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Mindful Resilience: Investigating Mindfulness and Resilience in Relation to a Broad Range of Adversity

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Abstract

This dissertation research sought to establish a complex understanding of the relationships between adversity severity, resiliency, mindfulness (and its mediating mechanism components: reperceiving, values clarification, exposure, cognitive-emotional-behvioural flexibility, and self-regulation). Through one cross-sectional ($N = 914$) and one repeated-measures study (Time 1 $N = 1891$; Time 2 $N = 990$) these relationships are investigated using online questionnaire batteries and assessed via multiple regression analysis. Initial findings demonstrated an effective, reliable, and valid assessment of adversity severity was developed and that this variable contributes to the experience of adversity and the resiliency process. Additional findings indicated the majority of the proposed relationships were found to reach levels indicating statistical significance. Evidence provided preliminary support for an integrated model of mindful-resilience that seems to describe phenomena that generalized beyond work-related adversity to a broad range of experienced adversity. Given the results obtained through the completion of this study it is argued that the parameters limiting the King and Rothstein model of resiliency be removed and that a new inclusive framework be adopted for applications requiring a comprehensive and more detailed understanding of mindful-resilient phenomena promoting health and wellness in the face of adversity. The impact of these findings with regards to individual and organizational wellness, post-traumatic growth theory, resiliency theory, and future research are discussed.

Keywords: resiliency (psychological), mindfulness, severity, adversity, health, wellbeing, physical health, mental illness, theory, models.

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Range of Adversity

Life is not always easy. In whatever venue, be it academics, work, relationships, or

health, we can all expect to experience some form of adversity. Although most individuals

experiencing adversity tend to proceed through the experience without long-lasting harm

(Bonanno, 2004; Masten, 2001; Joseph, 2012), many are not blessed with such a swift and easy

path. To the contrary, many suffer a great deal in the moment or, worse, move to develop long-

lasting physical or mental health ailments (Ehlert, 2013; Ganster & Rosen, 2013; Lim,

Bogossian, & Ahern, 2010; Sabin-Farrell & Turpin, 2003). Often times the most adaptive

outcome one can hope for after adverse experiences is a return to baseline functioning

(homeostasis) or enhanced psychological resistance to adversity or developmental growth

following recovery (King & Rothstein, 2010; Bonanno, 2004; Ozer, Best, Lipsey, & Weiss,

2003; Masten, 2001; Lerner, 1984). The process, by which individuals experience negative life

events and proceed through recovery and growth, has been coined resiliency (King & Rothstein,

2010). If such a phenomena as resiliency could be better understood, methods may be developed

to enhance the speed and efficacy of recovery from harm, minimizing suffering and the negative

consequences that sometimes follow such adversity. To date, few theoretically grounded models

of resiliency have been developed explaining how individuals proceed through various

experiences of negative life events. This research seeks to fill the gap in this literature by

investigating the validity and generalizability of one of the few theoretically grounded models of

resiliency, the King-Rothstein (2010) model of resiliency, across various contexts and severities

of negative life events and establish the nature of its associations with relevant related constructs

and outcomes.

Adversity, Trauma, Severity, the Workplace & Beyond

Negative life events have been categorized differently depending on the nature, severity, context, and content of the experience. Adverse experiences can be defined as "…instances of serious or continued difficulty or misfortune" (Merriam-Webster Dictionary, 2014). Various forms of adverse experiences may fall under this overarching definition. Such negative life events may range in severity from prototypically mild (e.g., exposure to violent language or being passed over for a promotion) to prototypically severe, such as that which has been commonly associated with trauma (Niiyama et al., 2009). Trauma has been defined by the American Psychiatric Association as exposure to actual or threatened death, serious injury or abuse resulting from either direct experiences, witnessing, or becoming aware that a loved one has experienced such a traumatic event, or via repeated or extreme exposure to details of such a traumatic event (2013). Some scholars may therefore differentiate trauma (a.k.a. "big-T Trauma") from adversity (a.k.a. "little-T trauma") using the criteria of severity and specificity of traumatic exposure for a given event (Rothstein personal communication, 2013). Along the continuum of adversity, therefore, experiences may range from short-lasted and relatively mild to long lasting and severe.

Although the way the literature has differentially defined adversity (generally referring to mild adverse experiences) and trauma (a strict subset of adversity) may seem simple at first blush, the use of these terms within the literature is not without problems. Two such problems are relevant in the context of this research. First, such categorization (as either an adverse experience or trauma) is arbitrary on the basis that the nature of the experiences and associated outcomes may in some instances be quite similar (e.g., Winegardner, Simonetti, Nykodym, 1984). For example, research has demonstrated that individuals, who have recently been laid-

off, terminated, or forced to take early retirement (which is often considered an everyday

adversity) may experience the same pattern of emotions as those who are terminally ill (which is

often categorized as trauma; Winegardner et al., 1984). Second, such categorization can be

arbitrary on the basis that individuals differ in their perceptions and reactions to negative life

events (Wingo, Baldessarini, & Windle, 2015; Lo Bue, Taverniers, Mylle, & Fuwema, 2013;

Hong et al., 2014; Winegardner et al., 1984). Therefore, the perceptions regarding the severity

of any adverse experience are inherently subjective (Masten, 2014). This leaves room for the

possibility that, for a select few, more commonplace life experiences may be traumatic and some

less common and more extreme forms of adversity may be perceived, by some, as mundane (e.g.,

Hankin, Badanes, Smolen, & Young, 2015; Gibson et al., 2014). For example, it is theoretically

possible for two individuals to perceive the same non-"trauma" adverse experience (such as

working everyday surrounded by upsetting circumstances, being terminated at work, or

experiencing relational problems) in different ways such that one individual experiences the

event as an opportunity for change (associated with willingness for change, learning, growth,

self-reflection, or positive reappraisal) and the other experiences it as traumatic (associated with

debilitating symptoms and emotions, depersonalization, or social isolation; Kato, 2005;

Dufresne, Clair, Jackson, & Ladge, 2006; Dellucci, 2014; Smith, Buss, Giansiracusa, & Block,

2007). Regardless of the event, individuals who *perceive* an experience as traumatic must still

attempt to resolve their experience with such trauma, which would allow them to return to a state

of homeostasis (King & Rothstein, 2010). Hence, it stands to reason that one should be less

concerned with the specificity and typicality of events eliciting trauma (as argued by the

necessity for listing or describing possible contextual life experiences validating an adversity as a

"trauma"; i.e., American Psychiatric Association, 2013) and be more concerned with the

individual, their personal experience of the event, and how they can move forward to (pre-trauma) baseline functioning or even (post-traumatic) growth. To my knowledge, there have been few studies investigating quantitative individual differences in perception of various adverse experiences or the development of a validated assessment of the severity of an adversity, broadly speaking.

Definitional differences aside, adversity and trauma have a great deal in common. As both adversity and trauma both fall under the same umbrella of negative life experiences, both are commonly found to be associated with similar negative outcomes. Such outcomes include physical and mental health problems (for example see, Montgomery, 2011; Carr, Martins, Stingel, Lerngruber, & Juruena, 2013; Ansari, Oskrochi, & Stock, 2013) and reductions in wellbeing (for example see Khamis, 1998; Krause & Stryker, 1984).

There are many mental and physical health problems associated with adversity and trauma impacting a large portion of the population. Those experiencing adverse life events are more likely to experience psychological distress (Halliday & Rothstein, 2014; North & Pfefferbaum, 2013; Steine et al., 2012; Allard, Nunnink, Gregory, Klest, & Platt, 2011; Koo, Nguyen, Gilmore, Blayney & Kaysen, 2013), social dysfunction (Aznar & Aznar, 2006), emotional exhaustion and depersonalization (Nil et al., 2010; Cieslak, Shoji, Douglas, Melville, Luszczynska, & Benight, 2014), depression (Halliday & Rothstein, 2014; North & Pfefferbaum, 2013; Slavich & Irwin, 2014; Withers, Tarasoff, & Stewart, 2013; Goldman-Mellor, Saxton, & Catalano, 2010; Hansson, Chotai, & Bodlund, 2010; Nakao, 2010; Nil et al., 2010; Kerr, McHugh, & McCrory, 2009; Su, Weng, Tsang, & Wu, 2009; Aznar & Aznar, 2006; Pritchard, 1995), anxiety (Halliday & Rothstein, 2014; Nakao, 2010; Kerr et al., 2009), symptoms of posttraumatic stress (Koo et al., 2013) and attempted suicide (Goldman-Mellor, et al., 2010;

Pritchard, 1995). Additionally, physical illness is also associated with negative experiences such as inflammation (Slavich & Irwin, 2014), somatic symptoms (Koo et al., 2013; Hojat, Gonnella, Erdmann, & Vogel, 2003), chronic health problems (Suris & Lind, 2008; Hojat et al., 2003), and more (for example see Pacella, Hruska, & Delahanty, 2013; Steine et al., 2012). In sum, adversity (in all its various forms) may be an antecedent for poor health and wellbeing, thus illustrating the importance of understanding salutogenic processes (those supporting health and wellbeing) that may mitigate negative outcomes and their associated costs to the individual and society.

The costs incurred by adversity through mental and physical health problems to organizations, individuals, and society, are great. Research indicates that one in five Canadians will experience a mental health problem at some point in their lives (Canadian Mental Health Association, 2014). Furthermore, research indicates that these problems may also be on the rise (Cherry, Chen, & McDonald, 2006). The most recent projection places clinical depression as the second leading cause of disability in the recent future (Klainin-Yobas, Cho, & Creedy, 2012), which is a point of major concern as depression alone is estimated to cost billions of dollars in economic losses each year (e.g., Chang, Hong, & Cho, 2012). Poor mental health stemming from work-related adversity is a problem for organizations (De Lorenzo, 2013) and is a notable contributor to losses in productivity (Ford, Cerasoli, Higgins & Decesare, 2011; Holden, Scuffham, Hilton, Ware, Vecchio, & Whiteford, 2011; Singer, 2001). In Europe, mental illness has been demonstrated to be responsible for 25% of disability claims (Organization for Economic Co-operation and Development, 2008) and is a leading cause of both absenteeism and presenteeism (for example see Cocker, Martin, Scott, Venn, & Sanderson, 2012). Substantial costs are also incurred due to physical illness incurred by distress. For example, the experience

of distress has been associated with incidences of respiratory infection (Campisi et al., 2012), an illness that accounts for approximately $40 billion (USD) in estimated costs and 20 million doctors visits annually (Rakel et al., 2013). Such substantial costs are shared between governments, individuals, and organizations. The average organization can be expected to pay an average of 20 percent of all premiums and supplementary healthcare costs (as cited in Heinen & Darling, 2009). This highlights adversity not only as a personal problem for individuals, but also for organizations and economies as well. Although adversity is far from the only cause of these health problems (for example see Green et al., 2010; Wu, Sneider, & Geus, 2010), with the staggering costs associated with such poor health outcomes, even small improvements may yield substantial reductions in losses. Given the considerable costs incurred by such adverse life events and a growing, and more cost effective, trend towards preventative therapy, a more thorough understanding of salutogenic constructs and processes and their potential benefits is warranted.

Resiliency

Resiliency is a psychological construct that is primarily described as facilitating the two-part process of impact and recovery or adaptation following adverse experiences (King & Rothstein, 2010). There are many operational definitions of resiliency, many of which conceptualize it as a trait or our outcome. However, more recent evidence by Masten (2014) and others (e.g., King & Rothstein, 2010, McLarnon & Rothstein, 2013) has reconceptualised resiliency as a superordinate construct phenomena illustrating a process by which individuals navigate adverse experiences. These processes are proposed to involve individual predispositions, environmental impacts, self-regulatory processes and other salutogenic factors (see Appendix M - King & Rothstein, 2010). Through successful navigation of adversity, resiliency facilitates the maintenance of homeostasis of wellbeing and health – illustrating how

individuals bounce back from hardship. Broadly speaking, this construct is thought to be responsible for a wide range of positive outcomes despite adverse life experiences (King & Rothstein, 2010). More specifically, resiliency has been demonstrated to be associated with positive indicators of health and a reduction in depressive symptoms, suicide, substance abuse, the perceptions and influence of stress, and symptoms of broader mental illness (Halliday & Rothstein, 2014; Green, Calhoun, Dennis, Beckham, 2010; Baek, Lee, Joo, Lee, & Choi, 2010; Mealer, Jones, Newman, McFann, Rothbaum, & Moss, 2012). Thus, evidence indicates that resiliency is a primary salutogenic process responsible for adaptive survival in an adverse world.

Although the study of the various merits and outcomes of resiliency has been a primary research focus within the growing domain of positive psychology for quite some time (Hart & Sasso, 2011), little research has been performed investigating precisely how resiliency processes unfold (King & Rothstein, 2010). To date, few theoretically grounded models of resiliency have been proposed (King & Rothstein, 2010; McLarnon & Rothstein, 2013; Halliday & Rothstein, 2014). Moreover, those that are available have typically been developed with the intent of explaining specific forms of adversity (i.e., adversity specifically occurring during childhood development, in the armed forces, or at work) under narrow contextual constraints (for example, see Ungar, Ghazinour, Richter, 2013; Lee, Sudom, & McCreary, 2011; King & Rothstein, 2010) that may be less parsimonious and generalizable to the study of adversity and resiliency in general.

One model that may be well suited to generalize beyond the adverse context it was specifically designed to explain (the workplace) is the King-Rothstein (2010) model of workplace resiliency (see Figure 1). This model conceptualizes resiliency as being a superordinate construct of related phenomena comprised of three domains of protective factors:

affective (e.g., emotion-based decision making and analysis of one's affective state), behavioural (e.g., motivation to action, perseverance with goals, self-efficacy, and agency-generating factors), and cognitive (e.g., transcending loss, self-understanding, assimilation, accommodation, belief systems, perceptions, and coherence-generating factors; Halliday & Rothstein, 2014; McLarnon & Rothstein, 2013; King & Rothstein, 2010). Each of these factors are proposed to operate at an internal level, associated with personal components (initial reactions to adversity, personality, and self-regulation), and at an external level, associated with environmental components (opportunities, social supports, and resources). Each of these components is further proposed to differentially contribute to the maintenance of wellbeing and growth given an adverse experience (King & Rothstein, 2010). Although this is a relatively nascent conceptualization of resiliency, and was originally proposed with the intent of explaining work-related adversity, recent research has demonstrated it able to accurately depict resiliency processes associated with adversity occurring in both work (McLarnon & Rothstein, 2013; Kisinger, 2012) and non-work (Halliday & Rothstein, 2014) settings.
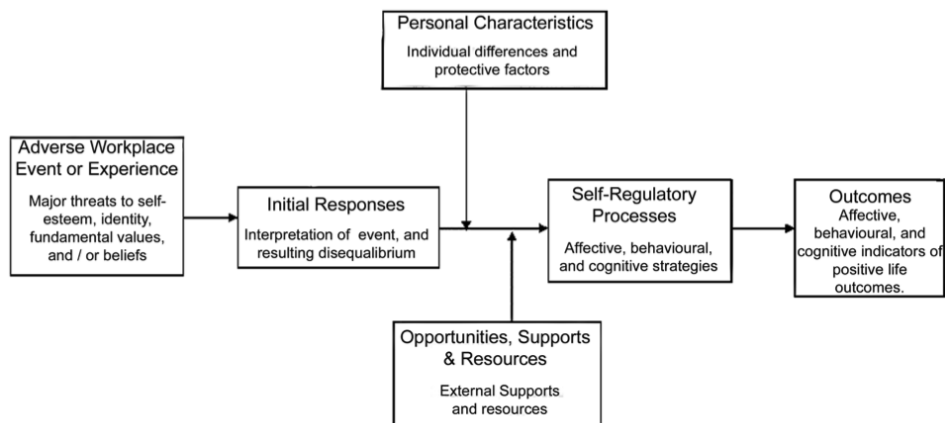
Figure 1. King and Rothstein's (2010) model of resiliency.

    The King and Rothstein (2010) model of resiliency involves a dynamic interplay between

states (e.g., initial reactions to adversity), (e.g., affective, behavioral, and cognitive) traits, and both internal and external salutogenic factors (e.g., affective, behavioral, and cognitive self-regulation and social support). The model proposes that, after one experiences an adverse event, they are likely to have (adaptive or maladaptive) initial reactions to the experience. These reactions would lead to various (positive or negative) outcomes as mediated by resilient (affective, behavioural, or cognitive) self-regulatory processes. Finally, this mediated relationship between initial reactions and self-regulatory processes has been theoretically proposed to be moderated by resilient (affective, behavioural, and cognitive) personal characteristics and social supports and other resources.

Few studies have attempted to investigate the applications of models of resiliency that may explain the general tendency for individuals to return to normal functioning (or growth) after experiencing adversity or trauma across a wide variety of contexts. One such study, performed by Halliday and Rothstein (2014), which investigated the internal, criterion-related, and external validity of the King-Rothstein (2010) model of workplace resiliency and its association with causal attributions, found preliminary support for the extension of such a model to a variety of work and non-work contexts. Using a path analysis approach, this study demonstrate adequate model fit in accordance with the proposed model and was the first to demonstrate associations of the components of resiliency with regards to hypothesized relevant outcome variables of symptoms of psychological illness and wellbeing across a wide variety of work and non-work related adverse experiences. These findings thereby provided preliminary evidence that the King-Rothstein (2010) model of resiliency may generalize beyond simply work-related adversity to adversity in general.

The King-Rothstein (2010) model has advantages over other proposed models of resiliency in that it is more comprehensive and dynamic in that it accounts for the interplay between individual characteristics and states as well as external influences to the individual. Whereas most alternative explanations of resiliency fail to acknowledge and integrate each of these complex internal and external features into a comprehensive explanation of phenomena. Many alternative explanations merely describe resiliency as one of three categories: an antecedent (e.g., hardiness), a resource (e.g., psychological capital), or an end-state (e.g., thriving); when, in truth, resiliency is a process that involves each of these defined categories and possibly more (for a more detailed discussion see McLarnon & Rothstein, 2013). A simple framework or model of experienced adversity and recovery cannot accurately explain the complexity of this process. The model proposed by King and Rothstein (2010) accounts for many of the variables that have been demonstrated to facilitate or be associated with resilient outcomes throughout this process. For this reason, it is our model of choice for understanding the detailed nuances of such phenomena. With this in mind, however, additional factors exist that may impact an individual's experience of adversity, resiliency, and outcomes and may therefore alter how individual resilient processes unfold. The following will discuss these potential additional factors in greater detail.

Components, Contributors, and Alternative Explanations for Resiliency

Although the King-Rothstein (2010) model of resiliency was specifically chosen for the comprehensive and dynamic accounting of resilient experiences, no model can be said to account for all sources of variance. As mentioned above, to accurately predict resilient outcomes, one must take into consideration the nature and perception of the adverse experiences and consider additional factors to ensure external validity or to assist in further developing a superior

conceptualization of such phenomena. Two such factors will be considered as a part of this research: adversity severity and mindfulness.

Severity of adversity

As argued above, in order to understand resiliency it is important to take into consideration the severity of the experienced adversity. As argued earlier, due to the inherently subjective nature of perceiving adverse experiences, the situational context and content of any adversity are insufficient criteria to declare any adversity to be "traumatic" as trauma is best conceptualized by criteria of severity or hardship. Although some prior research has been performed, indicating that acute subjective emotive reactions (i.e., fear, panic) to adversity may be an important indicator of immediate and future mental health status (Cerdá, Bordelois, Galea, Norris, Tracy, & Koenen, 2013), few studies have examined the influence of experiential circumstances associated with adversity (e.g., what happened, how intense, etc.). To my knowledge, there has been scant research investigating the perception of various adverse experiences or the development of validated assessments of the severity of an adversity, broadly speaking. However, as argued earlier, such subjective experiences and perceptions are a key component of the lived experience and its relation to various outcomes. It is specifically proposed that such quantifiable individual subjective perceptions regarding the severity of an experienced adversity should be positively associated with outcome variables as mediated through the components of resiliency (starting with initial reactions to adversity).

Mindfulness

Mindfulness is also a salutogenic construct associated with a host of health-related outcomes and is known to ameliorate the effects of adverse events. Historically speaking, mindfulness is an ancient spiritual practice affiliated with Eastern religions such as Buddhism as

one of the seven paths to the accumulation of wisdom and pursuit of enlightenment (Jacobs &

Blustein, 2008; Wynne, 2007). Such spiritualists practiced mindfulness, maintaining a calm

awareness of one's body, mind, emotions, and natural tendencies, as a means of accumulating

wisdom (Wynne, 2007). Today, positive and organizational psychologists use the term

"mindfulness" generally, to describe awareness of one's moment-to-moment experiences

nonjudgmentally with open acceptance (Keng, Smoski, & Robins, 2011). However,

academically speaking, the term mindfulness may refer to any one or more than three

psychological phenomena or constructs (Keng et al., 2011). First, dispositional mindfulness is a

term that may be used to describe a general, trait-like tendency to be mindful in daily life (Keng

et al., 2011: Davis, Lau, & Cairns, 2009). Second, state mindfulness, may be used to describe a

persistently engaged psychological state of present-minded, active, non-judgemental accepting

awareness and focus of experienced life (Keng et al., 2011; Brown & Ryan, 2003; Dane, 2011;

Gordon, Shonin, Zangeneh, & Griffiths, 2014). Third, mindfulness practice may refer to the

behavioural act of cultivating mindfulness through such means as mindfulness meditation or

yoga (Nyklíček, Schoormans, & Zijlstra, 2011) or any number of available mindfulness-based

therapies or programs (Kristeller & Wolever, 2011; Keng et al., 2011). These programs are

believed to train individuals how to actively and repeatedly increase their engagement and depth

of state mindfulness to yield subsequent stable, long-term, (e.g., Miller, Fletcher, & Kabat-Zinn,

1995) increases in dispositional mindfulness and beneficial outcomes over time (Kiken, Garland,

Bluth, Palsson, & Gaylord, 2015). Indeed, research has demonstrated that the more frequently

and actively one engages in a state of mindfulness via mindfulness practices, like mindfulness

based stress reduction, the more one can experiences changes to one's dispositional mindfulness

and thereby experience the beneficial effects on resultant outcomes (Kicken et al., 2015).

Although not typically considered a process (such as resiliency) mindfulness does share

some commonality with resiliency and its effects. Mindfulness is associated with more healthy

and functional progress through adverse experiences (Whitaker et al., 2014), has been

demonstrated to prevent and reduce symptoms of stress (Querstret & Cropley, 2013; Virgili,

2013; Chiesa & Serretti, 2009), and is associated with outcomes of physical and mental health

(Rakel et al., 2013; Bohlmeijer, Prenger, Taal, Cuijpers, 2010). Research has demonstrated

mindfulness-based interventions to be effective in the treatment and prevention of psychological

disorders such as depression (Bohlmeijer et al., 2010; Beckerman & Corbett, 2010; Williams et

al., 2013; O'Doherty et al., 2014; Alleva et al., 2014), anxiety and distress (Bohlmeijer et al.,

2010) and in facilitating aspects of physical health such as enhanced dietary (McCone & Reibel,

2010; Kristeller, Wolever, & Sheets, 2013), sleep (Frank, Reibel, Broderick, Cantrell, & Metz,

2013), and immune system health (Davidson et al., 2003). As with resiliency (King & Rothstein,

2010), mindfulness has also been demonstrated to facilitate emotional, behavioural, and

cognitive self-regulatory processes (Frank et al., 2013; Alleva et al., 2014) that mediate various

positive outcomes (Brown, Bravo, Roos, & Pearson, 2014; Hart, Ivtzan, & Hart, 2013). As both

resiliency and mindfulness have state and trait properties and tend to facilitate affective,

behavioural, and cognitive self-regulation to produce various positive outcomes, this may argue

that mindfulness may be an alternative explanation for the phenomena of resiliency as it occurs

through the King-Rothstein (2010) model. Alternatively, this may implicate mindfulness as a

relevant factor that may be incorporated into the model and used to further explain and

understand the process of resiliency.

Exactly how mindfulness produces its salutogenic effects is still largely under debate with

few nascent theories describing the path from mindfulness to healthy outcomes. One of the most

prominent models describing how mindfulness produces salutogenic outcomes is Shapiro,

Carlson, Astin, and Freedman's (2006) theoretical model of mindfulness mechanisms (see

Figure 2). This model describes the effects of mindfulness as stemming primarily from the

ability to reperceive (also known as decentering, metacognitive awareness, or cognitive diffusion

– the ability to view one's own thoughts and emotions as passing mental events rather than to

identify with them and believe they are accurate representations of reality; Shapiro et al., 2006;

Gelles, 2015). Reperceiving allows individuals to stand back and witness the drama of one's life

without being personally immersed and engaging with it (Shapiro et al., 2006). The model

further proposes that reperceiving functions as a meta-mechanism that mobilizes at least four

other, more proximal, mechanisms antecedents of salutogenic outcomes: values clarification

(identifying important personal values that are expected to increase value-consistent behaviour),

the chronicity of exposure (repeatedly enduring negative emotional states), self-regulation

(monitoring and adapting to changing circumstances), and cognitive-behavioural-emotional

flexibility (the ability to process important available information in one's environment in order to

produce appropriate and adaptive responses).
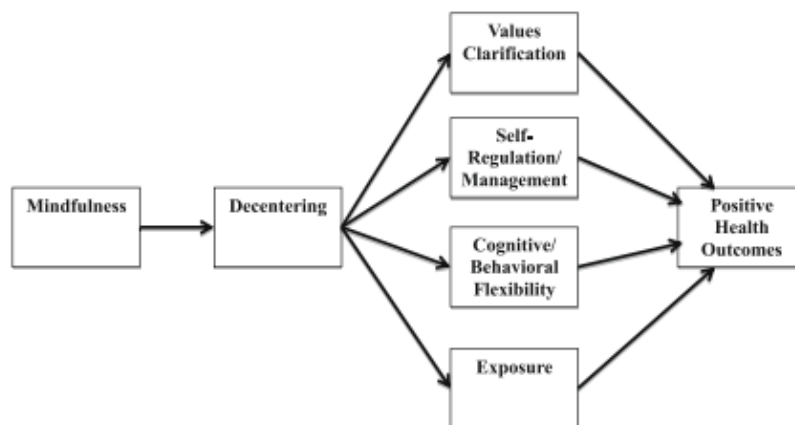
Figure 2. Shapiro et al.'s (2006) theoretical model of mindfulness mediating mechanisms.

Values can play a key role in guiding attention and behaviour (Munro & Stansbury, 2009; Burke, 2001; Narasimhan, Bhaskar, & Prakhya, 2010; Lazarus, 1991) and efficiently directing our resources toward meeting our needs and attaining goals (e.g., Ohbuchi, Fukushima, & Tedeschi, 1999; Betsch & Dickenberger, 1993; Judge & Bretz, 1992). However, many of the values incorporated into our value system or that we adhere to have been taught to us by society, others, or are forced upon us rather than being determined through what we have found to be meaningful to ourselves (Shapiro et al., 2006; Judge & Bretz, 1992). Shapiro et al. (2006) proposes that reperceiving allows us to correct for such reflexive adoption through allowing us to observe and reflect upon our values with greater objectivity. Shapiro further argues that this allows us to more clearly define (our own from indoctrinated/conditioned/reflexively adopted), edit, and self-select values that are more adaptive and true to ourselves and more congruent with our needs. The broader literature seems to support this theory as automatic processing has been found to limit consideration of options that would be congruent with our needs and values (as cited by Shapiro et al., 2006; Lazarus, 1991). Automatic processing has also been demonstrated to produce more extreme and maladaptive emotions such as anxiety (Lazarus, 1991). Whereas mindfulness (e.g., Martin, Plumb-Vilardaga, & Timko, 2014) and (perhaps, more directly, intentional awareness and reperceiving) have been found to encourage behaviors that are congruent with meeting our needs, interests, and values producing healthier outcomes (as cited by Shapiro et al., 2006; Carmody, Baer, Lykins, & Olendzki, 2009; Brown et al., 2014). Therefore, reperceiving through mindfulness allows us to clarify our values and thereby better meet our own needs, interests, and values (over values we may have reflexively adopted rather than self-selected) which produces more guided attention and facilitates the achievement of various goals that may bring about greater health and wellbeing.

Shapiro et al. (2006) also proposed that reperceiving allows individuals to be exposed to experiences that would normally elicit very strong emotions, instead, with more objectivity and less passionate reactivity. Through direct and repeated exposure individuals learn to tolerate distress that one's sensations, affect, and cognitions may not be so overwhelming or frightening (e.g., Kaplan & Tolin, 2011) and are temporary in nature (Shapiro et al., 2006; Teasdale, Segal, Williams, Ridgeway, Soulsby, & Lau, 2000). As with clinically popularized "exposure therapy", these repeated exposures eventually reduce or eliminate the fear and avoidance response associated with adverse stimuli (e.g., Kaplan & Tolin, 2011). For example, adversities have been generally found to modify later sensitivity and risk maladaptive outcomes such as depression in several ways including through inoculation of individuals to later adverse experiences and associated stress (Pintado & del Camino, 2014; Oldenhinkel, Ormel, Verhulst, & Nederhof, 2014; Daskalakis, Bagot, Prker, Vinkers, & de Kloet, 2013). Therefore, reperceiving is theoretically believed to bolster our tolerance to adversity through reductions in reactivity to adversity, allowing us to be better prepared to handle similar adverse situations. Through this reduction in momentary adversity, it is believed to bring about greater health and wellbeing.

As with King and Rothstein (2010), Shapiro et al. (2006) believed self-regulation to be an integral component in facilitating salutogenic outcomes. In addition to King and Rothstein, Shapiro et al. (2006) additionally believed that self-regulation is vital to producing healthy outcomes. The difference, however, is that Shapiro believed self-regulation to be facilitated through reperceiving. Shapiro proposed that through reperceiving, individuals are able to gain more data and attend to this information in more efficient ways. Reperceiving allows us to engage with information that, otherwise, may have been too uncomfortable for us to examine or be aware of (Shapiro et al., 2006; Fairfax, Easey, Fletcher, & Barfield, 2014; Zerubavel &

Messman-Moore, 2015).   Once individuals are able to attend and use such data they may be

better equipped to interrupt maladaptive affect, behaviors, and cognitions and employ a broader

range of more adaptive regulatory "tools" (Shapiro et al., 2006). For example, reperceiving

allows us to acknowledge that we are experiencing a naturally occurring emotion such as

anxiety, but instead of allowing ourselves to be reactively controlled by such an emotion (e.g., "I

need to fight" or "I need to flee"), we attend to this emotion as a piece of information (e.g., "I am

feeling anxious about this situation… why?) and self-regulate (e.g., "how can I resolve this in the

most adaptive way?"). Therefore, just as proposed in the King-Rothstein (2010) model of

resiliency, Shapiro et al. (2006) proposed that self-regulation facilitates greater health and

wellbeing, but that self-regulation stems from reperceiving induced by mindfulness.

Finally, Shapiro et al. (2006) proposed that mindfulness-induced reperceiving facilitates

flexibility in responding (via affect, cognitions, and behaviors) to one's environment relative to

more habitual, reflexive patterns of responding that may accompany deep involvement and

identification with one's experiences. Shapiro et al. (2006) argued that reperceiving allows us to

see not only a situation more objectively, but also our own reactions to these situations with

greater clarity and through such clarity we are able to respond with a broader range of choices

(beyond that of conditioned, automatic responses).   Therefore, mindfulness facilitates

reperceiving which allows us to be more adaptably flexible in our responses to experienced life,

which enables us to diverge from automatic reactionary responses, and allows us the opportunity

and clarity to select, from a broader range, a more adaptive (healthy) option.

Although there is preliminary support for Shapiro et al.'s (2006) model describing how

mindfulness yields its various effects (e.g., Haydicky, Wiener, & Shecter, 2017) there is still

some contention amongst scholars regarding the arrangement of various components in the

model. For example, other mindful theorists propose for a less complex mediated framework of mindfulness (e.g., Vago & Silbersweig, 2012). Instead of serving as a mediator of dispositional mindfulness to the various aforementioned mediating mechanisms of mindfulness (e.g., self-regulation) these scholars argue in favor of reperceiving functioning *along with* other mediated mechanisms of mindfulness as a more proximal contributor to the various known salutogenic outcomes of mindfulness.

Models by Shapiro et al. (2006) and others (e.g., Vago and Silbersweig, 2012) have found some support in recent research describing similar processes by which mindfulness produces beneficial effects (Carmody et al., 2009; Brown et al., 2014; Gu, Strauss, Bond, & Cavanagh, 2015; Zeidan, Martucci, Kraft, McHaffie, & Coghill, 2014). Although individual models disagree regarding the immediate mediated pathway from mindfulness to various outcomes or more distally located mechanisms may differ (e.g., Shapiro et al., 2006; and Vago & Silbersweig, 2012), models tend to agree on several key factors. First, the salutogenic effects of mindfulness stem from several mediating mechanisms rather than from mindfulness directly. Second, many models seem to converge on several mediating mechanisms driving salutogenic effects (e.g., non-attachment and reperceiving/decentering, self-regulation, attention, and intention and motivations to adaptively respond). Third, most of the components of mindfulness that are proposed by theoretical models seem to share a great deal of conceptual similarity with the theoretically proposed components of the King-Rothstein (2010) model of resiliency (e.g., attention regulation, emotion regulation, self-regulation, prosociality). Fourth, most of the components shared by theoretical models associated with both mindfulness and resiliency (with the possible exception of prosociality) tend to describe various forms or correlates of self-regulation (affect, behaviour, or cognition). Therefore, models by King and Rothstein (2010)

and Shapiro et al. (2006) and other prominent scholars (e.g., Vago & Silbersweig, 2012) generally seem to reinforce and explain existent evidence supporting a positive association between resiliency and mindfulness (e.g., Aikens et al., 2014; Pidgeon, Ford, & Klaassen, 2014; Zenner, Herrnleben-Kurz, & Walach, 2014) and further move to suggest (1) a more detailed understanding of precisely how mindfulness and resiliency are related to one another and (2) that mindfulness, its mechanism variables, and resiliency may function to bolster one another and promote resilient or salutogenic outcomes (the often used term "mindful resilience") via a complex interweaving of variables that is more predictive than either mindfulness or resiliency alone.

Mindfulness is not without its share of critics. Such critics have recently claimed that mindfulness lacks definitional consensus, suffers from poor research methods, and may even harm practicing individuals who are uninformed (For example see Van Dam et al., 2018a; 2018b; Davidson & Dahl, 2018). As usual there are existent conflicts regarding term meanings across popular culture, marketing, media, and various religions, fitness programs, and clinical interventions as well as across highly differentiated programs of research and practice (Van Dam et al., 2018a). As with any concept or practice that has been around long enough to be foundationally incorporated into multiple religions it is unsurprising that a heated debate would ensue between various academic and non-academic groups. It is important this debate be driven by scientific evidence. Although most academics agree that concrete definitions are an important precursor to producing a cohesive body of literature that lends simply and easily to large-scale reduction efforts to derive common findings across studies (like meta-analysis) such variables (like mindfulness) in their youth routinely suffer from somewhat fluid conceptual definitions until the concept is more thoroughly understood. This, however, often does not necessarily

preclude an integration of the literature. Most definitions of mindfulness across studies are

highly similar and use much of the same foundational theory. Similarly, critics have also

indicated that mindfulness research suffers from a replication problem and that such research is

often performed with suboptimal methodology that lacks sufficient reporting of fine details that

are required for high quality program development for treatments of various maladies (Van Dam,

2018a). As with the definitional issue, this is a problem that contemporary science suffers from

broadly speaking and is not specific to mindfulness or even psychological research as a whole

(Davidson & Dahl, 2018). This does not take mindfulness off the proverbial hook regarding

such criticism, but it does speak more to where this problem is stemming from and directs

attention to solving this issue (more appropriately) broadly speaking by fixing the arguably

broken system adopted by contemporary funding sources and scholarly publication practices.

