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Attributions & Resiliency: An Analysis of the Resiliency-Attribution Association

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ATTRIBUTIONS AND RESILIENCY: A MODELED APPROACH TO UNDERSTANDING
RESILIENCY USING CAUSAL ATTRIBUTIONS
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by

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Abstract

This study sought to provide support for the King-Rothstein (2010) model of resiliency and to establish an understanding of the relationship between resiliency and causal attributions. A cross-sectional study investigated these relationships using an online questionnaire battery. Some associative and predictive relationships were found between causal attributions and resiliency. Components of resiliency were predictive of job satisfaction and support and symptoms of psychological illness. Given a path analysis, the King-Rothstein model of resiliency was found to be most predictive of the outcome symptoms of psychological illness (over job satisfaction and support or wellbeing). Finally, mediation analysis revealed self-regulatory processes fully mediated the relationship between causal attributions and symptoms of psychological illness. Given the results obtained through the completion of this thesis it is believed that the constructs of causal attributions and resiliency are independent although mildly associated constructs. The impact of these findings with regards to future research are discussed.

Keywords: resiliency (psychological), causal attributions, job satisfaction, support, symptoms of psychological illness, well-being, theory, models.

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Causal Attributions

"Notice the difference between what happens when a man says to himself, 'I have failed three

times', and what happens when he says, 'I am a failure'." – *S. I. Hayakawa*

People often experience varying degrees of adversity in their daily lives. These adverse

experiences may occur at home, in society, or within organizations. However, whether or not an

individual experiences such adversity as being a great personal defeat with potentially long-

lasting negative outcomes may be a result of their individual resiliency and perception of the

causal nature of such adversity. To date, few known studies have investigated how causal

attributions, explanations for the cause, stability, and controllability of an adverse experience, fit

within the framework of resiliency theory and their role in resiliency-relevant outcomes. This

study seeks to fill this gap in the literature by investigating the nature of this relationship and

providing a basis for which to include causal attributions as a contributing factor under the

superordinate construct of resiliency.

There is little doubt that the workplace can be a source of great adversity (Niiyama,

Okamura, Kohama, Taniguchi, Sounohars, & Nagao, 2009; Isaksen, 2000; Weng, 1991; Malloy

& Mays, 1984). Workplace adversity can range in severity and context from overt, direct

experiences such as being harassed, fired, or exposed to violent language, to more subtle, indirect

experiences such as being "passed over" for a promotion or failing to receive support from

colleagues and supervisors (Niiyama et al., 2009). Although some occupations are accompanied

by greater amounts of adversity than others, no occupation can claim to be entirely adversity-

free. This is especially true in the last five years as the global financial crisis has put the

American economy into a state of depression and shaken national economies worldwide. These

events have exposed the average American to the highest likelihood of unemployment since the 1980's and shortest hourly workweek since the 1960's (Bureau of Labour Statistics, 2012; Herbst, 2009). Adversity in the workplace may be expected to increase as job loss and competitive work environments persist.

The effects of workplace adversity are complex and impact individuals in a variety of different ways. These effects may be detrimental to the psychological health of any employee. Psychological effects of work-related adversity exposure may include, but are not limited to, depression (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), attempted suicide (Goldman-Mellor, et al., 2010; Pritchard, 1995), substance abuse (Goldman-Mellor et al., 2010; Pritchard, 1995), anxiety (Nakao, 2010; Kerr et al., 2009), alexithymia (the inability to identify and describe one's own emotions; De Vente, Kamphuis, & Emmelkamp, 2006), emotional exhaustion and depersonalization (Nil et al., 2010), and social dysfunction (Aznar & Aznar, 2006). Furthermore, there is evidence suggesting that work-related adversity and mental-health problems are on the rise in the industrialized world (Cherry, Chen, & McDonald, 2006). Such persistent detrimental effects may drastically alter the lives of many, potentially resulting in hospitalization or death (Goldman-Mellor, et al., 2010; Pritchard, 1995).

Adverse work-related experiences may have negative effects on employers because they are associated with increases in errors and near misses in work-task performance (Olds & Clarke, 2010; Kerr et al., 2009). This can lead to a reduction in overall performance and sense of personal accomplishment (Olds & Clarke, 2010; Nil et al., 2010). Experiences of adversity can also induce burnout and intentions to quit (Nil et al., 2010; Messe, 2012). In a recent study by

Messe (2012) women of at least 62 years of age that experienced the adverse work-related event of being passed over for a promotion due to their age, were more likely to selectively self-terminate their employment than those who were not. Similarly, the adverse experience of lacking support from coworkers and supervisors has been negatively associated with satisfaction and productivity and is positively correlated with employee burnout and lower health and wellbeing (Nielsen & Einarsen, 2012; Baruch-Feldman, Brondolo, Ben-Dayan, & Schwartz, 2002). For example, in a recent meta-analysis investigating the effects of workplace bullying, Nielsen and Einarsen (2012) found such adversity to be tied to mental and physical health problems, burnout, turnover intent, and poor job satisfaction. These above-mentioned negative organizational outcomes have measurable financial costs. In the 1970s, employee burnout was estimated to have had an effect on 23 million employees with executive positions and was valued to have incurred between 10 and 20 billion dollars in costs annually (Paine, 1984). Furthermore, a lack of support from supervisors and coworkers is associated with poor mental (Davis-Sacks, Jayaratne, & Chess, 1985) and physical (André-Petersson, Engström, Hedblad, Janzon, & Rosvall, 2007) health. Therefore, adverse events may thereby indirectly impact organizations and employers by incurring substantial financial losses.

