mental toughness and mental health could be viewed as contradictory concepts in elite sport, such that the expectation to be “mentally tough” might reduce the likelihood of seeking help in this context. Furthermore, a recent review proposed that highly valued characteristics of mental toughness (e.g., perseverance and overcoming adversity) may mean that athletes are less likely to seek the mental health support they need, due to a fear of being treated differently or unfairly (e.g., team selections; Gucciardi, Hanton, et al., 2017). Mental toughness, therefore, may not only influence an athletes' psychological wellbeing, but also their perceptions and beliefs surrounding help-seeking should they need it. Despite some evidence demonstrating an association between mental toughness and wellbeing, limited attention has been directed towards identifying how mental toughness is related to stigma surrounding mental health concerns and help-seeking.

Stigma can be described as a negative view toward an individual or group who display characteristics different to those considered normal by society (Dudley, 2000). There are three

main types of stigma, however, it is important to delineate differences between stigma toward mental health (e.g., stigma toward a mental illness itself) and stigma toward help-seeking (e.g., stigma toward the behavior of seeking help for a mental illness). *Personal stigma* reflects an individuals' own attitudes toward a person with or seeking help for a mental illness (Griffiths et al., 2004). In contrast, perceived *public stigma* includes stereotypes, discrimination, or prejudice that the public hold toward those people who may be experiencing or seeking help for a mental health concern (Corrigan, 2004). Finally, *self-stigma* is associated with the stigma an individual places upon themselves (Vogel et al., 2006). The three types of stigma are suggested to develop in sequence. That is, as an individual recognizes public stigma, they begin to create their own view of others (e.g., personal stigma), which, if internalized, will lead to self-stigma (Corrigan et al., 2006). Personal stigma toward those with a mental health issue predicts stigma toward seeking mental health treatment (Ross et al., 2020), while stigma toward seeking mental health treatment has a small-to-moderate detrimental effect on help-seeking (Clement et al., 2015). Stigma is one of the most prominent barriers student-athletes face when seeking mental health help (Moreland et al., 2018) and student-athletes have reported feeling perceived as weak if they are identified as seeking mental health treatment (DeLonardo & Terrion, 2014).

Both public stigma and self-stigma toward mental health help-seeking are important variables related to help-seeking behavior. Public stigma is shown to be positively related to self-stigma, and self-stigma has been shown to be negatively related to attitudes toward help-seeking in a group of college students (Vogel et al., 2007). These attitudes toward help-seeking then influence behavioral intentions, which, in turn, are one of the best predictors of actual behavior (Fishbein & Ajzen, 2010). As public stigma and self-stigma are important predictors of attitudes toward seeking mental health services and can explain 9% and 31% respectively of the unique

variance in this relationship for student-athletes (Wahto et al., 2016), factors that influence stigma require investigation. The link between stigmas and attitudes toward mental health treatment is well established, yet there are some additional potential moderating variables that could influence this relationship in the collegiate athlete population. For example, gender (e.g., being male), sport type (e.g., playing a contact sport), and adhering to masculine gender roles have all been identified as barriers to mental health service utilization (Moreland et al., 2018), while the notion of machoism is one of key criticisms of mental toughness (Andersen, 2011). The gender role conflict is a psychological state that is manifested by an individual attempting to conform to socialized gender roles and can cause stress if these expectations are not met (O'Neil, 2008). For example, it has been shown that in a sample of high school football players, those who report higher levels of being taught to restrict their verbal expressions of emotion have significantly lower attitudes toward help-seeking (Steinfeldt & Steinfeldt, 2010). Much like gender roles, the social template leading athletes to develop their mental toughness could influence this relationship, however, no current research exists in this area.

The Current Study

Although there is some evidence to suggest mental toughness is positively related to wellbeing, no research has yet examined how this personal resource could be related to stigma surrounding mental health and mental health help-seeking among student-athletes. Therefore, the purpose of the current study was to: (i) investigate the relationship between mental toughness and sport-related wellbeing; (ii) identify the relationship between mental toughness and personal stigma toward mental health; and (iii) understand the influence of mental toughness on the relationship between public stigma and self-stigma. Hypotheses were made based on the state of the current literature. Due to the personal resources it provides in allowing an individual to

overcome adversity, it was hypothesized that there would be a significant positive relationship between mental toughness and sport-related wellbeing. As little empirical evidence exists on how mental toughness influences personal stigma toward mental health, and public and self-stigma toward mental health help-seeking, the final two hypotheses were exploratory. It was hypothesized that there would be a significant, positive relationship between mental toughness and personal stigma toward mental health, and that mental toughness would significantly moderate the relationship between public stigma and self-stigma toward mental health help-seeking.