Finally, such critics as Vandam (et al., 2018a; 2018b) and Davidson and Dahl (2018) seem

concerned over potential harms or adverse effects of mindfulness practice to the (often

uninformed) practitioner. However, such concerns generally seem without weight as these

critics fail to acknowledge that mindfulness practice is essentially free once you have been taught

how to do it effectively (often also free or of low cost). Moreover, critics fail to demonstrate

conclusive evidence of causation of any reported harms and what little evidence is provided

indicates mindfulness practice is likely as similarly safe or even safer than the gold standard

treatment for applications that mindfulness interventions have routinely been developed for (e.g.,

pharmacology or psychotherapy treatment for mental illness). Meta-analyses investigating

contrasts of mindfulness with such gold standard treatments commonly find no significant

differences among various treatments (e.g., Perestelo-Perez, Barraca, Peñate, River0-Santana, &

Alvarez-Perez, 2017). Other high quality research indicates mindfulness may actually

successfully prolong the effects of these gold-standard treatment options (Clarke, Mayo-Wilson,

Kenny, & Pilling, 2015). It is important to remind academics and the public that there is no

panacea, no silver bullet, and all interventions carry a degree of risk. Mindfulness interventions

are broadly considered effective, low risk, and minimally invasive especially when contrasted

with many of the gold standard or typically used interventions currently available (Wong, Chan,

Zhang, Lee, & Tsoi, 2018). All growth (personal or academic) is preceded by struggle, critical

self-reflection, and the careful and precise expenditure of resources. As with many scholars, I

believe that the science of mindfulness is right on track given the amount of research being

performed regarding this highly complex, multifaceted, phenomena. As with resiliency, there is

a great deal of room for growth with regards to our understanding of the precise mechanisms

driving mindfulness that will shape and refine its conceptual definition and improve both

research methods and practical applications.

Given the aforementioned similarities between mindfulness components and the

components of resiliency two possible theories seem possible. First, it is possible that the

components of mindfulness have a high degree of colinearity between component variables of

resiliency in the King-Rothstein (2010) model. This colinearity may be reflected by a shared

predictive capacity (of mindfulness components and resiliency components) to predict various

resilient outcomes to a similar degree regardless of the (mindfulness mechanism or resilient)

components that are predictive of these outcomes. If this were the case, the King-Rothstein

model would fail to contribute significantly above and beyond that of mindfulness (or vice-versa

in the event that the order of entry were reversed) towards the prediction of likely healthy

outcomes. Of course, further research would then best pursue examining which model best

reflects the observable phenomena (King and Rothstein's or Shapiro et al.'s). Alternatively, both

resiliency components and mindfulness components are sufficiently different from one another

to the degree that they all add above and beyond one another to the prediction of various

resiliency-related outcomes. Following this conceptualization further, it may be that

dispositional mindfulness may act as a resilient personal characteristic factor or component of

the resiliency process contributing to one's initial reactions to adversity (as it seems to be a

unique factor not included in the current conceptualization of the King-Rothstein resiliency

model) that may facilitate entirely new resiliency mechanisms or components (e.g., the currently

conceptualized mindfulness mechanisms) or entirely new mindfulness mechanisms or

components (e.g., the currently conceptualized components of resiliency according to the King-

Rothstein model) responsible for mediating the effects of various positive outcomes. One such

role, already discussed may be the mindfulness-salutogenic outcome relationship as mediated by

resilient self-regulatory processes. Additionally, mindfulness may impact the King-Rothstein

model of resiliency in various ways. For example, given that mindfulness may minimize

reactivity through non-judgemental decentered present minded awareness of experienced life, the

components of mindfulness may influence integral components of the King-Rothstein (2010)

model, such as the initial reactions to adversity or through self-regulation. For example, chronic

exposure to adversity may facilitate a reduction in appraisal of severity and buffer against

extremely adverse reactions to adversity. Therefore, it can be postulated that either (1)

mindfulness is so similar to the conceptualized components of the King-Rothstein model of

resiliency that it could be said that the effects of mindfulness are identical to and function

through the same pathways as those of resiliency, arguing that constructs are conceptually

similar and maybe a competition of theories (mindfulness versus resiliency as the better

explanation for phenomena) is in order (for example, as depicted in Figures 1 and 2); or,

alternatively (2) that the components of mindfulness and the components of resiliency are sufficiently different that the components of mindfulness and resiliency contribute different predictive variance to relevant outcomes, depicting a more complex story. The latter suggests that an inclusive revision of current models may be in order. It seems likely that dispositional mindfulness and resilient personal characteristics fall under a mindfully-resilient trait framework and mediating mechanisms components of mindfulness and resilient self-regulation and support reflect ameliorative mechanisms of mindful-resilience as seems to be suggested by the works of King and Rothstein (2010) Shapiro et al. (2006), and Vago & Silbersweig (2012). Simply put, it seems most probable that components of mindfulness and resiliency and their unfolding processes are more similar than different and are likely to be interrelated with one another given experiences of adversity, predicting various known outcomes – *arguing in favour of the latter.*

The Current Project

This research seeks to expand on preliminary findings (Halliday & Rothstein, 2014) suggesting that the King-Rothstein (2010) model of workplace resiliency may explain resiliency processes beyond those isolated to work contexts to adversity and trauma more broadly speaking. Additionally, this proposed program of research intends to expand on the King-Rothstein model and mindfulness and resiliency research generally speaking by examining whether there is sufficient evidence to suggest the proposal of a new inclusive model of mindful resilience accounting for the influence of additional factors: subjective perception of the severity of experienced adversity and the components of mindfulness. With this in mind, the aims of this research are four-fold (see Table 1). First, as there has yet to be a study developing a validated assessment of the severity of experienced adversity. Second, building on the work of Halliday and Rothstein (2014) demonstrating preliminary evidence of the King-Rothstein (2010) model of

resiliency to generalize to adversity beyond the workplace to broader arenas of experienced life,

one goal of this research is to replicate and extend these findings regarding the generalizability of

the King-Rothstein model of resiliency beyond the workplace to adversity broadly speaking.

Third, given the King-Rothstein model of resiliency is in need of longitudinal, process-based

assessment of resiliency, another goal of this research is to provide preliminary longitudinal

evidence documenting such processes in those experiencing adversity. Finally, the fourth aim of

this research is to investigate the role that severity and mindfulness plays with regards to the

King-Rothstein resiliency process.   More specifically, examining (a) whether components of

Shapiro et al.'s mindfulness model account for additional predictive variance beyond that of the

components of resiliency and (b) whether there is evidence suggesting an integrated model may

be beneficial in depicting adversity and recovery phenomena falling under the broader definition

of resiliency.

Table 1
Stated research aims

Research aim	Description
1	Develop a validated assessment of the severity of experienced adversity.
2	Examine the generalizability of the King-Rothstein (2010) model of resiliency to adversity occurring beyond the workplace to broader arenas of experienced life.
3	Provide longitudinal evidence documenting resiliency in those experiencing adversity over the course of time.
4a	Examining whether severity and the components of Shapiro et al.'s mindfulness model account for additional predictive variance beyond that of the components of resiliency.
4b	Examining whether there is evidence suggesting an integrated model may be beneficial in depicting adversity and recovery phenomena falling under the broader definition of resiliency.

Study I: Assessing Perceived Severity and the King-Rothstein Model

To accomplish the first goal of this research, I developed an assessment of perceived

severity of experienced adversity, to establish severity as an early, key component of the

resiliency process. This assessment should be able to evaluate subjectively perceived severity of

experienced adversity across a broad range of adverse experiences including both (expected)

minor adversities (e.g., a bad job performance review) and severe adversity (e.g., military

combat experience). Obviously, this newly developed assessment of adversity severity should be

demonstrably reliable and valid.

The purpose of the first study in this research is the development of a reliable psychometric

measure of an individual's perception of severity of adverse experiences along with evidence

documenting the reliability and validity of such a scale. A deductive or construct-driven

approach was used to develop this scale (e.g., Hinkin, 1998; Jackson, 1970, 1975). For the

purpose of this study, perception of severity was described as the perceived level of challenge,

difficulty and magnitude of an adverse experience as perceived by the experiencing individual.

This definition was used to guide and develop an initial item pool of scale items and assess the

normative range of expected scores within the general population. Such an item pool was

analyzed, pruned, and validated. Therefore, the first hypothesis of this research was to support

the desirable psychometric properties of the newly developed scale. Such a scale should be

demonstrably reliable and valid.

Hypothesis 1. The newly developed scale will demonstrate acceptable levels of internal

consistency.

As proposed above, subjective evaluations of the severity of experiences should also be

related to relevant associated outcome variables and the components of resiliency. Therefore,

there should be a degree of association demonstrating convergent validity between the newly

developed scale (assessing the difficulty of experienced adversity) and both components of

resiliency and the shared outcomes associated with the adverse experience and the resiliency

process. Thus, there should be positive correlations with the newly developed scale and negative

outcomes and negative correlations with the newly developed scale, positive outcomes and

components facilitating resiliency.

Hypothesis 2. The subjective evaluations of adversity severity will be positively correlated

with outcomes of depression, anxiety, and stress and will be negatively correlated with the

components of resiliency and outcomes of health, and wellbeing.

As argued above, by using this scale of perceived severity over the initial reactions to

adversity scale included in the King-Rothstein (2010) model of resiliency, one may objectively

differentiate *the degree of difficulty* of an experienced adversity (an evaluative property of the

adversity) from how one *reacts* to such difficulty of an adversity (an outcome describing the

individual). The newly developed scale (evaluating perceptions of severity) should therefore be

sufficiently distinctly differentiated from an individual's initial reactions to adversity. Therefore,

the newly developed scale should demonstrate a maximally limited correlation illustrating no

more than 50 percent of the variance is shared ($r^2 < .50$ criterion; Kenny, 2016; Voorhees, Brady,

Calantone, & Ramirez, 2015; Shaffer, DeGeest, & Li, 2016; Gaskin, nd) between subjective

evaluations regarding the severity of the experienced adversity and the initial reactions to

adverse experiences as described by the King-Rothstein model, thereby demonstrating evidence

for discriminant validity.

Hypothesis 3. Subjective evaluations of adversity severity should be correlated although

significantly discriminant ($r^2 < .50$ or less than 50% of the variance is shared with alternative

variables) from the initial reactions to adversity component of the King-Rothstein model of

resiliency.

As noted above, arguments by Shapiro et al. (2010) regarding the mediating mechanism of exposure chronicity and it's influence on outcomes functioning through desensitization and repeated experiences of adversity over time, it follows that perceptions of severity and the chronic nature of adversity should be negatively associated with one another.

Hypothesis 4. The newly developed scale will demonstrate a negative correlation between adversity severity and exposure chronicity.

As exposure chronicity was noted as a key factor to consider by Shapiro et al. (2006) but it has yet to be included in the King-Rothstein model, it should be explored as an associated, but significantly different contributor toward the prediction of relevant outcomes. In this way, adversity chronicity should demonstrate both convergent validity (in the form of shared predictive power toward outcomes) and discriminant validity (in the form of noted differences with the components of the King-Rothstein model). Although, discriminant validity typically has no concrete rules defining it's validation criteria from related variables, there is some agreement that variables should be distinct enough to share less than half of their total variance to provide minimal evidence of distinction among variables (Kenny, 2016; Voorhees, Brady, Calantone, & Ramirez, 2015; Shaffer, DeGeest, & Li, 2016; Gaskin, nd).

Hypothesis 5. Exposure chronicity, as rated by self-reported number of times individuals experience their reported adversity (or similar experience), will be found to demonstrate discriminant validity in the form of small correlations with the components of the King-Rothstein (2010) model of resiliency.

More specifically, as described by Shapiro et al. (2006), reperceiving should facilitate a greater willingness to approach more risky or adverse situations with a more calm and open-minded approach that is conducive to resilient outcomes. Similarly, as predicted by Shapiro et

al. (2006), the more frequent the adversity exposure/chronicity, the less emotional distress people

should theoretically receive from exposure to adversity and therefore the better one's health and

wellbeing outcomes should be following adversity.

Hypothesis 6. Adversity exposure chronicity as rated by self-reported number of times

individuals experience their reported adversity (or similar experience) will be found to be

associated with relevant outcomes of depression, anxiety, stress, health and wellbeing. The

nature of this predicted association is such that with greater exposure chronicity, more beneficial

and less harmful outcomes will be likely to occur.

Finally, this research intends to investigate the generalizability of the King-Rothstein

model of resilience to various forms of adversity across two different contexts.

Hypothesis 7. It is hypothesized that, given a multiple regression approach, the King-

Rothstein model of resiliency will be predictive of health and wellbeing outcomes with both

samples of individuals experiencing either work-related or non-work-related adversities.

Method

Participants

A total of 1390 participants completed the online questionnaire. Of these 914

participants were included in the study. Participants were removed from inclusion in the study

due to self-reported failure to meet the stated eligibility requirements of the study (see below) or

due to participant failure to provide meaningful responses according to meaningful response

questions placed throughout the survey (as per the recommendations outlined in Meade & Craig,

2010). Of the participants included in the study, a total of 453 were female (460 were males; 1

unknown). Ages ranged from 18 to 71 years old ($M = 34.13$, $S.D. = 10.199$). Participants were

recruited using advertisements that were posted in areas of high Internet traffic in online crowd

sourcing web venues, social media groups, or forums as to obtain optimal dispersion to attract participants. Each participant viewed an advertisement recruiting them to participate in the study in return for a small financial compensation ($2) for their time and effort. To be eligible to participate, each participant was required to be able to understand and speak English fluently (as assessed by meaningful responding questionnaire items – e.g., those demonstrated effective by Meade & Craig, 2010), be 18 years or older, and have recently experienced an adverse life event within the past week. Self-reports indicated participants experienced a mean of 3.96 (*S.D.* = 1.641) days since the date of the experienced adversity to the date of first assessment. Generally speaking the event that participants reported had been experienced a mean of 7.35 (*S.D.* = 59.505) times throughout their life, was a mix of concluded and ongoing ($N = 543$ concluded; $N = 369$ not concluded; 2 unaccounted for) experiences, and was generally not associated with a work context ($N = 597$ as compared with $N = 314$; 3 unaccounted for).

Expert Raters

Several expert raters were contacted by email to assist in the development of an initial item pool. Raters were selected on the basis of having published academic research experience in the field of adversity or trauma. More specifically, these raters provided ratings with regards to the representativeness and coherence of each of the initially generated items that may potentially be included in the final survey. These raters were compensated monetarily with $5 for their time and skill.

Measures

Short Adversity Severity Scale Item Generation. The construct definition of adversity severity provided earlier provided the deductive framework for generating items and constructing the scale. Devising items that closely reflected the theoretically grounded definition

of adversity severity generated an initial item pool of 30 items. This task was assisted by

examining measures of related variables found in related academic literature (e.g., stress, distress)

that were believed to share some conceptual overlap with adversity severity. As no known scales

have yet to be designed directly assessing this variable, items that were generated were quite

distinctly different from the inspirational items found in related academic literature. In all

instances items were developed adhering to the stated construct definition, as to ensure the scale

was tapping the specifically intended construct. Efforts were further made to minimize the length,

complexity, possible suggestive bias and instigation of socially desirable response elicited by

items that comprised the newly developed scale from participants.

Subject matter experts were asked to review the initial item pool and provide ratings

regarding the representativeness and coherence of each of the preliminary items along a 7-point

Likert-style scale, ranging from 1 ("*not at all*") to 7 ("*very*"). Each item was then assigned an

average score across expert raters to evaluate whether or not the item should be retained for

inclusion in the scale. In order to be retained each item must have demonstrated, at minimum,

average coherence and have received an average item rating of representativeness of at least 6.

Such preliminary item pruning produced a secondary pool of 9 items; which comprised the short

adversity severity scale.

Prime. Before administering the test battery a set of instructions were given to each

participant. The instructions (Appendix A) directed each participant to think about a specific,

recently occurring (within the past week), event that represented adversity to them as they

proceed to respond to the remaining items of the study (a self-generated reflective prime of

adversity). Participants were then asked to type an open-ended description of this self-generated

prime before beginning the questionnaire battery. Participants were then reminded of this prime

several times throughout the questionnaire battery to maintain salient memory of the specific

adverse event. This priming scenario has been used successfully in prior research (McLarnon &

Rothstein, 2013; Halliday & Rothstein, 2014) to ensure that all questionnaire items are

responded to as if each participant had been through an adverse event. If no such event was

depicted, the participant was omitted from inclusion in the study. This was an integral

component of the study, as a specific event of experienced adversity was needed to successfully

rate the severity of said adverse experience, categorize said adverse experience, and develop

normative expected mean and range of values that could be expected in the specific adverse

experience.

        Resiliency. Resiliency was assessed using the Workplace Resiliency Index (WRI;

Appendix B; McLarnon & Rothstein, 2013). The WRI is a set of 8 scales that assess, across 60-

items, the 8 components of the King-Rothstein resiliency model (initial responses, affective,

behavioural, and cognitive personal characteristics, opportunities, supports and resources, and

affective, behavioural, and cognitive self-regulatory processes - see appendix M for a full list and

descriptive illustration of terms). In the completion of the WRI participants respond to

individual items using a five-point Likert-style scale. The WRI is the only assessment designed

to assess resiliency as proposed by the King-Rothstein (2010) model. It has demonstrated good

internal consistency reliability (α = .73, .85, .83, 79, .76, .84, .84, .94, for affective, behavioural,

and cognitive personal characteristics, self-regulatory processes, initial responses to adversity,

and opportunities, supports, and resources respectively; Halliday & Rothstein, 2014), as well as

convergent and discriminant validity amongst the eight scales that comprise it with relevant

outcome variables of life satisfaction, work satisfaction and support, psychological stress, and

symptoms of mental illness (McLarnon & Rothstein, 2013).

Exposure chronicity. The number of times participants were exposed to a particular adversity was assessed via a single item inquiring how many times participants had been exposed to this or similar experiences.

Psychological symptoms. Symptoms of stress and mental illness were assessed as an outcome using the Depression, Anxiety, Stress Scale 21-item (DASS-21; Appendix D; Lovibond & Lovibond, 1996). This scale quantitatively assesses psychological distress along three axes (depression, anxiety, and stress) with the use of 21 four-point Likert-style items assessing the application of each item to the participants' current state of life distress ranging from 0 ("*did not apply to me at all*") to 3 ("*applied to me very much, or most of the time*"). This assessment has demonstrated substantial reliability ($\alpha = .91$, .81, and .89, for depression, anxiety, and stress respectively; Lovibond & Lovibond, 1995) and validity including validation against individual psychiatrist-administered structured clinical interviews for DSM axis I diagnosis for depression and anxiety (First, Gibbon, Spitzer, & Williams, 1996).

Physical Health. The Recent Physical Health Measure (RPH; Appendix E; Ruthig, Chipperfield, Newall, Perry, & Hall, 2007) was used to assess self-rated physical health as an outcome. This 4-item measure assesses participants' self-reported physical health by providing a reliable ($\alpha = .79$) and valid (Ruthig et al., 2007; Ruthig & Chipperfield, 2007; Spiers, Jagger, & Clarke, 1996) measure of general and recent physical health.

General physical health. A single-item scale assessing self-reported, general physical health consists of a common, validated item simply asking participants: 'For your age, would you say in general your health is good, fair or poor?' (Bjorner & Kristensen, 1999; Maddox & Douglass, 1973). Participant responses are indicated via the use of a 5-point Likert-

style scale ranging from 1 ("*excellent*") through 5 ("*bad*"). This item is reverse-coded so that

higher scores would be reflective of better-perceived health.

        Recent physical health. Participants' self-reported recent physical health was

assessed using three survey items using the item stem "During the past month, I have often...":

(1) "… felt physically unwell"; (2) "... had some physical symptoms, like stomach upset,

headaches or dizziness"; (3) "... wished I had felt physically better." Participant responses are

indicated for each item using a 5-item Likert-style scale ranging from 1 ("*almost never true*")

through 5 ("*almost always true*"). As with the general health questionnaire, each item is

reversed-coded so that higher scores indicated better recent physical health. A total score is

obtained by summing the scores across these items.

        Wellbeing. Subjective wellbeing was assessed as an outcome using a modified

version of the Perceptions of Well-Being measure (PWB; Appendix F; Vazquez et al., 2007).

This scale quantitatively assesses general subjective perceptions of self-reported wellbeing with

the use of an 11-item Likert-style scale describing various domains of wellbeing in life ranging

from "*no*" to "*yes*". For example, one item asks participants "Are you are satisfied with your

present life?". Historically this scale has used a 3-point Likert-style scale to collect reliable ($\alpha =$

.71) and valid responses from participants (Vazquez et al., 2007). However, due to concerns

regarding range restriction, this scale will be modified to elongate the Likert-style scale to a 5-

point scale, as a means of maximizing the meaningful variance and reducing the likelihood of

range restriction while collecting quantitative data (Colman, Norris, & Preston, 1997).

    Procedure

      The procedure of this study followed a convenience sampling, cross-sectional, design.

Participants that have experienced the occurrence of an adversity within the past week, noticing

the advertisement placed online, self-selected to participate in the study. Participants then read a

letter of information (Appendix J) digitally indicate they have read the letter of information and

consent to participate in the study (Appendix K), completed the adversity prime and answered

some preliminary contextual questions regarding the nature and context of the adversity before

they proceeded to complete the (above mentioned) questionnaire battery including measures of

adversity severity, resiliency, symptoms of mental illness and stress, physical health, and

wellbeing. Finally, after participants had completed the questionnaire battery they were thanked

for their time and effort, debriefed (Appendix L), and compensated for their time.

Results

Item means and variances, corrected item-total correlations, estimates of internal

consistency, item efficiency indexes (IEIs), and exploratory factor analytic techniques were used

to statistically evaluate each item for inclusion in the Short Adversity Severity Scale as per the

recommendation of Hinkin (1998), Jackson (1971, 1975), and Morrison and Phelps (1999).

Items were deemed non-viable for inclusion in the scale due to extreme mean scores, low

estimates of variance, or low corrected item-total correlations, if they could readily be removed

from the scale without negatively impacting the estimate for internal consistency reliability

(Cronbach's α), and if IEIs indicated that the item may be exhibiting variance not relevant to the

property under investigation (severity).

Item Selection

All statistical analyses were conducted using the computer software package SPSS

version 22 (IBM Corp., 2013). All item means and variances were found to be within acceptable

parameters (see Table 2). However, while investigating contributions toward Cronbach's α, it

was found that multiple items failed to increase internal-consistency reliability or were not

strongly correlated with the total scale. These items were dropped from the final scale. IEIs were then calculated, to continue the item pruning process, using the following formula (Jackson, 1984):

$$I = \sqrt{r_{ig}^{2} - r_{is}^{2}}$$

Where, IEIs (represented above, by I) are calculated as the square root of the difference between the item's squared correlation with the scale it comprises (r_{ig}, or the corrected item-total correlation) and the item's squared correlation with an unrelated variable (r_{is}, in this case participant age). Therefore, IEIs may be used to rank items in terms of the amount of shared statistical variance between any one item and the final scale score, having removed any shared variance each item had with an unrelated variable (Neill & Jackson, 1976). In this way, the greater the IEI, the more representative the item is of the final scale score (and theoretically, of the variable being assessed).

Table 2

Item means and variances for the Short Adversity Severity Scale

Item	N	M	S^2	r_{ig}	Decrease in Chronbach's α if removed	IEI
1. Looking back, I would rate this as one of my most challenging life experiences.	911	3.47	1.179	.684***	.013	.68
2. At the time, the adverse experience seemed unbearable.	909	3.59	1.130	.706***	.014	.71
3. At the time, the adverse experience seemed insurmountable.	910	3.48	1.126	.692***	.013	.69
4. This experience had the power to drastically impact my life.	911	3.97	0.988	.669***	.011	.67
5. The experience impacted many aspects of my life.	911	3.84	0.962	.565***	0.004	.56
6. The amount of damage this adversity could have caused was enormous.	911	3.60	1.122	.604***	0.006	.60
7. That was a really rough time in my life.	912	3.74	1.027	.776***	0.020	.77
8. I struggled through that experience.	913	3.95	0.878	.674***	0.011	.67
9. That experience could be described as torturous.	913	3.35	1.177	.629***	0.008	.63

Note. The values under R_{ig} represent corrected item-total correlation coefficients,*$p < .05$,

**$p < .01$, ***$p < .001$.

A principal axis factor analysis (PAFA) with direct oblimin rotation was performed, with

the nine-item scale, to investigate the dimensionality of the newly devised Short Adversity

Severity Scale. PAFA was specifically chosen as our means of assessing construct composition

based on the recommendation of Bandalos & Boehm-Kaufman (2009). Oblique rotation via

direct oblimin was specifically chosen as, if more than one factor were to be derived from this

analysis it is believed that there is a high likelihood that such factors would be at least somewhat

correlated (Bandalos & Boehm-Kaufman, 2009; Fabrigar, Wegener, MacCallum, and Strahan, 1999). The Kaiser-Meyer-Olkin measure of sampling adequacy was found to be .891, which is well above the recommended threshold of .60 (Kaiser, 1974). Additionally, the Bartlett's test of sphericity indicated that correlations were large enough to perform this analysis $(\chi^2(36) = 4284.601, p < .001)$. Unsurprisingly, a single factor was extracted on the basis of the Kaiser Criterion that explained 55.76% of the variance in item values. I can therefore reasonably conclude that this scale reflects the unitary dimension of adversity severity as described by the aforementioned definition.

All aforementioned objective evaluations of item inclusion into the final scale considered, nine items remained to comprise the final form of the Short Adversity Severity Scale and were used to perform subsequent analyses. The final form of the scale is presented in Table 1 along with means, variances, corrected item total correlation coefficients, decrease in Chronbach's α if the item was removed, and IEIs for each item included in the scale. Table 3 additionally provides an illustration of factor loadings for the items included in the scale.

Table 3

Component matrix of item factor loadings of the Short Adversity Severity Scale

Item	Component 1
1. Looking back, I would rate this as one of my most challenging life experiences.	0.724
2. At the time, the adverse experience seemed unbearable.	0.746
3. At the time, the adverse experience seemed insurmountable.	0.732
4. This experience had the power to drastically impact my life.	0.704
5. The experience impacted many aspects of my life.	0.602
6. The amount of damage this adversity could have caused was enormous.	0.637
7. That was a really rough time in my life.	0.832
8. I struggled through that experience.	0.719
9. That experience could be described as torturous.	0.668

Note. A principal axis factor analysis (PAFA) with direct oblimin rotation was performed, extracting a single factor for this scale.

Demographic Differences

Exploratory one-way Analyses of Variance (ANOVAs) were performed to investigate any possible demographic differences in perceived severity of the self-selected adversity due to age, biological sex, whether the event had concluded or not, and whether the experience was stemming from a work or non-work context. A statistically significant mean difference was found between males ($M = 31.91$, *S.D.* $= 7.22$) and females ($M = 34.00$, *S.D.* $= 6.99$) with regards to the subjective appraisal of severity of their self-selected adversity used for the purposes of this study ($F(1, 888) = 19.373$, $p < .005$). The nature of this difference was such that females tended to provide reports of more severe experiences than males. Similarly, a statistically significant mean difference in severity was found between adverse experiences that had concluded ($M = 32.17$, *S.D.* $= 7.21$) and those that had not yet concluded ($M = 34.08$, *S.D.* $= 6.97$ $F(1, 887) = 15.437$, $p < .001$). Perhaps unsurprisingly, the nature of this difference was such that events that had yet to conclude were perceived as being more severe. Similarly, a statistically significant mean difference in severity were found between adverse experiences that occurred in a work ($M = 31.74$, *S.D.* $= 7.42$) versus non-work context ($M = 33.57$, *S.D.* $= 6.97$; $F(1, 886) = 13.281$, $p < .001$). The nature of this difference was such that non-work experiences were rated as being more severe than work-related experiences. As expected, there were no statistically significant differences found due to age ($F(49, 840) = 0.739$, $p = .91$). As these analyses are only exploratory and are not of theoretical interest, no further analyses were conducted on these demographic differences.

Tests of Hypotheses

Correction of Error Rates. It was determined that a more critically discriminatory error rate should be applied. Due to the large number of analyses being performed within each tested

hypothesis, results will be deemed statistically significant according to a more conservative,

reported, Bonferroni adjusted standard of statistical significance (critical *p* value = *.05 / (number*

of analyses tested per hypothesis)).

      Analyses. Investigation into the findings pertaining to hypothesis 1, that the short

adversity severity scale will demonstrate acceptable levels of internal consistency reliability,

yielded findings in concordance with this hypothesis. Internal consistency reliability of the

newly developed scale, as measured by Chronbach's α, was demonstrated to be highly reliable

(overall α = .898; females α = .895; males α = .897; adversity has concluded α = .898; adversity

is ongoing α = .893; work context α = .902; non-work context α = .894). Therefore, I reject the

null hypothesis, findings indicating that the newly developed scale demonstrates high levels of

internal consistency reliability.

      A correlation matrix of all relevant variables included in this study and associated alpha

coefficients are presented in Table 3. These correlation analyses provided substantial support for

hypotheses 2 and 3. All correlation analyses for hypothesis 2 and 3 were reported to reflect the

more conservative Bonferroni adjusted critically significant *p*-level of $p < .0063$. As illustrated in

Table 4, the newly developed scale demonstrated convergent validity with statistically significant

correlations between subjective evaluations of adversity severity and most of the components of

resiliency (with the exceptions of behavioral and cognitive personal characteristics and social

support) and outcome measures of depression, anxiety, stress, and health, and wellbeing.

Similarly illustrated in Table 4, the newly developed scale demonstrated sufficient evidence

indicating sufficient discriminant validity. Results indicated a statistically significant correlation

coefficient of $r < -.689$ (although there are few firm rules for such evaluative criteria, $r^2 < .50$ has

been cited as a conservative criterion indicating sufficient discriminant validity followed by

r < .85 to indicate sufficiently distinct variables – the rationale being that evidence indicates the

variables under investigation have a sufficiently low levels of shared variance indicating that the

variables are distinctly differentiated from one another; Kenny, 2016; Voorhees, Brady,

Calantone, & Ramirez, 2015; Shaffer, DeGeest, & Li, 2016; Gaskin, nd) between all components

of resiliency and outcomes. This was even true for it's most proximal (believed to be causal)

theoretical relative (positive initial reactions to adversity) which was often substantially

correlated with subjective evaluations of the severity of adversity but sufficiently different

(overall *r* = -.689, *p* < .001; females *r* = -.685, *p* < .001; males *r* = -.696, *p* < .001; adversity has

concluded *r* = -.679, *p* < .001; adversity is ongoing *r* = .718, *p* < .001; work context *r* = -.671,

p < .001; non-work context *r* = -.710, *p* < .001). In accordance with Campbell and Fiske (1959)

and others (Kenny, 2016; Voorhees et al., 2015; Shaffer et al., 2016; Gaskin, nd), this

demonstrates sufficient evidence indicating relatedness among variables while illustrating

sufficient discriminant validity co-insides between these two connected variables.

Table 4 Continued

Internal consistency reliability and correlation coefficients amongst variable facets included in Study I

	13	14	15
1. Severity			
2. Affective personal characteristics			
3. Behavioural personal characteristics			
4. Cognitive personal characteristics			
5. Resilient responses			
6. Support			
7. Affective self-regulation			
8. Behavioural self-regulation			
9. Cognitive self-regulation			
10. Wellbeing			
11. Physical Health			
12. Stress			
13. Anxiety	(.88)		
14. Depression	.687***	(.88)	
15. Chronicity of Adversity	.110**	-.006	-

Note. Parentheses on the diagonal contain coefficient alpha. Significance values are indicated at p < .05, .01, .001 with a *, **, and *** respectively. Marginal correlations are indicated with †, indicating significance values at p < .10.

Table 4

Internal consistency reliability and correlation coefficients amongst variable facets included in Study I

	1	2	3	4	5	6	7	8	9	10	11	12
1. Severity	(.90)											
2. Affective personal characteristics	-.214***	(.93)										
3. Behavioural personal characteristics	.060†	.344***	(.89)									
4. Cognitive personal characteristics	.025	.289***	.426***	(.87)								
5. Resilient responses	-.698***	.396***	.061†	.041	(.85)							
6. Support	-.070*	.224***	.321***	.194***	.152***	(.96)						
7. Affective self-regulation	-.186***	.288***	.247***	.189***	.196***	.108**	(.80)					
8. Behavioural self-regulation	-.162***	.373***	.429***	.202***	.275***	.254***	.536***	(.83)				
9. Cognitive self-regulation	-.453***	.525***	.258***	.137***	.702***	.266***	.277***	.466***	(.89)			
10. Wellbeing	-.175***	.467***	.386***	.202***	.366***	.573***	.162***	.275***	.528***	(.94)		
11. Physical Health	-.239***	.440***	.152***	.113***	.314***	.260***	.158***	.266***	.398***	.483***	(.84)	
12. Stress	.408***	-.549***	-.137***	-.093**	-.588***	-.187***	-.220***	-.355***	-.642***	-.394***	-.488***	(.93)
13. Anxiety	.344***	-.492***	-.191***	-.155***	-.446***	-.214***	-.247***	-.353***	-.474***	-.325***	-.492***	.743***
14. Depression	.427***	-.500***	-.300***	-.184***	-.613***	-.344***	-.302***	-.475***	-.687***	-.586***	-.483***	.734***
15. Chronicity of Adversity	-.047	-.097**	.055	.083*	-.006	-.019	-.043	.011	.008	.009	-.063†	.068*

Note. Parentheses on the diagonal contain coefficient alpha. Significance values are indicated at $p < .05, .01, .001$ with a *, **, and *** respectively. Marginal correlations are indicated with †, indicating significance values at $p < .10$.

Results pertaining to hypothesis 4 generally failed to support our hypotheses. Results were interpreted in light of an adjusted critical significance level of $p < .0071$. When investigating the entire sample, evidence demonstrated that adversity chronicity failed to be associated with perceptions of severity ($r = -.047$, $p = .17$). Similar findings were also obtained when the sample was broken down into groups of females ($r = -.085$, $p = .083$), males ($r = .019$, $p = .70$), adversities not occurring in a work context ($r = .022$, $p = .61$), and adversities that were currently ongoing at the time of the study ($r = .047$, $p = .39$). However, sufficient evidence did indicated that adversity chronicity and severity perceptions were slightly negatively correlated once the adverse experience had concluded ($r = -.099$, $p < .05$), but not reaching values of the more conservatively adjusted levels of statistical significance. However, it was found to be statistically significant with adversities that were reported as occurring in a work context ($r = -.181$, $p < .005$). This association indicated that only when adversities were found to occur in a work context, the more frequently one experiences an adverse event (or more specifically, an adversity of a particular self-identified category), the less severe people trended to perceive their adverse experiences. Exploratory follow-up analyses were performed and it should be noted that whether or not an adversity had concluded at the time of testing and whether adversities were reported to occurred within a work context were found to be unrelated, suggesting these findings would be independent from one another ($X^2 (1) = 2.322$, $p = .13$) even if they were found to both meet the more conservative adjusted critical p-value.