There are also physical and psychological consequences of adversity on organizational members that result in real costs to the organizations they inhabit. Individuals exposed to adverse work experiences are more likely to be absent (Manetti & Marzlale, 2007), maladjusted, and at greater risk for being on short-term disability than their healthy, unexposed counterparts (McIntyre, Liauw, & Taylor, 2011). The effects of adverse work experiences on mental health contribute strongly to losses in productivity in the form of high employee absenteeism (Holden, Scuffham, Hilton, Ware, Vecchio, & Whiteford, 2011; Singer, 2001). For example, in the

United States, sleep difficulties alone accounted for $63.2 billion annually and 252.7 million days of lost productivity, primarily stemming from absenteeism and presenteeism (Sivertsen, Lallukka, & Salo, 2011). Presenteeism occurs when an employee is physically present at the workplace while being distracted or similarly obstructed to the point of reduced productivity (Sivertsen, Lallukka, & Salo, 2011). Statistical analysis on these data has indicated that eliminating insomnia would result in a proportional reduction of between 5.4 and 7.8 percent in overall lost work performance (Sivertsen, Lallukka, & Salo, 2011). In the most recent study investigating the costs of depression, the total estimated cost of depression in South Korea was estimated to be over $4 billion (USD), nearly $1 billion of which was attributed to mortality costs alone (Chang, Hong, & Cho, 2012). Similarly, there are steep financial costs of adverse work experiences due to increases in physical health problems (Béjean & Sultan-Taïeb, 2005). One study investigating the cost of the three primary illnesses precipitated by work-related stress in France (cardiovascular disease, depression, and musculoskeletal disease and back pain) estimated that these three health problems alone impacted nearly 400,000 individuals, causing approximately 3,600 deaths, and accounted for nearly $2.5 billion in costs to society (Béjean & Sultan-Taïeb, 2005). There are serious costs, in lives and dollars, incurred as a result of these effects of adverse experiences in organizations. To improve organizational outcomes and bottom-line measures of success the study of adversity is clearly a worthwhile pursuit for employers, organizations, and governing bodies alike.

Similar to employees of a workplace, students also demonstrate many of the direct and indirect effects of adverse work experiences. Students experience adversity-related burnout, which also results in negative consequences for the people themselves and the organizations they belong to (Dyrbye et al., 2006). Student burnout is related to increases in student thoughts of

dropping out of their program and attrition rates (Dyrbye et al., 2010a), as well as increases in unprofessional conduct and reductions in altruistic views within their profession (Dyrbye et al., 2010b). Academic related adversity such as course or school failure is also known to produce similar adverse outcomes in undergraduates as those produced in the workforce, such as increased anxiety and depression (Leong & Vaux, 1991) and heightened rates of suicide ideation and attempt (Meilman, Pattis, & Kraus-Zeilmann, 1994). Therefore, student burnout decreases the profitability and productivity of universities as their students fail to attend the school for the full duration of their program and need to take time away from their academic duties to attend to the their mental health needs.   Thus, this indicates that work related adversity, whether experienced in academia or in the workforce, is a problem that regardless of age and individual level of achievement.   When anyone experiences failure, disappointment, or grief, they are likely to make sub-optimal decisions or adapt poorly with regard to physical or mental health status.

Resiliency

This evidence regarding the frequency and seriousness of the outcomes of those experiencing adversity in the workplace and academia illustrates the importance of contemporary research on salutogenic processes. These processes enhance health rather than solely prevent poor health following adverse experiences. As noted by former American Psychological Association president Martin Seligman, the vast majority of all clinical studies investigate negative outcomes, aversive variables, and DSM diagnoses (Seligman & Csikszentmihalyi, 2000). Seligman claimed that, to fully understand human health, one must investigate not only the aversive nature of human psychology but also those factors and conditions that *promote* healthy physical and psychological functioning (Seligman & Csikszentmihalyi, 2000).

Stemming from this call to action in the research community, the positive psychology movement began to take root as a branch of psychology seeking to empirically study positive emotions, traits, and institutions (Seligman, 2012). Such research can be used to develop character building workshops and programs that serve to promote positive emotions, optimal wellness, and a more healthy society.

Perhaps one of the more interesting findings to come from the positive psychology movement is that a some individuals who are faced with adversity do not experience lasting detrimental effects (Bonanno, 2004; Masten, 2001). This can also be accompanied by the psychological growth of the experiencing individual, which may later improve their responses to future adverse experiences (Bonanno, 2004; Ozer, Best, Lipsey, & Weiss, 2003; Masten, 2001; Lerner, 1984). Even when the most extreme forms of adversity occur, such as those linked to traumatic stress, only five to ten percent go on to develop posttraumatic stress disorder (Ozer et al., 2003). The ability of individuals to develop flexible self-regulatory strategies that enable them to adapt and even thrive through unforeseen, adversive circumstances seems to be both an adaptive and naturally developed human process (Bonanno, 2004; Masten, 2001; Lerner, 1984). This process has recently been termed resiliency. Resiliency processes challenge negative affective states and cognitions through avenues such as emotion regulation, self-efficacy, agency, and motivation, thus promoting positive long-term outcomes (King & Rothstein, 2010). In this way, when confronted with adversity, resiliency proves vital for individuals to maintaining psychological health and wellbeing (Alessandri, Vecchione, Caprara, & Letzring, 2012; Khan & Husain, 2010).