Methods

Participants

A sample of 154 student-athletes (female $n = 116$; male $n = 38$) were recruited from National Collegiate Athletic Association (NCAA) Division I institutions. Participants represented: freshmen ($n = 50$); sophomore ($n = 44$); junior ($n = 21$); and senior ($n = 34$) level students. The remaining five participants identified as “other”. Participants reported a mean age of 19.45 years ($SD = 1.49$) and identified as: White ($n = 94$); Black or African American ($n = 32$); Hispanic or Latino ($n = 11$); Multi-Ethnic ($n = 9$); Asian ($n = 4$); Other ($n = 2$); Native Hawaiian or Pacific Islander ($n = 1$); and Indian American/Native American/Indigenous Person or Alaskan Native ($n = 1$). The sample represented a range of sports including volleyball ($n = 37$); baseball ($n = 27$); swimming and diving ($n = 27$); golf ($n = 17$); softball ($n = 10$); track and field ($n = 9$); soccer ($n = 8$); field hockey ($n = 7$); lacrosse ($n = 6$); tennis ($n = 4$); and ice hockey ($n = 2$). On average, student-athletes reported performing on their team for 1.97 years ($SD = 1.30$) and had spent 11.21 years ($SD = 3.66$) playing their sport. A total of 60 participants (39.0%) had previously received professional mental health help from one or more sources

(counselor $n = 29$; sport psychologist $n = 25$; psychologist $n = 22$; psychiatrist $n = 8$; social worker $n = 1$; other $n = 4$), and 21 participants (13.6%) were currently receiving help (counselor $n = 7$; psychologist $n = 7$; sport psychologist $n = 5$; psychiatrist $n = 3$; other $n = 2$).

Measures

Demographic Information

Questions about the participant's age, gender, ethnicity, year in college, sport, number of years playing their sport, and number of years on their current team were administered in a short demographic survey. Information related to previous and current experience of mental health support, and the mental health professionals that provided this help, was also collected.

Mental Toughness

The Mental Toughness Index (MTI; Gucciardi et al., 2015) was used to measure mental toughness. The MTI is an eight-item, unidimensional scale that assesses mental toughness at a specific point in time. Participants are asked to identify the extent to which each statement reflects how they think, feel, and behave as an athlete. Items are rated on a 7-point scale ranging from 1 (*False, 100% of the time*) to 7 (*True, 100% of the time*). Total scores can range from 8 to 56, with higher scores indicating greater levels of mental toughness. Example items include, "I can find a positive in most situations" and "I consistently overcome adversity". Composite reliability coefficients have been shown to range from $\rho = .86$ to $\rho = .89$ across samples of athletes and university students (Gucciardi et al., 2015). An internal consistency coefficient of $\alpha = .87$ was found in the current study.

Psychological Wellbeing

The Sport Mental Health Continuum - Short Form (Sport MHC-SF; Foster & Chow, 2019) was used to measure sport-related psychological wellbeing. This 14-item questionnaire is

split over three subscales, with: three items measuring subjective wellbeing (e.g., “during the past month, how often did sport participation make you feel happy?”); five items measuring social wellbeing (e.g., “during the past month, how often did you feel you had something to contribute to your team/sport community?”); and six items measuring psychological wellbeing (e.g., “during the past month, how often have you felt that you have a sense of direction or meaning within your sport?”). All items are measured on a 6-point scale ranging from 0 (*never*) to 5 (*every day*) and a total score can range from 0 to 70, with higher scores indicating higher wellbeing. The three subscales have displayed good reliability in student-athletes ($\alpha = .89$, $\alpha = .88$, and $\alpha = .90$, respectively Foster & Chow, 2019). Internal consistency coefficients for the current study indicated good reliability for each Sport MHC-SF subscale (subjective wellbeing $\alpha = .85$; social wellbeing $\alpha = .83$; psychological wellbeing $\alpha = .87$).