There was substantial supporting evidence with regards to hypothesis 5, that adversity chronicity is uniquely different from the variables comprising the King-Rothstein (2010) model of resiliency. Results were interpreted in light of an adjusted critical significance level of $p < .0063$. As presented in Table 3, adversity chronicity failed to correlate all variables

comprising the King-Rothstein model of resiliency according to the adjusted level of critical

significance. This finding was robust even after breaking the large sample down according to

subgroups that were found to have statistically significant mean differences (due to biological

sex, concluded vs. ongoing, and work vs. non-work contexts) and reassessing. Similarly, hand-

in-hand with this finding, results pertaining to hypothesis 6 (that adversity chronicity would be

predictive of various outcomes associated with adversity, including psychological and physical

health and wellbeing) were found to demonstrate poor outcomes. Few of the tested outcomes

pertaining to this hypothesis were found to (even weakly) correlate with chronicity to the

conservative adjusted critical level of significance ($p < .01$). As seen in Table 4, among the

broad sample, the chronicity of an adversity was only found to demonstrate meager correlations

with the outcome symptoms of anxiety ($r = .110, p < .01$). Wellbeing, physical health,

symptoms of depression and stress were all not found to correlate with adversity chronicity in

this way. Therefore, given that the associative relationships with adversity chronicity were few,

sporadic, small in magnitude, and often opposite of the predicted valence it seems to be the case

that adversity chronicity is more complex than initially postulated and will therefore be excluded

from future analysis in an effort to simplify and clarify remaining findings and the conclusions

that may be drawn from them.

Hypothesis 7 proposed that given a multiple regression approach, the King-Rothstein

model of resiliency will be predictive of health and wellbeing outcomes with both samples of

individuals experiencing either work-related or non-work-related adversities. To test hypothesis

7, a series of multiple regression analyses were performed using the components of resiliency to

predict each of the assessed outcome variables (wellbeing, physical health, symptoms of

depression, anxiety, and stress) while controlling for the effects of adversity severity as a likely

covariate. To test whether the model applied to work and non-work contexts of adversity each

analysis was performed with separate samples that each experienced different (work- or non-

work-related) contexts of adversity. Accordingly, the critical level of statistical significance was

adjusted (to $p < .005$) for these analyses.

The first set of hierarchical linear regression analyses were performed to assess the

predictability of wellbeing via the components of resiliency. The first analysis of the set

investigated work-related adversity. The results of this analysis, pertaining to the work adversity

sample, provided support for hypothesis 7 and indicated that the components of the King-

Rothstein model of resiliency were able to predict substantial variance of the outcome wellbeing

under a context of work-related adversity (see Table 5; $F(9, 237) = 32.331, p < .001, R^2 = .551$,

adjusted $R^2 = .534, R^2\Delta = .518, F\Delta(8, 237) = 34.190, p < .001$).

Table 5
Hierarchical regression analysis of wellbeing predicted by resiliency components in a work context

Predictor		Covariate	Entry 1
Severity		-.182*	.009
Initial reactions			-.057
Affective personal characteristics			.194*
Behavioral personal characteristics			.058
Cognitive personal characteristics			-.077
Opportunities, supports, and resources			.502*
Affective self-regulatory processes			-.003
Behavioural self-regulatory processes			-.083
Cognitive self-regulatory processes			.379*
	R^2	0.033	0.551
	Adj. R^2	0.029	0.534
	ΔR^2		0.518
	F	8.375*	32.331*
	Sig F Change		34.190*

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

The second analysis of this set investigated the sample experiencing non-work-related adversity. The results of this analysis, pertaining to the non-work adversity sample, also provided support for hypothesis 7 and indicated that the components of the King-Rothstein model of resiliency continued to be able to predict substantial variance of the outcome wellbeing under non-work adversity contexts (see Table 6; $F(9, 459) = 58.285$, $p < .001$, $R^2 = .533$, adjusted $R^2 = .524$, $R^2\Delta = .512$, $F\Delta(8, 459) = 62.904$, $p < .001$). However, it bears noting that behavioural self-regulatory processes were found to contribute toward the prediction of wellbeing in the direction opposite than what was initially hypothesized. Taken as a whole, though, these results provide support for hypothesis 7, evidence indicates that the King-Rothstein components of resiliency are found to be predictive the outcome wellbeing in both a work and non-work context.

Table 6
Hierarchical regression analysis of wellbeing predicted by resiliency components in a non-work context

Predictor		Covariate	Entry 1
Severity		-0.147*	.065
Initial reactions			.098
Affective personal characteristics			.217*
Behavioral personal characteristics			.167*
Cognitive personal characteristics			-.001
Opportunities, supports, and resources			.406*
Affective self-regulatory processes			-.023
Behavioural self-regulatory processes			-.134*
Cognitive self-regulatory processes			.283*
	R^2	.022	.533
	Adj. R^2	.020	.524
	ΔR^2		.512
	F	10.354*	58.285*
	Sig F Change		62.904*

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

The second set of hierarchical linear regression analyses were performed to assess the

predictability of physical health via the components of resiliency. As before, the first analysis of

the set investigated work-related adversity. The results of this analysis, pertaining to the work

adversity sample, provided support for hypothesis 7 and indicated that the components of the

King-Rothstein model of resiliency were able to predict the outcome physical health under a

context of work-related adversity (see Table 7; $F(9, 241) = 14.546$, $p < .001$, $R^2 = .352$, adjusted

$R^2 = .328$, $R^2\Delta = .295$, $F\Delta(8, 241) = 13.707$, $p < .001$).

Table 7
Hierarchical regression analysis of physical health predicted by resiliency components in a
work context

Predictor		Covariate	Entry 1
Severity		-0.239*	-.117
Initial reactions			-.138
Affective personal characteristics			.356*
Behavioral personal characteristics			-.077
Cognitive personal characteristics			-.052
Opportunities, supports, and resources			.222*
Affective self-regulatory processes			.003
Behavioural self-regulatory processes			.079
Cognitive self-regulatory processes			.234
	R2	0.057	0.352
	Adj. R2	0.053	0.328
	ΔR2		0.295
	F	15.097*	14.546*
	Sig F Change		13.707*

Note. The values represent standardized regression coefficients. * significant to the
conservatively adjusted critical $p < .005$ of significance.

The second analysis of this set investigated the sample experiencing non-work-related

adversity. The results of this analysis, pertaining to the non-work adversity sample, also provided

support for hypothesis 7 and indicated that the components of the King-Rothstein model of

resiliency continued to be able to predict the outcome physical health under non-work adversity

contexts (see Table 8; $F(9, 464) = 15.813$, $p < .001$, $R^2 = .235$, adjusted $R^2 = .220$, $R^2\Delta = .194$,

$F\Delta(8, 464) = 14.692$, $p < .001$). Therefore, it would seem that the King-Rothstein model of

resiliency generalizes beyond work contexts of adversity with regards to physical health.

Table 8
Hierarchical regression analysis of physical health predicted by resiliency components in a non-work context

Predictor		Covariate	Entry 1
Severity		-0.202*	-0.122
Initial reactions			-0.097
Affective personal characteristics			0.314*
Behavioral personal characteristics			-0.016
Cognitive personal characteristics			-0.018
Opportunities, supports, and resources			0.121
Affective self-regulatory processes			-0.041
Behavioural self-regulatory processes			0.036
Cognitive self-regulatory processes			0.204*
	R^2	.041	.235
	Adj. R^2	.039	.220
	ΔR^2		.194
	F	20.111*	15.813*
	Sig F Change		14.692*

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

The third set of hierarchical linear regression analyses were performed to assess the predictability of symptoms of depression via the components of resiliency. As before, the first analysis of the set investigated work-related adversity. The results of this analysis, pertaining to the work adversity sample, provided support for hypothesis 7. Findings indicated that the components of the King-Rothstein model of resiliency were able to predict the outcome symptoms of depression under a context of work-related adversity (see Table 9; $F(9, 238) = 41.389$, $p < .001$, $R^2 = .610$, adjusted $R^2 = .595$, $R^2\Delta = .440$, $F\Delta(8, 238) = 33.598$, $p < .001$).

Table 9
Hierarchical regression analysis of symptoms of depression predicted by resiliency components in a work context

Predictor		Covariate	Entry 1
Severity		.412*	.123
Initial reactions			-.178
Affective personal characteristics			-.065
Behavioral personal characteristics			-.041
Cognitive personal characteristics			-.066
Opportunities, supports, and resources			-.198*
Affective self-regulatory processes			-.005
Behavioural self-regulatory processes			-.183*
Cognitive self-regulatory processes			-.324*
	R^2	.170	.610
	Adj. R^2	.167	.595
	ΔR^2		.440
	F	50.344*	41.389*
	Sig F Change		33.598*

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

The second analysis of this set investigated the sample experiencing non-work-related adversity. The results of this analysis, pertaining to the non-work adversity sample, also provided support for hypothesis 7 and indicated that the components of the King-Rothstein model of resiliency continued to be able to predict substantial variance of the outcome symptoms of depression under non-work adversity contexts (see Table 10; $F(9, 462) = 62.821$, $p < .001$, $R^2 = .550$, adjusted $R^2 = .542$, $R^2\Delta = .406$, $F\Delta(8, 462) = 52.157$, $p < .001$). Therefore, it would seem that the King-Rothstein model of resiliency generalizes beyond work contexts of adversity with regards to symptoms of depression.

Table 10

Hierarchical regression analysis of symptoms of depression predicted by resiliency components in a non-work context

Predictor		Covariate	Entry 1
Severity		0.380*	.005
Initial reactions			-.247*
Affective personal characteristics			-.121*
Behavioral personal characteristics			-.049
Cognitive personal characteristics			-.003
Opportunities, supports, and resources			-.141*
Affective self-regulatory processes			-.047
Behavioural self-regulatory processes			-.116
Cognitive self-regulatory processes			-.322*
	R^2	.144	.550
	Adj. R^2	.142	.542
	ΔR^2		.406
	F	79.186*	62.821*
	Sig F Change		52.157*

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

The fourth set of hierarchical linear regression analyses were performed to assess the predictability of symptoms of depression via the components of resiliency. As before, the first analysis of the set investigated work-related adversity. The results of this analysis, pertaining to the work adversity sample, provided support for hypothesis 7. Findings indicated that the components of the King-Rothstein model of resiliency were able to predict the outcome symptoms of anxiety under a context of work-related adversity (see Table 11; $F(9, 240) = 23.219, p < .001, R^2 = .465$, adjusted $R^2 = .445, R^2\Delta = .348, F\Delta(8, 240) = 19.526, p < .001$).

Table 11
Hierarchical regression analysis of symptoms of anxiety predicted by resiliency components in a work context

Predictor	Covariate	Entry 1
Severity	.343*	.198*
Initial reactions		-.168
Affective personal characteristics		-.207*
Behavioral personal characteristics		-.132
Cognitive personal characteristics		-.057
Opportunities, supports, and resources		-.087
Affective self-regulatory processes		.022
Behavioural self-regulatory processes		-.292*
Cognitive self-regulatory processes		.032
R^2	.118	.465
Adj. R^2	.114	.445
ΔR^2		.348
F	33.024*	23.219*
Sig F Change		19.526*

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

The second analysis of this set investigated the sample experiencing non-work-related adversity. The results of this analysis, pertaining to the non-work adversity sample, also provided support for hypothesis 7 and indicated that the components of the King-Rothstein model of resiliency continued to be able to predict the outcome symptoms of anxiety under non-work adversity contexts (see Table 12; $F(9, 459) = 24.888$, $p < .001$, $R^2 = .328$, adjusted $R^2 = .315$, $R^2\Delta = .233$, $F\Delta(8, 459) = 19.884$, $p < .001$). Taken as a whole, though, it seems that the King-Rothstein model of resiliency generalizes beyond work contexts of adversity with regards to symptoms of anxiety.

Table 12

Hierarchical regression analysis of symptoms of anxiety predicted by resiliency components in a non-work context

Predictor		Covariate	Entry 1
Severity		0.308*	.086
Initial reactions			-.073
Affective personal characteristics			-.283*
Behavioral personal characteristics			.102
Cognitive personal characteristics			-.063
Opportunities, supports, and resources			-.053
Affective self-regulatory processes			-.008
Behavioural self-regulatory processes			-.043
Cognitive self-regulatory processes			-.247*
	R^2	.095	.328
	Adj. R^2	.093	.315
	ΔR^2		.233
	F	49.050*	24.888*
	Sig F Change		19.884*

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

The fifth set of hierarchical linear regression analyses were performed to assess the predictability of symptoms of stress via the components of resiliency. As before, the first analysis of the set investigated work-related adversity. The results of this analysis, pertaining to the work adversity sample, provided support for hypothesis 7. Findings indicated that the components of the King-Rothstein model of resiliency were able to predict the outcome symptoms of stress under a context of work-related adversity (see Table 13; $F(9, 240) = 28.085$, $p < .001$, $R^2 = .513$, adjusted $R^2 = .495$, $R^2\Delta = .340$, $F\Delta(8, 240) = 20.936$, $p < .001$).

Table 13

Hierarchical regression analysis of symptoms of stress predicted by resiliency components in a work context

Predictor		Covariate	Entry 1
Severity		.416*	.053
Initial reactions			-.284*
Affective personal characteristics			-.196*
Behavioral personal characteristics			.021
Cognitive personal characteristics			.020
Opportunities, supports, and resources			-.021
Affective self-regulatory processes			.089
Behavioural self-regulatory processes			-.188*
Cognitive self-regulatory processes			-.251*
	R^2	.173	.513
	Adj. R^2	.170	.495
	ΔR^2		.340
	F	51.898*	28.085*
	Sig F Change		20.936*

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

The second analysis of this set investigated the sample experiencing non-work-related adversity. The results of this analysis, pertaining to the non-work adversity sample, also provided support for hypothesis 7 and indicated that the components of the King-Rothstein model of resiliency continued to be able to predict the outcome symptoms of stress under non-work adversity contexts (see Table 14; $F(9, 465) = 55.948$, $p < .001$, $R^2 = .525$, adjusted $R^2 = .515$, $R^2\Delta = .393$, $F\Delta(8, 465) = 47.166$, $p < .001$). Therefore, it would seem that the King-Rothstein model of resiliency generalizes beyond work contexts of adversity with regards to symptoms of stress.

Table 14

Hierarchical regression analysis of symptoms of stress predicted by resiliency components in a non-work context

Predictor		Entry 1	Entry 2
Severity		0.363*	.014
Initial reactions			-.160
Affective personal characteristics			-.340*
Behavioral personal characteristics			.104
Cognitive personal characteristics			.009
Opportunities, supports, and resources			-.002
Affective self-regulatory processes			.053
Behavioural self-regulatory processes			-.070
Cognitive self-regulatory processes			-.368*
	R^2	.132	.525
	Adj. R^2	.130	.515
	ΔR^2		.393
	F	70.271*	55.948*
	Sig F Change		47.166*

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

In summary, all evidence pertaining to the investigation of hypothesis 7 was found to support the hypothesis under investigation. Each of the tested health and wellbeing outcomes were found to be predicted by the components of the King-Rothstein model of resiliency regardless of the context of adversity being due to work- or non-work-related experiences. Therefore, given the evidence, I reject the null hypothesis the King-Rothstein model of resiliency seems to generalize beyond the workplace to non-work contexts of adversity.

Discussion

There were three broad goals for the current study. The first of such aims was the development of the Short Adversity Severity Scale. The second was to provide the first psychometric evaluation of this novel scale in conjunction with the King and Rothstein (2010) model upon which I proposed it was an important, relevant, factor to consider with regards to the

resiliency process and influence on relevant outcomes.   Results from this study provided substantial support for these goals. Thirdly, this study sought to develop preliminary evidence integrating the chronicity of adverse experiences into the King-Rothstein model, specifically by investigating relationships with adversity severity, the components of resiliency, and relevant outcomes and by testing the inclusion of both severity and chronicity into the established King-Rothstein model of resiliency. There seemed to be a general lack of supporting evidence for this third aim of this study regarding the role of adversity chronicity. However, the King and Rothstein model and subjective perceptions of adversity seemed to demonstrate the predicted relationships.

The investigation into the findings pertaining to hypotheses 1 through 3, indicated the newly developed Short Adversity Severity Scale to be both reliable (internally consistent) and valid (both with regards to convergent and discriminant validity). The Short Adversity Severity Scale demonstrated itself to be extremely consistent and to be adequately differentiated from each of the existent scales comprising the WRI. The Short Adversity Severity Scale also exhibited discriminant validity with each of components of the WRI, sharing less than 50% of total variance with it's most proximal theoretically associated relative (initial reactions to adversity). It was also sufficiently different that it did not demonstrate an association with some select WRI scales (resilient behavioral and cognitive personal characteristics and social support). Furthermore, the Short Adversity Severity Scale demonstrated convergent validity with regards to health-related outcomes known to be associated with adversity of varying levels of severity, including measures of depression, anxiety, stress, as well as physical health, and wellbeing. The results of this study therefore present sufficient preliminary evidence indicating the Short Adversity Severity Scale is both a reliable and valid assessment of adversity severity and

indicates (through statistically significant relationships with resiliency components and relevant

outcomes) that it may be fit for inclusion into a revised version of the King-Rothstein model of

resiliency.

The interpretation of the results regarding the mentioned statistically significant

correlations between subjective adversity severity and most of the components of resiliency are

best presented in light of the conceptual and theoretical framework that surrounds this variable.

At first blush the concepts of initial reactions to adversity and subjective evaluations of adversity

severity seem to be quite similar concepts, but evidence demonstrates that there is a substantial

degree of unique variance that distinguishes these two variables from one another. Subjective

evaluations of adversity severity are likely to happen immediately (likely at both conscious and

unconscious levels) and are likely to precipitate the very first initial reaction to adversity. As

subjective perceptions of adversity severity are proposed to be the most probable driving

evaluative force behind an individual's reactions to an adverse experience, it is expected that

these two variables would be most correlated with one another (among the variables under

investigation in this study). Therefore, it comes as no surprise that severity is most highly

correlated with the initial reactions to adversity component of the King-Rothstein model of

resiliency. Interestingly enough, there seems to be a very distinct division between personal

characteristics (properties of the individual that are related to initial reactions to adversity), social

support, and subjective evaluations of severity (a property of the adversity). This seems to

illustrate the initial proposing argument (that the targeted subject under evaluation is distinctly

different) for incorporating this variable as a new variable into the model. Generally speaking,

the results that were obtained seem to generally reflect those originally expected upon embarking

on this research.

Additionally, counter to the hypothesis originally proposed by Shapiro et al. (2006), the evidence generally tended to illustrate that adversity chronicity was unrelated to adversity severity (arguing against hypothesis 4). However, there was some exploratory evidence demonstrating that adversity chronicity may be weakly related to adversities occurring within a work context. However, this analysis of subgroups was conducted in an exploratory nature in an effort to be comprehensive and should serve only to indicate where future research efforts may be best directed. Although these exploratory investigations into a direct reason for either of these highly specific and contextually dependent relationships were not described in the outset of our research, it seems like these results illustrate a phenomena where (generally speaking) the number of times one has experienced an adversity doesn't seem to matter to individuals as they are actively experiencing it (they are likely concerned with the experience and successfully navigating it rather than reframing the context) but rather it may be impacting the magnitude of the experienced severity of an event through such things as providing a greater referential context to judge the event which may result in regression toward the mean or a general decrement in severity as (obviously) the individual had navigated through it by the point of testing. It also may illustrate an unexpected contextually dependent set of phenomena where work vs. non-work context matters. Given that work adversities tended to be of less severe nature, this may be an instances where people are able to learn from less severe adversities that frequently occur and get better at dealing with them (and perceive them as less severe) over time. Although, this doesn't quite dovetail well with the similar finding regarding experiences that have already concluded, our analysis indicated that these findings were distinct and unrelated from one another. Therefore, it is not unreasonable to conclude that the mechanisms behind each effect would be distinct and unrelated as well. Although the results pertaining to the fourth

hypothesis of this study failed to demonstrate statistically significant results (being of a broader, more general scope), this study does seem to illustrate that future research would do best to consider such contextual factors regarding the adversity when generating specific testable hypotheses and be given particular considerations when developing quasi-experimental designs. It seems that these relationships are rather intricate and it may be fruitful to pursue investigations into the relevance of these particular differences in future research.

Some additional supporting evidence was found indicating discriminant validity with regards to adversity chronicity and the components of the King-Rothstein model (hypothesis 5). Although chronicity did correlate significantly with two of the variables comprising the King-Rothstein model, these relationships were found to be quite small in magnitude. This finding was particularly robust even after breaking the large sample down according to subgroups that were found to have statistically significant mean differences (due to biological sex, concluded vs. ongoing, and work vs. non-work contexts) and reassessing these relationships. However, findings pertaining to hypothesis 6, illustrated that adversity chronicity was predictive of few outcomes associated with adversity: particularly symptoms of anxiety. However, this relationship was also somewhat contextually dependent as was the relationship between adversity chronicity and severity (Masten, 2014). Some exploratory evidence indicated that these relationships may persist among females and adversities occurring due to due to work/non-work contexts. Each of these contexts tended to be associated with significantly higher ratings of adversity severity. In any case, what few relationships found to reach conservatively adjusted levels of statistical significance, adversity chronicity were to be found to be generally maladaptive rather than adaptive factor in influencing health and wellness outcomes. This seems to conflict with the theoretical orientation of Shapiro et al. (2006) given the few weak

statistically significant relationships between chronicity and other variables were found to be

opposite in valence (from what predictions grounded in theory would assume). The evidence

seems to suggest that if adversity chronicity does play a substantial role in the adversity process,

the mechanisms by which it elicits its various effects are more complex than initially posited. It

seems that a more specified and dedicated program of future research would be well spent

unpacking and clarifying the nature of this variable in resiliency and mindfulness processes.

Finally, preliminary support was also found for the generalizability of the King-Rothstein

model of resiliency to predict outcomes, adversity, and resiliency processes beyond work-related

context to those occurring in non-work-related contexts. The results pertaining to hypothesis 7

provided strong evidence indicating that the King and Rothstein model of resiliency, generalized

to depict adversities, resilient processes, and resilient outcomes that occur beyond work contexts.

Each of the five sets of analyses indicated that the King-Rothstein model of resiliency was able

to predict different outcomes of adversity and resiliency regardless of adversity context.

Moreover, these results were performed controlling for the effects of adversity severity, and were

evaluated according to conservatively adjusted significance values, suggesting that these findings

are rather robust. Generally speaking, greater levels of resilient personal characteristics, self-

regulation, support, and positive reactions to adversity were associated with more positive

outcomes. There was one instance of findings demonstrating the exception to this rule.

Behavioural self-regulation was found to be negatively predictive of wellbeing. However, given

that this finding was not replicated by both samples and given the statistical significance of beta-

weights were smaller than the remaining predictors predicting each respective outcome this can

be best explained as the likely occurrence of a statistical artifact given the partialling of variance

that occurs during multiple regression analyses. With so many predicting variables entered into

the equation, it is likely that substantial partialling of variance occurred, distorting the direction

of the prediction of behavioural self-regulation (with regards to wellbeing). This seems to be

further supported by the bivariate correlation results depicted in Table 3.

There are three practical conclusions to draw from this research. First, findings of this

research indicate that adversity severity is an important variable to consider with regards to

understanding adverse experiences, resiliency processes, and in predicting various relevant

outcomes. Although it was not a primary research question under investigation by this study,

there is even some preliminary evidence borne from the multiple regression analyses

(particularly examining symptoms of anxiety) that indicates adversity severity may be a useful

contributor to the components of resiliency. This evidence, of short-term outcomes associated

with adverse experiences, provides a supporting framework indicating that early perceptions of

adversity may be relevant to predicting adverse outcomes of a longer duration. Second, evidence

indicates that adversity chronicity alone, does not lend much to the prediction of resilient

outcomes. The components of resiliency and severity seem to be much more relevant for

inclusion in predictive assessments for various practical purposes (e.g., selection). Third, at a

practical level, that the King and Rothstein model of resiliency should be considered for use with

both work and non-work populations experiencing adversity. Therefore, this model of resiliency

may demonstrate substantial practical and theoretical utility in domains of education,

developmental, and clinical psychology after extensive future research involving these samples.

Such practical utility, however must be borne from replicated results stemming from causal

(often longitudinal) research. Study I was limited in this regard. Such limitations intend to be

addressed in Studies II and III.

Study II: Investigating Mindfulness and Resilience

A second study was conducted to assess whether the King-Rothstein model of resiliency generalizes beyond the workplace to unspecified general adversity and to investigate the role that mindfulness (and mediating mechanism components) plays with regards to resiliency and resilient outcomes. Such an associative, cross-sectional, study should be sufficient for providing preliminary evidence demonstrating the external validity of the King-Rothstein (2010) model of resiliency. More specifically, this research intends to investigate hypotheses associated with generalizability of the model to various forms of adversity across several different contexts. First, it is hypothesized that the components of resiliency and the components of mindfulness are predictive of resilient (health and wellbeing) outcomes. Second, it is hypothesized that the components of mindfulness are conceptually related to, although significantly different from, the currently conceptualized components of resiliency in the King-Rothstein model and as such they should demonstrate additive predictive validity beyond toward the prediction of various resilient (health and wellbeing) outcomes. Finally, it is hypothesized that the components of both mindfulness and resiliency work in an integrated fashion to produce various resiliency-related outcomes providing preliminary evidence in support of an integrated framework describing the phenomena of mindful-resilience.

Method

Participants

Participants were recruited using advertisements that were posted in areas of high Internet traffic in online crowd sourcing web venues (e.g., Amazon's Mechanical Turk Service). Participants viewed an advertisement to participate in the study in return for a small financial compensation ($1) for their time and effort. Each participant was required to be able to

understand and speak English fluently (as assessed by meaningful responding questionnaire items – e.g., those demonstrated effective by Meade & Craig, 2010), be 18 years or older, and have recently experienced an adverse life event within the past week to be eligible to participate in this study. A total of 1999 online participants completed the survey battery; of these 1891 were included in this study (having completed the meaningful response questionnaire correctly and meeting all aforementioned requirements). Of these participants there was an approximate equal distribution of biological sex (female $N = 944$; male $N = 944$; undisclosed $N = 3$). Ages ranged from 18 to 75 years old ($M = 31.96$, $S.D. = 9.60$). Self-reports indicated participants generally described experiences that had occurred approximately 4 times ($M = 3.8$, $S.D. = 28.01$) throughout the course of their life, that were an almost equal mix of concluded and ongoing ($N = 1011$ concluded; $N = 876$ ongoing; 4 unaccounted for) experiences, that were primarily not associated within a work context ($N = 1297$ as compared with $N = 587$; 7 unaccounted for).

Measures

All measures from the prior investigation were included in this study (including the newly developed Short Adversity Severity Scale) as well as several additional surveys designed to assess mindfulness and Shapiro's (2010) additional remaining mechanism components of mindfulness. The additional survey measures and associated variables are as follows:

Mindfulness.   Dispositional mindfulness was assessed using the Five Facet Mindfulness Questionnaire (FFMQ; Appendix C; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Participants complete the 39-item five-facet scale (nonreactivity to inner experience (nonreactivity); observing, noticing, or attending to sensations, perceptions, thoughts, or feelings (observing); acting with awareness, automatic pilot, concentration, or nondistraction (acting with awareness); describing or labeling with words (describing); and non-judging of experience (non-

judging)) by providing self-reported responses using a five-point Likert-style scale ranging from

1 ("*never or very rarely true*") to 5 ("*very often or always true*"). The FFMQ has been

confirmed for factor structure, good internal consistency, appropriate associations with other

psychological constructs such as emotion disregulation and avoidance and psychological distress

(Curtiss & Klemanski, 2014), and has been established as one of the most comprehensive

assessments of mindfulness in the general population (Bergomi, Tschacher, & Kupper, 2013).

The internal consistency reliability was found to be strong for nonreactivity, observing, acting

with awareness, describing, and non-judging ($\alpha = .89$, $\alpha = .86$, $\alpha = .91$, $\alpha = .90$, $\alpha = .93$

respectively) in this study.

Mindfulness mediating mechanisms.

Reperceiving.   Reperceiving/Decentering was assessed using the Experiences

Questionnaire (EQ; Appendix G; Fresco et al., 2007). This questionnaire asks participants to

respond to 11 items by indicating their response using a 5-point Likert-style scale ranging from 1

("*never*") to 5 ("*all the time*"). For example one item found on this scale asks participants to

indicate the degree to which "I can observe unpleasant feelings without being drawn into them."

This assessment has demonstrated substantial reliability ($\alpha = .81$) and both convergent and

discriminant validity between decentering and measures of rumination, experiential avoidance,

emotion regulation and measures of depression in both student and patient samples (Fresco et al.,

2007). The internal consistency reliability was found to be strong for this scale ($\alpha = .89$) in this

study.

Values Clarification.   A component of values clarification (purpose in life) was

assessed using a 7-item version of the original questionnaire from Ryff's (Ryff & Keyes, 1995)

Scales of Psychological Well-Being. In completing this assessment, participants are asked to

indicate their responses to items using a 6-point Likert-style scale ranging from 1 ("*strongly disagree*") to 6 ("*strongly agree*"). Scores are calculated for participants by reverse scoring negatively worded items and summing the seven item responses and computing the average to create a scale with sufficient range where higher scores indicate more purpose. Several shorter scales have effectively been developed from the original Scales of Psychological Well-Being; this 7-item version of the scale has demonstrated substantial reliability ($\alpha = 0.73$) and validity (Kim, Sun, Park, & Peterson, 2013; Brown, Bravo, Roos, & Pearson, 2014). This assessment (see Appendix H) has been used successfully in prior mindfulness research to examine Shapiro's proposed mechanism component of values clarification with good results (Brown et al., 2014). Specific items included in this scale are: "I enjoy making plans for the future and working to make them a reality," "My daily activities often seem trivial and unimportant to me," "I am an active person in carrying out the plans I set for myself," "I don't have a good sense of what it is I'm trying to accomplish in life," "I sometimes feel as if I've done all there is to do in my life," "I live life one day at a time and don't really think about the future," and "I have a sense of direction and purpose in my life." Negatively worded items were reverse scored. The internal consistency reliability was found to be strong for this scale ($\alpha = .80$) in this study.

Cognitive/Emotional/Behavioural Flexibility. The ability to adaptively and flexibly create environments suitable to satisfy one's needs was assessed using a 7-item Environmental Mastery subscale of Ryff's (Ryff & Keyes, 1995; Ryff & Singer, 1996) Scales of Psychological Well-Being. In completing this assessment, participants are asked to indicate their responses to items using a 6-point Likert-style scale ranging from 1 ("*strongly disagree*") to 6 ("*strongly agree*"). Scores are calculated for participants by reverse scoring negatively worded items and summing the seven item responses and computing the average to create a scale with sufficient

range where higher scores indicate more environmental mastery. This assessment (see Appendix

I) has been used successfully in prior mindfulness research to examine Shapiro's proposed

mechanism component of values clarification with good results (Brown et al., 2014). Specific

items included in this scale are: "In general, I feel I am in charge of the situation in which I live",

"The demands of everyday life often get me down", "I do not fit very well with the people and

the community around me.", "I am quite good at managing the many responsibilities of my daily

life.", "I often feel overwhelmed by my responsibilities", "I have difficulty arranging my life in a

way that is satisfying to me.", "I have been able to build a home and a lifestyle for myself that is

much to my liking." The internal consistency reliability was found to be strong for this scale

($\alpha = .84$) in this study.

Procedure

As with the prior investigation, because it would be considered unethical to induce even

minor adverse experiences that would theoretically activate the resiliency process in the King-

Rothstein (2010) model in a sample of participants, the procedure of this study followed a

convenience sampling, cross-sectional, design. Participants were recruited using validated online

sampling methods. Participants having experienced an adversity within the past week, noticing

the posted advertisement, self-selected to participate in the study. Participants then read a letter

of information (Appendix J) and indicated consent to participate in the study (Appendix K).

Participants then proceeded to a pre-screening questionnaire confirming their eligibility

requirements before participation in the questionnaire. If they met the requirements participants

then completed an adversity prime and answer contextual questions regarding the primed

adversity and proceed to complete a questionnaire battery including measures of adversity

severity, the components of resiliency, the components of mindfulness, symptoms of mental

illness and stress, physical health, and wellbeing. Finally, after the questionnaire battery had

been completed, participant contact (email) information was collected for possible continued

participation in future related research (see Study III). Participants that did not indicate that they

wish to continue on with future participation in related research were then debriefed (Appendix

L; regarding the stated hypotheses this study), thanked, and compensated for their time. Those

that wished to continue to participate in future research provided their email address to be

contacted at a later date for continued participation in this proposed project of research.

Results

Correction of Error Rates. It was determined that a more critically discriminatory error

rate should be applied. Due to the large number of analyses being performed within each tested

hypothesis, results will be deemed statistically significant according to a more conservative,

reported, Bonferroni adjusted standard of statistical significance (critical *p* value = *.05 / (number*

of analyses tested per hypothesis)).

Analyses. To begin, correlation analyses (presented in Table 15 - along with internal

consistency reliability alpha coefficients) were performed to confirm theoretically proposed

associations and ensure the reliability and validity of the investigated variables. Analyses

confirmed that all of the variables included in this study demonstrated substantial internal

consistency reliability and relationships with known theoretically proposed associates.

Table 15 Continued

Internal consistency reliability and correlation coefficients amongst variables assessed in Study II

	13	14	15	16	17	18	19	20	21	22
1. Severity										
2. Affective personal characteristics										
3. Behavioural personal characteristics										
4. Cognitive personal characteristics										
5. Initial reactions										
6. Support										
7. Affective self-regulation										
8. Behavioural self-regulation										
9. Cognitive self-regulation										
10. Nonreactivity										
11. Observing										
12. Acting with awareness										
13. Describing	(.90)									
14. Nonjudging	.229***	(.93)								
15. Reperceiving	.382***	.358***	(.89)							
16. Values clarification	.385***	.321***	.467***	(.80)						
17. Flexibility	.356***	.484***	.585***	.653***	(.84)					
18. Depression symptoms	-.206***	-.439***	-.395***	-.473***	-.557***	(.91)				
19. Anxiety symptoms	-.164***	-.412***	-.253***	-.293***	-.376***	.633***	(.85)			
20. Stress symptoms	-.137***	-.424***	-.337***	-.284***	-.438***	.712***	.694***	(.86)		
21. Physical health	.136***	.315***	.293***	.296***	.441***	-.408***	-.453***	-.412***	(.83)	
22. Wellbeing	.274***	.357***	.558***	.575***	.706***	-.565***	-.296***	-.368***	.399***	(.92)

Note. Parentheses on the diagonal contain coefficient alpha. Significance values are indicated at p < .05, .01, .001 with a *, **, and *** respectively.