In light of the numerous long-term benefits of having a high level of resiliency, researchers are beginning to investigate its effects in more time-limited contexts, such as those we

experience throughout any normal occupational lifespan. In military combatants, resiliency has been negatively correlated with suicide, depressive symptoms, and alcohol problems (Green, Calhoun, Dennis, Beckham, 2010). Furthermore, resiliency seemed to be an ameliorative health factor for these combatants. More specifically, resiliency was found to be associated with fewer health-related complaints and fewer future medical problems (Green, Calhoun, Dennis, Beckham, 2010). Similar effects of resiliency have been found for more conventional occupations as well. Recent research has demonstrated that resiliency is negatively associated with depression symptoms, perceptions of stress, and the influence of negative events in university students, nurses, and firefighters (Baek, Lee, Joo, Lee, & Choi, 2010; Mealer, Jones, Newman, McFann, Rothbaum, & Moss, 2012). Thus, resiliency seems like an ideal construct to examine with regard to adverse experiences.

State of the Construct Conceptualization

The field of resiliency research is still in its nascent stages of development, with several competing models and definitions of this abstract construct (King & Rothstein, 2010; Masten, 2001; Luthar, Cicchetti, & Beckar, 2000). The primary objective of current research is to identify variables that lessen the negative effects of adverse life experiences, and to uncover the processes that promote recovery or adaptation to life circumstances (Luthar, 2006). There are, however, several differing perspectives on the development of the construct. Also, there are issues with regard to exactly how resiliency produces such positive outcomes.

As is the nature of many newly explored constructs, there are many competing perspectives regarding what is exactly encompassed under the term "resiliency". Some theorists have proposed that resiliency is a form of thriving, self-efficacy, or hardiness (Bonanno, 2004). Although thriving, self-efficacy, and hardiness may act as buffers for potential trauma (Masten,

2001; Bonanno, 2004), they seem to be conceptually different from resiliency. Both resiliency and thriving may share some similar qualities such as adaptation and outcomes such as positive adjustment (Carver, 1998; Sutcliffe & Vogus, 2003). Thriving, reflect adaptive gains in skills, knowledge, confidence, and sense of security in personal relationships (Carver, 1998). However, thriving may occur in the absence of adversity (Spreitzer, Sutcliffe, Dutton, Sonenshein, & Grant, 2005; Carver, 1998). This is similar to the differentiation between self-efficacy, or convictions that one can successfully execute a behaviour required to produce desired outcomes, and resiliency. Like thriving, expectations of self-efficacy may also occur in the absence of adversity (Bandura, Adams, & Beyer, 1977). Hardiness, like resiliency, also involves experiences of adversity coupled with healthy outcomes (Lambert, Lambert, & Yamase, 2003). Hardiness may, however, be conceptually different from resiliency in that hardiness and resiliency achieve many of the same outcomes (opportunities of personal growth; Lambert et al., 2003) through different avenues. Hardiness describes a (passive acting) personality style that serves as a source of resistance to adversity (Lambert, Lambert, Petrini, Li, & Zhang, 2007). This differs from the process of resiliency by which individuals who experience adverse events actively proceed through them to achieve positive outcomes regardless of one's individual level of resistance that may be afforded given their individual personality style (King & Rothstein, 2010). Some resiliency theorists believe that, because resiliency is a process of recovery (Luthar, 2006), in order for resiliency to be experienced one must experience adversity (King & Rothstein, 2010; Luthans, 2002). Therefore, it could be posited that an individual with a high enough level of hardiness, may not experience adverse events as being adverse at all and may therefore have no activation of the processes of resiliency.

Another issue surrounding resiliency is the method by which this construct has been formed, conceptualized, and defined. Although several conceptualizations of resiliency have been proposed, few are based upon a strong theoretical foundation and most have been developed using an empirical, data-driven approach over a theoretically based, approach (Rothstein in personal communication, King & Rothstein, 2010; McLarnon & Rothstein, 2013). There are several known issues concerning the empirical approach to model construction and construct development. The greatest of these concerns is whether the empirically constructed models reflect the effect within the populations to which they are intended to generalize to and how well they coincide with other contemporary research and theory in the given field. At this time, a significant body of academic literature has been produced to lay a strong theoretical foundation for a model of workplace resiliency. The development of a strong theory-driven model is, therefore, an important next step in the understanding of resiliency in this context as it allows for a more directed approach to generating research questions and testing new hypotheses.

A nascent interactive theory-driven and process-based model of resiliency has been proposed by King and Rothstein (2010; Figures 1 & 2), which seeks to address many of the concerns associated with the empirically driven modeling and competing conceptualizations of the resiliency construct. According to King and Rothstein (2010), resiliency is a superordinate construct of phenomena that can all be said to promote positive adaptation in response to adversity. King and Rothstein further describe resiliency as being comprised of three domains of protective factors: affective, cognitive, and behavioural. Additionally, it has been argued by King and Rothstein (2010) and others (Curtis & Cicchetti, 2003; Luthar et al., 2000) that each of these protective factors impact the individual on personal (internal), environmental (external),

and physiological levels, each differentially contributing to one's ability to "bounce back" from traumatic or aversive experiences as they are experienced.

According to the theory proposed by King and Rothstein (2010), the affective domain of resiliency is theoretically comprised of processes associated with emotion-based decision making, analyzing one's affective state, and emotional regulating factors. These factors serve to regulate emotions and related thoughts at both the person (internal) and person-in-environment (external) levels. Emotional stability, having a sense of humour, and a positive attitude toward things are examples of factors falling under this domain (King & Rothstein, 2010). Through these means, positive affect is encouraged and social relationships are formed, thus providing the individual with social support that may be drawn upon in times of need.

