



Harder, better, faster, stronger? Mental toughness, the dark triad and physical activity

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ABSTRACT

Mental toughness (MT) provides additional psychological resources important for achievement and health outcomes in sport. Previous research has highlighted complex relationships between the Dark Triad (DT; sub-clinical narcissism, Machiavellianism, and psychopathy) and MT, but with little focus on health-related behaviours – i.e., physical activity (PA). The aim of this study was twofold: to assess the relationship between these variables and determine any differences as a function of athlete expertise; and, to determine whether MT mediated the DT-PA relationship, and whether this relationship differed across athlete expertise. In total, 762 participants with varying levels of sports participation experience - elite ($n = 222$), amateur ($n = 338$), and non-athletes ($n = 202$) - completed questionnaires assessing DT, MT, and PA. Results indicated that elite athletes scored higher on all variables compared with amateur athletes who in turn scored higher than non-athletes. Moreover, positive relationships were found between narcissism and MT. Structural equation modelling indicated MT fully mediated the relationship between DT and PA, and this effect was more evident for elites and amateurs than non-athletes.

1. Introduction

Mental toughness (MT) has been conceptualised as a multi-dimensional construct characterised by unshakeable beliefs, coping effectively with pressure and adversity, thriving under pressure, and being committed (Clough, Earle, & Sewell, 2002). Research has postulated that high MT scores relate to competency in sport (Crust & Azadi, 2010; Nicholls, Polman, Levy, & Backhouse, 2008). Moreover, research suggests MT provides an advantage across domains including mental health. For example, MT may be directly related to stress reduction via increased exercise participation i.e., greater levels of physical activity (Lin, Mutz, Clough, & Papageorgiou, 2017). The Dark Triad (DT) encompasses subclinical narcissism, Machiavellianism, and psychopathy (Paulhus & Williams, 2002). This framework ostensibly describes socially-malevolent traits, however recent research has suggested that the DT may also have socially-desirable and facilitative effects across performance domains (Geukes, Mesagno, Hanrahan, & Kellmann, 2012; Roberts & Woodman, 2015, 2017; Roberts, Woodman, Lofthouse, & Williams, 2014).

Extant work has found that DT traits relate to both mental toughness and physical activity. Some work reports both positive (narcissism) and negative (Machiavellianism; psychopathy) relationships between DT and MT (Onley, Veselka, Schermer, & Vernon, 2013). Other findings

suggest all three traits are positively correlated with MT, and that narcissism and Machiavellianism are positively related to moderate and vigorous physical activity (PA; Sabouri et al., 2016). The current study examined the relationship between DT components and MT with PA (Omorou, Erpelding, Escalon, & Vuillemin, 2013). Specifically, we considered the potential mediation effects of MT, due to its positive psychological advantage and differential relationship with DT traits on the DT-PA relationship and differences across athlete expertise.

1.1. Mental toughness

Clough et al.'s (2002) 4Cs model of MT adds confidence to the hardiness construct (Kobasa, 1979) in order to conceptualise the self-efficacy of MT. The 4Cs model characterises global and independent traits of MT: 'challenge' (i.e., the degree to which individuals view difficulties as personal development opportunities); 'commitment' (i.e., deep involvement in pursuits and activities); 'control', subdivided into 'emotions' (i.e., control of anxieties and arousal) and 'life' (i.e., the belief one is influential in determining outcomes); and 'confidence', subdivided into 'abilities' (i.e., a high sense of self-belief to achieve goals and low dependency on external influences) and 'interpersonal' (i.e., the ability to be assertive when interacting with others).

Research has reported a positive relationship between MT and PA

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(Gerber et al., 2012; Lin et al., 2017). For example, this relationship differentiated those who engaged in no PA and those who engaged in moderate PA, five-seven days a week. The authors suggested that those who participated in higher level of PA (e.g., athletes) may exhibit higher levels of MT. Furthermore, research has suggested MT can buffer the negative effects of stress and depression through participation in sport (Gerber et al., 2013). Research has also reported a positive relationship between MT and vigorous PA, and a negative relationship between MT and exercise barriers; e.g., time expenditure, physical exertion and family discouragement (Stamp, Crust, & Swann, 2015). Nonetheless, research has also reported no effect between MT and PA (Brand et al., 2016). However, the researchers suggested that this may have been due to underestimation of PA.

1.2. The dark triad; physical and mental health

The DT are three interrelated but distinct traits: Narcissism, defined by grandiosity, entitlement, dominance, and superiority; Machiavellianism, defined by manipulation, self-service, amorality and deceit; and psychopathy, defined by impulsivity and thrill-seeking along with low empathy and anxiety (Paulhus & Williams, 2002). Taking all three together, the models describes a “predominantly disagreeable, low conscientious, stable, extravert” (Furnham, Richards, Rangel, & Jones, 2014, p. 116). Debate remains surrounding the optimal structure of the DT, however we treat the DT as three distinct traits due to their conceptual uniqueness (Furnham, Richards, & Paulhus, 2013; Glenn & Sellbom, 2015). Research has suggested moderate positive correlations between DT components; examining mediation models regarding the DT and outcomes will help further clarify the framework, and individual traits' relationship with specific outcomes (Furnham et al., 2013).