Table 15

Internal consistency reliability and correlation coefficients amongst variables assessed in Study II

	1	2	3	4	5	6	7	8	9	10	11	12
1. Severity	(.87)											
2. Affective personal characteristics	-.167***	(.91)										
3. Behavioural personal characteristics	.113***	.254***	(.86)									
4. Cognitive personal characteristics	0.012	.245***	.349***	(.84)								
5. Initial reactions	-.604***	.360***	0.014	.048*	(.84)							
6. Support	-.073**	.166***	.225***	.083***	.202***	(.95)						
7. Affective self-regulation	-0.037	.280***	.279***	.166***	.121***	.113***	(.81)					
8. Behavioural self-regulation	-.066**	.275***	.328***	.134***	.243***	.183***	.464***	(.80)				
9. Cognitive self-regulation	-.385***	.450***	.178***	.076**	.659***	.281***	.216***	.398***	(.88)			
10. Nonreactivity	-.081**	.588***	.198***	.172***	.299***	.157***	.273***	.299***	.402***	(.89)		
11. Observing	.052*	0.004	.177***	.226***	-0.021	.142***	0.043	.122***	0.045	.181***	(.86)	
12. Acting with awareness	-.112***	.400***	.276***	.186***	.274***	.187***	.235***	.389***	.423***	.341***	.107***	(.91)
13. Describing	-0.003	.209***	.232***	.285***	.100***	.198***	.118***	.213***	.193***	.281***	.248***	.352***
14. Nonjudging	-.155***	.429***	.061*	.080**	.335***	.173***	.123***	.221***	.435***	.332***	-.066**	.452***
15. Reperceiving	-.113***	.524***	.279***	.214***	.319***	.303***	.223***	.292***	.477***	.679***	.310***	.389***
16. Values clarification	-.083***	.319***	.476***	.220***	.229***	.357***	.258***	.357***	.390***	.299***	.172***	.458***
17. Flexibility	-.168***	.489***	.372***	.125***	.371***	.382***	.202***	.341***	.564***	.451***	.089***	.518***
18. Depression symptoms	.413***	-.418***	-.189***	-.093***	-.623***	-.352***	-.204***	-.367***	-.704***	-.323***	-0.015	-.407***
19. Anxiety symptoms	.349***	-.398***	-.091***	-.099***	-.434***	-.199***	-.183***	-.249***	-.456***	-.267***	.129***	-.376***
20. Stress symptoms	.362***	-.480***	-0.038	-.053*	-.553***	-.178***	-.149***	-.291***	-.603***	-.356***	.058	-.431***
21. Physical health	-.221***	.398***	.168***	.092***	.301***	.178***	.109***	.189***	.360***	.277***	-.065**	.308***
22. Wellbeing	-.223***	.377***	.310***	.089***	.396***	.542***	.131***	.235***	.553***	.404***	.139***	.318***

Note. Parentheses on the diagonal contain coefficient alpha. Significance values are indicated at $p < .05, .01, .001$ with a *, **, and *** respectively.

Hypotheses 1 and 2: Contrasting resiliency and mindfulness components. A series of multiple regression analyses were performed with the aims of testing the primary and secondary hypotheses of this study (that [1] "the components of resiliency and the components of mindfulness are predictive of resilient (health and wellbeing) outcomes" and [2] "the components of mindfulness are conceptually related to, although significantly different from, the currently conceptualized components of resiliency in the King-Rothstein model and as such they should demonstrate additive predictive validity toward the prediction of various resilient [health and wellbeing]"). More specifically, to test these hypotheses a series of multiple regression models were performed to assess the prediction of each assessed outcome variable (wellbeing, physical health, symptoms of depression, anxiety, and stress) using the components of the King-Rothstein model of resiliency (at entry 1), then with the addition of Shapiro et al's components of mindfulness (dispositional mindfulness and Shapiro's proposed mediating mechanisms of mindfulness less self-regulation which was included with original resiliency components at entry 1; at entry 2). Multiple regression analyses were performed, twice: once as described above (referred to as Model 1) and again, in reverse order (referred to as Model 2), to ensure that all findings are unlikely to be effected by order of entry effects. Therefore, a more conservative adjusted critical significance level (of $p < .005$) was used to determine statistical significance. In each case, adversity severity was controlled for as a likely additional covariate.

The first set of hierarchical linear regression analyses were performed to assess the differential predictability of wellbeing (see Table 16). The results of this analysis supported hypothesis 1, findings generally indicated that components of the King-Rothstein model of resiliency as well as components of mindfulness contributed significantly to the prediction of the outcome wellbeing. At entry 1 the King-Rothstein components of resiliency were found to

produce a model significantly predicting the outcome wellbeing ($F(9, 1225) = 145.871$, $p < .001$,

$R^2 = .517$, adjusted $R^2 = .514$). Similarly, and supporting hypothesis 2, at entry 2, the

components of mindfulness added additional predictive variance above and beyond the

components of resiliency ($F(17, 1217) = 152.204$, $p < .001$, $R^2 = .680$, adjusted $R^2 = .676$). The

variables comprising the original model of resiliency successfully predicted 46.6% of the

variance of wellbeing controlling for adversity severity (at entry 1). However, there was a

pronounced improvement in the prediction of wellbeing obtained with the additive predictive

power accrued when adding the components of mindfulness to the regression equation (at entry

2; 68.0%; $R^2\Delta = .163$, $F\Delta(8, 1217) = 77.424$, $p < .001$). However, it bears noting that acting with

awareness and behavioural self-regulatory processes were found to contribute toward the

prediction of wellbeing in the direction opposite than what was initially hypothesized. Therefore,

these results provide supportive evidence with regards to findings pertaining to hypotheses 1 and

2, in that the components of resiliency and mindfulness were found to be additively predictive of

short-term outcomes of wellbeing given an adverse experience.

Table 16
Model 1 - Hierarchical regression analysis predicting short-term wellbeing

Predictor	Covariate	Entry 1	Entry 2
Adversity Severity	-.228*	-.048	-.054
Affective personal characteristics		.131*	-.023
Behavioral personal characteristics		.172*	.032
Cognitive personal characteristics		-.061	-.045
Initial reactions		.021	.018
Opportunities, supports, and resources		.401*	.270*
Affective self-regulatory processes		-.032	-.019
Behavioural self-regulatory processes		-.052	-.080*
Cognitive self-regulatory processes		.348*	.165*
FFMQ - Nonreactivity to inner experience			.019
FFMQ – Observing, noticing and attending			.003
FFMQ – Acting with awareness			-.087*
FFMQ – Describing / labeling with words			-.012
FFMQ – Non-judging of experience			-.009
Reperceiving			.143*
Values clarification			.158*
Cognitive behavioral flexibility			.408*
R^2	.052	.517	.680
Adj. R^2	.051	.514	.676
ΔR^2		.466	.163
F	67.349*	145.871*	152.204*
Sig F Change		147.675*	77.424*
df	1, 1233	9, 1225	17, 1217

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

To confirm these findings, a similar hierarchical linear regression analyses was

performed using model 2, reversing the order of entry such that all of the components of

mindfulness were added to the equation first (at entry 1), followed by all resiliency components

(at entry 2; see Table 17). The results of this analysis generally demonstrated that the

components of mindfulness (not including self-regulation) were a substantial statistically

significant predictor of wellbeing (at entry 1; $F(9, 1225) = 201.527$, $p < .001$, $R^2 = .597$, adjusted

$R^2 = .594$). Similarly, as in model 1, the addition of the King-Rothstein components of resiliency

were also found to contribute additively and differentially to the prediction of wellbeing in a

substantial and statistically significant manner (entry 2; $F(17, 1217) = 152.204, p < .001,$

$R^2 = .680$, adjusted $R^2 = .676$). However, there was a notably smaller improvement in the

prediction of wellbeing when adding the components of resiliency to the components of

mindfulness rather than vice versa (at entry 2; $R^2\Delta = .083, F\Delta(8, 1217) = 39.585, p < .001$).

Therefore it can be concluded (supporting hypotheses 1 and 2) with regards to the outcome

wellbeing, that evidence suggests both the components of resiliency and mindfulness serve as

unique, differential, and statistically significant predictors of this outcome.

Table 17
Model 2 - Hierarchical regression analysis predicting short-term wellbeing

Predictor	Covariate	Entry 1	Entry 2
Adversity Severity	-.228*	-.109*	-.054
FFMQ - Nonreactivity to inner experience		-.028	.019
FFMQ – Observing, noticing and attending		.007	.003
FFMQ – Acting with awareness		-.104*	-.087*
FFMQ – Describing / labeling with words		-.037	-.012
FFMQ – Non-judging of experience		.017	-.009
Reperceiving		.212*	.143*
Values clarification		.189*	.158*
Cognitive behavioural flexibility		.536*	.408*
Affective personal characteristics			-.023
Behavioural personal characteristics			.032
Cognitive personal characteristics			-.045
Initial reactions			.018
Opportunities, supports, and resources			.270*
Affective self-regulatory processes			-.019
Behavioural self-regulatory processes			-.080*
Cognitive self-regulatory processes			.165*
R^2	.052	.597	.680
Adj. R^2	.051	.594	.676
ΔR^2		.545	.083
F	67.349*	201.527*	152.204*
Sig F Change		207.045*	39.585*
df	1, 1233	9, 1225	17, 1217

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

As with the outcome wellbeing a set of hierarchical linear regression analyses were performed to assess the differential predictability of physical health using the same order of entry described as Model 1 (see Table 18). The results of this analysis supported hypothesis 1, findings generally indicated that components of the King-Rothstein model of resiliency as well as components of mindfulness contributed significantly to the prediction of the outcome physical health. At entry 1 the King-Rothstein components of resiliency were found to produce a model significantly predicting the outcome physical health ($F(9, 1227) = 39.428$, $p < .001$, $R^2 = .224$, adjusted $R^2 = .219$). Similarly, supporting hypothesis 2, at entry 2 the components of mindfulness added additional predictive variance above and beyond the components of resiliency ($F(17, 1219) = 29.142$, $p < .001$, $R^2 = .289$, adjusted $R^2 = .279$). The variables comprising the original model of resiliency successfully predicted 17.6% of the variance of physical health controlling for severity perceptions regarding the adversity (at entry 1). However, there was a noted improvement in the prediction of the physical health obtained with the additive predictive power accrued when adding the components of mindfulness to the regression equation (at entry 2; 27.9%; $R^2\Delta = .065$, $F\Delta(8, 1219) = 13.853$, $p < .001$). However, it bears noting that the mindfulness facet observing was found to contribute toward the prediction of physical health in the direction opposite than what was initially hypothesized. Generally speaking, these results depict supportive evidence with regards to findings pertaining to hypotheses 1 and 2, in that the components of resiliency and mindfulness were found to provide unique additive predictive power toward short-term outcomes of physical health given an adverse experience.

Table 18
Model 1 - Hierarchical regression analysis predicting short-term physical health

Predictor		Covariate	Entry 1	Entry 2
Adversity Severity		-.219*	-.097*	-.105*
Affective personal characteristics			.273*	.169*
Behavioural personal characteristics			.068	.020
Cognitive personal characteristics			-.010	.023
Initial reactions			.025	.007
Opportunities, supports, and resources			.084*	.033
Affective self-regulatory processes			-.049	-.033
Behavioural self-regulatory processes			.017	-.001
Cognitive self-regulatory processes			.165*	.049
FFMQ - Nonreactivity to inner experience				-.008
FFMQ – Observing, noticing and attending				-.091*
FFMQ – Acting with awareness				.062
FFMQ – Describing / labeling with words				-.014
FFMQ – Non-judging of experience				.047
Reperceiving				-.003
Values clarification				-.023
Cognitive behavioural flexibility				.302*
	R^2	.048	.224	.289
	Adj. R^2	.047	.219	.279
	ΔR^2		.176	.065
	F	62.266*	39.428*	29.142*
	Sig F Change		34.866*	13.853*
	df	1, 1235	9, 1227	17, 1219

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

To confirm these findings, a similar hierarchical linear regression analyses was performed, using model 2 (see Table 19). The results of this analysis generally demonstrated that the components of mindfulness (not including self-regulation) were a substantial statistically significant predictor of physical health (at entry 1; $F(9, 1227) = 50.001$, $p < .001$, $R^2 = .268$, adjusted $R^2 = .263$). Similarly, as in model 1, the addition of the King-Rothstein components of resiliency were also found to contribute additively and differentially to the prediction of physical health in a substantial and statistically significant manner (entry 2; $F(17, 1219) = 29.142$,

$p < .001$, $R^2 = .289$, adjusted $R^2 = .279$). However, there was a slightly smaller improvement in the prediction of physical health when adding the components of resiliency to the components of mindfulness rather than vice versa (at entry 2; $R^2\Delta = .021$, $F\Delta(8, 1219) = 4.420$, $p < .001$). In sum, it can be concluded (supporting hypotheses 1 and 2) with regards to the outcome physical health, that evidence suggests both the components of resiliency and mindfulness serve as unique, differential, and statistically significant predictors of this outcome.

Table 19
Model 2 - Hierarchical regression analysis predicting short-term physical health

Predictor	Covariate	Entry 1	Entry 2
Adversity Severity	-.219*	-.130*	-.105*
FFMQ - Nonreactivity to inner experience		.055	-.008
FFMQ – Observing, noticing and attending		-.100*	-.091*
FFMQ – Acting with awareness		.087	.062
FFMQ – Describing / labeling with words		-.018	-.014
FFMQ – Non-judging of experience		.074	.047
Reperceiving		.027	-.003
Values clarification		-.015	-.023
Cognitive behavioural flexibility		.353*	.302*
Affective personal characteristics			.169*
Behavioural personal characteristics			.020
Cognitive personal characteristics			.023
Initial reactions			.007
Opportunities, supports, and resources			.033
Affective self-regulatory processes			-.033
Behavioural self-regulatory processes			-.001
Cognitive self-regulatory processes			.049
R^2	.048	.268	.289
Adj. R^2	.047	.263	.279
ΔR^2		.220	.021
F	62.266*	50.001*	29.142*
Sig F Change		46.190*	4.420*
df	1, 1235	9, 1227	17, 1219

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

As with the outcomes wellbeing and physical health another set of hierarchical linear regression analyses were performed to assess the differential predictability of symptoms of depression using Model 1 (see Table 20). The results of this analysis supported hypothesis 1, findings generally indicated that components of the King-Rothstein model of resiliency as well as components of mindfulness contributed significantly to the prediction of the outcome symptoms of depression. At entry 1 the King-Rothstein components of resiliency were found to produce a model significantly predicting the outcome symptoms of depression $(F(9, 1223) = 214.924, p < .001, R^2 = .613$, adjusted $R^2 = .610)$. Similarly, supporting hypothesis 2, at entry 2 the components of mindfulness added additional predictive variance above and beyond the components of resiliency $(F(17, 1215) = 132.196, p < .001, R^2 = .649$, adjusted $R^2 = .644)$. The variables comprising the original model of resiliency successfully predicted 43.4% of the variance of symptoms of depression controlling for severity perceptions regarding the adversity (at entry 1). However, there was a small improvement in the prediction of symptoms of depression obtained with the additive predictive power accrued when adding the components of mindfulness to the regression equation (at entry 2; 3.6%; $R^2\Delta = .036$, $F\Delta(8, 1215) = 15.768, p < .001)$. Taken as a whole, these results provide evidence supporting hypotheses 1 and 2, in that the components of resiliency and mindfulness were found to provide unique additive predictive power toward short-term outcomes of symptoms of depression given an adverse experience.

Table 20
Model 1 - Hierarchical regression analysis predicting short-term symptoms of depression

Predictor	Covariate	Entry 1	Entry 2
Adversity Severity	.422*	.095*	.092*
Affective personal characteristics		-.099*	-.076*
Behavioural personal characteristics		-.049	.016
Cognitive personal characteristics		.037	.034
Initial reactions		-.226*	-.222*
Opportunities, supports, and resources		-.155*	-.107*
Affective self-regulatory processes		-.012	-.018
Behavioural self-regulatory processes		-.097*	-.073*
Cognitive self-regulatory processes		-.390*	-.323*
FFMQ - Nonreactivity to inner experience			.059
FFMQ – Observing, noticing and attending			.017
FFMQ – Acting with awareness			-.016
FFMQ – Describing / labeling with words			-.005
FFMQ – Non-judging of experience			-.072*
Reperceiving			.021
Values clarification			-.157*
Cognitive behavioural flexibility			-.086*
R^2	.178	.613	.649
Adj. R^2	.178	.610	.644
ΔR^2		.434	.036
F	267.148*	214.924*	132.196*
Sig F Change		171.413*	15.768*
df	1, 1231	9, 1223	17, 1215

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

To confirm these findings, a similar hierarchical linear regression analyses was performed, using model 2 (see Table 21). The results of this analysis generally demonstrated that the components of mindfulness (not including self-regulation) were a substantial statistically significant predictor of symptoms of depression (at entry 1; $F(9, 1223) = 132.951$, $p < .001$, $R^2 = .495$, adjusted $R^2 = .491$). Similarly, as in model 1, the addition of the King-Rothstein components of resiliency were also found to contribute additively and differentially to the prediction of symptoms of depression in a substantial and statistically significant manner (entry

2; $F(17, 1215) = 132.196$, $p < .001$, $R^2 = .649$, adjusted $R^2 = .644$). However, there was a notably

larger improvement in the prediction of symptoms of depression when adding the components of

resiliency to the components of mindfulness rather than vice versa (at entry 2; $R^2\Delta = .155$,

$F\Delta(8, 1215) = 66.885$, $p < .001$). Therefore it can be concluded (supporting hypotheses 1 and 2)

with regards to the outcome symptoms of depression, that evidence suggests both the

components of resiliency and mindfulness serve as unique, differential, and statistically

significant predictors of this outcome.

Table 21
Model 2 - Hierarchical regression analysis predicting short-term symptoms of depression

Predictor		Covariate	Entry 1	Entry 2
Adversity Severity		.422*	.321*	.092*
FFMQ - Nonreactivity to inner experience			-.014	.059
FFMQ – Observing, noticing and attending			.035	.017
FFMQ – Acting with awareness			-.080*	-.016
FFMQ – Describing / labeling with words			.039	-.005
FFMQ – Non-judging of experience			-.165*	-.072*
Reperceiving			-.059	.021
Values clarification			-.189*	-.157***
Cognitive behavioural flexibility			-.249*	-.086*
Affective personal characteristics				-.076*
Behavioural personal characteristics				.016
Cognitive personal characteristics				.034
Initial reactions				-.222*
Opportunities, supports, and resources				-.107*
Affective self-regulatory processes				-.018
Behavioural self-regulatory processes				-.073*
Cognitive self-regulatory processes				-.323*
	R^2	.178	.495	.649
	Adj. R^2	.178	.491	.644
	ΔR^2		.316	.155
	F	267.148*	132.951*	132.196*
	Sig F Change		95.638*	66.885*
	df	1, 1231	9, 1223	17, 1215

 Note. The values represent standardized regression coefficients. * significant to the
conservatively adjusted critical $p < .005$ of significance.

To assess the differential predictability of symptoms of anxiety another set of hierarchical linear regression analyses was performed using Model 1 (see Table 22). The results of this analysis supported hypothesis 1, findings generally indicated that components of the King-Rothstein model of resiliency as well as components of mindfulness contributed significantly to the prediction of the outcome in question. At entry 1 the King-Rothstein components of resiliency were found to produce a model significantly predicting the outcome symptoms of anxiety ($F(9, 1222) = 63.301$, $p < .001$, $R^2 = .318$, adjusted $R^2 = .313$). Similarly, supporting hypothesis 2, at entry 2 the components of mindfulness added additional predictive variance above and beyond the components of resiliency ($F(17, 1214) = 45.938$, $p < .001$, $R^2 = .391$, adjusted $R^2 = .383$). The variables comprising the original model of resiliency successfully predicted 19.3% of the variance of symptoms of anxiety controlling for severity perceptions regarding the adversity (at entry 1). However, there was a noted improvement in the prediction of the symptoms of anxiety obtained with the additive predictive power accrued when adding the components of mindfulness to the regression equation (at entry 2; 38.3%; $R^2\Delta = .073$, $F\Delta(8, 1214) = 18.327$, $p < .001$). However, it bears noting that the mindfulness facet observing was found to contribute toward the prediction of symptoms of anxiety in the direction opposite than what was initially hypothesized. Therefore, these results provide supporting evidence pertaining to hypotheses 1 and 2, in that the components of resiliency and mindfulness were found to provide unique additive predictive power toward short-term outcomes of symptoms of anxiety given an adverse experience.

Table 22

Model 1 - Hierarchical regression analysis predicting short-term symptoms of anxiety

Predictor	Covariate	Entry 1	Entry 2
Adversity Severity	.353*	.157*	.169*
Affective personal characteristics		-.215*	-.146*
Behavioural personal characteristics		.022	.032
Cognitive personal characteristics		.024	.009
Initial reactions		-.117*	-.091
Opportunities, supports, and resources		-.089*	-.079*
Affective self-regulatory processes		-.044	-.047
Behavioural self-regulatory processes		-.054	-.027
Cognitive self-regulatory processes		-.181*	-.110*
FFMQ - Nonreactivity to inner experience			.025
FFMQ – Observing, noticing and attending			.147*
FFMQ – Acting with awareness			-.130*
FFMQ – Describing / labeling with words			-.046
FFMQ – Non-judging of experience			-.155*
Reperceiving			.056
Values clarification			-.050
Cognitive behavioural flexibility			-.030
R^2	.125	.318	.391
Adj. R^2	.124	.313	.383
ΔR^2		.193	.073
F	175.439*	63.301*	45.938*
Sig F Change		43.256*	18.327*
df	1, 1230	9, 1222	17, 1214

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

To confirm these findings, a similar hierarchical linear regression analyses was performed, using model 2 (see Table 23). The results of this analysis generally demonstrated that the components of mindfulness (not including self-regulation) were a substantial statistically significant predictor of symptoms of anxiety (at entry 1; $F(9, 1222) = 52.773, p < .001,$ $R^2 = .350$, adjusted $R^2 = .345$). Similarly, as in model 1, the addition of the King-Rothstein components of resiliency were also found to contribute additively and differentially to the prediction of symptoms of anxiety in a substantial and statistically significant manner (entry 2;

$F(17, 1214) = 45.938, p < .001, R^2 = .391$, adjusted $R^2 = .383$). However, there was a slightly

smaller improvement in the prediction of symptoms of stress when adding the components of

resiliency to the components of mindfulness rather than vice versa (at entry 2; $R^2\Delta = .042$,

$F\Delta(8, 1214) = 10.452, p < .001$). Therefore it can be concluded (supporting hypotheses 1 and 2),

with regards to the outcome symptoms of anxiety, the evidence suggests both the components of

resiliency and mindfulness serve as unique, differential, and statistically significant predictors of

this outcome.

Table 23
Model 2 - Hierarchical regression analysis predicting short-term symptoms of anxiety

Predictor	Covariate	Entry 1	Entry 2
Adversity Severity	.353*	.270*	.169*
FFMQ - Nonreactivity to inner experience		-.053	.025
FFMQ – Observing, noticing and attending		.163*	.147*
FFMQ – Acting with awareness		-.169*	-.130*
FFMQ – Describing / labeling with words		-.025	-.046
FFMQ – Non-judging of experience		-.209*	-.155*
Reperceiving		.009	.056
Values clarification		-.066	-.050
Cognitive behavioural flexibility		-.108*	-.030
Affective personal characteristics			-.146*
Behavioural personal characteristics			.032
Cognitive personal characteristics			.009
Initial reactions			-.091
Opportunities, supports, and resources			-.079*
Affective self-regulatory processes			-.047
Behavioural self-regulatory processes			-.027
Cognitive self-regulatory processes			-.110*
R^2	.125	.350	.391
Adj. R^2	.124	.345	.383
ΔR^2		.225	.042
F	175.439*	72.966*	45.938*
Sig F Change		52.773*	10.452*
df	1, 1230	9, 1222	17, 1214

Note. The values represent standardized regression coefficients. * significant to the
conservatively adjusted critical $p < .005$ of significance.

To assess the differential predictability of symptoms of stress another set of hierarchical linear regression analyses was performed using Model 1 (see Table 24). The results of this analysis supported hypothesis 1, findings generally indicated that components of the King-Rothstein model of resiliency as well as components of mindfulness contributed significantly to the prediction of the outcome symptoms of stress. At entry 1 the King-Rothstein components of resiliency were found to produce a model significantly predicting the outcome symptoms of stress ($F(9, 1235) = 137.868$, $p < .001$, $R^2 = .503$, adjusted $R^2 = .499$). Similarly, supporting hypothesis 2, at entry 2 the components of mindfulness added additional predictive variance above and beyond the components of resiliency ($F(17, 1219) = 83.081$, $p < .001$, $R^2 = .537$, adjusted $R^2 = .530$). The variables comprising the original model of resiliency successfully predicted 38.0% of the variance of symptoms of stress controlling for severity perceptions regarding the adversity (at entry 1). However, there was a small improvement in the prediction of the symptoms of stress obtained with the additive predictive power accrued when adding the components of mindfulness to the regression equation (at entry 2; 53.7%; $R^2\Delta = .034$, $F\Delta(8, 1219) = 11.166$, $p < .001$). However, it bears noting that the resiliency component behavioral personal characteristics was found to contribute toward the prediction of symptoms of stress in the direction opposite than what was initially hypothesized. Taken as a whole, though, these results depict supporting evidence with regards to findings pertaining to hypotheses 1 and 2, in that the components of resiliency and mindfulness were found to provide unique additive predictive power toward short-term outcomes of symptoms of stress given an adverse experience.

Table 24

Model 1 - Hierarchical regression analysis predicting short-term symptoms of stress

Predictor		Covariate	Entry 1	Entry 2
Adversity Severity		.350*	.028	.036
Affective personal characteristics			-.284*	-.215*
Behavioural personal characteristics			.096*	.112*
Cognitive personal characteristics			.038	.023
Initial reactions			-.201*	-.186*
Opportunities, supports, and resources			-.030	-.017
Affective self-regulatory processes			.013	.011
Behavioural self-regulatory processes			-.088*	-.059
Cognitive self-regulatory processes			-.334*	-.270*
FFMQ - Nonreactivity to inner experience				-.002
FFMQ – Observing, noticing and attending				.059
FFMQ – Acting with awareness				-.160*
FFMQ – Describing / labeling with words				.041
FFMQ – Non-judging of experience				-.072*
Reperceiving				.014
Values clarification				-.015
Cognitive behavioural flexibility				-.053
	R^2	.122	.503	.537
	Adj. R^2	.122	.499	.530
	ΔR^2		.380	.034
	F	172.263*	137.868*	83.081*
	Sig F Change		117.341*	11.166*
	df	1, 1235	9, 1227	17, 1219

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

To confirm these findings, a similar hierarchical linear regression analyses was

performed, using model 2 (see Table 25). The results of this analysis generally demonstrated

that the components of mindfulness (not including self-regulation) were a substantial statistically

significant predictor of symptoms of stress (at entry 1; $F(9, 1227) = 94.680$, $p < .001$, $R^2 = .410$,

adjusted $R^2 = .406$). Similarly, as in model 1, the addition of the King-Rothstein components of

resiliency were also found to contribute additively and differentially to the prediction of

symptoms of stress in a substantial and statistically significant manner (entry 2; $F(17,$

1219) $= 83.081$, $p < .001$, $R^2 = .537$, adjusted $R^2 = .530$). However, there was a notably bigger improvement in the prediction of symptoms of stress when adding the components of resiliency to the components of mindfulness rather than vice versa (at entry 2; $R^2\Delta = .127$, $F\Delta(8, 1219) = 41.740$, $p < .001$). It also bears noting that in addition to the resiliency component behavioral personal characteristics, the mindfulness facet, observing, was also found to contribute toward the prediction of symptoms of stress in the direction opposite than what was initially hypothesized. Therefore it can be concluded (supporting hypotheses 1 and 2), with regards to the outcome symptoms of stress, the evidence suggests both the components of resiliency and mindfulness serve as unique, differential, and statistically significant predictors of this outcome.

Table 25

Model 2 - Hierarchical regression analysis predicting short-term symptoms of stress

Predictor		Covariate	Entry 1	Entry 2
Adversity Severity		.350*	.250*	.036
FFMQ - Nonreactivity to inner experience			-.123*	-.002
FFMQ – Observing, noticing and attending			.099*	.059
FFMQ – Acting with awareness			-.220*	-.160*
FFMQ – Describing / labeling with words			.078*	.041
FFMQ – Non-judging of experience			-.186*	-.072*
Reperceiving			-.057	.014
Values clarification			.017	-.015
Cognitive behavioural flexibility			-.181*	-.053
Affective personal characteristics				-.215*
Behavioural personal characteristics				.112*
Cognitive personal characteristics				.023
Initial reactions				-.186*
Opportunities, supports, and resources				-.017
Affective self-regulatory processes				.011
Behavioural self-regulatory processes				-.059
Cognitive self-regulatory processes				-.270*
	R^2	.122	.410	.537
	Adj. R^2	.122	.406	.530
	ΔR^2		.287	.127
	F	172.263*	94.680*	83.081*
	Sig F Change		74.702*	41.740*
	df	1, 1235	9, 1227	17, 1219

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .005$ of significance.

In sum, findings broadly supported hypotheses 1 and 2 in that for each of the tested outcome variables both the components of resiliency and mindfulness were statistically significant predictors, each set contributing unique variance toward the prediction of each relevant outcome. Both variable sets added a degree unique predictive variance to the prediction of all tested health and wellness outcomes. Additionally, under most cases, adversity severity was also found to remain a relevant covariate of health and wellbeing outcomes as well.

Hypothesis 3: Integrating Mindfulness and Resiliency. Lastly, to test the third

hypothesis – examining whether the components of both mindfulness and resiliency could work

in an integrated fashion to produce various resiliency-related outcomes – an exploratory factor

analysis was first performed to examine how the factor structure could reduce the number of

variables to potentially integrate with one another.   Direct oblimin rotation (an oblique solution)

was selected on the basis that the component variables comprising resiliency and mindfulness are

believed to be correlated with one another. The number of factors was decided according to those

with an eigenvalue greater than one. Four factors were deemed to have met the eigenvalue

greater than one decision rule. The rationale for this decision rule is that those presenting

eigenvalues less than 1.00 are considered to be too unstable and potentially account for less

variance than do some single variables of the analysis (Girden, 2001). Visual inspection of the

scree–plot generally reflected a tapering of eigenvalues at the four factor point as well thus

confirming these findings. The rotated component matrix is presented in Table 26, along with

factor loadings and communality values. Four factors were clearly drawn from this analysis. At

first glance, it became apparent that factors demonstrated substantial overlap of mindfulness and

resiliency. The variables loading onto each factor were examined for meaningful interpretation.

Factor 1 I came to label "mindful tendencies, processes, and reactions"; it was comprised of

resilient affective personal characteristics, the mindfulness facet non-reactivity, resilient

cognitive self-regulatory processes, reperceiving, the mindfulness facet non-judgment of

experiences, reactions to adversity, and the mindfulness facet acting with awareness. Factor 2 I

came to label "thoughts and observations"; it was comprised of the mindfulness facet observing,

resilient cognitive personal characteristics, and the mindfulness facet describing (often referring

to thoughts and feelings). Factor 3 I came to label "affective and behavioural tendency and self-

control"; it was comprised of resilient affective and behavioural self-regulatory processes and behavioural tendencies. Factor 4 I came to label "support, flexibility, and clarity"; it was comprised of resilient social support, values clarification, and cognitive, emotional, and behavioural flexibility. Reliability analyses (presented in Table 16) and visual examinations of normality were then performed on each of the factors drawn from the factor analysis to ensure the utility of the integrated latent constructs. All factors presented strong internal-consistency reliability and only the fourth of the four (presented in Table 26 and in Figure 3) factors presented concern for less than ideal normality; however, final visual examinations of factor histograms seemed to indicate sufficient normality. Therefore, the variables comprising the four factors drawn from this analysis seemed to demonstrate integrity as coordinating variables working in concert with a single factor under an overarching four-factor framework and each factor seems to present adequate differentiation. This is indicative of the expected pattern given such dimension reduction approach. This framework will be used to test hypothesis 3.
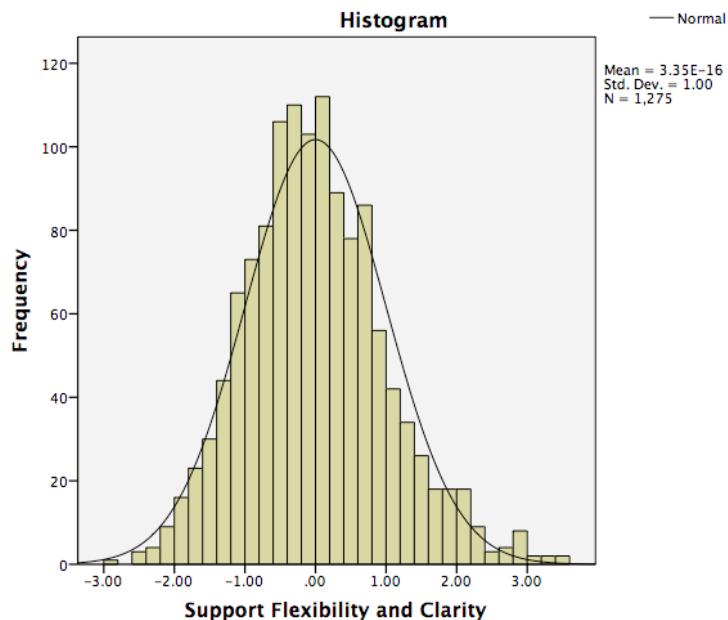
Figure 3. Histogram of Factor 4: "Support, flexibility, and clarity"

Table 26

Rotated component matrix, factor loadings, bivariate correlation coefficients, reliabilties, descriptives, and communalities of the factor analysis of resiliency and mindfulness components

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Affective traits	**0.764**	0.230	0.410	-0.085
Nonreactivity	**0.761**	0.373	0.296	-0.032
Cognitive self-regulatory processes	**0.745**	-0.127	0.321	-0.480
Reperceiving	**0.740**	0.491	0.247	-0.348
Nonjudgment of experience	**0.683**	-0.034	0.142	-0.320
Reactions to adversity	**0.636**	-0.264	0.168	-0.351
Acting with awareness	**0.575**	0.239	0.426	-0.443
Observing	0.044	**0.660**	0.045	-0.165
Cognitive traits	0.146	**0.614**	0.365	0.036
Describing	0.34	**0.592**	0.165	-0.356
Affective self-regulatory processes	0.248	0.084	**0.819**	0.007
Behavioural self-regulatory processes	0.339	0.063	**0.749**	-0.316
Behavioural personal characteristics	0.106	0.475	**0.602**	-0.411
Social Support	0.236	0.115	0.125	**-0.730**
Values clarification	0.411	0.372	0.461	**-0.710**
Flexibility	0.679	0.235	0.337	**-0.687**

Factor 1	(.94)			
Factor 2	.120***	(.78)		
Factor 3	.297***	.205***	(.87)	
Factor 4	-.310***	-.114***	-.185***	(.90)
Mean (S.D)	0.00 (1.00)	0.00 (1.00)	0.00 (1.00)	0.00 (1.00)
Skewness (S.D)	-0.138 (0.069)	-.044 (.069)	-.156 (.069)	.398 (.069)
Kurtosis (S.D.)	-.089 (.137)	.102 (.137)	.341 (.137)	.351 (.137)

Note. Factor loadings of the structure matrix presented as bold load heaviest onto the factor column they are found under. Rotation used was direct oblimin.

Next, a series of multiple regression analyses were performed to examine how each of these latent integrated factors predicts relevant outcomes of adversity. Each of these factors was entered into a multiple regression model assessing the prediction of five health and wellbeing outcomes (wellbeing, physical health, symptoms of depression, anxiety, and stress). Therefore, a more conservative adjusted critical significance level (of $p < .01$) will be applied and used to

determine critical statistical significance. In each case, adversity severity was controlled for as a

likely additional covariate.

