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Mental Toughness in South African Youth: Relationships With Forgiveness and Attitudes Towards Risk

### Original Citation

Cowden, Richard G., Clough, Peter J. and Oppong Asante, Kwaku (2017) Mental Toughness in South African Youth: Relationships With Forgiveness and Attitudes Towards Risk. *Psychological Reports*, 120 (2). pp. 271-289. ISSN 0033-2941

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Cowden, Richard G., Clough, Peter J. and Oppong Asante, Kwaku (2017) *Mental Toughness in South African Youth*. *Psychological Reports*, 120 (2). pp. 271-289. ISSN 0033-2941

Key words: Mental toughness, youth, attitudes towards risk, trait forgiveness

Running head: MENTAL TOUGHNESS IN SOUTH AFRICAN YOUTH

### Abstract

Young people are identified as particularly vulnerable to health risk behaviors and interpersonal violence, which has prompted researchers to identify factors that may reduce the likelihood that these actions will occur. Associated with positive outcomes in a variety of domains, mental toughness (MT) in young people might protect youths from engaging in potentially deleterious interpersonal or health risk behaviors, whilst potentially promoting positive, psychological behaviours. More specifically, within this framework, the present study investigated the relationships between MT, attitudes towards risk, and dispositional forgiveness in a sample of 123 South African youth ( $M$  age = 23.97 yrs,  $SD$  = 4.46).,Mental

Toughness was found to be positively associated with forgivingness ( $r = .21$ ) and attitudes towards physical risk ( $r = .24$ ), but negatively associated with attitudes towards psychological risk ( $r = -.21$ ). Prospective explanations for the findings are discussed, including the applicability of MT to health risk behaviors and interpersonal relationships.

Defined in South Africa's National Youth Policy 2015-2020 as those between 14 and 35 years of age (The Presidency Republic of South Africa, 2015), the South African youth comprises approximately one third of the country's populace (Statistics South Africa, 2014). The South African youth cohort has consistently been identified as particularly vulnerable to sexually transmitted diseases (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2013; Pettifor et al., 2005), substance use (Reddy et al., 2010), and violence (Leoschut & Burton, 2006; Seedat, Van Niekerk, Jewkes, Suffla, & Ratele, 2009). Youth health and interpersonal risk behavior have narrow (i.e., individual) and broad (i.e., social) immediate and future physical and mental well-being implications (Jackson, Henderson, Frank, & Haw,

2012). Accordingly, the focus of considerable global research has been on identifying risk factors in order to formulate sexual, substance, and violent risk behavior diminution strategies. Specifically, research has focused on a range of individual (e.g., biography, psychology) and environmental (e.g., situational antecedents, family) factors linked to an increased likelihood of engaging in health risk behaviors (Hallfors et al., 2002; Herrenkohl et al., 2000; Kotchick, Shaffer, Forehand, & Miller, 2001).

Through a 'positive psychology lens', other researchers have examined individual and interpersonal factors that may protect youth from involvement in activities that pose health risks (Resnick, 2000). Resilience has been suggested to be an important factor. For example, in their review of the literature, Lösel and Farrington (2012) found a variety of internal and external factors (i.e., resilience resources) protect youth from becoming involved in violent behaviors. Another more recent construct that might offer a degree of protection is mental toughness (MT). Mental toughness offers a way of integrating many aspects of the previous coping literature,

### **Mental Toughness**

Originating and rooted in sport psychology, MT refers to the tendency to appraise threats and pressure as opportunities to thrive (Thelwell, Weston, & Greenlees, 2005), actively seek and approach challenges (Crust, 2008; Jones, Hanton, & Connaughton, 2002), and successfully overcome or rebound rapidly following setbacks and difficulties (Gucciardi, Gordon, & Dimmock, 2008). Whilst there is agreement that MT promotes achievement and success in a wide number of domains, such as education (Crust et al., 2014) the military (Arthur, Fitzwater, Hardy, Beattie, & Bell, 2015), the workplace (Marchant et al., 2009), and in

rehabilitation (Levy, Polman, Clough, Marchant, & Earle, 2006), researchers continue to deliberate the over, definition, conceptualization, and measurement of MT.

Notwithstanding the apparent necessity for researchers to continue towards consensus on these issues, Clough et al.'s (2002) 4C model of MT is one of the most prominent MT conceptual and measurement approaches (Gucciardi et al, 2012). The model is framed on Kobasa's (1979) hardiness model consisting of control (i.e., the conviction that events and outcomes are influenced by the self), commitment (i.e., an unrelenting determination to accomplish tasks and goals), and challenge (i.e., approaching and appraising adversity with a positive perspective), with *confidence* (i.e., possessing interpersonal self-confidence and achievement self-efficacy) the differentiating subcomponent comprising MT (McGeown, St Clair-Thompson, & Clough, 2015). Collectively, the four components represent some of the most consistently identified characteristics of MT. The corresponding instrument, the Mental Toughness Questionnaire 48 (MTQ48; Clough et al., 2002), has received psychometric support for use among athletes and non-athletes (cf. Perry, Clough, Crust, Earle, & Nicholls, 2013

The 4 'c's model conceptualises MT as a trait. This is supported by its genetic underpinnings. To date 5 'behavioural genetic' studies have been undertaken ((Horsburgh et al., 2009; Veselka, Schermer, Petrides, & Vernon, 2009; Veselka, Schermer, Martin, & Vernon, 2010; Onley, Veselka, Schermer, & Vernon, 2013; Brand et al, 2016 ), Taken together, these studies suggest that ,similar to other personality traits, approximately half of the variation on MT can be accounted for by genetic factors. Whilst this means a significant element of MT is fixed, it suggests that development is possible (e.g. Crust and Clough, 2011). This has been shown to occur through naturally occurring environmental factors (e.g. Gould, Griffes, & Carson, 2011) Connaughton, Hanton, & Jones, 2010; Declan Connaughton, Wadey, Hanton, & Jones, 2008), Jones and Parker ,2013, Gerber et al ,2013, Brand et al., 2015). Two published studies have reported mental

toughness enhancement as a result of targeted activities (e.g. Slack, Maynard, Butt, & Olusoga, 2016; Bell, Hardy & Beattie , 2013)