Personal Stigma Toward Mental Health

Personal stigma toward mental health was measured using a modified version of the Depression Stigma Scale (DSS; Griffiths et al., 2004). The original 9-item measure was initially designed to capture personal stigma toward those with depression (e.g., “If I had depression I would not tell anyone”). The word “depression” was changed to “mental illness” in the modified version (e.g., “If I had a mental illness, I would not tell anyone”). Participants are instructed to report how strongly they personally agree with each statement. Items are rated on a 5-point scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). Scores can range from 0 to 36, with higher scores indicating higher personal stigma toward those with mental illness. Internal consistency coefficients among a sample of collegiate student-athletes were previously found to be good ($\alpha = .80-90$ Chow et al., 2020). The internal consistency coefficient in the current study was acceptable ($\alpha = .77$).

Self-Stigma Toward Help-Seeking

The unidimensional, 10-item Self-Stigma of Seeking Help (SSOSH) scale (Vogel et al., 2006) was used to measure self-stigma toward help-seeking. On a 5-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), participants rate to what degree they might react in each situation related to their own help-seeking. Example items include, “If I went to a therapist, I would be less satisfied with myself” and “I would feel worse about myself if I could not solve my own problems.” Scores on the SSOSH scale can range from 10 to 50, with higher scores representing higher levels of self-stigma. The SSOSH scale has previously demonstrated acceptable internal consistency among a sample of collegiate student-athletes ($\alpha = .78$; Bird et al., 2018). The internal consistency coefficient ($\alpha = .86$) indicated good reliability in the current sample.

Public Stigma Toward Help-Seeking

The 5-item Perception of Stigmatization by Others for Seeking Help (PSOSH) scale (Vogel et al., 2009) was used to measure public stigma toward help-seeking. This unidimensional scale asks participants to rate how they believe people would interact with them if they were seeking counseling services on a 5-point scale with responses of: 1 = *not at all*; 2 = *a little*; 3 = *some*; 4 = *a lot*; and 5 = *a great deal*. Example items include, “Think of you in a less favorable way” and “Think you posed a risk to others.” Scores on the PSOSH scale can range from 5 to 25, with higher scores indicating higher perceived stigmatization from others. Previous research in a sample of collegiate athletes found that the PSOSH scale showed good reliability ($\alpha = .88$; Bird et al., 2018). In the current study, the internal consistency coefficient was good ($\alpha = .84$).

Procedure

Following ethical approval from a university research ethics committee, collegiate athletes were recruited to complete the online questionnaire via emails sent to head coaches of NCAA Division I teams in the sports of: baseball; field hockey; golf; ice hockey; lacrosse; soccer; softball; swimming and diving; tennis; track and field; and volleyball. An initial email was sent asking head coaches to forward a survey link to their athletes, with one additional reminder email sent one week later. Data were collected using the online platform Qualtrics. Informed consent was given before participants completed the demographic questions followed by all study measures (presented in a random order), which took approximately 15 minutes to complete. After completion, participants were thanked for their time and provided with details of help-seeking resources.

Data Analysis

Data were analyzed using SPSS (version 25). Descriptive statistics, including means and standard deviations, were calculated for all outcome variables. A Shapiro-Wilk test of normality was performed on each psychological measure. Spearman's rank order correlations were used to investigate the relationship between mental toughness and psychological wellbeing, and the relationship between mental toughness and personal stigma toward mental health. Moderation analysis using a simple linear moderation model was conducted using the PROCESS macro (Hayes, 2017) for SPSS to investigate the influence of mental toughness on the relationship between public stigma and self-stigma. Public stigma, mental toughness, and a public stigma*mental toughness interaction were entered into the model as predictors. Variables were mean centered to avoid potential multicollinearity (Aiken & West, 1991).

Results

Descriptive statistics, results of normality tests, and correlations for all outcome variables are presented in Table 1. Significant results from the Shapiro-Wilk test of normality suggested scores on the mental toughness, wellbeing (total), subjective wellbeing, sport wellbeing, psychological wellbeing, personal stigma, and public stigma variables were not normally distributed. A Spearman's rank order correlation was used to determine the relationship between mental toughness and psychological wellbeing, and the relationship between mental toughness and personal stigma toward mental health, since these variables did not satisfy the assumption of normality. The first hypothesis was supported. Significant, moderate-to-strong, positive correlations were found between: mental toughness and wellbeing (total), $r_s(152) = .54, p < .001$; mental toughness and subjective wellbeing, $r_s(152) = .48, p < .001$; mental toughness and social wellbeing, $r_s(152) = .44, p < .001$; and mental toughness and psychological wellbeing, $r_s(152) = .54, p < .001$ subscales. The second hypothesis was not supported. No statistically significant correlation was evident between mental toughness and personal stigma toward mental health, $r_s(152) = .04, p = .61$.