A hierarchical linear regression analysis was performed with the specific intent of

assessing the predictability of wellbeing given the obtained integrated factors derived from

preceding exploratory factor analysis (see Table 27). The results of this analysis supported

hypothesis 3. Findings indicated that factors 1 (mindful tendencies, processes, and reactions), 2

(thoughts and observations), and 4 (support, flexibility, and clarity) were substantial significant

predictors of wellbeing controlling for the effects of severity ($F(5, 1229) = 374.031$, $p < .001$,

$R^2 = .603$, adjusted $R^2 = .602$, $R^2\Delta = .552$, $F\Delta(4, 1229) = 427.410$, $p < .001$). However, it bears

noting that factor 4 was found to contribute toward the prediction of wellbeing in the direction

opposite than what was initially hypothesized. Taken as a whole, though, these results depict

primarily supportive evidence with regards to findings pertaining to hypothesis 3. The integrated

reduced framework was found to be predictive of short-term wellbeing following an adverse

experience.

Table 27
Hierarchical regression analysis predicting wellbeing from latent factors

Predictor		Covariate	Entry 1
Adversity Severity		-.228*	-.036
Factor 1 - Mindful Tendencies, Processes and Reactions			.380*
Factor 2 - Thoughts and Observations			.075*
Factor 3 - Affective and Behavioural Tendency and Self-Control			-.008
Factor 4 - Support Flexibility and Clarity			-.547*
	R^2	.052	.603
	Adj. R^2	.051	.602
	ΔR^2	.052	.552
	F	67.349*	374.031*
	Sig F Change		427.410*
	df	1, 1233	5, 1229

Note. The values represent standardized regression coefficients. * significant to the
conservatively adjusted critical $p < .01$ of significance.

A second hierarchical linear regression analysis was performed to assess the predictability of physical health given the newly derived latent factor set (see Table 28). The results of this analysis also supported hypothesis 3. Findings indicated that factors 1 (mindful tendencies, processes, and reactions), 3 (affective and behavioural tendency and self-control), and 4 (support, flexibility, and clarity) were substantial significant predictors of physical health controlling for the effects of severity ($F(5, 1231) = 79.160$, $p < .001$, $R^2 = .243$, adjusted $R^2 = .240$, $R^2\Delta = .195$, $F\Delta(4, 1231) = 79.429$, $p < .001$). However, once more, it bears noting that factor 4 was found to contribute toward the prediction of physical health in the direction opposite than what was initially hypothesized. Taken as a whole, though, these results depict supportive evidence with regards to findings pertaining to hypothesis 3. The integrated reduced framework was found to be predictive of short-term physical health following an adverse experience.

Table 28

Hierarchical regression analysis predicting physical health from latent factors

Predictor		Covariate	Entry 1
Adversity Severity		-.219*	-.064
Factor 1 - Mindful Tendencies, Processes and Reactions			.366*
Factor 2 - Thoughts and Observations			-.029
Factor 3 - Affective and Behavioural Tendency and Self-Control			.064
Factor 4 - Support Flexibility and Clarity			-0.168*
	R^2	.048	.243
	Adj. R^2	.047	.240
	ΔR^2	.048	.195
	F	62.266*	79.160*
	Sig F Change		79.429*
	df	1, 1235	5, 1231

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .01$ of significance.

A third hierarchical linear regression analysis was performed to assess the predictability of symptoms of depression given the newly derived factor set (see Table 29). The results of this analysis also supported hypothesis 3. Findings indicated that factors 1 (mindful tendencies,

processes, and reactions), 2 (thoughts and observations), 3 (affective and behavioural tendency

and self-control), and 4 (support, flexibility, and clarity) were all statistically significant

predictors of symptoms of depression controlling for the effects of severity

($F(5, 1227) = 396.960$, $p < .001$, $R^2 = .618$, adjusted $R^2 = .616$, $R^2\Delta = .440$,

$F\Delta(4, 1227) = 353.019$, $p < .001$). However, once more, it bears noting that factors 2 and 4 were

found to contribute toward the prediction of symptoms of depression in the direction opposite

than what was initially hypothesized. Taken as a whole, though, these results depict primarily

supportive evidence with regards to findings pertaining to hypothesis 3. The integrated reduced

framework was found to be predictive of short-term symptoms of depression following an

adverse experience.

Table 29
Hierarchical regression analysis predicting symptoms of depression from latent factors

Predictor		Covariate	Entry 1
Adversity Severity		.422*	.169*
Factor 1 - Mindful Tendencies, Processes and Reactions			-.442*
Factor 2 - Thoughts and Observations			.161*
Factor 3 - Affective and Behavioural Tendency and Self-Control			-.161*
Factor 4 - Support Flexibility and Clarity			0.367*
	R^2	.178	.618
	Adj. R^2	.178	.616
	ΔR^2	.178	.440
	F	267.148*	396.960*
	Sig F Change		353.019*
	df	1, 1231	5, 1227

Note. The values represent standardized regression coefficients. * significant to the
conservatively adjusted critical $p < .01$ of significance.

A fourth hierarchical linear regression analysis was performed to assess the predictability

of symptoms of anxiety given the newly derived factor set (see Table 30). The results of this

analysis also supported hypothesis 3. Findings indicated that factors 1 (mindful tendencies,

processes, and reactions), 2 (thoughts and observations), 3 (affective and behavioural tendency

and self-control), and 4 (support, flexibility, and clarity) were all statistically significant predictors of symptoms of anxiety controlling for the effects of severity ($F(5, 1226) = 136.641$, $p < .001$, $R^2 = .358$, adjusted $R^2 = .355$, $R^2\Delta = .233$, $F\Delta(4, 1226) = 111.220$, $p < .001$). However, once more, it bears noting that factors 2 and 4 were found to contribute toward the prediction of symptoms of anxiety in the direction opposite than what was initially hypothesized. Taken as a whole, though, these results depict primarily supportive evidence with regards to findings pertaining to hypothesis 3. The integrated reduced framework was found to be predictive of short-term symptoms of anxiety following an adverse experience.

Table 30

Hierarchical regression analysis predicting symptoms of anxiety from latent factors

Predictor		Covariate	Entry 1
Adversity Severity		.353*	.154*
Factor 1 - Mindful Tendencies, Processes and Reactions			-.393*
Factor 2 - Thoughts and Observations			.160*
Factor 3 - Affective and Behavioural Tendency and Self-Control			-.134*
Factor 4 - Support Flexibility and Clarity			0.16*
	R^2	.125	.358
	Adj. R²	.124	.355
	ΔR^2	.125	.233
	F	175.439*	136.641*
	Sig F Change		111.220*
	df	1, 1230	5, 1226

Note. The values represent standardized regression coefficients. * significant to the conservatively adjusted critical $p < .01$ of significance.

A fifth hierarchical linear regression analysis was performed to assess the predictability of symptoms of stress given the newly derived factor set (see Table 31). The results of this analysis also supported hypothesis 3. Findings indicated that factors 1 (mindful tendencies, processes, and reactions), 2 (thoughts and observations), 3 (affective and behavioural tendency and self-control), and 4 (support, flexibility, and clarity) were all statistically significant predictors of symptoms of stress controlling for the effects of severity ($F(5, 1231) = 253.771$, $p < .001$,

$R^2 = .508$, adjusted $R^2 = .506$, $R^2\Delta = .385$, $F\Delta(4, 1231) = 240.712$, $p < .001$). However, once

more, it bears noting that factors 2 and 4 were found to contribute toward the prediction of

symptoms of stress in the direction opposite than what was initially hypothesized. Taken as a

whole, though, these results depict primarily supportive evidence with regards to findings

pertaining to hypothesis 3. The integrated reduced framework was found to be predictive of

short-term symptoms of stress following an adverse experience.

Table 31

Hierarchical regression analysis predicting symptoms of stress from latent factors

Predictor		Covariate	Entry 1
Adversity Severity		.350*	.080*
Factor 1 - Mindful Tendencies, Processes and Reactions			-.588*
Factor 2 - Thoughts and Observations			.208*
Factor 3 - Affective and Behavioural Tendency and Self-Control			-.101*
Factor 4 - Support Flexibility and Clarity			.127*
	R^2	.122	.508
	Adj. R^2	.122	.506
	ΔR^2	.122	.385
	F	172.263*	253.771*
	Sig F Change		240.712*
	df	1, 1235	5, 1231

Note. The values represent standardized regression coefficients. * significant to the
conservatively adjusted critical $p < .01$ of significance.

        In sum, findings broadly supported hypothesis 3 in that for each of the tested outcome

variables most, if not all, of the latent variable constructs indicating an integrated framework of

mindful-resilience were found to be statistically significant predictors. Although there were

some discrepancies in the directionality that these variables were expected to perform given each

of the outcomes that were attempting to be predicted, the models generally predicted substantial

variance (ranging from 24.3% to 61.8%). In general, the reduced integrated dimensional

framework seems to be useful in predicting health and wellbeing outcomes.

Discussion

The hypotheses of this study were generally met with supporting evidence. The results pertaining to hypotheses 1 through 3 provided consistent support for the usefulness of the components of mindfulness and the components of resiliency in their ability to predict various health and wellbeing outcomes. Similarly, results provided evidence supporting the integration of mindfulness and resiliency theories that may be applied to a broad range of adversity.

Testing hypotheses 1 and 2 by examining the competing contributions of the components of resiliency versus the components of mindfulness in their prediction of individual health and wellbeing outcomes was met with a great deal of support. Generally speaking, greater levels of resilient personal characteristics, self-regulation, facets of dispositional mindfulness (except the facet observing), reperceiving, values clarification, and flexibility were associated with more positive outcomes. Adding the components of mindfulness to the components of resiliency, and vice versa, was uniformly found to produce a model that was able to predict more predictive variance in the outcomes under investigation. Although, the relative predictive gains were often small (ΔR^2 ranging from .021 to .163) relative to the contributions each predictor set of resiliency or mindfulness contributes in isolation toward each outcome (R^2 ranging from .176 to .545), while controlling for the effects of adversity severity. Thus, shared covariance likely reflects the inter-relatedness of the two predictor variable-sets under investigation.

As illustrated by analyses testing hypothesis 3, due to the complex manner in which these two sets of factors (mindfulness and resiliency) work together and seem to be integrated to produce four factors rather than two, to predict individual outcomes, the results of this study may be understood to support an integrated framework for understanding phenomena of mindful resilience in the face of adversity. This argument for a broader, inclusive model integrating

components of mindfulness and resiliency is further corroborated by findings pertaining to

hypothesis 1 and 2, which indicate that individual outcomes are likely to be predicted by

individual components rather uniquely, and therefore it may be most prudent to cast a broad net,

not currently knowing which outcome is best predicted by components of resiliency,

mindfulness, or both. By integrating the components of mindfulness and resiliency we are

provided with an example of which components across the two constructs likely work with one

another to produce various outcomes. Factor 1 (mindful tendencies, processes, and reactions),

for example, seems to be strongly mindfulness oriented containing mindfulness facets of non-

reactivity, non-judging, and acting with awareness as well as reperceiving and also contains

initial reactions to adversity and resilient affective and cognitive personal characteristics. It is

plausible that initial reactions and affective and cognitive traits may be better moderated by these

mentioned components of mindfulness over resilient affective, behavioral, or cognitive self-

regulation. To contrast, Factor 4 (support, flexibility, and clarity) contains social support,

clarification of values, and cognitive, emotional and behavioral flexibility and seems to be

positively predictive of maladaptive outcomes, counter to initial predictions. This may be

attributed to the rotation involved in the factor analysis procedure that produced the factor

structure and the resulting skewness of the factor. However, these suppositions regarding the

precise inter-workings of each of the latent factors drawn from exploratory factor analysis

remain conjecture as these factors were derived from empirical rather than theoretical origins.

Such factor integration does, however, serve to inform future theoretically based model

construction efforts and should be considered as valuable for both theoretical and practical

applications.

The results of this study demonstrate that the components of mindfulness and resiliency interact a great deal with one another in the prediction of various outcomes. This provides a substantial argument to suggest that future research efforts should strive to understand these complex inter-relationships between component variables more precisely. Additionally, with the dominant exception of the mindfulness facet observing, which has a documented record of being somewhat ambiguous in its associations with outcomes (for example see Royuela-Colomer & Calvete, 2016; Rudkin, Medvedev, & Siegert, 2017), most of the component variables of mindfulness and resiliency tend to behave as predicted (with some degree of valence and magnitude). There are also some predictive consistencies such as resilient cognitive and behavioral self-regulation and cognitive-behavioral flexibility being predominantly beneficial factors. It is likely that some degree of the variation observed in the predictive valence of various components of mindfulness, resiliency, and the integrated factors drawn from factor analysis are due to due to differential partialling of variance in predicting each outcome (as with resilient behavioral personal characteristics) and due to the mentioned highly contextual nature of predicting individual resilient outcomes. With so many predictors the effects of any individual predictor, as examined through multiple regression analysis, are difficult to untangle. This seems to be supported when examining the relevant bivariate correlation coefficients between oddly behaving predictors and outcomes tested in the multiple regression analysis (with the exception of dispositional mindful observing and factor 4 drawn from factor analysis). Rather, these findings should be taken to indicate that each variable set (the components of mindfulness and resiliency) is still a viable candidate for the prediction of these tested outcomes and that there is a degree of additional predictive variance that can be gained by using both variable sets to predict these outcomes. As reported by Masten (2014) and Rothstein (in personal

communication, n.d.), the nature of the process of resiliency is complex and is likely dependent on the particular adversity experienced, the interaction of the many components included in this model, the sample, and outcomes under investigation. In sum, the evidence generally tends to support and reflect the integration of models of mindfulness and resiliency to predict outcomes associated with adversity.

There are some limitations to this study worth mentioning. The analyses included in this study are isolated to being cross-sectional in nature. To truly evaluate the process-based nature of unfolding events (as originally described by King & Rothstein, 2010) one must employ longitudinal research methods. Generally speaking, one would suspect, given the nature of traits, that given a significant adversity and enough time, people's self-regulatory processes would be reflective of their personal characteristics. Although the results I obtained are generally supportive of the phenomena investigated by this research whether individuals change with regards to their retrospective evaluations of the severity of an adversity and overall evaluations of the degree to which they engaged in processes such as self-regulation or cognitive-behavioral flexibility remains to be answered. It is my hope to answer these questions in proceeding analyses contained in Study III.

In sum, the findings of Study II generally indicated support for my proposed hypotheses. The results of Study II indicated adequate support for the integration of King and Rothstein's (2010) and Shapiro et al.'s (2006) components for a more comprehensive understanding of adversity phenomena. Additionally, this research may be considered to provide loose supplementary evidence supporting the generalizability of the components of the King and Rothstein model and Shapiro et al.'s model as well. This seems to bolster evidence supporting the argument that mindfulness and resiliency are likely closely inter-related phenomena that

merit further research to understand their complex ties and interactive contributions to various outcomes.

Study III: Longitudinal Data Analysis

Some final longitudinal research was conducted to complete the stated goals of this broad research project to continue to explore the patterns in the data and to assess longitudinal changes. Such a longitudinal study should suffice to provide preliminary evidence demonstrating the theoretically proposed process components regarding the return to homeostasis as key component of resilience experiences as originally proposed by King and Rothstein (2010).

First, given there has yet to be a longitudinal analysis indicating the process component of the return to homeostasis after adversity as described by King and Rothstein (2010), another goal of this research is to provide preliminary longitudinal evidence documenting such a process in those experiencing adversity. Although prior research has been performed investigating various other longitudinal processes of other variables under the umbrella of positive psychology, trauma, or the adversity experience (e.g., Wohl & McGrath, 2007) no known study has yet to be performed investigating the longitudinal process under the theoretical framework of the resiliency process as described by the King-Rothstein model. According to the theoretical foundation of this model, it is specifically believed that, over time, as adverse experiences are resolved, people cope with their circumstances and their memories may degrade, be modified, or be re-contextualized, people will eventually return to homeostasis and generally report a less severe adversity, more positive initial reactions, more engagement in the process components of the mindful-resiliency model (support, reperceiving, values clarification, cognitive-behavioural flexibility, and self-regulation), as well as more improved outcomes.

Hypothesis 1a. Ratings of subjective adversity severity and maladaptive outcomes (e.g., symptoms of depression, anxiety, and stress) will decrease significantly between initial assessment (time 1) and four months after baseline assessment (time 2).

Hypothesis 1b. Ratings of positive initial reactions to adversity, support, affective, behavioural, cognitive self-regulation, reperceiving, values clarification, and cognitive behavioural flexibility will increase significantly between initial assessment (time 1) and four months after baseline assessment (time 2).

Second, it is expected that as these changes take place the associative relationships between subjective perceptions of adversity severity and various outcomes will degrade over time. Moreover, it is expected that the associative relationships between long-term retrospective evaluations of (Time 2) adversity severity and later (Time 2) outcomes will be less strong than the associative relationships confirmed at baseline assessment (Time 1).

Hypothesis 2a. The correlation between baseline assessed (Time 1) subjective perceptions of adversity severity and various outcomes will significantly degrade over time.

Hypothesis 2b. The correlation between long-term retrospective evaluations of (Time 2) adversity severity and later (Time 2) outcomes will be significantly weaker than the similar associative relationship pairs assessed at baseline assessment (Time 1).

Third, it is hypothesized that the components of resiliency and the components of mindfulness will continue to be predictive of resilient (health and wellbeing) outcomes over the course of time.

Hypothesis 3. Given multiple regression analysis, the components of mindfulness and resiliency will be predictive of physical health, depression, anxiety, and stress symptoms and

wellbeing as assessed not only in the short-term (as in Study II), but also in the long-term, as

assessed four months after experiencing the initial adversity.

Fourth, it is hypothesized that the components of mindfulness will continue to add additional

predictive variance above and beyond that of the currently conceptualized components of

resiliency (and vice versa) in the King-Rothstein model toward the prediction of various long-

term resilient (health and wellbeing) outcomes.

Hypothesis 4a. Given multiple regression analysis, the components of mindfulness will

be found to contribute unique predictive variance toward the prediction of long-term physical

health, depression, anxiety, and stress symptoms and wellbeing beyond that of resiliency.

Hypothesis 4b. Given multiple regression analysis, the components of resiliency will be

found to contribute unique predictive variance toward the prediction of long-term physical

health, depression, anxiety, and stress symptoms and wellbeing beyond that of mindfulness.

Finally, over the course of time, it is hypothesized that the components of both mindfulness and

resiliency continue to work in an integrated fashion to produce various resiliency-related

outcomes providing additional long-term evidence in support of an integrated framework

describing the phenomena of mindful-resilience.

Hypothesis 5. Given multiple regression analysis, latent integrated factors derived from

factor analysis in Study II will continue to be predictive of long-term physical health, depression,

anxiety, and stress symptoms and wellbeing.

Methods

Participants

Participants from Study II were contacted four months from the original date of data

collection to complete additional survey work for $4 compensation, to provide longitudinal data

for all variables included in Study II. Of the 1891 participants contacted by email, a sample of

1018 participants (58.5%) agreed to continue participation in this component of the study. Of

these 1018 participants, 990 passed all screening requirements for meaningful responding using

two survey questions as per the recommendations of Meade and Craig (2010) and as confirmed

by participant responses regarding eligibility requirements asked in the demographics component

of the survey. The sample reflected similar distribution in age, sex, and adversity context as in

the prior cross-sectional analysis. However, analyses indicated that participants who continued in

participating in longitudinal research were more likely to be slightly older ($t(1884.914) = 6.799$,

$p < .001$; $M = 33.37$, $S.D. = 9.729$; *Mean difference* = 2.963, *Standard Error* = 0.437) and more

female ($\chi^2(1) = 5.965$, $p < .05$; Female = 52.6%). Self-reports indicated participants were

generally were experiencing ongoing adversities ($N = 266$ concluded; $N = 740$ ongoing; 1

unaccounted for) of a non-work context ($N = 290$ work context; $N = 697$ non-work context; 3

unaccounted for) at the time they completed the second questionnaire battery.

Measures. All measures from the prior investigation will be included in this third and

final study. Internal consistency reliabilities for all measures of this study are presented in Table

20 and 21.

Procedure. Participants were contacted by email, four months from the date they were

first tested, to complete the survey battery once more to provide longitudinal data. If participants

did not complete the survey within one week they received another additional reminder. This

process repeated until participants had received three reminders, declined to participate, or

completed the survey. Emails would contain a reminder of the adversity prime that they

provided four month's prior so that they would respond appropriately to the specified target

event. Once participants had agreed to complete the survey, they would access the survey

battery via a web-link, read the letter of information, complete the survey, and were debriefed via

text. Finally, each participant was compensated upon this final assessment. The questionnaire

took approximately 30 minutes to complete.

Results

      Correction of Error Rates. It was determined that a more critically discriminatory error

rate should be applied. Due to the large number of analyses being performed within each tested

hypothesis, results will be deemed statistically significant according to a more conservative,

reported, Bonferroni adjusted standard of statistical significance (critical p value = *.05 / (number*

of analyses tested per hypothesis)).

      To begin, correlation analyses (presented in Table 32 - along with internal consistency

reliability alpha coefficients) and repeated measures t-tests were performed (presented in Table

23) to confirm the relationships among variables over time. Generally speaking, the pattern of

interrelationships among variables tended to remain the similar to those found in Study II,

thereby lending additional longitudinal support for the stability of relationships over the course

of time.

Table 32 Continued

Internal consistency reliability and correlation coefficients amongst variables assessed in Study III

	13	14	15	16	17	18	19	20	21	22
1. Severity										
2. Affective personal characteristics										
3. Behavioural personal characteristics										
4. Cognitive personal characteristics										
5. Initial reactions										
6. Support										
7. Affective self-regulation										
8. Behavioural self-regulation										
9. Cognitive self-regulation										
10. Nonreactivity										
11. Observing										
12. Acting with awareness										
13. Describing	(.69)									
14. Nonjudging	.250***	(.97)								
15. Reperceiving	.441***	.390***	(.90)							
16. Values clarification	.401***	.359***	.542***	(.82)						
17. Flexibility	.416***	.516***	.596***	.667***	(.87)					
18. Depression symptoms	-.329***	-.445***	-.508***	-.606***	-.709***	(.93)				
19. Anxiety symptoms	-.312***	-.466***	-.400***	-.429***	-.532***	.682***	(.86)			
20. Stress symptoms	-.297***	-.471***	-.470***	-.418***	-.623***	.724***	.731***	(.89)		
21. Physical health	.169***	.272***	.337***	.366***	.491***	-.460***	-.481***	-.442***	(.85)	
22. Wellbeing	.370***	.384***	.607***	.623***	.748***	-.666***	-.416***	-.497***	.457***	(.94)

Note. Parentheses on the diagonal contain coefficient alpha. Significance values are indicated at $p < .05, .01, .001$ with a *, **, and *** respectively.

Table 32

Internal consistency reliability and correlation coefficients amongst variables assessed in Study III

	1	2	3	4	5	6	7	8	9	10	11	12
1. Severity	(.88)											
2. Affective personal characteristics	-.110**	(.79)										
3. Behavioural personal characteristics	.102**	.314***	(.88)									
4. Cognitive personal characteristics	.033	.226***	.322***	(.86)								
5. Initial reactions	-.573***	.358***	.059	.047	(.87)							
6. Support	-.019	.191***	.282***	.112**	.144***	(.96)						
7. Affective self-regulation	-.028	.310***	.318***	.218***	.129***	.082*	(.82)					
8. Behavioural self-regulation	.013	.344***	.481***	.140***	.208***	.164***	.465***	(.81)				
9. Cognitive self-regulation	-.294***	.512***	.312***	.065	.584***	.291***	.212***	.462***	(.89)			
10. Nonreactivity	-.033	.648***	.334***	.216***	.289***	.199***	.295***	.355***	.484***	(.90)		
11. Observing	.067*	-.020	.207***	.267***	-.023	.099**	.036	.115***	.003	.184***	(.85)	
12. Acting with awareness	-.070*	.440***	.388***	.187***	.264***	.133***	.318***	.524***	.519***	.396***	.130***	(.76)
13. Describing	-.034	.240***	.314***	.268***	.175***	.283***	.189***	.287***	.313***	.291***	.255***	.406***
14. Nonjudging	-.155***	.435***	.146***	.055	.345***	.191***	.137***	.271***	.536***	.387***	-.054	.421***
15. Reperceiving	-.037	.558***	.414***	.281***	.299***	.322***	.284***	.375***	.525***	.716***	.351***	.432***
16. Values clarification	-.020	.415***	.553***	.246***	.220***	.369***	.290***	.441***	.495***	.408***	.153***	.512***
17. Flexibility	-.130***	.571***	.409***	.097***	.337***	.391***	.253***	.405***	.660***	.527***	.031	.557***
18. Depression symptoms	.167***	-.482***	-.352***	-.096**	-.368***	-.395***	-.249***	-.374***	-.633***	-.403***	.008	-.483***
19. Anxiety symptoms	.194***	-.491***	-.232***	-.122***	-.327***	-.232***	-.287***	-.328***	-.496***	-.366***	.058	-.466***
20. Stress symptoms	.174***	-.564***	-.178***	-.061	-.370***	-.243***	-.205***	-.341***	-.575***	-.418***	.052	-.488***
21. Physical health	-.132***	.390***	.223***	.091**	.253***	.133***	.179***	.254***	.404***	.314***	-.042	.325***
22. Wellbeing	-.116***	.446***	.419***	.140***	.314***	.548***	.150***	.303***	.576***	.449***	.092***	.360***

Note. Parentheses on the diagonal contain coefficient alpha. Significance values are indicated at $p < .05, .01, .001$ with a *, **, and *** respectively.

Longitudinal changes in mean scores. To test the (longitudinal) process component of the resiliency process, longitudinal data was evaluated for statistically significant changes in components over time. More specifically, to test hypothesis 1 (a: that ratings of subjective adversity severity, symptoms of depression, anxiety, and stress, will decrease significantly between initial assessment (time 1) and four months after baseline assessment (time 2); and b: that ratings of positive initial reactions to adversity, support, affective, behavioural, cognitive self-regulation, reperceiving, values clarification, and cognitive behavioural flexibility will increase significantly between initial assessment (time 1) and four months after baseline assessment (time 2)), mean, standard deviation, and paired samples T-test values given the associated degrees of freedom were calculated to assess statistically significant changes over four months time (as presented in Table 33). It should be noted that results were interpreted according to the more conservative Bonferroni adjusted significance level of $p < .002$ (p < .05 / 22 contrasts = .002).

Table 33

Changes in mindful-resiliency components and outcomes over a four-month period

Variable	*M* T1	*S.D.* T1	*M* T2	*S.D.* T2	*T*	*df*	Result
Adversity severity	35.22	5.90	34.23	6.46	6.07*	947	Less severe
Resilient reactions	14.25	4.95	15.41	5.33	-8.36*	937	Better reactions
Resilient affective traits	28.36	8.07	29.16	7.97	-4.64*	914	More resilient affective traits exhibited
Resilient behavioural traits	36.23	5.60	36.11	5.65	0.92	920	No significant change in resilient behavioural traits
Resilient cognitive traits	30.43	5.95	30.80	5.94	-2.80	923	No significant change in resilient cognitive traits
Social support	19.46	4.89	19.91	4.68	-3.93*	941	More social support
Affective self-regulation	17.17	3.81	17.66	3.66	-4.06*	929	More affective self-regulation
Behavioural self-regulation	29.89	6.35	30.45	6.18	-2.89	916	No significant change in behavioural self-regulation
Cognitive self-regulation	24.48	7.62	26.90	7.51	-11.34*	897	More cognitive self-regulation
Non-reactivity	22.35	6.36	23.38	6.17	-5.78*	936	More non-reactivity
Observing	27.68	6.53	28.74	6.67	-5.41*	928	More observing
Acting with awareness	27.78	7.50	27.92	7.45	-0.65	922	No significant change in acting with awareness
Describing with words	27.61	7.50	27.88	7.92	-1.34	936	No significant change in describing with words
Non-judging	24.61	8.73	24.91	8.86	-1.36	938	No significant change in non-judging
Reperceiving	36.91	8.27	38.18	8.25	-5.80*	919	More reperceiving
Values Clarification	29.67	6.97	30.73	6.99	-5.89*	947	Greater clarification of values
Flexibility	26.13	7.82	27.30	8.03	-6.18*	943	More cognitive-behavioural flexibility
Depression	8.05	5.98	5.69	5.60	13.51*	951	Less depression
Anxiety	5.63	4.93	4.46	4.46	8.72*	941	Less anxiety
Stress	9.18	5.09	6.91	4.97	14.48*	958	Less stress
Health	13.21	3.87	13.62	3.89	-4.02*	980	Better physical health
Wellbeing	35.59	10.21	36.93	10.71	-6.06*	954	Better wellbeing

Note. Mean and standard deviation values were calculated from score values. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .002$ level of statistical significance.

Our results generally provided support for hypothesis 1 (a and b). More specifically, regarding hypothesis 1a, results indicated that severity, symptoms of depression, anxiety, and stress decreased over the four-month period between assessments. Regarding hypothesis 1b, results indicated that perceived ratings of positive reactions to adversity improved over time, as did the amount of support, affective and cognitive self-regulation, and the amount of reperceiving, values clarification, and the amount of cognitive behavioural flexibility. Oddly enough, counter to the stability theory regarding the general stability of traits over time, trait levels showed increases as well. More specifically, the variables resilient affective characteristics as well as the facets of non-reactivity and observing of dispositional mindfulness showed significant increases between the initial assessment performed one week from the experienced adversity (Time 1) and the second assessment performed approximately four months later (Time 2). Unsurprisingly, the more time that had passed since the adverse experience, negative outcomes (symptoms of depression, anxiety, and stress) tended to decrease and positive outcomes (wellbeing and physical health) tended to increase over the same four-month period of time.

In sum, there was substantial support for findings pertaining to hypothesis 1 (a and b). Statistically significant changes in process components of the mindful-resilience model changed over the four-month time frame of assessment. It is important to note the peculiar finding that trait values of some variables (resilient affective personal characteristics, dispositional non-reactivity and observing) also seemed to change over the four-month period. However, this may be due to a priming effect of the recent adversity prior to the assessment of personality or it may be partially attributed to the noted mixed trait-state composition of mindfulness and resiliency.

Regardless, there was noted support for hypothesis 1 (a and b), process components of the

mindful-resilience model improved with time.

      Changes in associative relationships over time. To investigate hypothesis 2 (see

Figure 4 for graphical depiction; a: whether changes occur in the associative relationships

between subjective perceptions of adversity severity and various outcomes – it is suspected the

relationships will significantly degrade over time and b: whether the associative relationships

between long-term retrospective evaluations of (Time 2) adversity severity and later (Time 2)

outcomes will be significantly weaker than the similar associative relationship pairs assessed at

baseline assessment (Time 1)) Pearson product moment correlation coefficients were calculated

and then converted and contrasted using Fisher's r to z transformation and applying the more

conservative test of adjusted statistical significance. All statistical analyses for this hypothesis

were evaluated at the more conservative Bonferroni adjusted $p < .005$ level of statistical

significance ($p < .05 / 10 = .005$). Correlation coefficients were first calculated for baseline

(Time 1) and long-term (Time 2) severity and each of the assessed outcomes (at baseline and

four months after baseline; for convenience, all correlations used to test hypothesis 2 are

presented in Table 34). Firstly, to test hypothesis 2a correlation coefficients (using data collected

from Study II) of baseline severity and various outcomes were contrasted with the associative

relationships between baseline-severity and long-term outcomes (using data from the current

study). Baseline severity and baseline wellbeing was found to be negatively associated with one

another, and baseline severity was found to be negatively associated with long-term wellbeing.

Results produced via Fisher's r to z transformation, indicated that the baseline severity-baseline

wellbeing relationship was marginally greater than the baseline severity-long-term wellbeing

relationship ($Z = -2.61, p = .005$). Similar findings were drawn with regards to results pertaining

to the baseline severity and baseline physical health correlation contrasted with baseline severity

and long-term physical health ($Z = -2.02$, $p = .022$). However, physical health failed to reach the

more conservative Bonferroni adjusted levels of statistical significance. Baseline severity and

baseline symptoms of depression were found to be positively associated with one another, and

baseline severity was found to be positively associated with long-term symptoms of depression.

Results produced via Fisher's r to z transformation, indicated that the baseline severity-baseline

symptoms of depression relationship was indeed of greater magnitude than the baseline severity-

long-term symptoms of depression relationship ($Z = 7.16$, $p < .001$). As expected, this was also

found to be the case with results pertaining to the baseline severity and baseline symptoms of

anxiety correlation contrasted with baseline severity and long-term symptoms of anxiety

($Z = 4.67$, $p < .001$) as well as with results pertaining to the baseline severity and baseline

symptoms of stress correlation contrasted with baseline severity and long-term symptoms of

stress ($Z = 5.91$, $p < .001$). Therefore, findings drawn from this evidence demonstrated that,

excluding findings pertaining to the outcome physical health, the predictions pertaining to

hypothesis 2a were generally confirmed by this research.
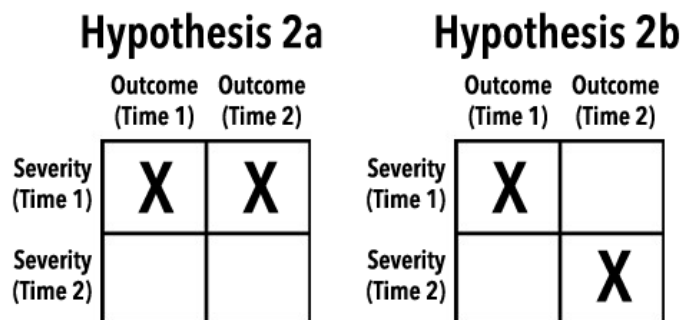
Figure 4. Visual diagram of correlations contrasted in hypothesis 2a versus hypothesis 2b, X's denote contrasted correlations in each tested hypothesis.

Table 34
Associative relationships and sample sizes between subjective perceptions of adversity severity (at baseline and four months later) and various outcomes (at baseline and four months later).

Severity	Wellbeing		Health		Depression		Anxiety		Stress	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
T1	-0.223	-.121	-.221	-.143	.413	.150	.349	.174	.362	.141
N	1810	940	1823	959	1807	941	1800	933	1806	950
T2	-.151	-.116	-.179	-.132	.290	.167	.281	.194	.298	.174
N	963	955	970	973	960	956	959	948	957	965

Note. N = sample size; T1 = Time 1; T2 = Time 2. All correlation coefficients that are presented above are statistically significant at $p < .001$.