MT can be seen as a construct that represents a life skill that may be developed and applied in multiple spheres (Gould, Griffes, & Carson, 2011). From this perspective, MT as a life skill is likely to facilitate successfully navigating the demands that individuals experience in several areas of life. Given young people are particularly pressured to conform to the behaviors and demands of their peers (Gardner & Steinberg, 2005), exhibit greater sensation seeking tendencies (Romer, 2010), and are more inclined to act impulsively (Cauffman & Steinberg, 1995), MT might be a critical life skill that protects youth from behaving in ways that may be detrimental to their health and interpersonal functioning.

### **Risk Perceptions and Behavior**

Decisions to act in a manner with an element of risk require an evaluation of the potential benefits and the anticipated negative consequences of such actions (Leigh, 1999). Accordingly, the degree of risk (i.e., high or low) will vary across decisions, situations, and the intentions associated with a specific decision or behavior (Byrnes, Miller, & Schafer, 1999). For example, the level of risk and purpose for an athlete's decision to continue competing despite an injury differs markedly from a person's decision to physically and aggressively retaliate following an argument.

Risk-taking is associated with a number of health-risk behaviors, including risky sexual (e.g., unprotected sex) and driving (e.g., speeding) behaviors, and alcohol and drug use (Byrnes et al., 1999). Consequently, researchers have examined the extent to which positive psychological constructs (e.g., self-efficacy towards health promotion behaviors) contribute to reducing the likelihood of engaging in health risk behaviors (Schwarzer & Luszczynska, 2006). Similarly, MT, which is associated with a multitude of positive outcomes, might also have risk-taking tendency implications. Evidence from sport suggests that mentally tough individuals cope more effectively with pressure and adversity (Jones et al., 2002; Nicholls, Levy, Polman, & Crust, 2011), are better at controlling their emotions and cognitions (Crust, 2009; Gucciardi, Gordon, & Dimmock, 2009a), are self-aware and self-reflective (Connaughton, Hanton, & Jones, 2010; Gucciardi et al., 2008), and demonstrate superior decision-making abilities (Fawcett, 2011). Arguably, these cognitive-behavioral attributes are essential to overcoming or resisting the urge to engage in behaviors that accompany comparatively greater immediate or future potential health (and other) ramifications.

In the sport psychology literature, qualitative investigations have revealed mentally tough athletes as characterized by a willingness to take risks (Bull, Shambrook, James, & Brooks, 2005), particularly during critical competitive circumstances (Coulter et al., 2010). Endeavoring to provide further quantitative support for these findings, Crust and Keegan (2010) examined the relationships between MT and attitudes towards physical and psychological risk in a group of 105 athletes. Although MT was unrelated to psychological risk, the authors reported a positive association between MT and attitudes towards physical risk. The measurement of risk attitudes in Crust and Keegan's (2010) study, however, precludes the determination of whether actual risk-taking behavior occurs among mentally tough individuals.

While these findings positively associate MT and attitudes towards physical risks, perhaps athletes are primed to take more physical risks because of the competitive nature of sport participation and the necessity to emerge as victors. Even though non-athletes may engage in physically risky behaviors, the need to do so may be less pronounced in comparison to athletes. Mentally tough non-athletes, therefore, may seek out challenging experiences, but might be less inclined to participate in activities that require them to take physical risks. However, research has yet to determine whether the MT and physical risk perception relationship is similar or distinct among non-athletes, as compared to athletes.

Given the requirements and levels of MT differ according to sport type (Gucciardi, 2009), there are apparent distinctions in the contextual requirements and specificity of MT (Gucciardi et al., 2008). If differences exist between specific sports, it's likely that the nature of MT will differ between athletes and non-athletes too. Despite Crust and Keegan's (2010) finding that MT is unrelated to attitudes towards psychological risk in athletes, asserting MT as a personal factor that protects youth from engaging in behaviors that are especially risky for health (e.g., violence, unprotected sex) suggests a negative association between MT and psychological risk perceptions in non-athletes would be anticipated.

### **Trait Forgiveness**

Psychological forgiveness involves a progression towards more favorable emotions, cognitions, and motivations towards a perceived transgressor (McCullough, Pargament, & Thoresen, 2000). From a trait perspective, interpersonal forgiveness refers to the contextual and temporal stability of a person's forgiveness tendencies (Davis, Worthington, Hook, & Hill, 2013). The propensity to forgive others is associated with a number of positive psychological outcomes, such as lower levels of anger, anxiety, and



negative affect, and higher levels of satisfaction with life and positive affect (Riek & Mania, 2012). Following transgressions, interpersonal forgiveness is related to re-establishing levels of relational closeness (McCullough et al., 1998), a reduction in vengeful thoughts and feelings towards transgressors (Rye et al., 2001), and reconciliatory actions (Aquino, Tripp, & Bies, 2006). Clearly, forgiveness has implications for prosocial responses to indiscretions, the restoration (as opposed to deterioration) of interpersonal relations, and harmonious social interactions.