King & Rothstein (2010) proposed that the cognitive domain of resiliency is comprised of coherence-generating factors. These are factors that allow individuals to modify their understanding of themselves and the world due to a shift in perception of context. This domain is believed to be primarily comprised of belief systems (King & Rothstein, 2010) and is thought to function through numerous cognitive mechanisms including transcending loss, self-understanding, and assimilation or accommodation (King et al., 2003; Brandtstadter, 1998).

The behavioural domain of resiliency is theorized to be comprised of agency-generating factors (King & Rothstein, 2010). These factors facilitate engagement in activity that may be used to improve the surrounding context of the aversive event or aid in adaptation and survival through aversive events. Examples of such factors include use and perseverance with goals, self-efficacy and motivation (King & Rothstein, 2010).

The model of resiliency proposed by King and Rothstein (2010) is superior to other conceptualizations of resiliency since it provides a comprehensive understanding of resiliency

using theory generated by the growing body of research produced on this diversely conceptualized construct. The King-Rothstein resiliency model is more comprehensive and dynamic than other conceptualizations of resiliency. This new model of resiliency involves a dynamic interplay between the traits, states, and characteristics of individuals, while also accounting for effects external to the individual, stemming from environmental factors. All of these considerations work in conjunction with one another to produce a combination of affective, cognitive, and behavioural protective factors and processes that serve to generate emotional self-regulation, coherence, and agency. A simple model of resiliency cannot satisfy the complexity of this construct. Therefore, the model proposed by King and Rothstein (2010) serves to most accurately reflect what we know of resiliency, given the state of academic literature today. It is possible, however, that additional mechanisms and constructs exist, that impact each resiliency domain and the larger construct more generally.

Causal Attributions

Causal attributions can be described as post-hoc interpretations of the cause of a particular experience (Roesch & Weiner, 2001). Through these interpretations, causal attributions provide a means to understand our experiences, reconstruct basic world assumptions, and guide our future behaviours (Weiner, 1986; Weiner 1985). In this way, causal attributions may be associated with resiliency as attributions may influence our cognitions, emotions, and behaviours (Weiner, 1985; Betancourt, 1990; Krieglmeyer, Wittstadt, & Strack, 2009) and therefore impact various affective, cognitive, and behavioural self-regulatory processes. Weiner (1985) described the perceived causes of success and failure according to attribution theory, as being comprised of three properties: causal locus, stability, and controllability. The locus property describes the attributed causal source of a particular event. Events may be perceived as

either being caused by an internal or external source (Rotter, 1966). For example, oneself is clearly an internal source whereas a stranger may be perceived as an external source. The stability property was introduced by Weiner and colleagues (1971) to describe whether the causal source of an event is a relatively constant or a variable force. For example, aptitude is generally perceived as a constant (more stable) construct, whereas mood is generally perceived as a more variable (unstable) property (Weiner, 1985). The control property was introduced by Weiner and colleagues (1979) to describe whether the causal source of an event was perceived to be under the volitional control of an individual, if that individual chose to expend effort to alter the causal process. If the causal source of an event was not perceived to be under the volitional control of an individual, it can be described as uncontrollable. For example, while laziness may be volitionally altered via the expenditure of energy (controllable), concepts like physical coordination are generally perceived as being finite and unalterable regardless of the expenditure of effort (uncontrollable). Guided by Expectancy x Value theory, Weiner (1985) proposed that the cognitions of the three properties of attribution theory produce affective responses (emotions), which further drive motivations (and subsequent behaviour). Since these facets of causal attributions are able to shape our perceptions, understanding, emotional reactions, and behaviour regarding our experiences, attributions can play an active role in overcoming adverse experiences (Janoff-Bulman, 1992). Causal attributions may therefore play a role in resiliency processes.

There is evidence that causal attributions are related to various factors under the cognitive, affective, and behavioral domains of resiliency. Causal attributions are cognitive in nature, providing cognitive rationales of past events. Causal attributions are often used to modify people's understanding of events and beliefs about the world. This is somewhat analogous to the

coherence-generating function of cognitive self-regulatory processes in resiliency as both factors work to generate a coherent understanding of oneself and the world according to interpretations of context (King & Rothstein, 2010). Furthermore, as first proposed by Weiner (1985), causal attributions have been demonstrated to influence our emotions and thoughts about others via these cognitive processes (Krieglmeyer, Wittstadt, & Strack, 2009; Betancourt, 1990). This is similar to the emotion-regulating function of affective self-regulatory processes in the King-Rothstein (2010) model of resiliency, as both constructs are associated with the generation of positive (constructive) or negative (unconstructive) emotions due to either high or low levels of resiliency or having protective or vulnerable attributional styles respectively (King & Rothstein, 2010; McLarnon & Rothstein, 2013; Betancourt, 1990).

