A meta-analysis of the trait resilience and mental health

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ARTICLE INFO

ABSTRACT

The current meta-analysis aimed to review the relationship between trait resilience and mental health, and examine some moderating variables such as participant age, gender, and adversity. A total of 60 studies and 111 effect sizes were analyzed. We found that: (1) Trait resilience was negatively correlated to negative indicators of mental health and positively correlated to positive indicators of mental health. (2) Age moderated the relationship between trait resilience and negative indicators but not the positive indicators of mental health, with adults showing stronger than children and adolescents. (3) Gender also moderated the relationship between trait resilience and mental health. As percentage of male participants increased, a weaker effect size was observed. (4) Adversity moderated the relationship between trait resilience and mental health. The effect sizes were significantly stronger for people in adversity than those not in adversities.

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1. Introduction

The word "resilience" originates from the Latin verb *resilire*, or, "to leap back". It is defined in the Oxford English Dictionary as "being able to withstand or recover quickly from difficult conditions". When used in the field of psychology, this term describes the ability to bounce back from negative emotional experiences and flexibly adapt to the changing demands of stressful experiences (Block & Block, 1980; Block & Kremen, 1996; Lazarus, 1993).

In the past decade, research on and applications of resilience have drawn attention from a growing number of experts in psychology, psychopathology, sociology, biology, and even cognitive neuroscience. Notably, the relationship between resilience and mental health has always been a topic of interest across disciplines (Haskett, Nears, Sabourin Ward, & McPherson, 2006; Windle, 2011). Researchers have conducted many theoretical and empirical studies leading to varied conclusions regarding this construct (e.g., Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Karairmak, 2010; Karreman & Vingerhoets, 2012; Liu, Wang, & Li, 2012). Nevertheless, its research and application in the mental health field are seriously hindered due to the lack of a uniform operational definition for resilience and a corresponding methodology for studying it (Davydov, Stewart, Ritchie, & Chaudieu, 2010).

Current definitions of resilience include three orientations: trait, outcome, and process. Trait orientation (or trait resilience)

suggests that resilience is a personal trait that helps individuals cope with adversity and achieve good adjustment and development. Researchers who support this perspective view resilience as a personality trait that inoculates individuals against the impact of adversity or traumatic events (Connor & Davidson, 2003; Ong, Bergeman, Bisconti, & Wallace, 2006). An outcome-oriented approach regards resilience as a function or behavioral outcome that can conquer and help individuals to recover from adversity (Harvey & Delfabbro, 2004; Masten, 2001). The process-oriented approach views resilience as a dynamic process in which individuals actively adapt to and recover rapidly from major adversities (Fergus & Zimmerman, 2005; Luthar, Cicchetti, & Becker, 2000).

It is important to highlight the debate concerning definition because these concepts provide researchers with theoretical boundaries that help to determine the nature, direction, and veracity of research inquiry (Fletcher & Sarkar, 2013). Conversely, conceptual discrepancies hinder the evaluation and comparison of research findings, preclude meta-analysis, and make it difficult to operationalize the construct for measurement purposes (Davydov et al., 2010). Therefore, the meta-analysis conducted in the current study only includes research on trait resilience and mental health and excludes studies that use other conceptual definitions of resilience.

Ahern, Kiehl, Sole, and Byers (2006) and Windle, Bennett, and Noyes (2011) reviewed the resilience measurement scales in all population age groups and evaluated the psychometric properties of these scales. They suggested that trait resilience was primarily measured with four scales which obtained the most widely used and good psychometric ratings (Cronbach's α = 0.76–0.90): the

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Connor–Davidson Resilience Scale (CD-RISC, Campell-Sills & Stein, 2007; Connor & Davidson, 2003), the Dispositional Resilience Scale (DRS, Bartone, Ursano, Wright, & Ingraham, 1989), the Ego-Resilience Scale (ERS, Block & Kremen, 1996; Bromley, Johnson, & Cohen, 2006; Klohnen, 1996), and the Resilience Scale (RS, Wagnild & Young, 1993). The CD-RISC was used to measure psychological resilience, the personal qualities that enabled one to thrive in the face of adversity (personal competence, trust/tolerance/strengthening effects of stress, acceptance of change and secure relationships, control, spiritual influences). The DRS was designed to measure psychological hardiness (commitment, control, and challenge), the term that was equal to resilience. The ERS comprising a single dimension was administered to assess ego-resiliency (a stable personality characteristic). The RS was measured to identify the degree of individual resilience, a positive personality characteristic that enhances individual adaptation (personal competence and acceptance of self and life). All of the scales focused on assessing resilience at the level of personal characteristics only and the mode of completion was self report (Ahern et al., 2006; Windle et al., 2011). Though some other scales were adopted, we excluded because of their bad psychometric properties and limited use, especially in studies of the relationship between trait resilience and mental health, in order to enhance the validity of this meta-analysis. Therefore, all included studies used only these scales.