Forgiveness and MT have yet to receive empirical attention together, though there are several reasons to suggest interrelatedness between the two constructs. Both forgiveness and MT appear to have similar patterns of relationships with overarching traits (i.e., Big Five), such as positive and negative associations with agreeableness and narcissism (Berry, Worthington, O'Connor, Parrott, & Wade, 2005; Horsburgh, Schermer, Veselka, & Vernon, 2009), respectively. Forgiveness is considered a mechanism through which cognitive control over anger and aggression is maintained (Wilkowski, Robinson, & Troop-Gordon, 2010), which parallels mentally tough individuals' ability to control their particularly negative emotions and cognitions (Crust & Azadi, 2010). Forgiveness is also linked to well-being indices, including lower stress (Harris et al., 2006), depression (Tse & Cheng, 2006), and higher psychological well-being (Lawler-Row & Piferi, 2006). These relational patterns are very similar to those found in MT studies involving self-reported stress (Kaiseler, Polman, & Nicholls, 2009), depression (Gerber et al., 2013), and psychological well-being (Stamp et al., 2015). The comparable features and psychological benefits of MT and forgiveness may suggest MT as a proponent of the forgiveness process. Specifically, subsequent to interpersonal transgressions, mentally tough persons' positive perspective, psychobehavioral awareness, and ability to control thoughts and emotions might contribute towards a forgiveness – as opposed to an unforgiveness, vengeful, or retaliatory – outcome.

With research supporting the advantages of MT to the psychological functioning of athletes as well as non-athletes (Gerber et al., 2013; Nicholls et al., 2011), the present study sought to explore the applicability of MT in relation to attitudes towards risk and dispositional forgiveness in a general, non-athlete sub-population. Drawing upon prior research findings as well as notional relationships between the variables of interest, it was hypothesized that MT would be positively related to both attitudes towards physical risk and trait forgiveness, but negatively associated with attitudes towards psychological risk. It was also hypothesized that MT would significantly predict attitudes towards both physical and psychological risk.

## Method

### Participants

The participants included 123 male ( $n = 54$ ) and female ( $n = 69$ ) undergraduate and postgraduate students from a university located in southeastern South Africa. The participants were between 17 and 35 years of age ( $M$  age = 23.97 yrs,  $SD = 4.46$ ), which coincides with South Africa's current age range categorization of youth (cf. The Presidency Republic of South Africa, 2015). The majority of the participants were Black ( $N = 92$ ), with Indian ( $N = 18$ ), White ( $N = 10$ ), and Coloured ( $N = 3$ ) race groups comprising the remainder of the sample.

### Materials

**Mental toughness.** The Mental Toughness Questionnaire 48 (MTQ48; Clough et al., 2002) was used to ascertain participants' MT. The instrument contains 48 items that measure six domains of MT; confidence abilities (nine items), confidence interpersonal (six items), challenge (eight items), control emotion (seven items), control life (seven items), and commitment (11 items), which combine for a total measure of MT. The items are anchored on a five-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*)

Perry et al. (2013) recently subjected the MTQ48 to factorial validation, evidencing support for the six factor structure in several athlete and non-athlete samples. Construct, predictive, and discriminative validity of the MTQ48 have been reported (e.g., Clough et al., 2002; Crust et al., 2014; Nicholls et al., 2011).

**Attitudes towards risk.** Participants' perceptions about engaging in and deriving pleasure from participating in activities that are considered risky (i.e., dangerous, illegal, immoral) were assessed using the Attitudes Towards Risk Questionnaire (ATRQ; Franken, Gibson, & Rowland, 1992). The 10-item scale contains five items that measure attitudes towards physical risk (e.g., "I like the feeling that comes with taking physical risks") and five items that ascertain psychological risk perceptions (e.g., "I often think about things that are illegal"). Responses are solicited using a five point Likert-type scale from 1 (*not like me*) to 5 (*like me*). Franken et al. (1992) reported the two subscales as internally consistent ( $\alpha = .79$  to  $.85$ ), which subsequent studies have supported (e.g., Crust & Keegan, 2010). The ATRQ has demonstrated convergent and divergent validity with sensation seeking and the expression of fears, respectively (Franken et al., 1992), and has been found to predict risk-taking behavior (e.g., Little, 2010).

**Trait forgiveness.** The Trait Forgivingness Scale (TFS; Berry et al., 2005) was used to measure the participants' propensity to interpersonally forgive. The self-report inventory comprises 10 items rated on a five point Likert-type scale anchored at 1 (*strongly disagree*) and 5 (*strongly agree*), which combine for a total trait forgiveness score. Sample items include "I can forgive a friend for almost anything" and "I feel bitter about many of my relationships" (recoded). Support for the construct and predictive validity of the TFS has been obtained (cf. Berry et al., 2005), and a number of studies have reported internal consistency estimates ranging from  $.74$  to  $.80$  (Balliet, Li, & Joireman, 2011; Berry et al., 2005; Burnette, Taylor, Worthington, & Forsyth, 2007).

## **Procedure**

Preceding data collection, ethical permission to conduct the study was obtained from the institutional research ethics committee. The participants were recruited from undergraduate and postgraduate courses and snowballing was used to identify and contact additional participants. Prior to administering the inventories, the purpose of the study was outlined, informed consent was detailed, and each participant was requested to provide written informed consent. Depending on participant availability, the questionnaires were administered in quiet and comfortable locations to groups of between 10 and 20 participants at a time. The participation process required approximately 20 minutes from the participants.

## **Data Analyses**

The Statistical Package for Social Sciences (SPSS 23) was used to conduct all statistical tests. The data were initially screened for missing values and replaced using expectation-maximization. Internal consistency and mean inter-item correlations (for scales with fewer than 10 items) were computed to determine whether the scales and subscales were appropriate for use in succeeding analyses. Skewness and kurtosis estimates of normality were assessed prior to proceeding with parametric analyses. Descriptive statistics and the Pearson correlations (one-tailed) used to explore the relationships between the mental toughness, attitudes towards risk, and trait forgiveness scales are reported in Table 1. Multivariate regression was used to determine whether mental toughness significantly predicted attitudes towards both physical and psychological risk. An alpha value of .05 was used for all statistical tests. For each variable, greater scores are associated with higher levels of the characteristic.