Causal attributions have also been thought to impact human behaviour in various ways. In a set of studies performed by Betancourt (1990), Weiner's (1985) originally theorized attribution-empathy model of helping behaviour was successfully demonstrated as one avenue causal attributions may impact our behaviours. This model described how causal attributions impact behaviours as mediated by cognitively driven affective states (emotions; Weiner, 1985). For example, one's causal attribution for another person's need in a given situation influences helping behaviour as mediated by emotions of empathy and compassion. In this study, 156 students were randomly assigned and primed to either feel empathy toward an imagined "victim" that was described in a story piece, or to be as objective as possible toward the same individual. The locus of controllability of the victim's misfortune was manipulated across five degrees of story context, defined as the extent to which one is able to influence or change a given cause. After reading the story piece, participants were given a set of questions assessing the written piece itself, the controllability of the cause of the problem, specific feelings experienced

as they read the story, and the likelihood of helping the individual using seven-point Likert style scales weighted with extremes at either end. Betancourt's (1990) results indicated that attributions of perceived controllability are affected by induced empathy (an affective response) and that perceptions of uncontrollable circumstances were associated with higher levels of empathetic emotions. Finally, Betancourt (1990) performed a path analysis successfully supporting Weiner's (1985) original proposal, that causal attributions may affect behaviour as mediated by emotions generated by the initial attribution. Betancourt's (1990) analyses supported a model detailing how causal attributions regarding the controllability of a victim's need for help induces empathy and emotions that act as a mediator for participant helping behaviour. Therefore, the influences of causal attributions of controllability may work to foster or discourage supports and resources, such as social capital, through such avenues as helping behaviour. This particular effect on social support may further impact resiliency since social capital may contribute to social support, which may be useful while experiencing adversity (see Figure 1).

Another study performed by Davis and Gold (2011) examined the relationships involved in emotional empathy, attributions of stability, and the link between perceived remorse, and forgiveness in a romantic relationship context. The authors hypothesized that "perceived remorse influences attributions of stability (or instability), which in turn influences forgiveness both directly and indirectly via empathy" (p. 392). Davis and Gold (2011) believed that when perpetrators of a "crime" elicit an apology, it facilitates the perception (from others) that the offender is less likely to perform the behaviour and therefore perceptions of remorse would be associated with decreases in behavioural stability (or therefore heightened instability) thereby fostering forgiveness by others. Through path-analysis, Davis and Gold (2011) demonstrated

that perceptions of remorse impact attributions of stability negatively (or instability positively), which in turn negatively impacts empathy (an emotional response) and forgiveness (a coping method that engages affective, behavioural and cognitive processes; Toussaint & Webb, 2005) both directly and indirectly as mediated by empathy. This relationship was found to be driven by a number of dynamic relationships. One mediation relationship indicated that attributions of instability mediated the effect of remorse on empathy, such that perceptions of instability facilitated the remorse-empathy effect. Thus, suggesting that attributions of instability can positively impact affective responses (Davis & Gold, 2011). Another mediation relationship was found where empathy mediated the effect of attributions of instability on forgiveness (Davis & Gold, 2011). This suggests that there is an effect of attributions on coping responses, and therefore that self-regulatory processes may be influenced by various emotional responses. These findings may also be demonstrated when investigating the positive effects of causal attributions with regards to the self-regulatory components of resiliency, particularly affective self-regulation.

Similar effects of attributions having an impact on emotions, cognitions, and behaviour have been demonstrated in several other studies (Le Foll, Rascle, & Higgins, 2008; Mancini & Gangemi, 2004; Dienstbier, Hillman, Lehnhoff, Hillman, & Valkenaar, 1975). Through the findings of Betancourt (1990) and Davis and Gold (2011) and the attribution-emotion mediated model of coping (or behaviour), resilient outcomes may stem directly from self-regulatory factors themselves, or indirectly as mediated by causal attributions. The question of how causal attributions may be integrated into the King-Rothstein (2010) model of resiliency has yet to be explored.

The King-Rothstein (2010) model of resiliency proposes that resiliency facilitates long-term outcomes such as psychological adjustment and healthy behaviours after adversity. Research regarding causal attributions may contribute to our understanding of how and under what experiential-interpretive conditions these long-term outcomes are achieved (Roesch & Weiner, 2001). Individuals using attribution styles where adverse experiences are perceived as being caused by controllable, unstable, and external factors are more psychologically healthy (Roesch & Weiner, 2001). This cognitive style of attributing causality has been described as psychologically protective since the adverse experience is viewed to have occurred due to other-centered, changing and manageable circumstances. This differs from more psychologically vulnerable attributions where adverse experiences may be attributed, for example, to causal sources that are uncontrollable, stable, and internal circumstances. This suggests that the problem may be a personal defect or fault. For instance, one study investigated the relationship between attribution styles and adaptation to diagnosis with a potentially life threatening medical condition in patients with heart disorders (Furze et al., 2001). This study demonstrated that those who attributed their disease to uncontrollable factors, such as family history, tended to be counterproductive (e.g. avoiding stress), whereas those attributing their disease to controllable factors, such as lifestyle, tended to be proactive (e.g. exercise) toward their condition (Furze et al., 2001). Research regarding rape survivors demonstrates that finding meaning in the causal attributions for their experiences of being raped leads to better psychological adjustment (Boeschen, Koss, Figueredo, & Coan, 2001). Occupational research has shown that firefighters demonstrating high levels of negative internal attributions (self-blame) combined with low social support tend to display high levels of clinically significant symptoms of depression,

posttraumatic stress disorder, anxiety, and substance abuse (Meyer, Zimering, Daly, Knight, Kamholz, & Gulliver, 2012).

In conclusion, causal attributions seem to direct cognitions in a way that alters emotions and directs behaviour. In this way, attributions may impact the self-regulatory (affective), coherence-generating (cognitive), and agency-generating (behavioural) components of resiliency. It is possible that this relationship may be driven by a similar attribution-emotion mediated mode of self-regulation inducement or by impacting positive and negative outcomes more directly. Thus, causal attributions seem a prime variable for investigation with regards to developing a more thorough understanding of resiliency. As no studies have been performed investigating the role of causal attributions and resiliency in this way, and it seems probable that attributions may be one mechanism that may help to further understand the construct of resiliency, I propose a study to investigate the effects of causal attributions with regard to resiliency.