Mental health is an important component of individual adaptation and development. New insights into this construct have emerged as research in the field of mental illness has advanced and with the advent of research on positive psychology. The proposition of a dual-factor model of mental health has laid a solid foundation for a more comprehensive and accurate assessment of individual mental health (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008). This model considers mental health to be a complete state, with a broader meaning than the absence of mental illness, and strong sense of subjective wellbeing. Furthermore, it includes the absence of negative indicators of mental health (e.g., depression, anxiety, negative affect) and the presence of positive ones (e.g., life satisfaction, positive affect). Consequently, the measurement and assessment of mental health should include both negative and positive indicators.

The indicators of mental health in the present meta-analysis were measured by some acknowledged scales. Specifically, depression was mainly assessed via Self-Rating Depression Scale (SDS; Zung, 1965), Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), and Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Anxiety was mainly assessed Zung Self-Rating Anxiety Scale (SAS; Zung, 1971), and Anxiety Sensitivity Index (ASI; Peterson & Reiss, 1992). Positive affect and negative affect was mainly measured using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Finally, life satisfaction was mainly assessed by the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). 85 (76%) dependent samples included in the current meta-analysis adopted these scales. All the above scales measured the mental health status and differed from the scales of trait resilience. Trait resilience was defined to a personality trait, while mental health was an adaptational consequence.

Many empirical studies have found that trait resilience was negatively correlated with negative indicators of mental health (e.g., Abiola & Udofia, 2011; Burns & Anstey, 2010; Fredrickson, Tugade, Waugh, & Larkin, 2003, etc.) and positively correlated with positive indicators (Abolghasemi & Varaniyab, 2010; Karairmak, 2010, etc.). Moreover, some indicators of mental health such as life satisfaction (Rossi, Bisconti, & Bergeman, 2007; Wagnild & Young, 1993), positive affect (Fredrickson et al., 2003; Ong, Zautra, & Reid,

2010; Xing & Sun, 2013), depression (Beutel, Glaesmer, Wiltink, Marian, & Brahler, 2010; Hasui et al., 2009; Ying, Wu, Lin, & jiang, 2014), anxiety (Beutel et al., 2010) were proved to be predicted by trait resilience. The relations, however, varied across studies. In response to this concern, many researchers have conducted reviews to summarize research findings (Davydov et al., 2010; Masten et al., 2011; Windle, 2011). Though they partly confirmed the relations, such declarative reviews have their own limitations (e.g., the quality of the review cannot be guaranteed through convenience sampling or emphasis on statistical significance while ignoring sample size), which make it difficult to obtain an accurate understanding of the relationship between trait resilience and mental health. For this reason, the conclusions of declarative reviews may be inconsistent and lack reliability and/ or validity. Furthermore, it is difficult to determine the reasons for differences when the conclusions of a declarative review are inconsistent. Hence, it is imperative to conduct comprehensive quantitative reviews (i.e., meta-analysis) to further elucidate the relationship between trait resilience and mental health.

In addition, we were interested in evaluating participants' age, gender, and experience of adversity as potential moderators in the association between trait resilience and mental health. First, we planned to regard participants' age as a potential moderator because negative life events and the level of trait resilience are more likely to vary according to the age of the individual (Luthar & Brown, 2007; Ong, Bergeman, & Boker, 2009; Ong et al., 2006). Further, differences between children/adolescents and adults have been found in the relationship between trait resilience and mental health, such as depression and life-satisfaction (Abolghasemi & Varaniyab, 2010; Cenat & Derivois, 2014; Cohn et al., 2009; Haddadi & Besharat, 2010).

Second, compared to men, women experience more life events and are more sensitive to them, which generally lead to pain perception (Aneshensel, 1992; Ramírez-Maestre, Martínez, & Zarazaga, 2004). However, it appears that women might be better adapted to chronic pain, given the similar levels of depression and anxiety in men and women (Ramírez-Maestre et al., 2004). Several researchers have proposed that there are gender differences in the relationship between trait resilience and indicators of mental health, such as life-satisfaction, depression and anxiety (e.g., Beutel et al., 2010; Bitsika, Sharpley, & Bell, 2013; Haddadi & Besharat, 2010; Rossi et al., 2007).

Third, the diathesis-stress model suggests that poor developmental experiences are most likely to affect the development of individuals who carry potential diatheses (vulnerability factors) that inhibit successful adaptation in the face of adversity (Roisman et al., 2012). In contrast to diathesis or vulnerability, resilience, which includes protection and buffering, prevents people from succumbing to or being harmed by adverse experiences. Although there were no differences between vulnerable and resilient individuals in the absence of adversity, similar to vulnerability, the relationship between trait resilience and mental health, especially depression and anxiety, may be changed when triggered by adversities. Therefore, we expected that the experienced adversity moderated the correlation between trait resilience and mental health.

Therefore, the current study aimed to review the relationship between trait resilience and negative and positive mental health indicators using meta-analysis. The meta-analysis was conducted on a wide range of published studies (only in English) according to the constructs of trait-oriented resilience and the dual-factor model of mental health. This analysis estimated the effect size, orientation, and significance of trait resilience and mental health from a quantitative perspective, and analyzed whether the relationship between trait resilience and mental health was moderated by some potential variables such as participant age, gender and adversity. The final purpose of this study was to serve as a