## **Results**

Little's MCAR tests for the MTQ48 items,  $\chi^2 (1196) = 1185.46, p = .580$ , the ATRQ items,  $\chi^2 (9) = 10.48, p = .313$ , and the TFS items,  $\chi^2 (36) = 47.47, p = .096$ , were not

statistically significant, suggesting the missing values were missing completely at random. The missing values for each instrument were replaced using expectation-maximization. Although a typical criterion of .70 is applied when assessing internal consistency adequacy (Nunnally & Bernstein, 1994), Briggs and Cheek (1986) suggest alpha may be underestimated when 10 or fewer items are included and recommend applying a mean inter-item correlation criterion of .20 to .40 for assessing internal reliability. Therefore, a combination of the two approaches was used, with an alpha value of .50 applied for preliminary scale inclusion.

In the present study The MT48 was used as a global measure of MTas is common practice (e.g. Nicholls et al Nicholls, A. R., Perry, J. L., Jones, L., Sanctuary, C., Carson, F., & Clough, P. J. (2015). The mediating role of mental toughness in sport. *Journal of Sports Medicine and Physical Fitness*, 55, 824-834. . Although alpha for the ATRQ scale of psychological risk was less than .70 (i.e., .66), the mean inter-item correlation was considered acceptable (i.e., .28) and the subscale was retained for use in this study. Internal consistency for the remaining scales were greater than .70 (see Table 1). Skewness and kurtosis estimates were suitable (i.e., +/-2; Chou & Bentler, 1995) for proceeding with parametric analyses (see Table 1).

Positive and statistically significant correlations were found between MT and attitudes towards physical risk ( $r = .24$ ), trait forgiveness ( $r = .21$ ), and age ( $r = .19$ ). Attitudes towards physical and psychological risk were positively correlated ( $r = .43$ ). The relationship between MT and attitudes towards psychological risk was negative ( $r = -.21$ ) and statistically significant (see Table 1). The multivariate general linear model indicated MT as a significant predictor of one or both attitudes towards risk domains,  $F(2, 120) = 12.81, p < .001$ , Wilk's  $\Lambda = .84, \eta_p^2 = .18$ . Follow-up univariate analyses revealed that MT significantly predicted attitudes towards physical,  $F(1, 121) = 7.37, p = .008, \eta_p^2 = .06$ , and psychological,  $F(1, 121) = 5.56, p = .020, \eta_p^2 = .04$ , risk.

### Discussion

The purpose of the current study was to investigate the relationships between MT, attitudes towards risk, and trait forgiveness in non-athlete South African youth. Supporting each of the hypotheses, higher levels of MT were associated with higher trait forgiveness and attitudes towards physical risk, and higher MT was associated with lower levels of psychological risk perceptions. MT also significantly predicted both attitudes towards physical and psychological risk, accounting for approximately 18% of the variance of two risk attitude components.

The positive relationship between MT and attitudes towards physical risk in this study is comparable to prior research findings (Crust & Keegan, 2010), supporting the contention that mentally tough individuals have more positive perceptions towards taking physical risks and appear to be more willing to take risks (Bull et al., 2005). This may relate to mentally tough persons' positive attitude towards adversity and their tendency to approach challenges (Clough et al., 2002; Nicholls, Polman, Levy, & Backhouse, 2008). However, the negative relationship between MT and attitudes towards psychological risk suggests that those high in MT might be more inclined to engage in certain forms of risk behaviors and not others. Given the psychological risk attitude component assesses moral, social approval, and legal risk-taking perceptions, it may be that mentally tough individuals' risk-taking decisions are dependent on the type, severity, and perceived danger concomitant with a particular risk.

Although risk-taking behavior was not measured in this study, perhaps persons high in MT are more contemplative of the potential legal or social ramifications of risk behaviors and are more selective of the kinds of risks they take. Therefore, regardless of the willingness to engage in behaviors characterized as risky, those who are mentally tough might choose to take the risk of sky diving (short-term functioning and survival risk) whereas exercise caution in relation to such things as sexually promiscuous behavior (long-term functioning and

survival risk) because of the greater social stigma associated with the latter. This would support the superior decision-making capabilities of mentally tough individuals (Fawcett, 2011), which may be facilitated by their heightened attentional (Gucciardi et al., 2009a) and emotional (Clough et al., 2002) control abilities. These attributes appear to be particularly crucial during moments in which swift decisions are to be made and conflicting thoughts and emotions are experienced. Whether MT is associated with the actual tendency to take more risks (in general) or participate in selected risk-taking behaviors, as opposed to others, requires further investigation.

The results indicated that mentally tough youth appear to be more forgiving towards others when they are transgressed against. Though the measurement of trait forgiveness precludes the determination of whether MT relates similarly to forgiveness across transgressions that vary in severity, those who are mentally tough are less likely to seek revenge or retaliate as victims of indiscretions. Mentally tough individuals' propensity to forgive may relate to their tendency to appraise and approach challenging situations (e.g., transgressions) more positively (Clough et al., 2002; Crust, 2008; Jones et al., 2007). As opposed to rumination and anger, which often accompany unforgiveness (Witvliet, Ludwig, & Vander Laan, 2001), young people high in MT might assess being transgressed against as an opportunity for personal growth and development. This could be strengthened by their superior cognitive control skills (Fourie & Potgieter, 2001; Gucciardi et al., 2008), such as limiting the attention that is directed towards the negative attributes of the transgression.

Forgiveness might also be achieved through the superior coping that researchers associate with MT (Nicholls et al., 2008). Specifically, reducing unforgiveness is necessary in order to reach forgiveness (Worthington, Witvliet, Pietrini, & Miller, 2007), though diminishing unforgiveness may be achieved through several forms of coping (Worthington & Scherer, 2004). Forgiveness represents an adaptive coping approach (Ysseldyk & Matheson,

2008), and mentally tough individuals are distinguished by their ability to cope better with adversity (Kaiseler et al., 2009). Therefore, youth with higher levels of MT might be disposed to cope more effectively following transgressions, resulting in a reduction in unforgiveness and a greater likelihood of forgiveness.