Current Study

Broadly stated, the goal of the current study is to better understand resiliency processes using the King-Rothstein (2010) model of resiliency and established theories related to causal attributions. In order to investigate whether causal attributions to play a role in the King-Rothstein (2010) model of resiliency, a relationship between these attributions and variables in the model must first be established. To investigate the various relationships causal attributions may share with resiliency processes several hypotheses have been proposed.

As mentioned earlier, cognitive self-regulatory components of resiliency allow one to regulate perceptions of the world and oneself by shifting perceptions of context. Similarly, as described by Weiner (1985), all causal attributions are cognitions regarding perception of what

caused an event or outcome. With closely related definitions of these two factors, it is plausible to hypothesize that an association between causal attribution loci and cognitive self-regulatory processes may exist. Holding causal attributions for an adverse experience that are external, unstable, and controllable by the experiencing individual should be associated with a generation of an adaptive context with regards to understanding the event. These individuals should be more likely to venture into cognitive exploration to understand why the event occurred as it did and how one can effectively change themselves or their behaviour to avoid future occurrences. Such adaptive cognitive exploration is expected to be stifled under the perception that no matter what one does, adversity will always occur due to unchanging, uncontrollable forces within ourselves.

Hypothesis 1a

External, unstable, controllable causal attributions are expected to be positively associated with cognitive self-regulation.

As mentioned earlier, Betancourt (1990) demonstrated that (1) attributions of perceived controllability are affected by induced empathy (an affective response) and are thus related to our emotions and that (2) perceptions of uncontrollable circumstances were associated with higher levels of empathetic emotions. Furthermore, Davis and Gold (2011) demonstrated that attributions of stability mediated the effect of remorse on empathy (an emotional response) such that less stable attributions were associated with greater empathy. With this in mind, the belief that an adverse event occurred due to a personal action or characteristic that can be modified with effort should be able to directly induce emotions constructive to adverse experiences such as remorse and empathy. These emotional responses are constructive because they may facilitate a greater understanding and encourage problem-solving strategies. Furthermore, these

attributions may be associated with a general positivity such as hopefulness that one can change one's behaviour to prevent the adverse event in the future. This may be contrasted with negative emotions such as anxiety and stress that may be generated in association with the belief that adverse events will always occur (stable) because it is their (internal) genetically predetermined fate (uncontrollable).

Hypothesis 1b

External, unstable, controllable causal attributions are expected to be positively associated with affective self-regulation.

As described in the review of the literature regarding causal attributions, Betancourt (1990) demonstrated that attributions of controllability are related to helping behaviours as mediated by empathetic affect. Additionally, as similarly demonstrated by Davis and Gold (2011), a mediation relationship was found where empathy mediated the effect of attributions of stability on forgiveness (a coping response impacting affect, cognitions, and behaviours). Together, these two findings indicate that an association between causal attributions and behaviours may be plausible. Holding external, unstable, and controllable causal attributions regarding an adverse event is likely to encourage individuals to believe that they can change the actions or responses of others to alter or avoid the adverse event, therefore regulating themselves toward positive self-change. This may be contrasted with internal, stable, and controllable causal attributions of an adverse event, that are likely to encourage individuals to believe that no matter what they do, an adverse event will occur due to a permanent internal flaw. Such a belief is unlikely to motivate one to change one's behaviour.

Hypothesis 1c

External, unstable, and controllable attribution loci of causality are expected to be positively correlated with behavioural self-regulatory processes of resiliency.

Given an indication of a significant associative relationship between various loci of causal attributions and self-regulatory processes involved in resiliency, it is also probable that together the three attribution loci (internal-external locus, stability and control) may be able to predict a substantial proportion of variance of each of the three self-regulatory variables (affective self-regulation, cognitive self-regulation, and behavioural self-regulation) in the resiliency model.

Hypothesis 2(a-c)

Given 3 multiple regression analyses, the three causal attribution loci of internal-external locus, controllability, and stability of the adverse event (dependent variables) should add significantly to the prediction of cognitive (a), behavioural (b), and affective (c) self-regulatory processes.

As depicted in Figure 1, various positive and negative outcomes are predicted to occur according to the King-Rothstein (2010) model of resiliency depending on how one proceeds through the resiliency process. To investigate the contribution of causal attributions to the presentation of self-regulatory processes in predicting outcomes of resiliency, several hypotheses regarding outcomes have been proposed based on prior research.

Hypothesis 3

It is proposed that given a hierarchical linear regression approach, causal attributions of causal locus, controllability, and stability regarding adverse events and affective, cognitive, and behavioural self-regulatory processes will add significantly together toward the prediction of

several resiliency-related outcomes: psychological well-being, symptoms of psychological illness, and job satisfaction.

Support for the King-Rothstein (2010) model of resiliency must be demonstrated in order to lay the foundation of the hypotheses of this proposed contribution to the literature. Within this broad aim, more specific exploratory hypotheses may then be outlined.

Hypothesis 4

Using a path analysis approach, the basic King-Rothstein (2010) model of resiliency and its ability to predict both positive and negative resiliency-related outcomes is predicted to be supported as depicted in Figure 1.