Second, to test hypothesis 2b - whether the associative relationships between long-term (Time 2) retrospective evaluations of adversity severity and long-term outcomes will be weaker than the similar associative relationship pairs assessed at baseline (Time 1) assessment - correlation coefficients (using data collected from Study II) of baseline severity and various outcomes were contrasted with the associative relationships between long-term severity and long-term outcomes (using data from the current study). Baseline severity and baseline wellbeing was found to be negatively associated with one another, and long-term (Time 2) severity was found to be negatively associated with long-term wellbeing. In line with predictions described in hypothesis 2(b), our results produced via Fisher's r to z transformation indicated that the baseline severity- baseline wellbeing relationship was found to be marginally greater than the long-term severity-long-term wellbeing relationship (Z = -2.74, p = .005). Although findings indicated traditional levels of statistical significance were met with regards to results pertaining to the baseline severity and baseline physical health correlation contrasted with long-term severity and long-term physical health, the more conservative Bonferroni adjusted critical level of significance was not obtained in these results (Z = -2.31, p = .0104). Baseline severity and baseline symptoms of depression were found to be positively associated with one

another, and long-term severity was found to be positively associated with long-term symptoms

of depression. In line with my predictions, results produced via Fisher's r to z transformation

indicated that the baseline severity-baseline symptoms of depression relationship was indeed of

greater magnitude than the long-term severity-long-term symptoms of depression relationship

($Z = 6.76$, $p < .001$). As expected, this was also found to be the case with results pertaining to

the baseline severity and baseline symptoms of anxiety correlation contrasted with long-term

severity and long-term symptoms of anxiety ($Z = 4.18$, $p < .001$) as well as with results

pertaining to the baseline severity and baseline symptoms of stress correlation contrasted with

long-term severity and long-term symptoms of stress ($Z = 5.09$, $p < .001$). Therefore, as with

findings pertaining to hypothesis 2a, all predictions excluding those pertaining to physical health

of hypothesis 2b were confirmed by the findings of this study.

In sum, these analyses were moderately supportive of the predictions described within

hypothesis 2 (a and b) of this study. Contrasts of correlation coefficients using Fisher's r to z

transformation clearly demonstrated that all associative relationships, excluding those pertaining

to physical health, between baseline subjective perceptions of adversity severity and various

outcomes degraded substantially over time as. Moreover, similar analysis methods confirmed

that associative relationships between long-term retrospective evaluations of adversity severity

and long-term outcomes of wellbeing and symptoms of mental illness were weaker than the

similar associative relationship pairings that were assessed at baseline assessment.

Contrasting resiliency and mindfulness components. As done in Study II, a series of

multiple regression analyses were performed with the aims of testing the third and fourth

hypotheses of this study (that [3] - the components of mindfulness and resiliency will be

predictive of various outcomes, at not only short-term (as in Study II), but also in the long-term;

and [4] - that the components of mindfulness contribute additional variance beyond the components of resiliency in the prediction of long-term outcomes [and vice versa]). To test these hypotheses a series of multiple regression models were performed to assess the prediction of each assessed outcome variable (wellbeing, physical health, symptoms of depression, anxiety, and stress) using the components of the King-Rothstein model of resiliency (at entry 1), then with the addition of the components of mindfulness (less self-regulation which was included with original resiliency components at entry 1; at entry 2). Multiple regression analyses were performed, twice: once as described above (referred to as Model 1) and again, in reverse order (referred to as Model 2), to ensure that all findings are unlikely to be effected by order of entry effects. Therefore, all statistical analyses for this hypothesis were evaluated according to the more conservative Bonferroni adjusted $p < .005$ level of statistical significance ($p < .05/10 = .005$). In each case, adversity severity and levels of each outcome as assessed in Study II (short-term) were controlled for as likely additional covariates. The decision was made to control Time 1 outcomes as likely covariates in order to ensure that findings accurately depict prediction of outcomes at Time 2 from the components of resiliency and mindfulness without the variance of outcomes assessed at Time 1 contributing to this prediction. This method was selected over the use of difference scores as difference scores are known to be commonly criticized for their unreliability and for having both systematic and/or spurious correlations with their components and other variables of concern (Johns, 1981).

A set of hierarchical linear regression analyses were performed to assess the differential predictability of long-term wellbeing via the components of the King-Rothstein model of resiliency before (entry 1) and after the components mindfulness were added to the equation (at entry 2; see Table 35). The results of this analysis supported hypothesis 3. At entry 1 the King-

Rothstein components of resiliency were found to produce a model significantly predicting the outcome wellbeing ($F(10, 651) = 109.644$, $p < .001$, $R^2 = .627$, adjusted $R^2 = .622$, $R^2\Delta = .016$, $F\Delta(8, 651) = 3.433$, $p < .001$). Similarly, supporting hypothesis 2, at entry 2 the components of mindfulness added additional predictive variance above and beyond the components of resiliency ($F(18, 643) = 64.859$, $p < .001$, $R^2 = .645$, adjusted $R^2 = .635$, $R^2\Delta = .017$, $F\Delta(8, 643) = 3.935$, $p < .001$). In line with hypothesis 4, there was sufficient improvement in the prediction of long-term wellbeing obtained with the additive predictive power accrued when adding the components of mindfulness to the regression equation. Therefore, these results indicate support with regards to findings pertaining to hypotheses 3 and 4, in that the components of mindfulness and resiliency were found to be additively and differentially predictive of long-term outcomes of wellbeing given an adverse experience.

Table 35

Model 1 - Hierarchical regression analysis predicting long-term wellbeing

Predictor		Covariates	Entry 1	Entry 2
Adversity Severity		.003	-.046	-.059
Wellbeing (time 1)		.783*	.708*	.596*
Affective personal characteristics			.044	.003
Behavioural personal characteristics			.106*	.078
Cognitive personal characteristics			-.045	-.043
Initial reactions			-.067	-.070
Opportunities, supports, and resources			.077*	.075
Affective self-regulatory processes			-.019	-.014
Behavioural self-regulatory processes			-.021	-.036
Cognitive self-regulatory processes			.005	-.024
FFMQ - Nonreactivity to inner experience				.008
FFMQ – Observing, noticing and attending				-.026
FFMQ – Acting with awareness				-.048
FFMQ – Describing / labeling with words				.033
FFMQ – Non-judging of experience				.051
Reperceiving				-.003
Values clarification				.082
Cognitive behavioural flexibility				.132*
	R^2	.612	.627	.645
	Adj. R^2	.611	.622	.635
	ΔR^2		.016	.017
	F	519.155*	109.644*	64.859*
	Sig F Change		3.433*	3.935*
	df	2, 659	10, 651	18, 643

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

To confirm these findings, a similar hierarchical linear regression analyses was performed using model 2, reversing the order of entry such that the components of mindfulness were added to the equation first (at entry 1), followed by all resiliency components (at entry 2; see Table 36). The results of this analysis generally demonstrated that the components of mindfulness (not including self-regulation) were a substantial statistically significant predictor of long-term wellbeing (at entry 1; $F(10, 651) = 111.574$, $p < .001$, $R^2 = .632$, adjusted $R^2 = .626$).

As in model 1, the King-Rothstein components of resiliency were found to also add differential

predictive variance towards the prediction of long-term wellbeing beyond that of the components

of mindfulness alone (entry 2; $F(18, 643) = 64.859$, $p < .001$, $R^2 = .645$, adjusted $R^2 = .635$,

$R^2\Delta = .013$, $F\Delta(8, 643) = 3.014$, p $< .005$). Therefore, the sum of evidence pertaining to

hypotheses 3 and 4 with regards to the long-term outcome of wellbeing – the evidence suggests

the components of mindfulness and resiliency serve as unique and statistically significant

predictors of this outcome. Moreover, models integrating both resiliency and mindfulness

components seem to produce models significantly more predictive of wellbeing than those of

resiliency components or mindfulness components alone. Therefore, evidence provides support

for our hypotheses: long-term outcomes are able to be predicted by both predictor sets and each

predictor set seems to be differentiated in their predictive power with regards to this outcome.

Table 36

Model 2 - Hierarchical regression analysis predicting long-term wellbeing

Predictor	Covariates	Entry 1	Entry 2
Adversity Severity	.003	-0.004	-0.059
Wellbeing (time 1)	.783*	0.638*	0.596*
FFMQ - Nonreactivity to inner experience		-0.022	0.008
FFMQ – Observing, noticing and attending		-0.029	-0.026
FFMQ – Acting with awareness		-0.055	-0.048
FFMQ – Describing / labeling with words		0.037	0.033
FFMQ – Non-judging of experience		0.029	0.051
Reperceiving		-0.006	-0.003
Values clarification		0.100*	0.082
Cognitive behavioural flexibility		0.130*	0.132*
Affective personal characteristics			0.003
Behavioural personal characteristics			0.078
Cognitive personal characteristics			-0.043
Initial reactions			-0.07
Opportunities, supports, and resources			0.075
Affective self-regulatory processes			-0.014
Behavioural self-regulatory processes			-0.036
Cognitive self-regulatory processes			-.024
R^2	.612	.632	.645
Adj. R^2	.611	.626	.635
ΔR^2		.020	.013
F	519.155*	111.574*	64.859*
Sig F Change		4.370*	3.014*
df	2, 659	10, 651	18, 643

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

As with the outcome wellbeing a set of hierarchical linear regression analyses were performed to assess the differential predictability of long-term physical health using the same order of entry described as Model 1 (see Table 37). The results of this analysis failed to support hypothesis 3. At entry 1 the King-Rothstein components of resiliency were found to produce a model significantly predicting the outcome long-term physical health ($F(10, 666) = 60.747$,

$p < .001$, $R^2 = .477$, adjusted $R^2 = .469$). However, this model was not found to contribute to the

prediction of long-term physical health while controlling for adversity severity and short-term

physical health given the more conservative Bonferroni adjusted limits indicating statistical

significance ($R^2\Delta = .017$, $F\Delta(8, 666) = 2.735$, $p = .006$). With regards to hypothesis 4, at entry 2

when the components of mindfulness were added to the equation, a statistically significant model

was able to be produced predicting long-term physical health. However, in this case, the

predictive power of this model was enough to provide additional predictive power beyond the

components of resiliency given the conservative Bonferroni adjusted limits indicating statistical

significance ($F(18, 658) = 35.840$, $p < .001$, $R^2 = .495$, adjusted $R^2 = .481$, $R^2\Delta = .018$,

$F\Delta(8, 658) = 2.939$, $p < .005$). Although, it should be noted that none of the beta-weights in this

entry were found to be statistically significant other than that from the Time 1 health covariate.

Taken as a whole, these results depict mixed evidence that only partially supports the predictions

of hypothesis 4 for the outcome under investigation.   The evidence indicates that when the

components of mindfulness were paired with the components of resiliency there was a

statistically significant model able to be formed and that this model increases in the predictive

power toward long-term physical health. However, unsurprisingly, the evidence reflects that it is

highly likely that the most dominant predictor of long-term physical health is short-term physical

health.

Table 37

Model 1 - Hierarchical regression analysis predicting long-term physical health

Predictor	Covariates	Entry 1	Entry 2
Adversity Severity	-.014	-.029	-.027
Physical health (time 1)	.675*	.642*	.619*
Affective personal characteristics		.065	.060
Behavioural personal characteristics		.062	.019
Cognitive personal characteristics		-.110*	-.088
Initial reactions		-.033	-.036
Opportunities, supports, and resources		.019	-.012
Affective self-regulatory processes		.046	.049
Behavioural self-regulatory processes		-.019	-.003
Cognitive self-regulatory processes		.011	-.007
FFMQ - Nonreactivity to inner experience			-.088
FFMQ – Observing, noticing and attending			-.059
FFMQ – Acting with awareness			-.044
FFMQ – Describing / labeling with words			-.033
FFMQ – Non-judging of experience			-.062
Reperceiving			.105
Values clarification			.029
Cognitive behavioural flexibility			.130
R^2	.460	.477	.495
Adj. R^2	.458	.469	.481
ΔR^2		.017	.018
F	286.886*	60.747*	35.840*
Sig F Change		2.735	2.939*
df	2, 674	10, 666	18, 658

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

To confirm the findings above, a similar hierarchical linear regression analyses was performed, using model 2 (see Table 38). The results of this analysis demonstrated that the components of mindfulness (not including self-regulation) were a substantial statistically significant predictor of long-term physical health (at entry 1; $F(10, 655) = 62.832, p < .001,$ $R^2 = .485$, adjusted $R^2 = .478$, $R^2\Delta = .026$, $F\Delta(8, 658) = 4.143, p < .001$) even while controlling for adversity severity and short-term physical health. However, as in model 1, the addition of the

King-Rothstein components of resiliency were not found to contribute additively and

differentially to the prediction of long-term physical health in a substantial and statistically

significant manner (entry 2; $F(18, 647) = 35.840$, $p < .001$, $R^2 = .495$, adjusted $R^2 = .481$,

$R^2\Delta = .010$, $F\Delta(8, 658) = 1.566$, ns). Therefore, prior analyses involving this outcome seem to

likely be reflecting the effectiveness of the components of mindfulness in predicting this

outcome. The components of mindfulness seem to be the superior predictor set with regards to

predicting this particular long-term outcome. Where the components of resiliency were not found

to significantly predict long-term physical health alone or lend significantly more additive

predictive power when combined with the components of mindfulness. In sum, it can be

concluded that there was some mixed support for my hypotheses. With regards to the outcome

long-term physical health evidence suggests that the components of mindfulness, but not

resiliency, are statistically significant predictors of outcomes while controlling for severity and

Time 1 outcome variance. Moreover, there seems to be little significant gain in predictive

variance by adding resiliency components to mindfulness components in the prediction of this

long-term outcome.

Table 38

Model 2 - Hierarchical regression analysis predicting long-term physical health

Predictor	Covariates	Entry 1	Entry 2
Adversity Severity	-.014	-.007	-.027
Physical health (time 1)	.675*	.623*	.619*
FFMQ - Nonreactivity to inner experience		-.061	-.088
FFMQ – Observing, noticing and attending		-.077	-.059
FFMQ – Acting with awareness		-.042	-.044
FFMQ – Describing / labeling with words		-.050	-.033
FFMQ – Non-judging of experience		-.064	-.062
Reperceiving		.105	.105
Values clarification		.038	.029
Cognitive behavioural flexibility		.136*	.130
Affective personal characteristics			.060
Behavioural personal characteristics			.019
Cognitive personal characteristics			-.088
Initial reactions			-.036
Opportunities, supports, and resources			-.012
Affective self-regulatory processes			.049
Behavioural self-regulatory processes			-.003
Cognitive self-regulatory processes			-.007
R^2	.460	.485	.495
Adj. R^2	.458	.478	.481
ΔR^2		.026	.010
F	286.886*	62.832*	35.840*
Sig F Change		4.143*	1.566
df	2, 663	10, 655	18, 647

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

As with the outcomes long-term wellbeing and physical health another set of hierarchical linear regression analyses were performed to assess the differential predictability of long-term symptoms of depression using Model 1 (see Table 39). The results of this analysis supported hypothesis 3, findings generally indicated that components of the King-Rothstein model of resiliency as well as components of mindfulness additionally contributed to the prediction of the

outcome long-term symptoms of depression. At entry 1 the King-Rothstein components of

resiliency were found to produce a model significantly predicting the outcome long-term

symptoms of depression ($F(10, 655) = 47.890$, $p < .001$, $R^2 = .422$, adjusted $R^2 = .414$,

$R^2\Delta = .089$, $F\Delta(8, 655) = 12.630$, $p < .001$). Similarly, supporting hypothesis 4, at entry 2 the

components of mindfulness added additional predictive variance above and beyond the

components of resiliency ($F(18, 647) = 32.499$, $p < .001$, $R^2 = .475$, adjusted $R^2 = .460$). The

variables comprising the original model of resiliency successfully predicted 8.9% of the variance

of long-term symptoms of depression controlling for severity perceptions regarding the adversity

and short-term symptoms of depression (at entry 1). However, there was a small improvement in

the prediction of the long-term symptoms of depression obtained with the additive predictive

power accrued when adding the components of mindfulness to the regression equation (at entry

2; 5.2%; $R^2\Delta = .052$, $F\Delta(8, 647) = 8.082$, $p < .001$). However, it bears noting that initial

reactions to adversity and the mindfulness facet observing were found to contribute toward the

prediction of long-term symptoms of depression in the direction opposite than what was initially

hypothesized. Taken as a whole, though, these results depict supportive evidence with regards to

findings pertaining to hypotheses 3 and 4, in that the components of resiliency and mindfulness

were found to provide unique additive predictive power toward long-term symptoms of

depression given an adverse experience.

Table 39

Model 1 - Hierarchical regression analysis predicting long-term symptoms of depression

Predictor	Covariates	Entry 1	Entry 2
Adversity Severity	-.037	.072	.083
Symptoms of depression (time 1)	.591*	.444*	.335*
Affective personal characteristics		-.147*	-.090
Behavioural personal characteristics		-.156*	-.073
Cognitive personal characteristics		.064	.063
Initial reactions		.176*	.154*
Opportunities, supports, and resources		-.176*	-.122*
Affective self-regulatory processes		-.026	-.030
Behavioural self-regulatory processes		.030	.031
Cognitive self-regulatory processes		-.073	-.023
FFMQ - Nonreactivity to inner experience			.100
FFMQ – Observing, noticing and attending			.101*
FFMQ – Acting with awareness			-.046
FFMQ – Describing / labeling with words			-.015
FFMQ – Non-judging of experience			-.044
Reperceiving			-.123
Values clarification			-.174*
Cognitive behavioural flexibility			-.077
R^2	.333	.422	.475
Adj. R^2	.331	.414	.460
ΔR^2		.089	.052
F	165.676*	47.890*	32.499*
Sig F Change		12.630*	8.082*
df	2, 663	10, 655	18, 647

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

To confirm these findings, a similar hierarchical linear regression analyses was performed, using model 2 (see Table 40). The results of this analysis demonstrated that the components of mindfulness (not including self-regulation) were a substantial statistically significant predictor of long-term symptoms of depression (at entry 1; $F(10, 655) = 52.350$, $p < .001$, $R^2 = .444$, adjusted $R^2 = .436$, $F\Delta(8, 655) = 16.348$, $p < .001$). Similarly, as in model 1, the addition of the King-Rothstein components of resiliency were also found to contribute

additively and differentially to the prediction of long-term symptoms of depression in a

substantial and statistically significant manner (entry 2; $F(18, 647) = 32.499$, $p < .001$, $R^2 = .475$,

adjusted $R^2 = .460$). There was also a small improvement in the prediction of long-term

symptoms of depression when adding the components of resiliency to the components of

mindfulness rather than vice versa (at entry 2; $R^2\Delta = .031$, $F\Delta(8, 647) = 4.715$, $p < .001$). Taken

as a whole, it can be concluded (supporting hypotheses 3 and 4) with regards to the outcome

long-term symptoms of depression, that evidence suggests both the components of resiliency and

mindfulness serve as unique, differential, and statistically significant predictors of this outcome

over the course of time.

Table 40

Model 2 - Hierarchical regression analysis predicting long-term symptoms of depression

Predictor	Covariates	Entry 1	Entry 2
Adversity Severity	-.037	.014	.083
Symptoms of depression (time 1)	.591*	.317*	.335*
FFMQ - Nonreactivity to inner experience		.101	.100
FFMQ – Observing, noticing and attending		.109*	.101*
FFMQ – Acting with awareness		-.055	-.046
FFMQ – Describing / labeling with words		-.005	-.015
FFMQ – Non-judging of experience		-.027	-.044
Reperceiving		-.158*	-.123
Values clarification		-.218*	-.174*
Cognitive behavioural flexibility		-.126	-.077
Affective personal characteristics			-.090
Behavioural personal characteristics			-.073
Cognitive personal characteristics			.063
Initial reactions			.154*
Opportunities, supports, and resources			-.122*
Affective self-regulatory processes			-.030
Behavioural self-regulatory processes			.031
Cognitive self-regulatory processes			-.023
R^2	.333	.444	.475
Adj. R²	.331	.436	.460
ΔR^2		.111	.031
F	165.676*	52.350*	32.499*
Sig F Change		16.348*	4.715*
df	2, 663	10, 655	18, 647

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

To assess the differential predictability of long-term symptoms of anxiety another set of

hierarchical linear regression analyses was performed using Model 1 (see Table 41). The results

of this analysis supported hypothesis 3. At entry 1 the King-Rothstein components of resiliency

were found to produce a model significantly predicting the outcome under investigation

($F(10, 642) = 53.707$, $p < .001$, $R^2 = .456$, adjusted $R^2 = .447$, $R^2\Delta = .069$, $F\Delta(8, 642) = 10.170$,

$p < .001$). Similarly, at entry 2, the components of mindfulness produced a statistically

significant model that was found to add additional predictive variance above and beyond the

components of resiliency given the more conservative Bonferroni adjusted limits indicating

statistical significance ($F(18, 634) = 31.748$, $p < .001$, $R^2 = .474$, adjusted $R^2 = .459$, $R^2\Delta = .019$,

$F\Delta(8, 634) = 2.797$, $p < .005$). Taken as a whole, these results provide supporting evidence with

regards to findings pertaining to hypotheses 3 and 4, in that the components of resiliency and

mindfulness were found to additively and differentially predict long-term symptoms of anxiety.

Table 41
Model 1 - Hierarchical regression analysis predicting long-term symptoms of anxiety

Predictor	Covariates	Entry 1	Entry 2
Adversity Severity	-.031	.044	.052
Symptoms of anxiety (time 1)	.632*	.535*	.487*
Affective personal characteristics		-.135*	-.104
Behavioural personal characteristics		-.126*	-.106*
Cognitive personal characteristics		.017	.013
Initial reactions		.158*	.157*
Opportunities, supports, and resources		-.077	-.054
Affective self-regulatory processes		-.057	-.063
Behavioural self-regulatory processes		-.007	-.009
Cognitive self-regulatory processes		-.083	-.047
FFMQ - Nonreactivity to inner experience			.070
FFMQ – Observing, noticing and attending			.091
FFMQ – Acting with awareness			-.024
FFMQ – Describing / labeling with words			-.042
FFMQ – Non-judging of experience			-.072
Reperceiving			-.094
Values clarification			-.023
Cognitive behavioural flexibility			-.011
R^2	.387	.456	.474
Adj. R^2	.385	.447	.459
ΔR^2		.069	.019
F	204.749*	53.707*	31.748*
Sig F Change		10.170*	2.797*
df	2, 650	10, 642	18, 634

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

To confirm the above findings and rule out order of entry effects, a similar hierarchical

linear regression analyses was performed, using Model 2 (see Table 42). Analysis of Model 2

demonstrated that the components of mindfulness (not including self-regulation), alone, were a

substantial statistically significant predictor of long-term symptoms of anxiety (at entry 1; $F(10,$

$642) = 50.970, p < .001, R^2 = .443$, adjusted $R^2 = .434, R^2\Delta = .056, F\Delta(8, 642) = 8.071, p < .001$).

Moreover, the addition of the King-Rothstein components of resiliency were found to contribute

additively and differentially to the prediction of long-term symptoms of anxiety in a substantial

and statistically significant manner (entry 2; $F(18, 634) = 31.748, p < .001, R^2 = .474$, adjusted

$R^2 = .459$). In fact, there was a small improvement in the prediction of long-term symptoms of

anxiety when adding the components of resiliency to the components of mindfulness rather than

vice versa (at entry 2; $R^2\Delta = .032, F\Delta(8, 634) = .032, p < .001$). Taken as a whole, it can be

concluded with regards to this outcome, that the evidence suggests both the components of

resiliency and mindfulness serve as unique, differential, and statistically significant predictors of

this outcome.

Table 42
Model 2 - Hierarchical regression analysis predicting long-term symptoms of anxiety

Predictor		Covariates	Entry 1	Entry 2
Adversity Severity		-.031	-.021	.052
Symptoms of anxiety (time 1)		.632*	.492*	.487*
FFMQ - Nonreactivity to inner experience			.037	.070
FFMQ – Observing, noticing and attending			.090	.091
FFMQ – Acting with awareness			-.063	-.024
FFMQ – Describing / labeling with words			-.037	-.042
FFMQ – Non-judging of experience			-.050	-.072
Reperceiving			-.120	-.094
Values clarification			-.092	-.023
Cognitive behavioural flexibility			-.034	-.011
Affective personal characteristics				-.104
Behavioural personal characteristics				-.106*
Cognitive personal characteristics				.013
Initial reactions				.157*
Opportunities, supports, and resources				-.054
Affective self-regulatory processes				-.063
Behavioural self-regulatory processes				-.009
Cognitive self-regulatory processes				-.047
	R^2	.387	.443	.474
	Adj. R^2	.385	.434	.459
	ΔR^2		.056	.032
	F	204.749*	50.970*	31.748*
	Sig F Change		8.071*	4.747*
	df	2, 650	10, 642	18, 634

 Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

To assess the differential predictability of long-term symptoms of stress another set of

hierarchical linear regression analyses was performed using Model 1 (see Table 43). The results

of this analysis supported hypothesis 3. At entry 1 the King-Rothstein components of resiliency

were found to produce a model significantly predicting the outcome long-term symptoms of

stress ($F(10, 659) = 40.728, p < .001, R^2 = .382$, adjusted $R^2 = .373 R^2\Delta = .081$,

$F\Delta(8, 659) = 10.817, p < .001$). Similarly, supporting hypothesis 4, at entry 2 the components of

mindfulness added additional predictive variance above and beyond the components of resiliency

$(F(18, 651) = 26.371, p < .001, R^2 = .422,$ adjusted $R^2 = .406)$. The variables comprising the

original model of resiliency successfully predicted 8.1% of the variance of long-term symptoms

of stress controlling for severity perceptions regarding the adversity and short-term symptoms of

stress (at entry 1). However, there was a small improvement in the prediction of the long-term

symptoms of stress obtained with the additive predictive power accrued when adding the

components of mindfulness to the regression equation (at entry 2; 4.0%; $R^2\Delta = .040$,

$F\Delta(8, 651) = 5.588, p < .001)$. Therefore, these results of Model 1 analysis depict primarily

supportive evidence with regards to findings pertaining to hypotheses 3 and 4, in that the

components of resiliency and mindfulness were found to provide unique additive predictive

power toward long-term outcomes of long-term symptoms of stress given an adverse experience.

Table 43

Model 1 - Hierarchical regression analysis predicting long-term symptoms of stress

Predictor			Covariates	Entry 1	Entry 2
Adversity Severity			-.030	.023	.032
Symptoms of stress (time 1)			.558*	.400*	.338*
Affective personal characteristics				-.238*	-.166*
Behavioural personal characteristics				-.045	.012
Cognitive personal characteristics				.058	.053
Initial reactions				.155*	.149*
Opportunities, supports, and resources				-.119*	-.066
Affective self-regulatory processes				-.021	-.026
Behavioural self-regulatory processes				.019	.023
Cognitive self-regulatory processes				-.124	-.056
FFMQ - Nonreactivity to inner experience					.066
FFMQ – Observing, noticing and attending					.108*
FFMQ – Acting with awareness					-.070
FFMQ – Describing / labeling with words					-.021
FFMQ – Non-judging of experience					-.065
Reperceiving					-.109
Values clarification					-.066
Cognitive behavioural flexibility					-.089
	R^2		.301	.382	.422
	Adj. R^2		.299	.373	.406
	ΔR^2			.081	.040
	F		143.482*	40.728*	26.371*
	Sig F Change			10.817*	5.588*
	df		2, 667	10, 659	18, 651

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

To confirm these findings, a similar hierarchical linear regression analyses was performed, using model 2 (see Table 44). The results of this analysis demonstrated that the components of mindfulness (not including self-regulation) were a substantial statistically significant predictor of long-term symptoms of stress (at entry 1; $F(10, 659) = 43.336$, $p < .001$, $R^2 = .397$, adjusted $R^2 = .388$, $R^2\Delta = .096$, $F\Delta(8, 659) = 13.096$, $p < .001$). Similarly, as in model 1, the addition of the King-Rothstein components of resiliency were also found to contribute

additively and differentially to the prediction of long-term symptoms of stress in a substantial and statistically significant manner (entry 2; $F(18, 651) = 26.371$, $p < .001$, $R^2 = .422$, adjusted $R^2 = .406$). There was a small improvement in the prediction of long-term symptoms of stress when adding the components of resiliency to the components of mindfulness rather than vice versa (at entry 2; $R^2\Delta = .025$, $F\Delta(8, 651) = 3.512$, $p < .005$). Taken as a whole, it can be concluded with regards to the outcome long-term symptoms of stress, the evidence indicates support for hypotheses 3 and 4: both the components of resiliency and mindfulness seem to serve as unique, differential, and statistically significant predictors of this outcome.

Table 44

Model 2 - Hierarchical regression analysis predicting long-term symptoms of stress

Predictor	Covariates	Entry 1	Entry 2
Adversity Severity	-.030	-.018	.032
Symptoms of stress (time 1)	.558*	.343*	.338*
FFMQ - Nonreactivity to inner experience		.023	.066
FFMQ – Observing, noticing and attending		.125*	.108*
FFMQ – Acting with awareness		-.084	-.070
FFMQ – Describing / labeling with words		-.007	-.021
FFMQ – Non-judging of experience		-.073	-.065
Reperceiving		-.143*	-.109
Values clarification		-.067	-.066
Cognitive behavioural flexibility		-.128	-.089
Affective personal characteristics			-.166*
Behavioural personal characteristics			.012
Cognitive personal characteristics			.053
Initial reactions			.149*
Opportunities, supports, and resources			-.066
Affective self-regulatory processes			-.026
Behavioural self-regulatory processes			.023
Cognitive self-regulatory processes			-.056
R^2	.301	.397	.422
Adj. R^2	.299	.388	.406
ΔR^2		.096	.025
F	143.482*	43.336*	26.371*
Sig F Change		13.096*	3.512*
df	2, 667	10, 659	18, 651

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .005$ level of statistical significance.

In sum, findings were mostly supportive regarding hypotheses 3 and 4. Both the components of mindfulness and resiliency were able to produce models that significantly predict most of the various tested long-term outcomes while controlling for adversity severity and the outcomes short-term counterpart. The lone exception pertained to the components of resiliency failing to additively predict long-term physical health above and beyond mindfulness and

included covariates. In this case, the components of mindfulness seemed to be superior to the

components of resiliency for the prediction of this outcome. Therefore evidence seems to suggest

that, even for long-term outcomes, the components of resiliency and the components of

mindfulness are substantially differentiated from one another in their predictions of various

health and wellbeing outcomes. For some select variables, such as physical health, this

differentiation seems to be rather substantial. Therefore, substantial evidence obtained indicates

support for hypothesis 3 and 4 in that differential and additive predictive validity was found for

long-term outcomes. However, the more granular findings pertaining to long-term outcomes

seem to be somewhat dependent on the individual outcome under investigation. Therefore, it is

likely that any conclusions regarding the use of one set of predictors over another or a broader,

more inclusive range of predictors to predict resilient outcomes are likely to be highly dependent

on the individual outcome in question.

Integrating mindfulness and resiliency. Lastly, to test the fifth hypothesis – examining

whether the latent, integrated components of both mindfulness and resiliency drawn from the

analyses of Study II are relevant in predicting various resiliency-related outcomes – multiple

regression analyses will be conducted to predict outcomes of wellbeing, physical health, and

depression, anxiety and stress symptoms. To ensure the rigor of our analyses, each latent

integrated factor was entered into a multiple regression model assessing the prediction of each of

the mentioned outcomes while controlling for adversity severity and their short-term

counterparts (as assessed in Study II, at time 1) as covariates. A Bonferroni adjusted

significance level of $p < .01$ was used to evaluate statistical significance of results pertaining to

this hypothesis ($p < .05/5 = .01$).

A hierarchical linear regression analysis was performed with the specific intent of

assessing the predictability of long-term wellbeing given the obtained integrated factors derived

from preceding exploratory factor analysis drawn from prior analyses (see Table 45). The results

of this analysis supported hypothesis 5. Findings indicated that the model, particularly factor 4

(support, flexibility, and clarity), was found to be a statistically significant predictor of long-term

wellbeing controlling for the effects of severity and short-term wellbeing ($F(6, 655) = 182.920$,

$p < .001$, $R^2 = .626$, adjusted $R^2 = .623$, $R^2\Delta = .015$, $F\Delta(4, 655) = 6.359$, $p < .001$). However, it

bears noting that (as found in Study II) this factor was found to contribute toward the prediction

of long-term wellbeing in the direction opposite than what was initially hypothesized. Generally

speaking, though, these results depict supportive evidence with regards to findings pertaining to

hypothesis 5. The integrated reduced framework was found to predict long-term wellbeing

following an adverse experience even while controlling for adversity severity and short-term

wellbeing. Although, for select independent variables, their contribution was not in the direction

that was initially expected.

Table 45

Multiple regression analysis using integrated factors to predict long-term wellbeing

Predictor	Covariates	Model
Adversity Severity	.003	-.003
Wellbeing (time 1)	.783*	.648*
Mindful Tendencies, Processes and Reactions		.026
Thoughts and Observations		.041
Affective and Behavioural Tendency and Self-Control		.000
Support Flexibility and Clarity		-.160*
R^2	.612	.626
Adj. R^2	.611	.623
ΔR^2	.612	.015
F	519.155*	182.920*
Sig F Change		6.359*
df	2, 659	6, 655

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .01$ level of statistical significance.

A second hierarchical linear regression analysis was performed to assess the predictability of physical health given the latent integrated factor set (see Table 46). The results of this analysis failed to support hypothesis 5. Findings indicated that a statistically significant model was obtained predicting long-term physical health. However, this model was not found to be able to predict long-term physical health beyond that of control variables severity and short-term physical health given the conservative Bonferroni adjusted limit of statistical significance $(F(6, 670) = 98.315, p < .001, R^2 = .468, \text{adjusted } R^2 = .463, R^2\Delta = .008, F\Delta(4, 670) = 2.637, p < .05)$. Therefore, these results fail to provide support with regards to findings pertaining to hypothesis 5. The integrated reduced framework was not found to predict long-term physical health following an adverse experience.

Table 46

Multiple regression analysis using integrated factors to predict long-term physical health

Predictor	Covariates	Entry 1
Adversity Severity	-.014	.010
Physical health (time 1)	.675*	.645*
Mindful Tendencies, Processes and Reactions		.018
Thoughts and Observations		-.052
Affective and Behavioural Tendency and Self-Control		.050
Support Flexibility and Clarity		-.065
R^2	.460	.468
Adj. R^2	.458	.463
ΔR^2	.460	.008
F	286.886*	98.315*
Sig F Change		2.637
df	2, 674	6, 670

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .01$ level of statistical significance.

A third hierarchical linear regression analysis was performed to assess the predictability of long-term symptoms of depression given the latent integrated factor set (see Table 47). The results of this analysis supported hypothesis 5. Findings indicated that factors 1 (mindful tendencies, processes, and reactions) and 4 (support, flexibility, and clarity) were particularly successful in predicting long-term symptoms of depression controlling for the effects of severity and short-term symptoms of depression ($F(6, 659) = 79.926$, $p < .001$, $R^2 = .421$, adjusted $R^2 = .416$, $R^2\Delta = .088$, $F\Delta(4, 659) = 25.038$, $p < .001$). However, once more, it bears noting that factor 4 was found to contribute toward the prediction of long-term symptoms of depression in the direction opposite than what was initially hypothesized. Taken as a whole, though, these results depict primarily supportive evidence with regards to findings pertaining to hypothesis 5. The integrated reduced framework was found to be predictive of long-term symptoms of

depression following broad scope adverse experience, even while controlling for adversity

severity and short-term symptoms of depression.

Table 47
Multiple regression analysis using integrated factors to predict long-term symptoms of depression

Predictor	Entry 1	Entry 2
Adversity Severity	-.037	-.004
Symptoms of depression (time 1)	.591*	.281*
Mindful Tendencies, Processes and Reactions		-.148*
Thoughts and Observations		-.029
Affective and Behavioural Tendency and Self-Control		-.106*
Support Flexibility and Clarity		.297*
R^2	.333	.421
Adj. R^2	.331	.416
ΔR^2	.333	.088
F	165.676*	79.926*
Sig F Change		25.038*
df	2, 663	6, 659

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .01$ level of statistical significance.