The emotional intelligence that mentally tough individuals possess (Gucciardi et al., 2008; Thelwell et al., 2005) also offers a prospective explanation for their tendency to forgive. Through emotional awareness and management, youth characterized as mentally tough might possess a better understanding of the feelings and associated thoughts (Jones et al., 2007) that accompany the transgressions against them. They may forgive more easily because of their capacity to acknowledge the particularly detrimental influence of these experiences (e.g., anger) on their psychological well-being. Although additional research is required to examine and explain the proclivity for mentally tough young people to forgive, this early evidence advocates the relevance of MT for achieving forgiveness in social and interpersonal contexts. These findings appear particularly important given the capacity to develop MT through psychological intervention (Crust & Clough, 2011).

The link between MT and forgiveness may also offer an explanation for some of enhanced well being and enhanced psychological functioning reported by mentally tough individuals e.g.

1. Gerber, M., Kalak, N., Lemola, S., **Clough, P. J.**, Perry, J. L., Pühse, U., Elliot, C., Holsboer-Trachsler, E., & Brand, S. (2012). Are adolescents with high mental toughness levels more resilient against stress? *Stress and Health, 29*, 164-171. doi: 10.1002/smi.2447
2. Gerber, M, Kalak, N, Lemola, K, Clough, P.J., Pühse, U, Holsboer-Trachsler E, Elliot, C. & Brand, S. (2012). Adolescents' exercise and physical activity are associated with mental toughness. *Mental Health and Physical Activity, 5*, 35-42



### **Limitations and Future Research Areas**

The results from this study should be considered alongside selected limitations. In particular, measuring attitudes towards risk does not enable the determination of whether actual risk-taking behavior is more or less likely to occur at higher levels of MT. This would be a vital research area to pursue, along with associations between MT and risks that vary in danger and longitudinal severity (i.e., short or long-term consequences). This study was also unable to establish the causal relationship between risk perceptions and MT. With research supporting the development of MT through exposure to adversity and pressure (Bell et al., 2013), researchers might consider examining the MT development of individuals who are more inclined to take risks.

The decision to measure forgiveness from a trait perspective also limits the ability to ascertain cross-situational forgiveness consistency among mentally tough individuals. Future research could determine the extent to which mentally tough individuals are similar in their forgiveness patterns across transgressions that differ in severity, particularly as a function of transgressor and victim characteristics (e.g., closeness), the provision of an apology, and apology type. Along similar lines, researchers are also encouraged to explore underlying explanations for the MT-forgiveness relationship, including emotion regulation or cognitive control abilities, coping strategies, and transgression appraisals.

### **Conclusion**

The present findings extended the application of MT to a non-athlete youth cohort in South Africa, corroborating previous research that has found a positive association between MT and attitudes towards physical risk in athletes (Crust & Keegan, 2010). The negative relationship between MT and attitudes towards psychological risk provides novel evidence to suggest that youth risk-taking decisions may depend on the type and degree of risk and be related to personality. The MT-trait forgiveness relationship offers additional support for the

positive outcomes linked to the MT, suggesting the construct might be beneficial to maintaining or improving interpersonal relationships. Though additional research is necessary, the findings lend initial credence to MT as a psychological characteristic involved in youth risk perceptions and interpersonal functioning. It also offers the intriguing possibility of manipulating risk taking and forgiveness by changing mental toughness levels as suggested by Crust and Clough (2011).

#### References

- Aquino, K., Tripp, T., & Bies, R. (2006). Getting even or moving on? Power, procedural justice, and types of offense as predictors of revenge, forgiveness, reconciliation, and avoidance in organizations. *Journal of Applied Psychology, 91*, 653-668. doi:10.1037/0021-9010.91.3.653
- Arthur, C., Fitzwater, J., Hardy, L., Beattie, S., & Bell, J. (2015). Development and validation of a Military Training Mental Toughness Inventory. *Military Psychology, 27*, 232-241. doi:10.1037/mil0000074
- Balliet, D., Li, N., & Joireman, J. (2011). Relating trait self-control and forgiveness within prosocials and proselfs: Compensatory versus synergistic models. *Journal of Personality and Social Psychology, 101*, 1090-1105. doi:10.1037/a0024967

- Bell, J., Hardy, L., & Beattie, S. (2013). Enhancing mental toughness and performance under pressure in elite young cricketers: A 2-year longitudinal intervention. *Sport, Exercise, and Performance Psychology*, 2, 281-297. doi:10.1037/a0033129
- Berry, J. Worthington, E., O'Connor, L., Parrott, L., & Wade, N. (2005). Forgiveness, vengeful rumination, and affective traits. *Journal of Personality*, 73, 183-226.
- Brand, S., Lemola, S., Kalak, N., Gerber, M., Clough, P. & Holsboer-Trachsler, E. (2014). "Sleep well, our tough heroes!"—In adolescence, greater mental toughness is related to better sleep schedules. *Behavioral Sleep Medicine*, 12, 444-454. doi:10.1080/15402002.2013.825839
- Briggs, S., & Cheek, J. (1986). The role of factor analysis in the evaluation of personality scales. *Journal of Personality*, 54, 106-148. doi:10.1111/j.1467-6494.1986.tb00391.x
- Bull, S., Shambrook, C., James, W., & Brooks, J. (2005). Towards an understanding of mental toughness in elite English cricketers. *Journal of Applied Sport Psychology*, 17, 209-227. doi:10.1080/10413200591010085
- Burnette, J., Taylor, K., Worthington, E., & Forsyth, D. (2007). Attachment and trait forgiveness: The mediating role of angry rumination. *Personality and Individual Differences*, 42, 1585-1596.
- Byrnes, J., Miller, D., & Schafer, W. (1999). Gender differences in risk taking: A meta-analysis. *Psychological Bulletin*, 125, 367-383
- Cauffman, E., & Steinberg, L. (2000). (Im)maturity of judgment in adolescence: Why adolescents may be less culpable than adults. *Behavioral Sciences and the Law*, 18, 741-760.
- Chou, C., & Bentler, P. (1995). Estimates and tests in structural equation modeling. In R. Hoyle (Ed.), *Structural equation modelling: Concepts, issues, and applications* (pp. 37-55). Thousand Oaks, CA: Sage.