As the King-Rothstein (2010) model of resiliency is still in its nascent stages of development an exploratory analysis will be performed, strictly for illustrative and informative purposes, to further our understanding of the relationships involved in the variables comprising the model of resiliency, the relationship resiliency has with causal attributions, and various outcomes. Since attribution is probably one of many subcomponents of the super-ordinate construct of resiliency, causal attributions will only partially contribute to resiliency-dependent outcomes through very specific avenues. Adding to our understanding of resiliency, using multiple regression analysis, a set of exploratory analyses will be performed to investigate the interrelationships amongst various components in the model. More specifically, we will examine whether causal attributions impact resiliency outcomes as mediated by the self-regulatory components (affective, behavioural, and cognitive) of resiliency, similar to those demonstrated by Betancourt (1990) and Gold (2011).

Method

Participants

  Student sample. The undergraduate sample consisted of 42 university student participants (female = 23) ranging from 19 to 22 years of age (M = 19.6, SD = 0.84). Most of these participants had obtained a high school diploma (95%). Although, two had indicated they had already obtained an undergraduate degree (5%). This sample was recruited using an online research recruitment application supported by the University of Western Ontario using online research-related ad posting (see Appendix A). Participants were awarded class credit upon completion.

  General population sample. The general population sample consisted of 154 online participants (male = 67; female = 84; 3 undisclosed) ranging from 20 to 67 years of age (M = 33.37, SD =11.32). Most of these participants had obtained a four-year post secondary degree (43.4%) or a high school diploma (34.9%). Although, some had obtained masters (16.4%) and doctorate (5.3%) degrees as well.

  This sample was recruited using a general, paid, online research participant recruitment application through the use of an online posting through the use of an Internet crowdsourcing marketplace called Mechanical Turk (MTurk; see Appendix B). Individuals or businesses (known as requesters) are United States based entities, that use this web-based service to post tasks and questionnaires, labelled Human Intelligence Tasks (HITs) that may be completed by workers in return for a small financial compensation. Workers can browse through available HITs and self-select which they wish to participate. This online crowdsourcing tool also allows requesters to set qualifications on their HITs to ensure that specific samples are obtained and to maintain a high quality participant (based on completion rates, etc.). Although requesters are

limited to those based out of the United States, workers may be from anywhere in the world. However only workers from the United States and India may be awarded compensation in the form of cash. All other international workers receive gift certificates for an online web-based retailer. Although anyone may participate in these studies, demographics indicate that most workers are indeed based out of the U.S. and that these participants are generally young, white, females, that are slightly more educated than the general U.S. population (Wikipedia, 2013). Each participants was awarded $2.50 upon completion, for their time and participation in completing the HIT for this particular study.

Measures

For practical reasons all questionnaires were transcribed to a digital form; all data was obtained using computerized test batteries. The computerized test battery was presented in a fixed order as to maximize the priming effect on participant responses to the most relevant scales in the test battery. In this way, scales that focused most on the particular adversity (for example, the causal attribution scale and resiliency scale) were present most proximally to the prime, whereas outcome measures (for example scales assessing depression, anxiety, and stress, as well as wellbeing and job satisfaction and support) were presented most distally from the prime. Assessments were presented in the following order causal attributions, resiliency, work attitudes and conditions, wellbeing, and stress and symptoms of psychological illness.

Prime. Before administering the test battery a set of instructions was given to each participant (see Appendix F). The instructions directed each participant to think about a specific, significant, life changing occupational, academic, or life event that represented adversity to them as they responded to the various items presented to them throughout the study (a self-generated prime of adversity). Participants were then asked to briefly type an open-ended description of

this self-generated prime at the beginning of the battery. Participants were then reminded of this

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

event. This priming scenario was used to ensure that all questionnaire items were responded to

as if each participant had been through an event that could be considered adverse or life

changing. If no such event was depicted they were omitted from inclusion in the study. This

was integral as such a specific experienced prime was needed to be applied to both cognitive

attributions surrounding the event and the theorized proposition that adversity must have

occurred for resiliency processes to be activated. These priming procedures that were used were

adapted from Tugade and Frederickson (2004) and have been used in prior research involving

the King-Rothstein (2010) model (McLarnon & Rothstein, 2013).

Causal Attributions. Causal attributions of the primed experience were assessed using a

digitized version of the Causal Dimensions Scale (CDS; Appendix H; Russell, 1982). The CDS

used the primed focus of the adverse event depicted in the priming portion at the beginning of

the questionnaire battery. Respondents completed the 9-item scale by selecting a response along

a nine point Likert scale that assesses the degree to which the experienced event fell along each

of the three attributional loci. For example, one item assessing controllability weights one end of

the Likert scale as 9 ("Controllable by you or other people") and the bipolar analogue as 1

("Uncontrollable by you or other people"). Three subscale ratings were generated using this

scale. Each of these subscales represents an attributional locus property as proposed by Weiner

(1985; locus, stability, and control). Each subscale was computed by summing three ratings

representative of each subscale. The scale has demonstrated significant construct and criterion

validity and each subscale has historically demonstrated moderate reliability (locus: $\alpha = .87$;

stability $\alpha = .84$; and control $\alpha = .73$; Russell, 1982).

Resiliency. Resiliency was assessed using a digitized version of the Workplace Resiliency Index (WRI; Appendix I; 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). Although no specific outcome measures are included in the WRI itself, this scale can be used in addition with other scales assessing outcome measures. 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, convergent and discriminant validity amongst the eight scales that comprise it (McLarnon & Rothstein, 2013).

