

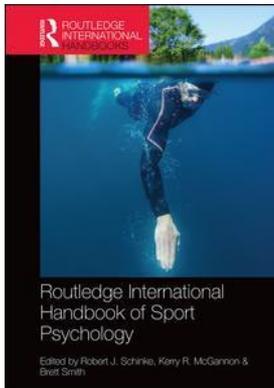
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### **Mental toughness**

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## MENTAL TOUGHNESS

### Critical reflections and future considerations

*Daniel F. Gucciardi and Sheldon Hanton*

Mental toughness is a term used by professionals and lay people alike, particularly those individuals involved or interested in sport, to describe the psychological qualities of people who achieve outstanding performance. Although the meaning of mental toughness may seem clear at first glance, a closer examination of both everyday connotations and scientific conceptualizations reveals complexity to this concept. The purpose of this chapter is to critically evaluate the concept of mental toughness in sport, with a particular focus on its definition and conceptualization.<sup>1</sup> Specifically, we will briefly review what we perceive to be the different waves of scholarly work and consider why, after 15 years of scientific research, mental toughness is still not that well understood as a scholarly concept, and in so doing offer our expectations as to how research might progress in the coming years.

#### **First wave (1950–2000): professional practice knowledge**

The scientific and practical interest in mental toughness has gained momentum over the past decade, despite the first accounts of this concept dating back over 50 years. Originally discussed as a component of personality (i.e., tough-mindedness; Cattell, Blewett, & Beloff, 1955), much of the early writings on mental toughness were based on professionals' experiences with and observations of athletes and coaches. This first wave resulted in a diverse assortment of definitions and conceptualizations of mental toughness which were characterized by practitioners' views of positive psychological qualities (e.g., self-confidence, motivation) and mental skills (e.g., imagery, arousal regulation) considered important for success or which provided a defensive mechanism against adversity (for an initial review, see Connaughton, Hanton, Jones, & Wadey, 2008).

*Critical reflections.* Examinations of the ways by which practitioners have used terms and their perceptions of the key aspects of a concept are an important first step in the conceptualization of a construct (MacKenzie, Podsakoff, & Podsakoff, 2011). Some of the most influential psychological theories, such as Beck's cognitive theory of depression (1967), have been founded in professionals' experiences, observations, and self-reflections of their practice (Locke, 2007). However, the unsystematic approach to the construction and communication

of this knowledge in this first wave resulted in conceptual confusion and therefore hindered the integration of this knowledge into a theoretical account of mental toughness.

### **Second wave (2000–2015): identification of (unobservable) personal attributes**

It was not until the turn of the twenty-first century that mental toughness became the subject of systematic empirical work. Owing to the limited amount of basic knowledge on mental toughness in the academic literature, researchers embarked on a stream of descriptive research aimed at generating information that could provide the foundation for theory. This second wave was characterized by work that focused on identifying and describing unobservable personal attributes considered central to mental toughness (e.g., confidence, optimism), as well as sources of influence (e.g., coaches, parents) and the processes (e.g., motivational climate) by which they contribute to the development of these resources. The focus on identifying a core group of personal resources (i.e., common across individuals) that are employed to regulate one's behavior is congruent with theoretical perspectives of stress (Hobfoll, 1989, 2002).

Two streams of research are evident in this wave, which differ in their methodological approach. Sparked by the foundational work of Jones, Hanton, and Connaughton (2002),<sup>2</sup> we located 13 *qualitative* studies published in peer-reviewed outlets that have been conducted to explore individuals' perceptions of the fundamental attributes of mental toughness in sport.<sup>3</sup> The majority of this work aimed to provide a rich, in-depth account of athlete mental toughness (cf. Slack, Butt, Maynard, & Olusoga, 2014) using cross-sectional interviews designed to generate an insight into participants' retrospective experiences with the concept (cf. Crust, Nesti, & Bond, 2010). Different terms have been used to describe similar concepts thereby producing a seemingly endless list of individual attributes (Andersen, 2011). Despite the apparent inconsistencies in terminology across studies, most of these individual attributes reflect a core group of resources including self-efficacy, buoyancy, success mindset, optimistic style, context knowledge, and attention and emotion regulation (Gucciardi, Hanton, Gordon, Mallett, & Temby, 2015).