- Clough, P., Earle, K., Perry, J., & Crust, L. (2012). Comment on “Progressing measurement in mental toughness: A case example of the Mental Toughness Questionnaire 48” by Gucciardi, Hanton, and Mallett (2012). *Sport, Exercise, and Performance Psychology, 1*, 283-287. doi:10.1037/a0029771
- Clough, P., Earle, K., & Sewell, D. (2002). Mental toughness: The concept and its measurement. In I. Cockerill (Ed.), *Solutions in sport psychology* (pp. 32-45). London, England: Thomson.
- Connaughton, D., Hanton, S., & Jones, G. (2010). The development and maintenance of mental toughness in the world's best performers. *The Sport Psychologist, 24*, 168-193.
- Coulter, T., Mallett, C., & Gucciardi, D. (2010). Understanding mental toughness in Australian soccer: Perceptions of players, parents, and coaches. *Journal of Sports Sciences, 28*, 699-716. doi:10.1080/02640411003734085
- Crust, L. (2008). A review and conceptual re-examination of mental toughness: Implications for future researchers. *Personality and Individual Differences, 45*, 576-583. doi:10.1016/j.paid.2008.07.005
- Crust, L. (2009). The relationship between mental toughness and affect intensity. *Personality and Individual Differences, 47*, 959-963. doi:10.1016/j.paid.2009.07.023
- Crust, L., & Azadi, K. (2010). Mental toughness and athletes' use of psychological strategies. *European Journal of Sport Science, 10*, 43-51. doi:10.1080/17461390903049972
- Crust, L., & Clough, P. (2011). Developing mental toughness: From research to practice. *Journal of Sport Psychology in Action, 2*, 21-32. doi:10.1080/21520704.2011.563436
- Crust, L., Earle, K., Perry, J., Earle, F., Clough, A., & Clough, P. (2014). Mental toughness in higher education: Relationships with achievement and progression in first-year university sports students. *Personality and Individual Differences, 69*, 87-91. doi:10.1016/j.paid.2014.05.016

- Crust, L., & Keegan, R. (2010). Mental toughness and attitudes to risk-taking. *Personality and Individual Differences, 49*, 164-168. doi:10.1016/j.paid.2010.03.026
- Crust, L., & Swann, C. (2011). Comparing two measures of mental toughness. *Personality and Individual Differences, 50*, 217-221. doi:10.1016/j.paid.2010.09.032
- Davis, D., Worthington, E., Hook, J., & Hill, P. (2013). Research on religion/spirituality and forgiveness: A meta-analytic review. *Psychology of Religion and Spirituality, 5*, 233-241.
- Dewhurst, S., Anderson, R., Cotter, G., Crust, L., & Clough, P. (2012). Identifying the cognitive basis of mental toughness: Evidence from the directed forgetting paradigm. *Personality and Individual Differences, 53*, 587-590.
- Fawcett, T. (2011). Mental toughness: A phenomenological perspective. In D. Gucciardi & S. Gordon (Eds.), *Mental toughness in sport: Developments in theory and research* (pp. 9-29). Abingdon, Oxon: Routledge.
- Fourie, S., & Potgieter, J. (2001). The nature of mental toughness in sport. *South African Journal for Research in Sport, Physical Activity and Recreation, 23*, 63-72.
- Franken, R., Gibson, K., & Rowland, G. (1992). Sensation seeking and the tendency to view the world as threatening. *Personality and Individual Differences, 13*, 31-38.
- Gardner, M., & Steinberg, L. (2005). Peer influence on risk taking, risk preference, and risky decision making in adolescence and adulthood: An experimental study. *Developmental Psychology, 41*, 625-635.
- Gerber, M., Brand, S., Feldmeth, A., Lang, C., Elliot, C., Holsboer-Trachsler, E., & Puhse, U. (2013). Adolescents with high mental toughness adapt better to perceived stress: A longitudinal study with Swiss vocational students. *Personality and Individual Differences, 54*, 808-814. doi:10.1016/j.paid.2012.12.003

Gould, D., Griffes, K., & Carson, S. (2011). Mental toughness as a life skill. In D. Gucciardi & S. Gordon (Eds.), *Mental toughness in sport: Developments in theory and research* (pp. 163-186). Abingdon, Oxon: Routledge.

Gucciardi, D. (2009). Do developmental differences in mental toughness exist between specialized and invested Australian footballers? *Personality and Individual Differences, 47*, 985-989. doi:10.1016/j.paid.2009.08.001

Gucciardi, D., & Gordon, S. (2009). Development and preliminary validation of the Cricket Mental Toughness Inventory (CMTI). *Journal of Sports Sciences, 27*, 1293-1310. doi:10.1080/02640410903242306

Gucciardi, D., Gordon, S., & Dimmock, J. (2008). Towards an understanding of mental toughness in Australian football. *Journal of Applied Sport Psychology, 20*, 261-281. doi:10.1080/10413200801998556

Gucciardi, D., Gordon, S., & Dimmock, J. (2009a). Advancing mental toughness research and theory using personal construct psychology. *International Review of Sport and Exercise Psychology, 2*, 54-72. doi:10.1080/17509840802705938

Gucciardi, D., Gordon, S., & Dimmock, J. (2009b). Development and preliminary validation of a mental toughness inventory for Australian football. *Psychology of Sport and Exercise, 10*, 201-209. doi:10.1016/j.psychsport.2008.07.011

Gucciardi, D., Hanton, S., & Mallett, C. (2012). Progressing measurement in mental toughness: A case example of the Mental Toughness Questionnaire 48. *Sport, Exercise, and Performance Psychology, 1*, 194-214. doi:10.1037/a0027190