Although the DT have historically been considered socially maladaptive (Veselka, Schermer, & Vernon, 2012), recent research has reported both beneficial and adverse relationships with health-related variables (Jonason, Baughman, Carter, & Parker, 2015). For example, research has reported a negative relationship between narcissism and mental and physical ailments, suggesting it may provide a buffer from negative physical and mental health (Jonason et al., 2015). Research has also suggested that narcissistic individuals' pride and self-worth assists them in motivation, performance, and optimism (Onley et al., 2013). Psychopathy and Machiavellianism, however, are associated with poorer psychological and physical health (Jonason et al., 2015). Considering the relationships between DT traits and general health, it is possible that the DT will exhibit similar associations with PA, i.e., a positive relationship with narcissism and a negative relationship with psychopathy and Machiavellianism (Warburton, Nicol, & Bredin, 2006).

Onley et al. (2013) provided the first examination of the relationship between DT components and MT in a sample of 210 same-sex twin pairs. Results suggested negative correlations between MT and psychopathy and Machiavellianism, and a positive correlation between MT and narcissism. Additional research reflects the complex relationship between DT and MT. For example, Papageorgiou, Wong, and Clough (2017) demonstrated a non-significant relationship between MT and Machiavellianism, a negative relationship between MT and psychopathy, and a positive relationship between MT and narcissism. Furthermore, mediation analyses indicated that narcissism exerted a significant negative indirect effect on psychopathy and Machiavellianism through MT (Papageorgiou et al., 2017).

1.3. Dark triad, mental toughness, and physical activity

To date, only one study has examined the interplay between DT, MT and PA (Sabouri et al., 2016). Data from 341 athletes indicated a positive relationship between all DT components and MT: narcissism $r = 0.50$, Machiavellianism $r = 0.45$, and psychopathy $r = 0.20$.

Results also highlighted a positive relationship between MT and vigorous PA. Sabouri et al. suggested that individuals with high dispositions towards DT and MT might be successful in domains such as sport as they can be both tough and ruthless at the same time. This may partly be explained by the relationship between DT traits and other attitudes. Narcissism is associated with goal striving and aspiration (Feist, 1993) – persistence in pursuing one's aims, and fortitude in spite of adversity. Similarly, individuals with higher levels of Machiavellianism are strongly committed to achieving personal targets (Paulhus & Williams, 2002), and highly psychopathic individuals are impulsive and risk-taking in pursuing their own agendas (Jones & Paulhus, 2011). Vigorous PA, which may be more demanding and reward-orientated than moderate (or no) PA may represent a socially-acceptable outlet for DT-related ambition, and both encourage and reward DT-typical behaviour.

Individuals with high levels of DT traits may therefore be both more motivated and more mentally well-equipped, via greater MT, in pursuing vigorous physical goals. In this way, MT may be an explanatory factor for the link between DT and PA. Individuals with high levels of DT traits might pursue PA and related goals, in part, as a result of their higher MT. This may, however, vary according to the DT trait in question. At present, the relationship(s) between DT, MT, and PA appears complicated: the findings of Sabouri et al. (2016) and Onley et al. (2013) conflict to some extent, and Sabouri et al. did not test for mediation. The present study therefore seeks to further explore the directional and meditation aspects of these traits and behaviours.

1.4. The current study

To date, research investigating the relationship between DT, MT, and PA has been limited for several reasons, e.g., lack of statistical power due to small sample size; failure to consider the shared variance between DT components; and/or the potential mediation effect of MT on health-related behaviours. In this case, the issue is PA - whether individuals participate in competitive sport. Based on our review of the literature, we predict a bi-directional relationship between DT and MT; i.e., a positive relationship with narcissism and a negative relationship with psychopathy and Machiavellianism. Furthermore, we hypothesise that MT will mediate the DT-PA relationship, due to the bi-directional relationship between DT traits and MT. Finally, we predict this relationship will be stronger in elite athletes than amateurs and non-athletes.

2. Method

2.1. Participants

Seven-hundred and sixty-two participants with a range of athletic experience were recruited from English universities. The sample (355 males; 407 females) participated in a range of team and individual sports – athletics, boxing, hockey, netball, soccer, rugby, and tennis ($M_{AGE} = 25.06$; $SD = 6.11$). Participants were classified as non-athletes, amateurs, or elite, based on Swann, Moran, and Piggott's (2015) review of 91 sport expertise studies. Swann and colleagues suggested criteria including highest level of competition played (regional–international level); global representation (non-Olympic/Olympic); and time spent at current level (fewer than two–more than eight years). For example, participation for less than two years classified non-athletes, whereas participation greater than eight years classified elite athletes (see Swann et al., 2015). This resulted in a final sample comprised 222 non-athletes, 338 amateurs, and 202 elite athletes. In order to determine mediation effects with bias-corrected bootstrapping, Fritz and MacKinnon (2007) recommend a minimum sample size of 462.

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