[INSERT TABLE 1 ABOUT HERE]

A simple linear moderation model was conducted to determine the influence of mental toughness on the relationship between self-stigma and public stigma. The overall regression model was significant, $F(3, 150) = 13.46, p < .001, R^2 = .21$. Public stigma was significantly and positively associated with self-stigma, $\beta = .86, t(150) = 5.70, p < .001$. Mental toughness, $\beta = -.14, t(150) = -1.74, p = .08$, and the public stigma*mental toughness interaction term, $\beta = .03, t(150) = 1.26, p = .21$, were not significantly associated with self-stigma. Taken together, the non-significant association between public stigma*mental toughness interaction and self-stigma

indicates that mental toughness did not moderate the relationship between public stigma and self-stigma in the current sample. The third hypothesis was, therefore, not supported.

Discussion

Wellbeing along with stigma toward mental health and help-seeking are important factors related to the overall mental health of collegiate athletes. Mental toughness is a personal resource that has demonstrated associations with positive indicators of wellbeing in sport, but it has been previously suggested that mental toughness could be associated with reduced help-seeking for mental health concern in athletes (Bauman, 2016; Gucciardi, Hanton, et al., 2017). In conducting the first empirical tests of these propositions, the aim of this study was to examine the relationships between: mental toughness; sport-related wellbeing; stigma surrounding mental health; and mental health help-seeking.

The first objective of this study was to assess the relationship between mental toughness and sport-related wellbeing. Significant positive correlations were found between mental toughness and all three wellbeing subscales, thereby showing mental toughness was related to higher sport-related wellbeing. As such, the current findings are consistent with previous research that found inverse relationships between mental toughness and negative indicators of wellbeing in young athletes (Gerber et al., 2018; Gucciardi & Jones, 2012), and positive relationships between mental toughness and wellbeing in non-athlete undergraduate students (Stamp et al., 2015). One proposed explanation for this relationship is that mental toughness could act as a coping resource for athletes in stressful situations (Nicholls et al., 2008; Kaiseler et al., 2009; Swann et al., 2016). Individuals with higher mental toughness have previously reported a greater tendency to employ more problem-focused coping strategies (e.g., attempt to change or eliminate stressors; Crust et al., 2019; Swann et al., 2016), and report greater perceptions of

control (Kaiseler et al., 2009). In line with theoretical models of stress (Lazarus & Folkman, 1984), the enhanced coping capacities of athletes with higher mental toughness could aid them to buffer against the deleterious effects of stress. This hypothesis would align with previous findings concerning the protective effects of mental toughness in stressful situations (Gucciardi, Stamatis, et al., 2017; Petrie et al., 2014). Alternatively, researchers have also proposed that motivation theories could explain the link between mental toughness and wellbeing (Mahoney et al., 2014b; Gucciardi, Hanton, et al., 2017). Accordingly, mental toughness could promote goal-directed behavior and self-actualization, which could result in increased self-efficacy and greater personal control (Mahoney et al., 2014b). Furthermore, self-actualization, or the fulfillment of one's potential, has been proposed as an area of conceptual overlap between mental toughness and mental health (Gucciardi, Hanton, et al., 2017).

The second objective of this study was to investigate the relationship between mental toughness and personal stigma toward mental health help-seeking. Although there has been some initial commentary on the relationship between mental toughness and stigma (e.g., Bauman, 2016; Gucciardi, Hanton, et al., 2017), to our knowledge, this is the first study to provide empirical data in this area. Intuitively it might be appealing to think that those with higher levels of mental toughness could express higher levels of personal stigma toward someone who is experiencing a mental health concern. For example, an athlete with high levels of mental toughness may be more likely to view a teammate as weak because that teammate cannot overcome generalized anxiety issues that are also inhibiting their performance. This viewpoint may be particularly relevant since those who possess mental toughness are said to exemplify the “macho” sport culture (Anderson, 2011; Caddick & Ryall, 2012), and are more likely to play thorough injury (Coulter et al., 2010, 2016; Gucciardi et al., 2008). Results from this study

counter this suggestion by highlighting no significant statistical relationship between mental toughness and personal stigma toward mental health. The non-significant relationship between these variables is important due to the association between personal stigma toward mental health and public stigma toward mental health help-seeking (Ross et al., 2020). As this finding generally shows an athlete high in mental toughness may not perceive a teammate as being weak (i.e., display low personal stigma) if they were experiencing difficulties with their mental health, teammates may not internalize this and experience public stigma as a result. Although personal stigma toward mental health still exists among student-athletes, results of the current study suggest that it may not be attributed to higher levels of mental toughness.