Gucciardi, D., Hanton, S., & Mallett, C. (2013). Progressing measurement in mental toughness: A response to Clough, Earle, Perry, and Crust. *Sport, Exercise, and*

*Performance Psychology*, 2, 157-172. doi:10.1037/spy0000002

- Hallfors, D., Vevea, J., Iritani, B., Cho, H., Khatapoush, S., & Saxe, L. (2002). Truancy, grade point average, and sexual activity: A meta-analysis of risk indicators for youth substance use. *The Journal of School Health*, 72, 505-211.
- Harris, A., Luskin, F., Norman, S., Standard, S., Bruning, J., Evans, S., & Thoresen, C. (2006). Effects of a group forgiveness intervention on forgiveness, perceived stress, and trait-anger. *Journal of Clinical Psychology*, 62, 715-733.
- Herrenkohl, T., Maguin, E., Hill, K., Hawkins, D., Abbott, R., & Catalano, R. (2000). Developmental risk factors for youth violence. *Journal of Adolescent Youth*, 26, 176-186.
- Horsburgh, V., Schermer, J., Veselka, L., & Vernon, P. (2009). A behavioural genetic study of mental toughness and personality. *Personality and Individual Differences*, 46, 100-105. doi:10.1016/j.paid.2008.09.009
- Jackson, C., Henderson, M., Frank, J., & Haw, S. (2012). An overview of prevention of multiple risk behavior in adolescence and young adulthood. *Journal of Public Health*, 34 (Supp. 1), 31-40. doi:10.1093/pubmed/fdr113
- Joint United Nations Programme on HIV/AIDS (UNAIDS). (2013). *Global report: UNAIDS report on the global AIDS epidemic 2013*. Retrieved from [http://www.unaids.org/sites/default/files/media\\_asset/UNAIDS\\_Global\\_Report\\_2013\\_en\\_1.pdf](http://www.unaids.org/sites/default/files/media_asset/UNAIDS_Global_Report_2013_en_1.pdf)
- Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of Applied Sport Psychology*, 14, 205-218. doi:10.1080/10413200290103509
- Jones, G., Hanton, S., & Connaughton, D. (2007). A framework of mental toughness in the world's best performers. *The Sport Psychologist*, 21, 243-264.

Jones, M. I., & Parker, J. K. (2013). What is the size of the relationship between global mental toughness and youth experiences?. *Personality and Individual Differences, 54*(4), 519-523

Kaiseler, M., Polman, R., & Nicholls, A. (2009). Mental toughness, stress, stress appraisal, coping and coping effectiveness in sport. *Personality and Individual Differences, 47*, 728-733. doi:10.1016/j.paid.2009.06.012

Kobasa, S. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37*, 1-11.

Kotchick, B., Shaffer, A., Forehand, R., & Miller, K. (2001). Adolescent sexual risk behavior: A multi-system perspective. *Clinical Psychology Review, 21*, 493-519.

Lawler-Row, K., & Piferi, R. (2006). The forgiving personality: Describing a life well lived? *Personality and Individual Differences, 41*, 1009-1020.

Leigh, B. (1999). Peril, chance, and adventure: Concepts of risk, alcohol use and risky behavior in young adults. *Addiction, 94*, 371-383.

Leoschut, L., & Burton, P. (2006). *How rich the rewards? Results of the 2005 National Youth Victimization Study* (Monograph Series No. 1). Cape Town: Centre for Justice and Crime Prevention. Retrieved from [https://www.issafrica.org/crimehub/uploads/National\\_Youth\\_Victimisation\\_Survey.pdf](https://www.issafrica.org/crimehub/uploads/National_Youth_Victimisation_Survey.pdf)

Little, H. (2010). Relationship between parents' beliefs and their responses to children's risk-taking behaviour during outdoor play. *Journal of Early Childhood Research, 8*, 315-330.

Lösel, F., & Farrington, D. (2012). Direct protective and buffering protective factors in the development of youth violence. *American Journal of Preventive Medicine, 43*, S8-S23.



- McCullough, M., Pargament, K., & Thoresen, C. (Eds.). (2000). *Forgiveness: Theory, research, and practice*. New York, NY: Guilford Press.
- McCullough, M., Rachal, C., Sandage, S., Worthington, E., Brown, S., & Hight, T. (1998). Interpersonal forgiving in close relationships: II. Theoretical elaboration and measurement. *Journal of Personality and Social Psychology, 75*, 1586-1603.
- McGeown, S., St Clair-Thompson, H., & Clough, P. (2015). The study of non-cognitive attributes in education: Proposing the mental toughness framework. *Educational Review*. Advance online publication. doi:10.1080/00131911.2015.1008408
- Middleton, S., Marsh, H., Martin, A., Richards, G., & Perry, C. (2004). Discovering mental toughness: A qualitative study of mental toughness in elite athletes. *Proceeding of the Self Research Centre Biannual Conference*. Berlin, Germany. Retrieved from [http://www.sectiononewrestling.com/discovering\\_mental\\_toughness.pdf](http://www.sectiononewrestling.com/discovering_mental_toughness.pdf)
- Nicholls, A., Levy, A., Polman, R., & Crust, L. (2011). Mental toughness, coping self-efficacy, and coping effectiveness among athletes. *International Journal of Sport Psychology, 42*, 513-524.
- Nicholls, A., Polman, R., Levy, A., & Backhouse, S. (2008). Mental toughness, optimism, pessimism, and coping among athletes. *Personality and Individual Differences, 44*, 1182-1192. doi:10.1016/j.paid.2007.11.011
- Nunnally, J., & Bernstein, I. (1994). *Psychometric theory*. New York, NY: McGraw-Hill.
- Onley, M., Veselka, L., Schermer, J. A., & Vernon, P. A. (2013). Survival of the Scheming: A Genetically Informed Link Between the Dark Triad and Mental Toughness. *Twin Research and Human Genetics, 16*(06), 1087-109