A stream of *quantitative* research was instigated by Clough, Earle, and Sewell (2002), who integrated the views of athletes and coaches with existing theory to develop a model of mental toughness. Their 4Cs model of mental toughness drew from hardiness theory in which it is said that three interrelated attitudes or appraisal strategies capture a personality characteristic that buffers people from the deleterious effects of life stress (Kobasa, 1979). These three features are commitment (i.e., value activities or tasks and one's continuation in them), control (i.e., one is influential in outcomes in life), and challenge (i.e., stress in life is expected and important for personal development). Clough *et al.* added a confidence dimension to the hardiness model to capture the views of athletes and coaches regarding the unique demands of sport contexts (i.e., belief that one is capable of achieving their goals). The 4Cs model and its associated measurement tool (i.e., MTQ48) has been widely adopted to examine mental toughness in sport (for a review, see Clough & Strycharczyk, 2012).

*Critical reflections.* After almost 15 years of systematic research devoted to clarifying the fundamental attributes of mental toughness, what have we learned? Mental toughness reflects a fundamentally important but inadequately understood concept. The work completed in this second wave suggests that mental toughness encompasses a constellation of personal resources that people bring with them to a situation that is perceived as being facilitative for goal attainment in the face of varying degrees of situational demands. When

conceptualized as a personal attribute, this boundary condition helps distinguish mental toughness from other types of resources. Resilience, for example, is not an attribute of people but rather encompasses an interaction between individuals and situations or contexts that involve non-normal levels of risk or significant adversity (Windle, 2011). The idea that possessing high levels of one resource is typically linked with having others is consistent with the notion of “resource caravans” in which characteristics aggregate and integrate over time as a collective rather than exist in isolation (Hobfoll, 2002). However, there has been little in the way of a theoretical justification for the combination of these resources as a core mental toughness construct, including clear criteria for their inclusion or exclusion. As has been argued (Johnson, Rosen, Chang, Djurdjevic, & Taing, 2012), and we have recently shown (Gucciardi, Hanton, *et al.*, 2015), it may be erroneous to assume that individual resources pool together to form a coherent whole.

Despite the achievements of this second wave of research, mental toughness remains a concept in need of a theory for it to be considered a legitimate scientific concept. Of course, we and others (e.g., Harmison, 2011) have recognized this need for many years, yet little work has been directed towards resolving this issue. An important prerequisite to theory development is the clarification of the nature of a construct, including its conceptual domain (e.g., applies to people not organizations) and theme (e.g., dimensionality, stability; MacKenzie *et al.*, 2011). Yet, conceptual models of mental toughness have been presented without systematic attention to this fundamental aspect of concept development (e.g., Clough *et al.*, 2002; Jones, Hanton, & Connaughton, 2007). Although an unsystematic approach may be useful in the exploratory stages of a research program, it is problematic for scholars to simply replicate this approach because it contributes to disconnect between definition and operationalization in empirical studies. For example, Madrigal, Hamill, and Gill (2013) defined mental toughness as “the ability to be more consistent and better than one’s opponent by remaining determined, focused, confident, and in control when under pressure” (p. 63) yet they measured this concept with items that capture personal qualities relevant to typical performance rather than through the demonstration of one’s ability to enact the proposed mechanisms (i.e., test of maximal performance).

From a methodological standpoint, the predominance of “single shot” studies when compared with multi-study manuscripts and research programs (cf. Gucciardi, Hanton *et al.*, 2015; Hardy, Bell, & Beattie, 2014) has limited the extent to which findings across studies have been integrated into a unifying theoretical framework. Additionally, scholars interested in mental toughness have relied on retrospective interviews and cross-sectional surveys. Of course, our work in this area is not immune to these methodological criticisms (e.g., Gucciardi, Jackson, Hanton, & Reid, 2015; Jones *et al.*, 2002). Alternative methodological approaches (e.g., ethnography, case studies) and designs (e.g., experimental, longitudinal) may provide new insights into mental toughness that may not have been obtained through uniformity in ways of knowing. A key conclusion is that after all this time these methodological approaches have not sufficiently moved the knowledge base forward and even when viewed as a collective is theoretically murky. A fundamental shift in thinking is required to advance our understanding of mental toughness.<sup>4</sup>

### **Third wave (2015 onwards): observable behavior from person × situation interactions**

If the first wave of mental toughness research yielded insights into practitioners’ reflections of this concept based on their applied work, and the second wave generated knowledge on

unobservable attributes (e.g., self-efficacy, optimism) through the application of scientific principles, then we see behaviors that occur during interactions between the person and the situation as the focus of the next decade or so of scientific inquiry. The importance of behaviors was explicitly acknowledged in some of our early work (e.g., Gucciardi, Gordon, & Dimmock, 2008; Jones *et al.*, 2007) – though not in a substantively detailed manner – and has been reignited through recent research (Gucciardi, Jackson *et al.*, 2015; Hardy *et al.*, 2014). As with the measurement of unobservable concepts like thoughts and emotions, operational definitions of the target behavior(s) and the situation(s) where they are un/likely to occur are fundamentally important for the reliability and validity of measures of mentally tough behavior. Recent work suggests that mental toughness may be best defined as a personal capacity to deliver high performance on a regular basis despite varying degrees of situational demands (Gucciardi, Hanton *et al.*, 2015; Hardy *et al.*, 2014). Thus, a key focus in this wave of research seeks to isolate behaviors that enable the attainment of subjective (e.g., personal goals) and objective (e.g., kicking efficiency) indicators of performance.