A fourth hierarchical linear regression analysis was performed to assess the predictability

of long-term symptoms of anxiety given the latent integrated factor set (see Table 48). The

results of this analysis also supported hypothesis 5. Findings indicated that factor 3 (Affective

and Behavioural Tendency and Self-Control) was a particularly significant predictor of long-

term symptoms of anxiety controlling for the effects of severity and short-term symptoms of

anxiety ($F(6, 646) = 84.375$, $p < .001$, $R^2 = .439$, adjusted $R^2 = .434$, $R^2\Delta = .053$,

$F\Delta(4, 646) = 15.226$, $p < .001$). Therefore, these results depict primarily supportive evidence

with regards to findings pertaining to hypothesis 5. The integrated reduced framework was

found to be predictive of long-term symptoms of anxiety following an adverse experience, even

while controlling for adversity severity and short-term symptoms of anxiety.

Table 48

Multiple regression analysis using integrated factors to predict long-term symptoms of anxiety

Predictor		Entry 1	Entry 2
Adversity Severity		-.031	-.027
Symptoms of anxiety (time 1)		.632*	.515*
Mindful Tendencies, Processes and Reactions			-.097
Thoughts and Observations			-.047
Affective and Behavioural Tendency and Self-Control			-.135*
Support Flexibility and Clarity			.107*
R^2		.387	.439
Adj. R^2		.385	.434
ΔR^2		.387	.053
F		204.749*	84.375*
Sig F Change			15.226*
df		2, 650	6, 646

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .01$ level of statistical significance.

A fifth hierarchical linear regression analysis was performed to assess the predictability of long-term symptoms of stress given the latent integrated factor set (see Table 49). The results of this analysis also supported hypothesis 5. Findings indicated that factors 1 (mindful tendencies, processes, and reactions) and 4 (support, flexibility, and clarity) were particularly significant predictors of long-term symptoms of stress controlling for the effects of adversity severity and short-term symptoms of stress ($F(6, 663) = 65.993$, $p < .001$, $R^2 = .374$, adjusted $R^2 = .368$, $R^2\Delta = .073$, $F\Delta(4, 663) = 19.353$, $p < .001$). However, once more, it bears noting that factor 4 as found to contribute toward the prediction of long-term symptoms of stress in the direction opposite than what was initially hypothesized. Therefore, these results depict primarily supportive evidence with regards to findings pertaining to hypothesis 5. The integrated reduced framework was found to be predictive of long-term symptoms of stress following an adverse experience, even while controlling for adversity severity and short-term symptoms of stress.

Table 49

Multiple regression analysis using integrated factors to predict long-term symptoms of stress

Predictor	Entry 1	Entry 2
Adversity Severity	-.030	-.060
Symptoms of stress (time 1)	.558*	.324*
Mindful Tendencies, Processes and Reactions		-.266*
Thoughts and Observations		.010
Affective and Behavioural Tendency and Self-Control		-.054
Support Flexibility and Clarity		.148*
R^2	.301	.374
Adj. R^2	.299	.368
ΔR^2	.301	.073
F	143.482*	65.993*
Sig F Change		19.353*
df	2, 667	6,663

Note. The values represent standardized regression coefficients. * results depict statistically significant findings at the more conservative, Bonferroni adjusted $p < .01$ level of statistical significance.

In sum, with the lone exception pertaining to the outcome physical health, findings supported hypothesis 5. For each of the tested outcome variables, excluding physical health, a statistically significant model was found to predict the long-term outcome even while controlling for severity and short-term levels of the same outcome. Although there were some discrepancies in the directionality of factor 4, findings generally supported the predictions of hypothesis 5. The reduced integrated dimensional framework seems to be useful in predicting long-term health and wellbeing outcomes.

Discussion

Study III pursued the investigation of five testable hypotheses. The first testable hypothesis served to investigate the presence of changes in mean scores due to the effects of time passed since the initial occurrence of the adversity. The second testable hypothesis aimed to investigate longitudinal changes in the associative relationships regarding the newly devised severity scale and various outcomes. The third and fourth tested hypothesis sought to identify

the components of resiliency and mindfulness as statistically significant and unique predictors of

various relevant long-term outcomes. Finally the fifth hypothesis examined whether the latent

integrated factors derived from prior analyses remain substantial predictors of relevant long-term

outcomes. Generally speaking, the results from this study provided substantial support for each

of these research aims as described forthwith.

Findings regarding hypothesis 1 (a and b) were met with overwhelming support.

Statistically significant improvements were found with regards to all of the process components

of both mindfulness and resilience with the lone exception of behavioural self-regulation.

Moreover, some select dispositional/trait components (resilient affective traits, and dispositional

non-reactivity and observing) were also found to demonstrate changes over the four-month time

frame of assessment. Recent meta-analysis research including data from over 200 studies

conducted to investigate the stability of personality lend support for these findings in that it

generally failed to support a permanent framework of personality stability (Ardelt, 2000). Future

research is needed to determine the precise cause of these changes whether they be due to an

intermingling quasi-trait-state component of some of the variables in question (e.g., the five

facets of dispositional mindfulness), phenomena associated with post-traumatic growth, or

statistical phenomena (e.g., regression to the mean) or methodological phenomena (priming

effects due to the recent adversity prior to the assessment of personality). In truth, this change in

personality could be due to any number of reasons.   The simplest explanation seems to be that

the participants were presenting lower ratings of personality during the worst time period of their

adversity (with little time for recovery to have taken place – at Time 1) and then after four

months, some measure of homeostasis had been achieved and was reflected as an improvement

due to the time frame by which measures were procedurally taken across these two points in

time. If this is this case, it indicates that these individuals are likely to be recovering from

adversity (as per the theoretical foundation underlying King and Rothstein's (2010) model of

resiliency). As time moves forward, people may work through their adversity, get better, and

perhaps grow as individuals (possibly resulting in trait development) as a result. It seems likely,

if there were any circumstance that would shape individuals' personality it would be likely to

occur through overcoming adversity that forces individuals to adapt (or fall victim) to

circumstance. Recent research supports this interpretation that significant life events may play a

key role in personality development (Bleidorn, Hopwood, & Lucas, 2018; Schwaba & Bleidorn,

2018). These results may very well depict such phenomena that may be framed in terms of the

research and theory regarding post-traumatic growth. There is a current up swell of debate in the

literature surrounding the phenomena of post-traumatic growth. Although many theorists would

argue that post-traumatic growth is often tied to experiences of adversity and ensuing resiliency,

there still seems to be a lack of unity regarding the exact definition and process of post-traumatic

growth (Miller, 2014). Theorists such as Jayawickreme and Blackie (2014) and others (for

example see, Damian & Roberts, 2014 and Kreitler, 2014) indicate that post-traumatic growth

may advance (otherwise slow) personality changes throughout one's lifespan. Whereas others

have argued against this stance, instead arguing that post-traumatic growth is akin to cognitive

restructuring (Pals & McAdams, 2004) or relative increases in psychological wellbeing (Linley

& Joseph, 2004).   The results from Study III tend to support each of these arguments in different

ways. Findings from hypothesis 1 clearly indicate that individuals tend to express enhanced

wellbeing, enhanced ability to cognitively restructure their thoughts, emotions, and behaviours,

and there is additionally some evidence to indicate select personality traits / dispositional

tendencies are beneficially modified as time progresses from an adversity. Although it was not

an apriori aim, to wade into this debate regarding the specified phenomena surrounding post-traumatic growth or trait-change, I hope that these findings lend well to enhancing the understanding of these newly burgeoning fields of research. Future research may be well served to replicate these findings and investigate longitudinal changes in each of these factors following experienced adversity and ensuing resiliency.

Findings pertaining to hypothesis 2 (a and b) regarding potential changes in the associative relationships between baseline subjective perceptions of adversity severity and various outcomes were also met with substantial support given my predictions. With the exception of long-term physical health, severity and outcomes assessed at baseline were found to be of greater magnitude than associations between baseline severity and long-term outcomes and long-term-severity and long-term outcomes. Again, because of the specific design of this study, it is possible that the changes in the variables could be due to individuals coping, having memories change over time, adapting to circumstance over time or any number of possible explanations. Future research will prove valuable in ruling out alternative explanations. However, these findings explain that to maximize the effect size of predictive utility, questionnaires assessing these variables should reference their most recently occurring (rather than most significant or most chronic / typical) adversity, as statistically significant changes seem to be likely to occur due to the effects of time. Evidence indicates that severity perceptions, being subjective and decreasing in predictive validity over time, would be most accurately assessed as close in time to the experienced adversity as possible. This research also has implications for practical uses of these surveys. Generally speaking, it may be helpful to know when individuals experienced their adversity with the use of a dated priming task such as the one included in these three studies for the purpose of assessment. Without taking time into

consideration, it is possible that important factors may be overlooked or unnecessarily included in the method of assessment. For example, researchers or practitioners may prioritize the wrong assessment (mindfulness vs. resiliency) in their prediction of long-term outcomes (e.g., physical health) or they may include severity assessments when they may no longer be so relevant in their predictive power of individual outcomes. This information may go a long way to indicate contexts in which it may be appropriate to use one or the other in isolation to maximize their efficiency and predictive power given the most economically (in terms of time, money, participant cognition, and other resources) viable approach. Although, prior research investigating the impact of time passed since the initial occurrence of adversity has demonstrated no substantial impact of the original components of the King and Rothstein model of resilience (not including adversity severity) in predicting various outcomes (Halliday and Rothstein, 2013), the current body of research seems to indicate that this may not necessarily be the case. This seems to be especially true for the variable of severity perceptions.

Findings pertaining to hypotheses 3 through 5 were also generally met with support. With the lone exception of the outcome physical health, all remaining long-term outcomes were predicted by the components of mindfulness, resiliency, and latent integrated factors derived from the two variable sets. Although the amount of additive predictive variance gained by adding each variable set (the components of mindfulness, the components of resiliency, and the latent integrated factors) was often small relative to the contribution of predictive variance from the short-term outcome covariate, these findings were statistically significant. Obviously short-term outcomes are going to be the best likely predictor of long-term outcomes as it is the same variable being assessed in the same manner. However, although small in magnitude, this may actually be interpreted to be indicative of rather robust findings given that such conservatively

adjusted critical statistical significance levels were obtained even while controlling for covariates of adversity severity and short-term outcome counterparts. Findings generally supported these hypotheses.

There are two primary points from analyses pertaining to hypotheses 3 through 5 meriting further address. The first concerns findings pertaining to the outcome physical health. The second pertains to the directionality of beta-weights in multiple regression analysis.

First, findings pertaining to the prediction of long-term physical health by the components of resiliency generally failed to be supported by evidence. However, this null finding may be due to multiple reasons. It is entirely probable that these results indicate not a lack of ability to predict long-term physical health from the components of resiliency altogether, but rather that the relationship between predictor variable set and physical health at Time 1 was so strong that it proved dominant, leaving little room to detect an outcome at Time 2. Thus, controlling for the effects of short-term (Time 1) physical health may have potentially resulted in an artificially constructed range restriction. Although this research has failed to find support for one of our hypotheses pertaining to long-term outcomes of physical health replication and experimental research is warranted and it would seem future research would likely prove valuable in understanding how to improve such long-term prediction of outcomes like physical health.

The results of the analyses involving long-term outcomes of physical health also demonstrated that there are occasions where one variable set may result as a superior predictor of individual outcomes under investigation when the components of mindfulness or resiliency were used as lone predictors contrasting the amount of predictive variance obtained at entry 1 in Model 1 vs. Model 2. This indicates, at a practical level, if under contexts that constrain of resources (e.g., time, money, cognitive energy of those being surveyed) it may be most optimal

to be aware of the most statically significant predictor between the two variable sets when

considering which to use. For example, when trying to predict long-term physical health, it may

be most beneficial to use the components of mindfulness over the components of resiliency.

However, predictive variance is only one of many considerations in such decision-making. One

should also consider other relevant factors such as what and how this information will be used.

Ideally, one would be able to draw the most relevant, meaningful and evidentiary predictors from

both sets of components to make educated decisions. This relative difference in predictive

variance, once more, highlights the aforementioned contextual dependency of resiliency

phenomena that is commonly found in other resiliency research (e.g., Masten, 2014).   Although

predictive power does effectively improve, the improvements gained may be highly dependent

on the outcome in question and it seems to rapidly plateau as the number of predictors increases.

Therefore, from a strictly practical standpoint, this suggests that organizations and clinicians

aiming to predict various outcomes should use the most effective predictor with regards to the

specific outcome being predicted, rather than attempting to broadly maximize predictive power,

in order to optimize efficiency of time, cognitive energy, and financial costs.

Second, this research also seems to confirm the findings of Study II in that the precise

directional relationship of individual predictors (specifically, the mindfulness facets observing

and nonreactivity, resilient cognitive personal characteristics, and the latent integrated factor 4 -

affective and behavioural tendencies and self-control) and relevant outcomes seems to

occasionally be the opposite of my expectations. However, as with Study II, examining the

correlation matrix seems to indicate this may be the result of a statistical artefact due to the

partialling of variance that comes with multiple regression analysis methods. As illustrated by

this work and that of Study II, each individual outcome seems to be differentially predicted by

their own profile of mindful, resilient, or mindfully resilient predictors. Given the relevant

outcomes tested in this research are only a handful of all relevant outcomes, this may not

necessarily indicate that variables such as mindful observing serve universally maladaptive ends

but rather it seems to be that mindful observing may not serve these specific outcomes in a

positive way. Alternatively, these findings may be explained in terms of recent research

revealing that the effects of mindful observing, in particular, are complex and are often

substantially influenced by various mediators and moderators (for example, Desrosiers, Vine,

Curtiss, & Klemanski, 2014; Duan & Ho, 2017). Given these findings and the complexity of

adversity and resiliency-related phenomena generally speaking, it is recommended that future

research pursue a more thorough, comprehensive, and more granular understanding of the

particular roles these variables play and the mechanisms that influence their relationships with

various outcomes. Such unknown mechanism may also fall under the superordinate construct of

mindful-resiliency. From a practical standpoint, these findings indicate that the components of

resiliency, the components of mindfulness, and the latent integrated factors are each statistically

significant predictors of health and wellbeing outcomes given a wide context of experienced

adversity and that such predictions made by these variable sets seem to be valid (with the

exception of physical health) for at least four months in duration. This provides validity to

ensure their long-term efficacy for practical purposes such as in selection for those best suited for

highly adverse work contexts and for the adaptation of the King-Rothstein model of resiliency to

broader (non-work) applications such as developmental or clinical predicting of likely long-term

outcomes of an individual given recent experience of an adversity. Future research is needed to

continue to apply and experimentally refine and test these findings. These findings generally

support the theory of mindfulness and resiliency working interrelated with one another to

produce various outcomes and improve the human condition (physically and mentally) over time after a broad range of experienced adversity.

Overall Discussion

This dissertation was performed with several acknowledged aims it intended to pursue (see Table 50). First, this research sought to develop a reliable and valid assessment of perceived severity of lived adverse experience. Second, this research sought to expand on preliminary findings (Halliday & Rothstein, 2014) suggesting that the King-Rothstein (2010) model of workplace resiliency may explain resiliency processes beyond that isolated of work contexts to adversity and trauma more broadly speaking. Third, given the King-Rothstein model of resiliency is in need of longitudinal, process-based assessment of resiliency, another goal of this research was to provide preliminary longitudinal evidence documenting such processes in those experiencing adversity. Finally, the fourth aim of this research is to investigate the role that mindfulness plays with regards to the resiliency process. More specifically, whether components of Shapiro et al.'s mindfulness model adds to or interacts with the components of the King and Rothstein resiliency model, to produce an integrated framework depicting mindful-resilience in the face of a broad range of adversity that informatively and beneficially explains the phenomena of adverse experience and processes that are involved when experiencing adversity. Each of these research aims were investigated, tested, and provided varying degrees of insight and cultivation of a deeper understanding of the phenomena surrounding recovery from adversity.

The first aim of this research sought to develop a reliable and valid assessment of perceived severity of lived adverse experience. The development and preliminary psychometric evaluation of the Short Adversity Severity Scale seemed to be met with a great deal of success. Across three initial validation efforts, each using large diverse samples, this newly developed

self-report assessment of adversity severity was found to be highly internally consistent and to

demonstrate substantial evidence for validity with components of resiliency, mindfulness and

various theoretically grounded outcomes (physical and mental health and wellbeing). The newly

developed scale was found to be correlated with many of the components of the King and

Rothstein model of resiliency and to be sufficiently distinguished from (sharing less than 50% of

total variance with) resilient initial reactions to adversity (the variable that was believed to be

most strongly associated with perceptions of adversity severity).   This survey allowed for the

study of adversity severity as a potential candidate for inclusion into a revised version of the

King and Rothstein model of resiliency and in the more complex newly proposed model of

mindful-resilience (as a predictor of initial reactions to adversity). Findings seem to converge

across all three studies indicating that subjective appraisals of adversity are likely to be a relevant

consideration for future research and theory pertaining to experience of adversity, especially as

related to probable resulting initial reactions and recently occurring experienced outcomes.

Subjective appraisal of adversity severity is also found to be consistently integrated into a

slightly modified version of the King-Rothstein model of resiliency (in Study I). Moreover,

subjective adverse experience was found to demonstrate bivariate correlations with outcomes

occurring those both shortly after the initial occurrence of adversity (in Study II) and four

months after the initial occurrence of the adversity (in Study III). This work also allowed for the

examination of process changes in adversity severity due to the effects of time. Over time,

perceptions tend to reduce in severity as people adapt. Such changes over the course of time

were theoretically believed to occur prior to the initial inception and development of this

assessment. There are several possible rationales (as discussed in Study III) for such a

degradation of severity perceptions. Future research is encouraged in this domain, as it could be

a viable pathway to improving long-term potential for fallout or growth after adversity. Conveniently, such research lends well to experimental research design. The cumulative results of three studies designed to develop, psychometrically evaluate, and utilize this short assessment of adversity severity have indicated the first aim of our research was met with success and, in turn, I recommend future investigations pursue the investigation of similarly influential factors such as time, growth, and memory.

The second aim of this research sought to expand on preliminary findings (Halliday & Rothstein, 2014) suggesting that the King-Rothstein (2010) model of workplace resiliency may explain resiliency processes beyond those isolated to work contexts to adversity and trauma more broadly speaking. The evidence provided over the course of the three studies included in this research demonstrates an abundance of supportive results regarding this stated aim. Study I provided substantial associative evidence indicating that the King and Rothstein model of resiliency is predictive of adversity stemming from both work and non-work related contexts. However, not all proposed relationships were borne of the various analyses contained within this study. For example, evidence failed to support the inclusion of adversity chronicity as a predictor of outcomes. Additional, findings borne from multiple regression analyses in Studies II and III provided further confirmation of the predictive utility of these variable sets in predicting individual resiliency outcomes. Moreover, findings from Studies II and III also demonstrated that latent integrated factors comprised by intermixing the components of mindfulness and resiliency are similarly effective in predicting these outcomes. As an aggregate, my results seem to be indicating that perceptions of severity are a statistically significant predictor of health and illness outcomes whereas the (work vs. non-work) context seems to be less of an important factor. I have attempted to highlight that with each set of predictors there are associated relative

cost and benefits and each should be considered for practical utility only after thorough

consideration of the context surrounding their use. I also want to highlight that each of these

studied models are relatively new, attempting to describe intricate and complex phenomena, and

are appropriately complex models themselves. Again, this seems to be reflective of relevant

associated interdisciplinary research regarding the subject of adversity and resiliency in a

developmental context (Masten, 2014). As such all findings should be replicated and expanded

on through additional research. It is my opinion that this research provides some degree of

hopeful support for the King and Rothstein model of resiliency, Shapiro et al.'s model of

mindfulness, and for the integration of the two. It seems apparent that there is some room for

expanded application and improvement in both models which will require a substantial amount

of future research to refine, understand, and integrate these models to optimally describe the

occurrence of broadly experienced adversity and recovery and add to the body of knowledge

contributing to the prediction of specific individual outcomes associated with adversity.

The third aim of this research sought to provide preliminary longitudinal evidence

documenting changes descriptive of the resiliency process over the course of experienced

adversity. As indicated by Masten (2014), individuals experiencing adversity may recover from

their effects over the course of time. The findings of Study III demonstrated statistically

significant changes in mean levels, known associations, predictive relationships, and stability in

the prediction of relevant outcomes over the course of time. Both of which reflected what was

theoretically proposed given individuals were, indeed, adapting or progressing from adversity

towards homeostasis (and loosely indicating at growth) over a four-month period. Obviously,

some adversities and their effects are likely to persist longer than four months, and many

adversities may persist for much shorter duration. However, this study sought to be among the

first of to examine this as applied to general (non-specific) adversity. I believe these findings are suggestive of the longitudinal pattern advocated by researchers and theorists including Masten and others (e.g., King & Rothstein, 2010). It is additionally likely that additional time-points would be beneficial in describing the precise process by which events unfold in future research. Future research may be well spent investigating the longitudinal process by which adversity unfolds. This may provide a beneficial framework by which learning from adversity and (as stated in the discussion of Study III) the phenomena of post-traumatic growth may be better understood.

The fourth aim of this research sought to expand on the King-Rothstein model of resiliency by accounting for the influence of additional factors: subjective perception of the severity of experienced adversity and the components of mindfulness; how mindfulness interacts with the resiliency process, whether it would be better to conceptualize each as distinct and separate constructs or whether a model for mindful-resilience could be informative and beneficial for explaining the phenomena of adverse experience, recovery, and growth. The findings of these three studies indicate that an integrated framework describing mindful-resilience may be fruitful as there seems to be a substantial and complex interweaving of the two constructs towards both positive and negative, short- and long-term, outcomes. Although, the integrated latent factors drawn from factor analysis didn't seem to predict more variance above and beyond that of their individual component variable sets that they were drawn from, it does serve to illustrate likely clustering of variables that serve specific, less complex micro-processes, that may work together as separate subsystems to predict various relevant outcomes.   What is perhaps most interesting to be aware of from these findings is that analyses designed to reduce dimensions produced a four-factor set (illustrating an integrated factor structure including mixed

mindfulness and resiliency components) rather than the possible two-factor (mindfulness and resiliency) result. Although each component was not found to be predictive of specific individual outcomes in the direction initially postulated, the findings of Studies II and III seem robust in that a similar relational profile of these antithetically behaving variables (e.g., mindful observing) is depicted both when examining a range of individual outcomes and both with regards to short and long-term outcomes. In this way, convergence across individual outcomes and across different points in time, it seems to have provided a strong confirmation of the nature of such variables or (at least) consistency in the mechanisms that produced such effects. As such, the mindfulness facet observing in particular seems like fruitful grounds to explore for future research. Taken as an aggregate of evidence, this body of research seems to suggest that these two processes (mindfulness and resiliency) are rather interdependent with one another and are consistent in their predictions of various outcomes.

However, included in the fourth stated research aim of this dissertation was the prediction that adversity chronicity would successfully play a role in the process of resiliency. This research generally failed to provide sufficient evidence indicating this particular mediating mechanism of mindfulness served a function in resiliency processes. Nor did this research indicate exactly where this variable best fit within models of resiliency. The chronicity of exposure to a particular adverse experience was found to not be adequately predictive of most other most components of resiliency and most known outcomes given analyses of data from a large sample. This isn't to suggest that this mechanism of mindfulness is unimportant or does not fit within the broader concept of resiliency processes. However, it may argue that adversity chronicity is a poor indicator of the precise mechanism described by Shapiro et al. Given that Shapiro et al. (2006) describes proposed that reperceiving allows individuals to be repeatedly

exposed to experiences that would normally elicit very strong emotions, instead, with more objectivity and less passionate reactivity. This was actually somewhat reflected by the small negative bivariate correlation between adversity chronicity and resilient affective characteristics. It is also plausible that chronicity of adversity may play only a minor role in influencing the degree of passionate reactivity individuals elicit to various adverse stimuli. For example, if one experiences repeated instances of poor outcomes or failure associated with their experiences of adversity it may elicit more emotional reactivity. Alternatively, if someone experiences repeated instances of positive outcomes or success associated with their experiences of adversity it may elicit less emotional reactivity. Regardless, emotional reactivity seems likely to be included within the parameters of the domains of initial reactions, affective personal characteristics, and affective self-regulation. Therefore, if emotional reactivity is the primary defining feature of this particular mediating mechanism, it seems to be the case that this research actually may have inadvertently indirectly demonstrate a degree of loose support for Shapiro's remaining mediating mechanism of mindfulness. Subsequently, this would also provide further rationale for integrating the Shapiro et al.'s and King and Rothstein models on the grounds of similarity.

Practical Applications, Limitations & Additional Future Research

As with all research the studies contained within this broad research project had some noted limitations. One such limitation is that none of the studies were of an experimental research design. Experimental research is surely needed, especially in this domain of study. Experimental research may reveal a more thorough understanding of how mindfulness practice (such as yoga or meditation) may influence the resiliency process or whether self-regulation training may reciprocally impact reperceiving and thereby influence other mediating mechanisms of mindfulness from there. However, the current body of research does provide a more thorough

understanding of the many variables contributing to resilient outcomes and illustrates many

potential areas that are amenable to intervention or training. Assuming only the parameters

outlined by the original King and Rothstein model of resiliency, one may have only considered

bolstering one's self-regulation or social support to mitigate poor outcomes given adverse

experience. Under this model, resilient traits were assumed to be rather fixed and would

therefore not serve well to attempted interventions or development. With the knowledge gleaned

from this research, we now believe it is likely a good idea to train people to reperceive their

experiences, clarify their values, and be more flexible as well. Furthermore, as gleaned from T-

Tests in Study III our research seems to indicate that positive experiences of adversity and

training to enhance dispositional mindfulness likely serve as key areas for growth to strengthen

our future responses to adversity.

Finally, despite the noted differences in regression weights predicting various outcomes,

adversities great and small over a wide range of contexts seem to be resolved using a set of

similar and related tools. Therefore, it seems unreasonable to describe such processes as being

understood as pertaining to an incredibly specific sort of adversity. It isn't so much work-related

adversity or little t vs. (catalogued and listed) "big T trauma" as much as it is challenges of life

that impact us to varying degrees. As illustrated by the evidence provided by Studies I and II,

the range in severity is a particularly important component involved in resolving experiences of

adversity and moving forward. This seems to be especially true with regards to short-term

outcomes. It is my opinion that, due to the highly specialized research communities and

educational systems in place, that an overwhelming abundance of research overlooks this more

simple fact, possibly to the detriment of individuals. Individuals experiencing smaller forms of

adversity (rather than historically listed experiences defined "trauma") but experiencing great

challenge or impairment as a result may feel stigma for their inability to navigate such adversity without assistance. Such stigma may impair them from seeking help or successfully navigating the experience in a reasonable amount of time, which may prove costly to individuals, organizations, and for public health.

Conclusions

In every venue of life we can all expect to experience some form of adversity. The process, by which individuals experience negative life events and proceed through recovery and growth, is complex and dependent on the broad range of surrounding circumstance that color and shape the adversity and how well we are equipped to handle it. The complexity of resiliency causes it to be interconnected with other positive processes (such as mindfulness). This research serves to aid in our understanding of resiliency by providing additional fruitful targets for intervention, a more comprehensive and thorough understanding of the mechanisms underlying the resiliency process, and by informing future research that serves integrate these related domains in the hopes of maximizing the impact of research and practice.

Table 50

Research aims, conclusions, and respective sources of attributed evidence provided by this dissertation

Research aims		Description	Conclusions
	1	Develop and validate an assessment of the severity of experienced adversity.	Study I: supported; Study II: supported; Study III: supported
	2	Examine the generalizability of the King-Rothstein (2010) model of resiliency to adversity occurring beyond the workplace to broader arenas of experienced life.	Study I: supported; Study II: supported; Study III: supported
	3	Provide longitudinal evidence documenting resiliency in those experiencing adversity over the course of time.	Study III: supported
	4a	Examining whether components of Shapiro et al.'s mindfulness model account for additional predictive variance beyond that of the components of resiliency.	Study II: supported; Study III: supported
	4b	Examining whether there is evidence suggesting an integrated model may be beneficial in depicting adversity and recovery phenomena falling under the broader definition of resiliency.	Study I (chronicity): Failed; Study II: supported; Study III: supported

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Appendix A: Adversity Prime

Please try to think of some situation that recently happened to you (within the last two weeks) that you considered being a difficult experience that required you to change your response, thinking, or behavior significantly.

Some common examples of recently experienced events are:
- Threats to physical safety (e.g., exposure to a hazardous event [fire, burglary, crime)
- Threats to self-esteem (e.g., being fired, failing, losing a major client or internship, being looked over for a promotion, or getting a low grade)
- Threats to fundamental beliefs (e.g., being betrayed by a project partner, close colleague, or supervisor)
- Problems with relationship(s) (e.g., unable to resolve conflict with a colleague or supervisor)
- Problems with performance (e.g., unable to meet objectives or goals)
- Problems adapting to change (e.g., unable to adapt to a change in the workplace, classroom, or family environment)
- A challenging problem related to work-life or school-life balance (e.g., work or school issues dominating time and energy away from other aspects of life)
- Break-up with a significant other
- Academic performance problems
- Traumatic family-related event (i.e., parents getting divorced)
- Moving
- Serious illness or accident
- Serious illness or accident experienced by a close friend or family member
- Death of a pet or significant other
- Substance abuse or addictions
As a means of ensuring the validity of this experiment, please briefly describe the situation or event that you have recalled, and use it to provide a frame-of-mind for the remainder of the questionnaire.

_____

_____

How many days have passed since this experience / incident has taken place?:
_____
Is this adversity stemming from a work context? Yes / No
Is this experience continuous and ongoing or prolonged in nature? Yes / No
Has this event concluded? Yes / No
How many times have you experienced this (or similar) event(s) in your life?
Once   Two to five times   Five to ten times   More than ten times

Appendix B: The Workplace Resiliency Index

Questionnaires and responses are collected anonymously.
Please respond to the following items as honestly as possible.

Please read the following statements carefully, keeping in mind the instructions you have just read
regarding a significant event/experience. Beside each state you will find 5 letters:
A – Strongly Disagree (on the left) to E – Strongly Agree (on the right).
Indicate which letter best fits your feelings and response to the statement.
For example, if you strongly disagree with a statement, fill-in the "A" corresponding with that statement.
If you are neutral fill-in "C", and if you strongly agree, fill-in "E".

	A Strongly Disagree	B Disagree	C Neither Disagree nor Agree	D Agree	E Strongly Agree

PC-A	1.	I can control my emotions.	A B C D E
	2.	I am not easily bothered.	A B C D E
	3.	I am not easily irritated.	A B C D E
	4.	I rarely get mad.	A B C D E
	5.	I get stressed out easily.	A B C D E
*	6.	I get upset easily.	A B C D E
*	7.	My mood changes frequently.	A B C D E
*	8.	I am often overwhelmed by my emotions.	A B C D E
*	9.	I get easily caught up with my emotions.	A B C D E
PC-B	10.	I push myself very hard to succeed.	A B C D E
	11.	I am exacting in my work.	A B C D E
	12.	I complete tasks successfully.	A B C D E
*	13.	I stop working when it becomes too difficult.	A B C D E
	14.	I set high standards for myself.	A B C D E
	15.	I am a goal-oriented person.	A B C D E
	16.	I maintain my focus on completing tasks.	A B C D E
*	17.	I don't complete tasks that I start.	A B C D E
	18.	I know how to get things done.	A B C D E
PC-C	19.	I enjoy reading challenging material.	A B C D E
	20.	I find political discussions interesting.	A B C D E
	21.	I am interested in a broad range of things.	A B C D E
*	22.	I avoid difficult reading material.	A B C D E
*	23.	I am not interested in abstract ideas.	A B C D E
*	24.	I try to avoid complex people and issues.	A B C D E
*	25.	I try to avoid philosophical discussions.	A B C D E

			Scale
	* 26.	I am not interested in discussing theoretical issues.	A B C D E
IR	* 27.	Following the event I was afraid that I would not be able to cope with the change.	A B C D E
	* 28.	Following the event I was more anxious than usual.	A B C D E
	* 29.	Following the event I was more stressed than usual.	A B C D E
	* 30.	Following the event I was unusually depressed.	A B C D E
	* 31.	Following the event I was unable to maintain a positive outlook on things.	A B C D E
	* 32.	Following the event I felt as if my world was falling apart.	A B C D E
OSR	33.	I know there is someone I can depend on when I am troubled.	A B C D E
	34.	I know there is someone that I can go to for advice.	A B C D E
	35.	I know there is someone that I can count on to be there for me.	A B C D E
	36.	I feel that there is somebody I can talk to that will listen to my problems and concerns.	A B C D E
	37.	I know that someone will make time for me if I need them.	A B C D E
SRP-A	* 38.	Since the significant event/experience I have more often based my goals in life on feelings, rather than logic.	A B C D E
	* 39.	Since the significant event/experience I have preferred to plan my life based on how I feel.	A B C D E
	40.	Since the significant event/experience I have planned my life logically and rationally.	A B C D E
	41.	Since the significant event/experience important decisions I have had to make have been based on logical reasoning.	A B C D E
	42.	Since the significant event/experience I have preferred to make decisions based on facts, not feelings.	A B C D E
SRP-B	43.	Since the significant event/experience I have rarely overindulged.	A B C D E
	* 44.	Since the significant event/experience I have often jumped into things without thinking through them.	A B C D E
	* 45.	Since the significant event/experience I have often like to act on a whim.	A B C D E
	* 46.	Since the significant event/experience I have often made last-minute plans.	A B C D E
	47.	Since the significant event/experience I have been a highly disciplined person.	A B C D E
	48.	Since the significant event/experience I have been able to refrain from doing things that may be bad for me in the long run, even if they might make me feel good in the short term.	A B C D E
	49.	Since the significant event/experience I have tended to start tasks right away.	A B C D E
	* 50.	Since the significant event/experience I have found myself procrastinating from work more often.	A B C D E
	* 51.	Since the significant event/experience I have needed more of a push to get started on a project.	A B C D E
SRP-C	* 52.	Since the significant event/experience I have tended to be discouraged easily.	A B C D E *
	* 53.	Since the significant event/experience I have been disappointed with my shortcomings.	A B C D E
	54.	Since the significant event/experience it has been easy for me to look on the bright side.	A B C D E
	* 55.	Since the significant event/experience I have had a dark outlook for the future.	A B C D E
	* 56.	Since the significant event/experience I have tended see potential difficulties everywhere.	A B C D E
	* 57.	Since the significant event/experience I have questioned my ability to do my work properly.	A B C D E
	* 58.	Since the significant event/experience I have been filled with doubts.	A B C D E

* 59. Since the significant event/experience I have been afraid that I will do the wrong thing.   Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

60. Since the significant event/experience I have found it easy to control my thoughts.   Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ

Appendix C: Five-Facet Mindfulness Questionnaire

Please respond to each item indicating how well each item applies to you using the provided 5-point scale.

```
|--------------------|--------------------|--------------------|--------------------|
        1                   2                    3                    4                    5
```

never or   very often
very rarely true   or always true

<u>Items</u>

Factor 1: Nonreactivity to Inner Experience
*FMI 18: I perceive my feelings and emotions without having to react to them.
*FMI 25: I watch my feelings without getting lost in them.
*FMI 26: In difficult situations, I can pause without immediately reacting.
*MQ 1: Usually when I have distressing thoughts or images, I am able just to notice them without reacting.
*MQ 4: Usually when I have distressing thoughts or images, I feel calm soon after.
*MQ 9: Usually when I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.
*MQ 10: Usually when I have distressing thoughts or images, I just notice them and let them go.