- Perry, J., Clough, P., Crust, L., Earle, K., & Nicholls, A. (2013). Factorial validity of the Mental Toughness Questionnaire-48. *Personality and Individual Differences, 54*, 587-592. doi:10.1016/j.paid.2012.11.020
- Pettifor, A., Rees, H., Kleinschmidt, I., Steffenson, A., MacPhail, C., Hlongwa-Madikizela, L., ... Padian, N. (2005). Young people's sexual health in South Africa: HIV prevalence and sexual behaviors from a nationally representative household survey. *AIDS, 19*, 1525-1534.
- Reddy, S., James, S., Sewpaul, R., Koopman, F., Funani, N., Sifunda, S., ... Omardien, R. (2010). *Umthente Uhlaba Usamila – The South African Youth Risk Behaviour Survey 2008*. Cape Town: South African Medical Research Council. Retrieved from <http://www.mrc.ac.za/healthpromotion/healthpromotion.htm>
- Resnick, M. (2000). Protective factors, resiliency, and healthy youth development. *Adolescent Medicine, 11*, 157-164.
- Riek, B., & Mania, E. (2012). The antecedents and consequences of interpersonal forgiveness: A meta-analytic review. *Personal Relationships, 19*, 304-325.
- Romer, D. (2010). Adolescent risk taking, impulsivity, and brain development: Implications for prevention. *Developmental Psychobiology, 52*, 263-276. doi:10.1002/dev.20442
- Rye, M., Loiacono, D., Folck, C., Olszewski, B., Heim, T., & Madia, B. (2001). Evaluation of the psychometric properties of two forgiveness scales. *Current Psychology, 20*, 260-277.
- Schwarzer, R., & Luszczynska, A. (2006). Self-efficacy, adolescents' risk-taking behaviors, and health. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 139-159). Greenwich, CT: Information Age Publishing.

- Seedat, M., Van Niekerk, A., Jewkes, R., Suffla, S. & Ratele, K. (2009). Violence and injuries in South Africa: Prioritizing an agenda for prevention. *Lancet*, *374*, 1011-1022.
- Stamp, E., Crust, L., Swann, C., Perry, J., Clough, P., & Marchant, D. (2015). Relationships between mental toughness and psychological wellbeing in undergraduate students. *Personality and Individual Differences*, *75*, 170-174. doi:10.1016/j.paid.2014.11.038
- Statistics South Africa. (2014). *Mid-year population estimates 2014* (Statistical Release P0302). Retrieved from <http://www.statssa.gov.za/publications/P0302/P03022014.pdf>
- Thelwell, R., Weston, N., & Greenlees, I. (2005). Defining and understanding mental toughness within soccer. *Journal of Applied Sport Psychology*, *17*, 326-332. doi:10.1080/10413200500313636
- The Presidency Republic of South Africa. (2015). *National Youth Policy 2015-2020*. Retrieved from <http://www.thepresidency.gov.za/MediaLib/Downloads/Downloads/NYP%20Policy%202020%20Report.pdf>
- Tse, M., & Cheng, S. (2006). Depression reduces forgiveness selectively as a function of relationship closeness and transgression. *Personality and Individual Differences*, *40*, 1133-1141.
- Veselka, L., Schermer, J. A., Martin, R. A., & Vernon, P. A. (2010). Laughter and resiliency: A behavioral genetic study of humor styles and mental toughness. *Twin Research and Human Genetics*, *13*(05), 442-449.
- Veselka, L., Schermer, J. A., Petrides, K., & Vernon, P. A. (2009). Evidence for a heritable general factor of personality in two studies. *Twin Research and Human Genetics*, *12*(03), 254-260.
- Wilkowski, B., Robinson, M., & Troop-Gordon, W. (2010). How does cognitive control

reduce anger and aggression? The role of conflict monitoring and forgiveness processes. *Journal of Personality and Social Psychology*, 98, 830-840.

Witvliet, C., Ludwig, T., & Vander Laan, K. (2001). Granting forgiveness or harboring grudges: Implications for emotion, physiology, and health. *Psychological Science*, 12, 117-123.

Worthington, E., & Scherer, M. (2004): Forgiveness is an emotion-focused coping strategy that can reduce health risks and promote health resilience: Theory, review, and hypotheses. *Psychology and Health*, 19, 385-405.

Worthington, E., Witvliet, C., Pietrini, P., & Miller, A. (2007). Forgiveness, health, and well-being: A review of evidence for emotional versus decisional forgiveness, dispositional forgivingness, and reduced unforgiveness. *Journal of Behavioral Medicine*, 30, 291-302.

Ysseldyk, R., & Matheson, K. (2008). Forgiveness and coping. In W. Malcolm, N. DeCourville, & K. Belicki (Eds.), *Women's reflections on the complexities of forgiveness* (pp. 143-163). New York, NY: Routledge.

Table 1

*Descriptive Statistics, Normality Estimates, Internal Consistency Coefficients, and Bivariate Correlations*

Variable	(1)	(2)	(3)	(4)	(5)
(1) Mental Toughness	-	.24**	-.21*	.21*	.19*
(2) Physical Risk	-	-	.43**	.05	-.02
(3) Psychological Risk	-	-	-	-.16	-.14
(4) Trait Forgiveness	-	-	-	-	.10
(5) Age	-	-	-	-	-
<i>M (SD)</i>	164.62 (19.78)	14.02 (4.86)	10.37 (4.58)	34.57 (7.43)	23.97 (4.46)
Skewness	-.33	-.01	.60	-.00	.90
Kurtosis	1.45	-.60	-.67	-.37	.05
Cronbach's alpha	.89	.73	.66	.78	-

*Note.* \*\*  $p < .01$  (one tailed); \*  $p < .05$  (one tailed).