What do we mean by behavior? In this context, we define behavior as those acts displayed by a person that are observable and measurable. In other words, behavior refers to something that someone actually does that can be seen or heard and quantified in some way (e.g., frequency, rate, duration). To distinguish behavior from subjective interpretations or descriptions of behavior, one must qualify and specify the action (Kahng, Ingvarsson, Quigg, Seckinger, & Teichman, 2011). For example, saying someone has an excellent work ethic tells us little about his or her behavior. Work ethic may be displayed in behavioral terms in a number of ways, such as attending training early to work on a specific skill before the main session (e.g., goal kicking), or asking the coach for individualized feedback on one's competitive performance that can be worked on during the following training week. It is also important to delineate between the functional (i.e., effects of the behavior) and topographical (i.e., form or properties) features of the behavior (Kahng *et al.*, 2011). For example, resilience may be defined as returning to play following injury in a timeframe consistent with one's medical prognosis (functional), or it could refer to using humor during the injury rehabilitation process (topographical).

Both direct and indirect approaches can be employed for behavioral analyses of mental toughness (for reviews, see Kelley, LaRue, Roane, & Gadaire, 2011; Thompson & Borrero, 2011). Direct observation of behavior as it occurs in situ by a trained observer – whether the setting is natural or contrived – is the preferred method whenever possible (Bailey & Burch, 2002; Kahng *et al.*, 2011). In an exploratory approach, for example, an experienced informant (e.g., coach, recruiter) might observe a training session or competitive match and report when a player demonstrates mentally tough behavior, including information on events that preceded the behavior, and occurred during and immediately after the behavior. Although the preferred approach, direct approaches are costly, time-consuming, and are prone to human errors and biases such as expectancies or fatigue during data collection (Kahng *et al.*, 2011; Kelley *et al.*, 2011). Behavior can also be inferred from sources or events other than direct observation. Archival or permanent records such as official performance statistics (e.g., second serve percentage) provide information on the outcomes of behavior rather than its form or properties (Kahng *et al.*, 2011). Athletes can be trained to observe and record their behavior as it occurs, which can be useful for behaviors that are not directly accessible by others and/or occur in one or more settings (Nelson, 1977). Finally, interviews, surveys and rating scales can be employed to gather information on both the functional and topographical features of behavior, and perspectives on the temporal sequencing of events including antecedents and situational demands (Kahng *et al.*, 2011; Kelley *et al.*, 2011).

Some of the limitations of indirect measurements include the inability to precisely measure the behavior itself (archival data); the reliability and accuracy is difficult to verify or the measurement approach itself may influence behavior (self-monitoring); and responses may be biased or inaccurate due to recall ability<sup>5</sup> (interviews, rating scales) (Kahng *et al.*, 2011; Kelley *et al.*, 2011).

### Shifting the empirical and conceptual focus: avenues for theoretical developments

By shifting the empirical and conceptual focus to behaviors that occur during interactions between the person and the situation, we believe there is potential to augment the knowledge already generated in the first two waves of research. To facilitate this process, we have developed a model that provides a flexible heuristic for a new wave of research on mental toughness (see Figure 43.1). Although admittedly broad in nature, this model captures key features of previous work on mental toughness in new ways (personal resources and situational demands) and integrates them with our expectations regarding behavioral expressions to provide a foundation for theory development in this area.

The first two waves of research focused primarily on generating insights into those unobservable attributes of performers considered mentally tough, yet little work provided evidence to support a direct link between these personal resources and performance or behavior. A core proposition of our heuristic is the notion that mental toughness “may be less about *which* personal characteristics individuals have at their disposal and more about *what* these personal characteristics allow them to do” in terms of visible and measurable behavioral acts (Mahoney, Ntoumanis, Mallett, & Gucciardi, 2014, p. 185). This proposition aligns with the recent shift to ascertain whether or not mentally tough behavior has occurred before we try to make sense of those unobservable attributes that might precede such actions (Hardy *et al.*, 2014). In an attempt to help organize and guide future research from this perspective,