The third objective of this study was to investigate the influence of mental toughness on the relationship between public stigma and self-stigma toward help-seeking. While results of the correlational analysis found a significant, positive relationship between public stigma and self-stigma (e.g., as public stigma increases, so too does self-stigma), the moderation analysis suggested that this relationship was not significantly influenced by mental toughness. While mental toughness does not moderate the relationship between public stigma and self-stigma, respectively, significant negative correlations were found between mental toughness and each type of stigma. Higher levels of mental toughness, therefore, appear to be associated with reduced stigma, but differing levels of mental toughness do not appear to influence the relationship between public stigma and self-stigma differently. Even though it has been suggested that the desirability of some characteristics and outcomes associated with mental toughness in sport, such as overcoming obstacles and perseverance, could reduce the likelihood of help-seeking (Gucciardi, Hanton, et al., 2017), results from the current study appear to suggest this was not the case. Indeed, based on the significant negative correlations between mental

toughness and the two stigmas toward help-seeking, it may be the case that these personal resources in athletes with higher mental toughness could result in lower levels of mental health stigma toward help-seeking.

Athletes with higher mental toughness are said to be characterized by the ability to strive, survive, and thrive (Mahoney et al., 2014a). Surviving, defined as the ability to overcome major adversities and minor stressors when pursuing goals (Luthar & Cicchetti, 2000), is linked to the tendency for athletes with higher mental toughness to use more adaptive coping strategies (Kaiseler et al., 2009). Similarly, buoyancy, another indicator of mental toughness, defined as the ability to perform the necessary skills required to overcome pressures and challenges in everyday life, also reflects an individual's ability to overcome adversity (Gucciardi et al., 2015). Although surviving might typically be associated with drawbacks attributed to mental toughness (e.g., withholding emotions; Coulter et al., 2016), this construct could be a positive/protective attribute that helps an individual to overcome mental health stigma-related obstacles. For example, an athlete with higher mental toughness who is experiencing a mental health concern may choose an adaptive coping strategy (e.g., engaging in professional mental health help) to help deal with this adversity. In doing so, their focus may be aimed more toward seeking professional help, and consequently dealing with their problem, rather than focusing on or perceiving any stigmatization from others in relation to help-seeking. Furthermore, the goal-directed nature of behavior associated with mental toughness (Gucciardi et al., 2015; Hardy et al., 2015) could be linked to the lower levels of stigma reported by those higher in mental toughness. That is, an athlete might view seeking support for a mental health concern as a behavior they need to engage in to move toward achieving their goals and, as a result, perceive

less stigma toward the help-seeking behavior, although further research is required to support these assertions.

Limitations and Future Directions

This study presents some initial evidence on the relationship between mental toughness and wellbeing, and the relationship between mental toughness and mental health related stigma, however, it is not without limitations, which should be considered when interpreting the findings and in future research. First, the cross-sectional, correlational study design prevents causation being determined. Future research should be conducted longitudinally to allow researchers to further understand the causal relationships between mental toughness, wellbeing, and stigma. Second, although there is a link between contextual and global wellbeing (Lundqvist, 2011), wellbeing in the current study was only measured at a sport-specific level, thus limiting the generalizability of the findings to student-athletes within a sport-specific context. Sport-specific wellbeing is important since athletes spend a great amount of time, and place high value in this role (Lundqvist, 2011), but a more general measure of wellbeing may shed light on how mental toughness influences wellbeing more generally in the lives of athletes. Third, data in the current study were collected from a diverse range of student-athletes across a wide number of sports and from multiple different institutions in a single country, but the overall sample size remains a relatively small percentage of potential participants who were eligible to partake in the research. Moreover, the sample primarily consisted of female athletes. Future research should attempt to recruit a larger sample of athletes, especially in sports and populations where stigma could present a more significant barrier toward help-seeking (e.g., football). Fourth, future studies could also adopt qualitative methods to develop a more in-depth insight into *how* and *why* mental toughness is related to lower levels of stigma. Finally, further quantitative research could include

measures of attitudes, intentions, and actual help-seeking behavior to examine how mental toughness influences the relationships between these variables.