Factor 2: Observing/noticing/attending to sensations/perceptions/thoughts/feelings
FMI 3: I sense my body, whether eating, cooking, cleaning, or talking.
FMI 6: I notice how my emotions express themselves through my body.
FMI 7: I remain present with sensations and feelings even when they are unpleasant or painful.
FMI 20: I examine pleasant as well as unpleasant sensations and perceptions.
KIMS 1: I notice changes in my body, such as whether my breathing slows down or speeds up.
KIMS 5: I pay attention to whether my muscles are tense or relaxed.
*KIMS 9: When I'm walking, I deliberately notice the sensations of my body moving.
*KIMS 13: When I take a shower or a bath, I stay alert to the sensations of water on my body.
*KIMS 17: I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
*KIMS 21: I pay attention to sensations, such as the wind in my hair or sun on my face.
*KIMS 25: I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
*KIMS 29: I notice the smells and aromas of things.
KIMS 30: I intentionally stay aware of my feelings.
*KIMS 33: I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
*KIMS 37: I pay attention to how my emotions affect my thoughts and behavior.

Factor 3: Acting with awareness/automatic pilot/concentration/nondistraction
MAAS 2: I break or spill things because of carelessness, not paying attention, or thinking of something else.
*MAAS 3: I find it difficult to stay focused on what's happening in the present.
*MAAS 7: It seems I am "running on automatic" without much awareness of what I'm doing.
*MAAS 8: I rush through activities without being really attentive to them.
MAAS 9: I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.
*MAAS 10: I do jobs or tasks automatically, without being aware of what I'm doing.
MAAS 11: I find myself listening to someone with one ear, doing something else at the same time.
MAAS 12: I drive places on "automatic pilot" and then wonder why I went there.

MAAS 13: I find myself preoccupied with the future or the past.

*MAAS 14: I find myself doing things without paying attention.

MAAS 15: I snack without being aware that I'm eating.

FMI 9: I easily get lost in my thoughts and feelings.

*KIMS 3: When I do things, my mind wanders off and I'm easily distracted.

KIMS 11: I drive on "automatic pilot" without paying attention to what I'm doing.

*KIMS 23: I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted

KIMS 27: When I'm doing chores, such as cleaning or laundry, I tend to daydream or think of other things.

KIMS 31: I tend to do several things at once rather than focusing on one thing at a time.

KIMS 35: When I'm working on something, part of my mind is occupied with other things, such as what I'll be doing later or things I'd rather be doing.

CAMS 1: It is easy for me to concentrate on what I'm doing.

*CAMS 6: I am easily distracted.

CAMS 12: I am able to pay close attention to one thing for a long period of time.

Factor 4: Describing/labeling with words

*KIMS 2: I'm good at finding the words to describe my feelings.

*KIMS 6: I can easily put my beliefs, opinions, and expectations into words.

KIMS 10: I'm good at thinking of words to express my perceptions, such as how things taste, smell, or sound.

*KIMS 14: It's hard for me to find the words to describe what I'm thinking.

*KIMS 18: I have trouble thinking of the right words to express how I feel about things.

*KIMS 22: When I have a sensation in my body, it's hard for me to describe it because I can't find the right words.

*KIMS 26: Even when I'm feeling terribly upset, I can find a way to put it into words.

*KIMS 34: My natural tendency is to put my experiences into words.

*CAMS 5: I can usually describe how I feel at the moment in considerable detail.

CAMS 8: It's easy for me to keep track of my thoughts and feelings.

Factor 5: Nonjudging of experience

*KIMS 4: I criticize myself for having irrational or inappropriate emotions.

KIMS 8: I tend to evaluate whether my perceptions are right or wrong.

*KIMS 12: I tell myself that I shouldn't be feeling the way I'm feeling.

*KIMS 16: I believe some of my thoughts are abnormal or bad and I shouldn't think that way.

*KIMS 20: I make judgments about whether my thoughts are good or bad.

KIMS 24: I tend to make judgments about how worthwhile or worthless my experiences are.

*KIMS 28: I tell myself I shouldn't be thinking the way I'm thinking.

*KIMS 32: I think some of my emotions are bad or inappropriate and I shouldn't feel them.

*KIMS 36: I disapprove of myself when I have irrational ideas.

MQ 6: Usually when I have distressing thoughts or images, I get angry that this happens to me.

*MQ 8: Usually when I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.

Appendix D: The Depression Anxiety Stress Scale-21-Item

DASS21

Name: *Date:*

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

DASS

Scoring Template

Best printed on an overhead transparency sheet

S
A
D
A

D
S
A
S
A

D
S
S
D
S

A
D
D
S
A

A
D

Apply template to sheet and sum scores for each scale.
For short (21-item) version, multiply sum by 2.

DASS Severity Ratings

The DASS is a **quantitative** measure of distress along the axes of depression, anxiety (symptoms of psychological arousal) and stress (the more cognitive, subjective symptoms of anxiety). It is **not** a categorical measure of clinical diagnoses.

Emotional syndromes like depression and anxiety are intrinsically dimensional – they vary along a continuum of severity (independent of the specific diagnosis). Hence the selection of a single cut-off for a specific diagnosis can be correctly recognised as experiencing considerable symptoms and as being at high risk of further problems.

However for clinical purposes it can be helpful to have 'labels' to characterise degree of severity relative to the population. Thus the following cut-off scores have been developed for defining mild/moderate/severe/extremely severe scores for each DASS scale.

Note: the severity labels are used to describe the full range of scores in the population, so 'mild' for example means that the person is above the population mean but probably still way below the typical severity of someone seeking help (ie it does not mean a mild level of disorder).

The individual DASS scores do not define appropriate interventions. They should be used in conjuction with all clinical information available to you in determining appropriate treatment for any individual.

With the above information in mind, we offer the following guidelines based on full (42 item) scores (if using the DASS 21 item version, multiply the score obtained by 2).

DASS Severity Ratings
(if using the DASS 21 item version, multiply the score obtained by 2)

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34

Source: Psychology Department, UNSW - www.psy.unsw.edu.au/dass

Appendix E: Recent Physical Health Measure

General Physical Health
For your age, would you say in general your health is good, fair or poor?

Note . Responses, ranging from 1 (*Excellent*) through 5 (*Bad*), were reverse-coded so that higher scores indicated better perceived health.

Recent Physical Health
During the past month, I have often:
    ... felt physically unwell
    ... had some physical symptoms, like stomach upset, headaches or dizziness
    ... wished I had felt physically better

Note . Responses for each item ranged from 1 (*Almost never true*) through 5 (*Almost always true*) and were reversed coded then summed so that higher scores indicated better recent physical health.

Appendix F: Perceptions of Well-Being Measure

Your life is interesting

You have the quality of life that you hoped for

You feel satisfied with your achievements

You are satisfied with your present life

Feel confident in resolving future problems

Feel good about your relationship with your children

Feel confident that your relatives would take care of you if you were very sick

Feel that your life is entertaining

Feel calm about the future

Feel that your life is useful

Feel you have the support you would want from your close friends

---

Note. The values from which the means were calculated were based on the following responses: 1 = nothing, 2 = something, 3 = a lot.

The revised version of this scale will extend the extreme values on the Likert-style scale from 1 to 3 to 1 to 5.

Appendix G: The Experiences Questionnaire

Please respond to each item indicating how well each item applies to you using the provided 5-point scale.

|--------------------|--------------------|--------------------|--------------------|
            1   2   3   4   5
        never   all the
                                                                                            time
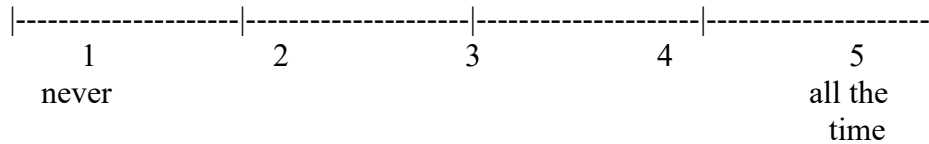
EQ03 I am better able to accept myself as I am.

EQ15 I can observe unpleasant feelings without being drawn into them.

EQ09 I notice that I don't take difficulties so personally.

EQ14 I can treat myself kindly.

EQ10 I can separate myself from my thoughts and feelings.

EQ16 I have the sense that I am fully aware of what is going on around me and inside me.

EQ06 I can slow my thinking at times of stress.

EQ17 I can actually see that I am not my thoughts.

EQ18 I am consciously aware of a sense of my body as a whole.

EQ12 I can take time to respond to difficulties.

EQ20 I view things from a wider perspective.

Appendix H: Ryff's Scale of Purpose

Please indicate your responses to each of the items using the 6-point scale provided.

```
|--------------------|--------------------|--------------------|--------------------||--------------------|
        1                    2                    3                    4                    5                    6
```

strongly
strongly
disagree   agree

1. "I enjoy making plans for the future and working to make them a reality,"

2. "My daily activities often seem trivial and unimportant to me,"

3. "I am an active person in carrying out the plans I set for myself,"

4. "I don't have a good sense of what it is I'm trying to accomplish in life,"

5. "I sometimes feel as if I've done all there is to do in my life,"

6. "I live life one day at a time and don't really think about the future,"

7. "I have a sense of direction and purpose in my life."

Appendix I: Ryff's Scale of Environmental Mastery

Please indicate your responses to each of the items using the 6-point scale provided.

--------------------	--------------------	--------------------	--------------------		--------------------
1	2	3	4	5	6
strongly					strongly
disagree					agree

1. In general, I feel I am in charge of the situation in which I live.
2. The demands of everyday life often get me down. R
3. I do not fit very well with the people and the community around me. R
4. I am quite good at managing the many responsibilities of my daily life.
5. I often feel overwhelmed by my responsibilities. R
6. I have difficulty arranging my life in a way that is satisfying to me. R
7. I have been able to build a home and a lifestyle for myself that is much to my liking.

Appendix J: Letter of Information
Process-Based Assessment of Professional Applicants

LETTER OF INFORMATION

Principal Investigator: Mitch Rothstein Ph.D.
Secondary Investigator: Aaron Halliday, M.Sc.

Thank you for your interest in this process-based study of adversity. You are being asked to participate in this research study about personal characteristics and experiences as an individual recently experiencing an adverse life situation due to your most significant and recent lived adverse experience.

The purpose of this letter is to provide you with information required for you to make informed decisions regarding participation in this research. We ask that you read this letter fully before deciding whether or not to proceed with the study.

The purpose of this study is to examine how one personally experiences adversity as a means to better understand how individuals experience and proceed through these experiences, and (by extension) similar, life events. Therefore we ask that all participants have recently experienced a significant lived adversity within two weeks prior to completing the survey. Additionally, as all participants will be expected to complete questionnaires written in the English language, we also ask that all participants be able to fluently communicate in the written form of the English language. Finally, in order to contact you for continued participation in the study, we require that all participants willing to participate be willing to provide contact information for this component of the study. If you do not meet these stated requirements, you are ineligible to participate in this line of research and will be excluded from participation (and following reimbursement) from the study.

Throughout the completion of this study you will be asked to complete three short questionnaire batteries, at different times, administered over the period of six to eight months. Specifically, (1) during or within two weeks of having first experienced your self-described, experienced, adversity and (2) several weeks after your self-described, experienced, adversity. At each stage, participants` feelings about the process will be examined. This questionnaire battery will ask you about your interpretation of events that may have occurred during your adversity thus far, your thoughts, feelings, behaviours, supports, characteristics, and reactions to these events. You will also be asked about the attitudes you had following these events and the outcomes that resulted (e.g., satisfaction, stress, etc.). The survey will also include questions about demographic information such as biological sex and age.

Your responses will remain confidential and will be used for research purposes only. Your name will not be associated in any way with the information that you provide. All contact information will be kept confidential and will be destroyed after your participation in the study has terminated. All information will be kept in a secure, locked location where only persons conducting this research will have access. All electronic data will be stored on a secure server associated with Survey Monkey and (encrypted) working copies of this data will only be made to perform the required analysis at the end of the study.

As mentioned, your participation will require you to complete three questionnaires at three separate time points. You will receive pro-rated compensation for your participation in each questionnaire. For participating in the first questionnaire, during or shortly after the application process (prior to having learned the outcome of your application process), you will receive 2 dollars. For participating in the second questionnaire, shortly after you have learned the outcome of your application process, you will be compensated with two dollars for your participation. For participating in the third questionnaire, several weeks after you have learned the outcome of your application process, you will receive 4 dollars for your participation. Each questionnaire will take approximately 10 minutes for you to complete. The risks involved in participating in this study appear to be minimal and are associated with self-reflection that may occur while completing questionnaires. However, it does not appear to be beyond that of everyday life experience. Your participation is entirely voluntary. You are free to omit answers to questions without penalty, and withdraw from the study at any time, receiving the mentioned prorated compensation for your participation.

Participants may benefit from the study by engaging in somewhat enlightening introspective self-evaluation that may be inspired via the completion of self-report questionnaires. Society may benefit from this research by developing a more thorough understanding of the life events.

Completion of the surveys indicates your consent to participate in this research. Upon full completion of the study, you will be financially compensated for your time with eight dollars and for your time. Partial completion of the study will be compensated as mentioned above. You will also receive a letter of information providing additional information about this study.

If the results are published your name will not be used. If you would like to receive a copy of any potential results or if you have any questions or concerns please email Aaron Halliday or Mitch Rothstein. If you also have any questions regarding your rights as a research participant or the conduct of this study you may contact The Office of Research Ethics.

Thank you very much for your time,

Mitch Rothstein, Ph.D.
Director, Aubrey Dan Program in Management and Organizational Studies Professor,
Department of Psychology,
University of Western Ontario

Aaron Halliday M.Sc.

Department of Psychology
University of Western Ontario

Appendix K: Digital Consent Statement
Process-Based Assessment of Professional Applicants

STATEMENT OF CONSENT

<u>Principal Investigator:</u> Mitch Rothstein, Ph.D.
<u>Secondary Investigator</u>: Aaron Halliday, M.Sc.

1. By entering the date and selecting the option to proceed below you are indicating that you have read the letter of information, have had the nature of the study explained to you and you agree to participate in the study. All questions have been answered to your satisfaction. If you have any questions prior to participating please email the lead researcher before proceeding with this study. Otherwise please enter the current date and proceed with the study.

I have read the letter of information and have had the nature or the study explained to me and I agree to participate in the study. All questions have been answered to my satisfaction and I wish to proceed.

Appendix L: Debriefing Form

Debriefing Form

<u>Principal Investigator:</u> Mitch Rothstein, Ph.D.
<u>Secondary Investigator</u>: Aaron Halliday, M.Sc.

Longitudinal studies are studies that are performed following individuals over the course of time. When performed they provide a great deal of information regarding human processes as they unfold over their duration. The proposed research project is to test the effectiveness of a model of resilience proposed by King and Rothstein (2010). This specific model proposes that the resiliency process that unfolds in an affective, cognitive, behavioural route. This particular model has been developed with a strong theoretical framework in mind. Although other models of resiliency have been proposed, thus far, there is a gap in current resilience research that is driven with a solid theoretical framework in mind.

It is predicted that a newly proposed mindful resiliency process by Halliday and Rothstein (2010) will be demonstrated via your questionnaire responses and alterations in your responses over time. It is further predicted that individuals exhibiting low scores of resiliency or mindfulness or mediating mechanisms (such as self-regulation, exposure, value clarification, or flexibility) will be associated with negative resiliency processes or an absence of engaging in the resiliency process and individuals with high resiliency/mindfulness scores in similar situational contexts will be associated with positive resiliency processes and associated outcomes.

All results may be incorporated as one sample of many in part of a larger study examining the resiliency process and models proposed by Halliday and Rothstein (2015) or by King and Rothstein (2010). The potential findings of this study may contribute to various domains of psychology by providing information that may be used to develop training programs, intervention programs, and perform future research involving this process.

Your responses and participation are much appreciated.

If you have any further questions about this research please contact the primary researcher, Aaron Halliday. Thank you for helping us with this project--your time and contributions are much appreciated.

If you have questions about your rights as a research participant, you should contact the Director of the Office of Research Ethics.

References

King, G. A., & Rothstein, M. G. (2010). Resilience and leadership: The self-management of failure. In M. G. Rothstein & R. J. Burke (Eds.), *Self-management and leadership development* (pp. 361-394). Cheltenham, UK: Edward Elgar.

Appendix M: Definition, Description, and Meaning of Resiliency Terms

Sample Item	What an extreme score on this scale means
"Following the event I was able to maintain a positive outlook on things."	Poor reactions to specific adverse experiences documented by the adversity-priming task.
"I rarely get mad"	A disposition tendency to be emotionally resilient.
"I push myself very hard to succeed"	A disposition tendency to be behaviourally resilient.
"I enjoy reading challenging material"	A disposition tendency to be cognitively resilient.
"I know that someone will make time for me if I need them"	An abundance of social support that is useful to draw upon during adverse experiences.
"Since the significant event/experience I have preferred to plan my life based on how I feel" - REVERSE CODED	Engagement in resilient affective self-regulation after the specific adverse experiences documented by the adversity-priming task.
"Since the significant event/experience I have rarely overindulged"	Engagement in resilient behavioural self-regulation after the specific adverse experiences documented by the adversity-priming task.
"Since the significant event/experience I have found it easy to control my thoughts"	Engagement in resilient cognitive self-regulation after the specific adverse experiences documented by the adversity-priming task.

Note. All definitions in column 2 are taken from McLarnon & Rothstein, 2013.

Term	Definition
Initial reactions to adversity	"Initial reactions toward traumatic events and circumstances; the content of this domain includes the interpretation of events and resulting disequilibrium, or change from previous state of functioning and well-being."
Resilient affective traits	"Individual characteristics and protective factors that provide a sense of emotional well-being and self-esteem; the content of this domain includes the abilities to maintain a stable sense of self, sense of personal worth, and being able to reason with and understand emotions while not succumbing to extreme emotions, or being easily made upset."
Resilient behavioural traits	"Individual characteristics and protective factors that provide a sense of agency or personal control; the content of this domain includes self-efficacy, diligence, self-discipline, aspiring for challenging goals, striving to attain goals, and being competent and capable of dealing with challenges."
Resilient cognitive traits	"Individual characteristics and protective factors that provide a sense of coherence or meaning; the content of this domain includes active learning and seeking out new experiences and encounters, and actively examining and ascribing meaning to experiences, as well as being open-minded and attentive."
Supports, opportunities, & other resources	"Sources and availability of social support and resources; the content of this domain includes availability and support from close social relationships (family, significant other, community, workplace relationships, etc.)."
Resilient affective self-regulation	"Mechanisms related to controlling and regulating emotions; the content of this domain includes processes associated with emotion-based decision making, analyzing one's affective state, and emotional regulating processes."
Resilient behavioural self-regulation	"Mechanisms related to understanding and controlling negative and ineffective behaviors; the content of this domain includes processes associated with impulse control, planfulness, self-discipline, and self-observation."
Resilient cognitive self-regulation	"Mechanisms related to understanding and controlling negative and ineffective thoughts and thinking patterns; the content of this domain includes processes associated with resourcefulness, cognitive flexibility (willingness to compromise, accommodate, and consider others' perspectives), seeing experiences in a positive light, and minimizing intrusive thoughts."

Note. All definitions in column 2 are taken from McLarnon & Rothstein, 2013.

Curriculum Vitae

Aaron J. Halliday, M.Sc.

Ph.D. Candidate of Industrial & Organizational Psychology
The University of Western Ontario

EDUCATION

Doctorate - Industrial-Organizational Psychology   (2013-2018)
University of Western Ontario

Masters of Sciences - Industrial-Organizational Psychology   (2011-2013)
University of Western Ontario

AWARDS AND SCHOLARSHIPS

Western Graduate Research Scholarship   The University of Western Ontario
Awarded to students nominated by supporting graduate faculty and the Graduate Chair, $85,960 (2011- 2018).

Western Graduate Thesis Research Award   The University of Western Ontario
Provided to graduate students seeking financial support for performing research associated with their thesis or dissertation, $350 (2013).

RESEARCH INTERESTS

POSITIVE PSYCHOLOGY; ASSESSMENT; PROGRAM DEVELOPMENT; HUMAN RESOURCE MANAGEMENT

RESEARCH & EXPERIENCE

Doctorate of Psychology Dissertation Work   August 2013-Present

Under the supervision of Dr. Mitch Rothstein, I performed three studies that used multiple regression analysis to examine the generalizability of a theoretical model of work-related adversity to adversity generally speaking. Moreover, theoretically proposed relationships between adversity severity, the components of resiliency, mindfulness and the mechanisms that are most directly responsible for mindfulness outcomes were assessed to establish the network of relationships and evaluate whether variables are sufficiently different from one another and also whether they worked well with one another towards several resilient outcomes. I personally designed an assessment of subjective perceptions of adversity severity and conducted large-scale online survey-based cross-sectional and repeated measures research. Repeated measures analysis was consistent with a theoretically proposed unfolding process of resiliency indicting people experience hardship and recovery. Findings generally indicated that severity perceptions, mindfulness, and resiliency should all be integrated into a broader more comprehensive model and theoretical-framework describing the adverse experience and recovery process. Findings were reported in this Doctoral dissertation.
(University of Western Ontario)

Research Project   August 2013-2018

Under the supervision of Dr. Mitch Rothstein, I performed a longitudinal study that used multiple regression and correlation analyses to further understand how resiliency and mindfulness influenced the stressful life experience of applying to professional programs, receiving responses from said programs, and recovery. This research specifically investigated the theoretically proposed relationships between components of resiliency, mindfulness, academic self-efficacy and clarity, and relevant outcome variables associated with health and quality of life. I personally conducted large-scale, online, survey-based, longitudinal that tracked people for up to one year. Multiple regression analysis indicated that the proposed variables were generally supportive during this stressful experience and that they promoted health and wellbeing. However, longitudinal analysis indicated that outcomes did not express much

variability across time. Data is being analyzed using the computerized software SPSS, R Studio, and M-Plus. I intend to publish my findings in scientific journal publication.
(University of Western Ontario)

RESEARCH EXPERIENCE

Research Project   September 2015-2016

I performed a cross-sectional and experimental study that used path analysis, correlation and multiple regression analyses to test a newly proposed model demonstrating and describing the promotion of pro-environmental (a.k.a. green) behaviors. Over 300 online participants completed a questionnaire battery assessing various environmental beliefs, motivation, attitudes, behavioural intentions, and biophilic tendencies and were either exposed to small images of a forest setting or received no such exposure. At the end of the survey participants were asked if they would like to donate half of the compensation that they earned for participating to a well known green charity. Overall, support was found for several of the hypothesized associative and predictive relationships of this study. Evidence demonstrated that individuals who were exposed to biological stimuli were more likely to donate to green charities at the end of the survey when asked. Evidence also supported the proposed statistical model predicting engagement in general pro-environmental behaviours. Findings also partially supported some a-priori predicted interaction relationships among the variables under investigation. The impact of these findings were discussed with specific focus on their applications to corporate social responsibility, organizational culture, maximizing pro-social behaviour generally speaking. Scheduled to present findings in a poster presentation at the 79th International Congress of Applied Psychology in Montréal, Quebec.
(University of Western Ontario)

Research Assistantship   September 2012-2013

Under the supervision of Dr. Mitch Rothstein, assisted in the theoretical conceptualization of a model of job-search processes and experiences of recent Canadian immigrants. I interacted and performed duties involving participant data. Prepared a poster and presented findings at the 74th annual Canadian Psychological Association in Quebec.
(University of Western Ontario)

Research Assistantship   September 2012-2013

Under the supervision of Dr. Mitch Rothstein, assisted in the theoretical conceptualization of a model of job-search processes and experiences of recent Canadian immigrants. I interacted and performed duties involving participant data. Prepared a poster and presented findings at the 74th annual Canadian Psychological Association in Quebec.
(University of Western Ontario)

Masters Psychology Thesis   September 2011-2013

Under the supervision of Dr. Mitch Rothstein, I performed a study that uses structural equation modeling to examine the theoretically proposed relationships between workplace adversity, resiliency processes, and causal attributions focusing on the adverse experience. I personally designed a questionnaire battery to be administered both online and in-person. I analyzed obtained data using the software M-Plus and SPSS. I interpreted and reported findings in a Master's thesis and symposium presentation. (University of Western Ontario)

Independent Study Project   September 2010-April 2011

Under the supervision of Dr. Paul Frewen, I performed a meta-analytic review examining the relationships between childhood emotional maltreatment and neglect and PTSD, Social Anxiety Disorder and Depression. I completed an in depth literary review of available research using PubMed and PsychINFO databases. I produced and maintained a reference database and performed all required statistical analyses. I prepared a full-length research report of the project and findings. (University of Western Ontario)

Independent Study Project   September 2010-April 2011

Under the supervision of Dr. Paul Frewen, I collected and analyzed explicit (statement attribution) and implicit (response latency) data obtained with the use of a computerized self-faces task. I examined associations between

several variables regarding implicit and explicit responses. Childhood attachment and relational trauma was a primary focus of this study in addition to traumatic stress, depression, dissociation, self-esteem, and personality. I prepared a full-length research report of the project and findings. (University of Western Ontario)

Volunteer Psychology Research Assistant   April 2010-September 2010

Under the supervision of Dr. Paul Frewen, I completed additional work on the Computerize Attachment and Relational Trauma Screen (below). I assisted in creating an online assessment version of the CARTS, recruited participants, collected, entered, and performed minor analyses of community samples. (University of Western Ontario)

RESEARCH EXPERIENCE

Honours Psychology Thesis   September 2009-April 2010

Under the supervision of Dr. Paul Frewen, I conducted an extensive psychometric analysis of the Computerized Childhood Assessment of Relationships & Trauma Screen (CARTS) a novel 77-item, retrospective questionnaire survey of dynamic childhood familial relationships and the occurrence of physical, emotional, and sexual abuse along 15 subscales. I collected and analyzed data from four clinical and nonclinical samples. Convergent, divergent, and concurrent predictive validity of the CARTS was assessed with the use of 11 other scales thought to be related to childhood maltreatment and relational trauma and by examining mean correlations between respondents' mother-, father-, and self-ratings across various subscales of the CARTS. I interpreted and reported findings in an honours B.A. thesis and symposium presentation and contributed toward the publication of this internationally used assessment. (University of Western Ontario)

Volunteer Data Entry   October 2010-April 2011

I performed data entry for Ph.D. candidate David Podnar and his research projects regarding humour and clinical correlates and humour and teasing. (University of Western Ontario)

Volunteer Psychology Research Assistant   April 2010-September 2010

I volunteered in the social cognition laboratory as a research assistant under Masters Candidate, Kurt Peters. I instructed participants on how to complete a computerized survey, collected data, provided participants with financial compensation, and compiled a list of potential research participants for further studies in the lab. (University of Western Ontario)

CONFERENCE PRESENTATIONS & PUBLICATIONS

Halliday, A. J. & Berger, I. (2018, June). Nature Nurturing Nature: A Proposed Model Describing the Role of Human Biophilic Orientation in Cultivating Pro-Environmental Behaviour. Poster presented at the 29th International Congress of Applied Psychology (ICAP 2018) convention in Montréal, Québec, Canada, June 26 - 30, 2018.

Halliday, A. J., & Rothstein, M. (2014, June). Attributions and resiliency: An analysis of the resiliency-attribution association. In N. Bremner (Chair), *Contemporary student research in industrial and organizational psychology.* Symposium conducted at the Canadian Psychological Association's 75th annual convention, Vancouver, BC.

Halliday, A. J. & Rothstein, M. (2014, June). I get knocked down, this is how I get up again: Modeling resiliency, attributions, and outcomes. Poster presented at the Canadian Psychological Association's 75th annual convention, Vancouver, BC.

Halliday, A. J., Kisinger, K., McLarnon, M., Rothstein, M. (2012). The role of the resiliency process in Canadian immigrants' search for employment. Poster presented at the Canadian Psychological Association's 74th annual convention, Québec City, Québec.

Frewen, P. A., Evans, B., Goodman, J., **Halliday, A.,** Boylan, J., Moran, G., Reiss, J., Schore, A., & Lanius, R. A. (2013). Development of a childhood attachment and relational trauma screen (CARTS): A relational-socioecological framework for surveying attachment security and childhood trauma history. *European Journal of Psychotraumatology, 4* doi:http://dx.doi.org/10.3402/ejpt.v4i0.20232

Halliday, A. J. (2012). Discussion of corporate social responsibility. Presented at the Southwestern Ontario I/O Psychology & OB annual graduate student conference. London, Ontario.

Halliday, A. J., & Frewen, P. A. (2011, June). An evaluation of the computerized childhood assessment of relationships & trauma scale. In P. A. Frewen (Chair), *Innovations in clinical assessment of highly traumatized persons*. Symposium conducted at the Canadian Psychological Association's 72nd annual convention, Toronto, Ontario.

PROFESSIONAL MEMBERSHIPS AND PSYCHOLOGICAL ACTIVITIES

Canadian Psychological Association   Student Member
(November 2010-2018)

American Psychological Association   Student Member
(April 2014-2018)

Canadian Positive Psychology Association   Student Member
(April 2014-2018)

Society for Industrial & Organizational Psychology   Student Member
(January 2011-2018)

PROFESSIONAL MEMBERSHIPS AND PSYCHOLOGICAL ACTIVITIES

Society of Graduate Students   Psychology Representative
(January 2012-2013)

Graduate Teaching Assistant Union (Local 610)   Union Steward
(2011-2013)

Western Psychological Association   Member
(September 2007-April 2011)

VOLUNTEER EXPERIENCE

Distress Centre Volunteer   May 2010-June 2011

Provided individuals experiencing crisis or distress with empathetic listening and confidential telephone support. Also provided individuals in need with aid (food, water, etc.) or assistance (directing and transporting to community services and resources for those experiencing addiction or homeless, etc.; London and District Distress Centre; London CARES).

Volunteer Co-Councilor & Facilitator   October 2010-June 2011

Co- councilor and facilitator of a (often court-ordered) 16-week program designed to facilitate and support men in ending their abusive behavior in their relationships while challenging them to take an active role in preventing abuse. Assisted the group counselor in all roles of delivering the organization's programs and services while in a group setting. Included facilitating portions of group program and discussion under the supervision of the counselor. (Changing Ways)

WORKSHOPS AND ADDITIONAL TRAINING

Teaching Mentor Program   December 2012

Provides participating graduate teaching assistants with an opportunity to be observed in their personal teaching environment and to receive valuable feedback from peers on instruction, methods, and teaching philosophies.

Future Professor Workshop Series (1.5 hours each)   October 2012-2013
        Making the Most of Office Hours
        Writing Effective Learning Outcomes
        Writing a Teaching Philosophy Statement
        Strategies for Marking Essays
        Excellence in Online Teaching
        Creating Effective Lectures
        Ethical Dilemmas in Teaching
        Innovative Teaching
        Course Design
        Technology in Education

WORKSHOPS AND ADDITIONAL TRAINING

Teaching Assistant Training Program   August 2011

A two and a half day intensive training program designed for teaching assistants. Completion of this program required participants to attend workshops regarding grading practices and diversity in the classroom, leading discussions, using instructional technology and giving students feedback on written work. This program also incorporated real-time, hands-on teaching experiences in unique microteaching sessions, where participants used the learned teaching skills and techniques to instruct to a group of peers. These sessions were video recorded and used to provide helpful, constructive feedback.

Applied Suicide Intervention Skills Training (ASIST) Certification   April 2011

Participated in a two-day, highly interactive, practice-oriented workshop, designed to train caregivers who want to feel more comfortable, confident, and competent in helping to prevent the immediate risk of suicide. Training involved group discussions, role-play and skills-practice.

CPI Nonviolent Crisis Intervention Certification   November 2010

Participated in a two-day comprehensive workshop, designed to reinforce preventative techniques and practices of the principles of non-harmful physical intervention and organize thoughts about how behavior escalates and how to respond during moments of chaos. Training specifically focused on prevention and strategies for safely defusing anxious, hostile, and violent behavior at the earliest possible stage.

Volunteer Group Councilor and Co-Facilitator Certification   November 2010

Training consisted of a basic education about the Changing Ways program and philosophy, skills training for counseling and facilitating groups. This included the use of role-play, an overview of the issues surrounding domestic violence, workbook completion, and preparation for the reality of what the experience of group co-facilitation will be like with violent offenders.

Distress Telephone-line Operator Certification   May 2010

Five days of in-depth training regarding assisting co-operative and challenging clients, the development of listening skills and boundaries, suicide assessment and intervention, crisis
intervention, writing written reports, and special topics regarding community issues, mental health, grief, abuse, addictions, and loneliness. Training included daily classes, role-play, and the completion of a 175-page training manual over the five-day training period.

Systematic Literature Review Certification   November 2010

Participated in a full-day workshop regarding how to successfully perform systematic and meta-analytic literature reviews. Content included, but was not limited to: methodological approaches and decision making database formation and maintenance, and the organization, collection, and analysis of data.

TEACHING EXPERIENCE

Exam Proctor   September 2010-2018

Proctored approximately 100 hours of student examinations for assorted psychology courses.

Introduction to Industrial-Organizational Psychology – T.A.   September 2011-May 2012

Full-time, full-year teaching assistantship (280 hours). Duties included: participating in class lectures, answering student questions, proctoring and grading student exams, and meeting with students to go over and improve their work.

Human Sexuality – T.A.   June 2012-August 2012

Full-time, summer term teaching assistantship (140 hours). Duties primarily consisted of grading essay format exams and answering student questions relevant to the course material included: participating in class lectures, answering student questions, proctoring and grading student exams, and meeting with students to go over and improve their work.

Cognitive Neuroscience of Music – T.A.   September 2012-December 2012

Full-time, single-term teaching assistantship (140 hours). Duties included: giving one class lecture, answering student questions, proctoring and grading and providing extensive feedback on student essay format exams and several essay assignments, and meeting with students to go over and improve their work.

Human Adjustment – T.A.   January 2013-May 2013

Full-time, single-term teaching assistantship (140 hours) divided between two course formats: online and lecture based. Duties included: Communicating with students, proctoring and grading student exams, and meeting with students to go over and improve their work.

Research Methods in Psychology – T.A.   August 2013-May 2014

Full-time, full-year teaching assistantship (280 hours). Duties included: preparing and presenting weekly 2 hour tutorials on select topics regarding research and statistical methodology and design, assisting students in the conceptual processes and design of research projects, teaching students how to properly enter data and use statistical analysis software (SPSS), grading and providing extensive, detailed feedback to full-length student research papers and assignments, answering student questions, proctoring student exams, and meeting with students to review and improve their understanding of the English language and scholarly writing skills.

TEACHING EXPERIENCE

Psychological Research Methods and Statistical Analysis – T.A.   August 2014-May 2015

Full-time, full-year teaching assistantship (280 hours). Duties included: preparing and presenting weekly 2 hour tutorials on select topics regarding research and statistical methodology and design, assisting students in the conceptual processes and design of research projects, teaching students how to properly enter data and use statistical analysis software (SPSS), grading and providing extensive, detailed feedback to full-length student research papers and assignments, answering student questions, proctoring student exams, and meeting with students to review and improve their understanding of the English language and scholarly writing skills.

Introduction to Psychology – T.A.   August 2015-2016

Full-time, full-year teaching assistantship (280 hours). Duties included: grading of assignments, managing a discussion forum for student participation and interaction involving class subject matter, answering student questions, proctoring student exams, and meeting with students to go over and improve their work.