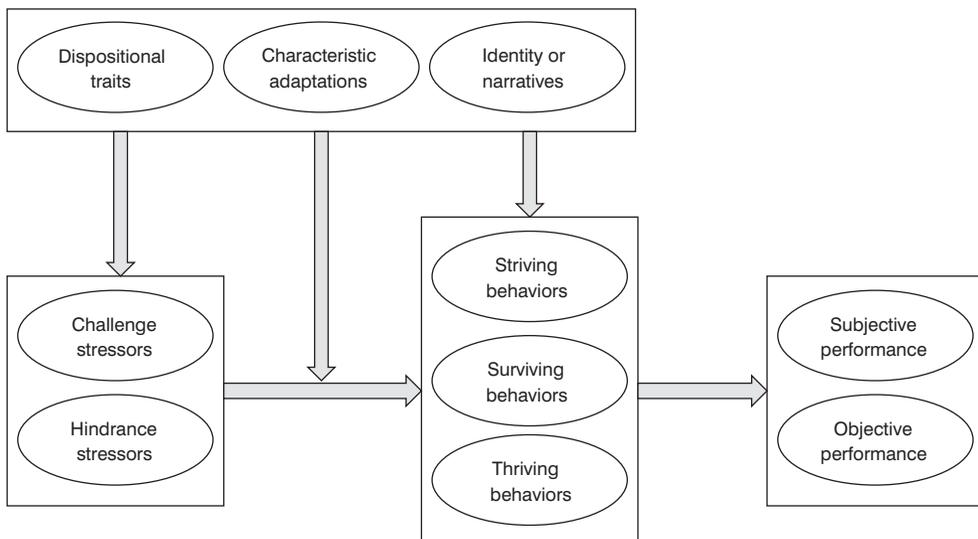


Figure 43.1 A conceptual heuristic to organize key variables for the theoretical development of mental toughness

Mahoney *et al.* proposed a tripartite conceptualization of mentally tough behavior, which draws from self-determination theory (Deci & Ryan, 1985), in which mental toughness is said to foster behaviors or actions associated with striving (i.e., effort expended on tasks), surviving (i.e., overcoming daily hassles or stressors and major adversities), and thriving (i.e., growth through lived experiences). An important agenda for future research on mental toughness is to isolate behaviors that capture these three broad behavioral expressions with clarity and precision.

A second proposition of our heuristic model is that the degree to which an individual displays mentally tough behaviors is a function of both situational demands or stressors and personality attributes, and their interaction (i.e., buffering hypothesis). Athletes encounter a variety of performance (e.g., injury, expectations) and organizational (e.g., interpersonal demands, organizational structure) stressors within the sporting environment (Mellalieu, Neil, Hanton, & Fletcher, 2009). Unsurprisingly, stress is common across most conceptualizations of mental toughness (e.g., Gucciardi, Hanton *et al.*, 2015; Hardy *et al.*, 2014). Within the context of a transactional perspective of stress, situational demands are perceived as either challenging or threatening for valued outcomes such as wellbeing and performance (Lazarus & Folkman, 1984). In differentiating these situational features, scholars have described challenge stressors as having the potential to foster positive outcomes such as mastery, growth, or gains, whereas hindrance stressors typically thwart the attainment of such positive outcomes (e.g., Cavanaugh, Boswell, Roehling, & Boudreau, 2000). This differentiation in stressors is consistent with perspectives of mental toughness that have delineated its relevance for both negative and positive stressors (e.g., Gucciardi *et al.*, 2008). However, scholars have yet to adequately integrate this distinction in types of stressors into current conceptualizations of mental toughness. Given that associations between stressors and valued outcomes can differ depending on the nature of the situational demands (Crawford, LePine, & Rich, 2010), it is important that challenge and hindrance stressors are distinguished in future research on mental toughness.

The extent to which situational demands impede behavior and performance is dependent on appraisals as to whether or not the encounter exceeds one's available resources (Lazarus & Folkman, 1984) and whether the associated symptoms are perceived as debilitating or facilitative for performance (Jones, 1995). A common finding from past work on mental toughness is that the personal resource feature of this concept cannot be readily reduced to a single attribute or quality. Despite the widespread agreement on this theoretical feature, there are conceptual ambiguities and imprecisions regarding the dimensionality (e.g., inclusion/exclusions criteria) and structure (e.g., core concept as a higher-order variable) of mental toughness. This confusion has resulted in the distinctiveness of mental toughness being obscured by unknown construct boundaries. One way to clarify the nature of the personal resources is to consider an alternative view of the self in which it is said that personality is expressed across three layers within a person (McAdams & Pals, 2006). *Dispositional traits* refer to broad aspects of the self that are relatively consistent across time and situations, and therefore provide an indication of typical ways of thinking, feeling, and behaving (e.g., the 'Big Five' or '16pf'). The second layer of personality captures *characteristics adaptations*, which refer to goals, values, motives, and other aspects of psychological individuality that are context- or situation-dependent and which speak to what people want to approach or avoid in life, and how they proceed towards those valued targets. The final layer of personality – *narrative identity* – is where individuals integrate the past, present, and imagined future as an internalized sense of unity and purpose in one's life (for other perspectives on narrative identity, see Smith & Sparkes, 2008). Life stories or narrative identities are heavily shaped by