Clinical Implications and Conclusion

Findings from the current study suggest that mental toughness might not only be related to higher levels of sport-specific psychological wellbeing in athletes, but is also associated with lower levels of mental health help-seeking stigma. More specifically, results from this study suggest higher mental toughness could potentially be associated with (i) a reduced number of athletes who need to seek help for a psychological wellbeing concern, and (ii) lowered stigma toward seeking help for those who might consider engaging in treatment for a mental health issue. Based on the cross-sectional study design, however, these results should be interpreted cautiously, and it should be noted that athletes with high levels of wellbeing, along with those who display lower levels of stigma, may still need, and feel reluctant, to seek the necessary support.

The current study has important implications for coaches, sport psychology professionals (SPP), and those who provide mental health or wellbeing support to athletes. As greater mental toughness is associated with higher wellbeing and lower stigma, coaches, SPPs, and mental health professionals may consider developing levels of mental toughness with athletes whom they work with. Given the potential misinterpretations of the term mental toughness, it is paramount that programs aimed at building mental toughness are grounded in scientific evidence and follow applied recommendations in the area (e.g., Anthony et al., 2016; Cowden et al., 2020; Crust & Clough, 2011). Based on existing evidence, mental toughness development programs could target: personal characteristics (i.e., personal skills or resources); interactions within the environment (i.e., with others); progressive development (i.e., opportunities for growth); and/or

cultivating breadth of experiences (i.e., events that facilitate positive growth; Anthony et al., 2016). It should be noted, however, that calls for further research on the efficacy of mental toughness interventions have been advanced (e.g., Cowden et al., 2020).

Before attempting to build mental toughness with athletes, it is also important to recognize the potential drawbacks of this concept, such as the suppression of emotions (Coulter et al., 2016; Swann et al., 2016), or playing/training through pain or injury (Crust et al., 2014; Gucciardi et al., 2008). Given the undesirability of these consequences, it is key that mental toughness training programs are designed to prevent these outcomes occurring. When implementing mental toughness training programs, the environment in which these are being delivered should be considered, as contextual factors could influence the way in which mental toughness is viewed (Cowden et al., 2020). Indeed, this may be highly relevant in relation to outcomes such as wellbeing and stigma toward help-seeking. For example, a team that conceptualizes and builds mental toughness by encouraging athletes to withhold emotions from others and persevere through problems alone might encounter unintended consequences related to lower levels of wellbeing, while also inadvertently promoting stronger stigmatizing attitudes toward seeking help. Overall, this study provides cross-sectional evidence that mental toughness is positively associated with improved wellbeing, and reduced stigma toward help-seeking. As no evidence is currently available to show the influence of attempting to build mental toughness on outcomes such as wellbeing and stigma in athletes, however, further research that examines the efficacy of training programs on these constructs is needed before implementation.

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Table 1: Descriptive statistics, tests of normality, Spearman's rank order correlation coefficients.

Variable	Potential range	Mean	SD	Shapiro-Wilk <i>p</i>	1	2	3	4	5	6	7	8
1. Mental toughness	8-56	45.16	6.65	<.001	-							
2. Wellbeing (total)	0-70	53.84	12.86	<.001	.54**	-						
3. Subjective wellbeing	0-15	10.78	3.46	<.001	.48**	.80**	-					
4. Social wellbeing	0-25	19.19	5.31	<.001	.44**	.88**	.59**	-				
5. Psychological wellbeing	0-30	23.87	5.72	<.001	.54**	.88**	.64**	.64**	-			
6. Personal stigma	0-36	8.56	5.53	<.001	.04	-.13	-.02	-.13	-.26**	-		
7. Self-stigma	10-50	24.98	6.97	.24	-.24**	-.19*	-.13	-.10	-.28**	.22**	-	
8. Public stigma	5-25	8.18	3.47	<.001	-.20*	-.20*	-.12	-.12	-.14	.27**	.39**	-

Note: ** $p < .01$, * $p < .05$