culture whereby an individual adopts the “prevailing narrative forms, images, metaphors, and plots and fits his or her personal experiences to them” (McAdams, 2013, p. 287).

As with others (McAdams, 2013; see also, Coulter, Mallett, Singer, & Gucciardi, in press), we suspect that dispositional traits, characteristic adaptations, and narrative identity provide unique, adaptive personal and social functions for the expression of mentally tough behaviors. With regard to dispositional traits, for example, cricketers who are sensitive to negative stimuli of events that involve punishment can sustain goal-directed behavior because they typically detect threat early and therefore have more time to plan and execute effective responses in pressurized situations (Hardy *et al.*, 2014). Preliminary evidence supports the expectation that mental toughness may be expressed across all three layers of one’s personality – as trait, adaptation, identity – and thereby may provide a useful framework for understanding those aspects of psychological individuality that predict mentally tough behaviors. In a sample of adolescent netballers, parent-reported mentally tough behavior was inversely related with athlete-reported fear of failure (dispositional trait) and obsessive passion (identity), and positively associated with frequency of inspiration (characteristic adaptation) and harmonious passion (identity; Gucciardi, Jackson *et al.*, 2015). Nevertheless, not all aspects of psychological individuality will predict mentally tough behavior, nor will each provide a buffer against the deleterious effects of stress. An important avenue for future research on mental toughness is to identify those personal resources across each layer of personality that directly promote, as well as interact with situational demands to foster striving, surviving, and thriving behaviors.

## Conclusion

Mental toughness is an intuitively accessible concept, yet its elusiveness has troubled scholars over the past decade. The development of a theory of mental toughness remains a central agenda for future work. The considerations detailed in this chapter embrace an expanded perspective of mental toughness that might provide a foundation for theoretical precision in future work. Advances in both the science and practice of mental toughness depend on the gradual accumulation of findings from sound empirical research (Locke, 2007). It is our hope that the heuristic proposed in this chapter will motivate scholars to engage with the study of mental toughness in different ways from those they have in the past, as well as provide a framework within which to situate and integrate the accumulation of empirical findings. In an experimental setting, for example, one could examine whether certain personal resources (e.g., efficacy, hope) moderate the association between behaviors (e.g., amount of time planning one’s strategy) or performance (e.g., decision-making task) within low and high stress situations. An alternative approach would be to examine the key features of the heuristic as they naturally occur. Athletes might provide self-reports of dispositional traits (e.g., Big Five), characteristic adaptations (e.g., achievement goals, sport motivation), and narrative identity (e.g., athletic identity, passion) at the start of a season. Competitive and organization stressors as well as goal progress (i.e., subjective performance) could then be captured on a weekly basis via athlete self-reports, alongside informant-rated mentally tough behaviors. At the season end, data mining of match statistics from archival records would provide a resource to identify indicators of objective performance (e.g., kicking efficiency, shots on goal). Multilevel modeling would allow for the examination of the dynamic relationships among these variables (e.g., do certain personal resources predict consistency in performance?). A phenomenological approach might also be employed as a way to illuminate athletes’ lived experiences of the core features of mental toughness depicted in our model.

Such studies will be important to the advancement of mental toughness as a scientific concept.

## Notes

- 1 Issues pertaining to the measurement and development of mental toughness are not a primary focus in this chapter, as they have been dealt with in detail elsewhere (e.g., Gucciardi & Gordon, 2011). Nevertheless, we recognise that both streams of research are inextricably linked to conceptual issues so they will be alluded to where appropriate in the narrative.
- 2 This manuscript has received the most citations of any paper devoted specifically to the concept of mental toughness (Web of Science = 109; Google Scholar = 402). Metrics retrieved on October 19, 2015.
- 3 The references for these 13 studies are provided in Appendix A.
- 4 Interested readers are referred elsewhere for alternative critical perspectives that focus on the limitations of absolutist language (Andersen, 2011) and fascistoid ideology (Caddick & Ryall, 2012).
- 5 It is important to recognize that there are alternative views with regard to the quality of retrospection (e.g., Freeman, 2010).

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