Job Satisfaction & Support. Select subscales taken from the Affectivity, Burnout, and Absenteeism Scale (ABAS; Appendix J; Iverson, Olekalns, & Erwin, 1998) were used to assess several aspects of work-relevant support and job satisfaction. The subscales included in this study assessed social support (comprised of co-worker support, supervisory support, and peer support), personal accomplishment, and job satisfaction. In the completion of the ABAS participants were asked respond to each of the 39 item statements with the use of a 5-point Likert scale ranging from 1 ("*Strongly Disagree*") to 5 ("*Strongly Agree*"). The ABAS has demonstrated validity and substantial reliability across its subscales and comprising component scales of mood disposition (positive affectivity $\alpha = .70$ and negative affectivity $\alpha = .70$), social support (co-worker support $\alpha = .90$, supervisory support $\alpha = .91$, and peer support $\alpha = .84$), task demands (autonomy $\alpha = .65$ and workload $\alpha = .73$), role demands ($\alpha = .67$), burnout (emotional

exhaustion α = .86, depersonalization α = .77, and personal accomplishment α = .69), and

outcomes (job satisfaction α = .85 and absenteeism α = 1.00; Iverson et al., 1998).

      Psychological Wellbeing. Psychological wellbeing was assessed using the Scales of

Psychological Wellbeing (SPWB; Appendix K; Ryff & Keyes, 1995). The total 83-item scale is

comprised of six sub-scales (approximately 14-items per subscale) that each quantitatively

measure a single element of wellbeing including: self-acceptance, positive relations with others,

autonomy, environmental mastery, purpose in life, and personal growth. Self-acceptance is

defined as a positive attitude and open acceptance toward oneself, including good and bad

qualities. Positive relations with others are defined as a warm, satisfying, trusting, and attentive

relationship with others. Autonomy is defined as a self-determining, self-regulating,

independence and an ability to resist pressure from peers and society. Environmental mastery is

defined as a great competence and agency in managing one's environment, external activities

and opportunities to meet needs and values. Purpose in life is defined as valuing and using goals

and having a sense of directedness and connectedness to ones life past, present, and future.

Finally, personal growth is typically expressed via a sense of expansion, openness, development,

and refinement as well as a realization of personal potential. Each scale item was responded to

using a 6-point Likert-style scale, ranging from "completely disagree" to "completely agree".

This scale has been used in more than 134 studies and has been translated into several different

languages (Ryff & Singer, 2006; Van Dierendonck, Diaz, Rodriguez-Carvajal, Blanco, &

Moreno-Jimenez, 2008). Moreover, this scale has demonstrated substantial internal consistency

ranging from α = .83 and α = .91 across its six subscales and good psychometric properties (Ryff

& Keyes, 1995).

Stress and Symptoms of Mental Illness. Stress and mental health was assessed using the Depression Anxiety Stress Scale – 21-item (Appendix L; DASS-21; Lovibond & Lovibond, 1995). This scale is a quantitative measure of distress along the axes of depression, anxiety and stress across 21-items (7-items per dimension). The scale uses a nominal scale ranging from zero to three to assess the application of each item to the participant's current state of distress in life. This measurement has been validated against individual psychiatrist administered structured clinical interviews for DSM axis 1 diagnosis for depression and anxiety (First, Gibbon, Spitzer, & Williams, 1996).

Meaningful responding assessment. Participants were warned at the beginning of the questionnaire battery that questions would be placed within the questionnaire battery to ensure they were paying attention. These questions simply asked the participant to produce a specific response of the listed options. For example, "Please respond to the question with 'strongly agree'." Several of these questions were scattered throughout the test at various intervals to test for meaningful responding. If participants failed to respond to all of these items correctly they were omitted from inclusion in the study.

Procedure

Data were collected using two different sample pools. The first pool was entirely composed of undergraduate psychology students, participating for course credit. The second pool was an online website where participants were offered small financial incentives for their participation. In both sample pools participants volunteered to participate in this study from a set of available studies online, followed the same instructions, and completed nearly identical questionnaire batteries. Upon accessing the suvey, participants read letters of information customized to their particular sample (see Appendix C-D) completed a digital informed consent

form (see Appendix E). Participants were then assured of the confidentiality of their responses

and their participation. At this point, participants were informed that the first part of the study is

the completion of a short demographics questionnaire (see Appendix G). Instructions were then

presented to participants, in text format, describing a priming event so that participants were

responding while holding an expienced adversity in their minds. The suggested primes were

adapted from Tugade and Frederickson (2004) and developed in consultations with Matthew

McClarnon, and Drs. Gillian King, Mitch Rothstein, and James O'Brien (see Appendix F).

Participants then completed a questionnaire battery. In order of occurance after the prime, the

questionnaire battery included the Causal Dimensions Scale (see Appendix H) the Workplace

Resiliency Index (see Appendix I), the Affectivity, Burnout, & Absenteeism Scale (see

Appendix J), Ryff's Scales of Wellbeing (see Appendix K), and the Depression, Anxiety, Stress

Scale – 21-item (Appendix L). Finally participants were debriefed (see Appendix M), thanked,

and compensated with either class credit or $2.50 for their participation in the study.

Participants completed the task in approximately 45 minutes.

Analysis

Hypotheses 1, investigating the associations of causal attributions and self-regulatory

processes, was assessed by performing a multiple correlation analysis. Hypothesis 2,

investigating the predictive power of causal attributions with regards to self-regulatory processes

was performed with three multiple regressions. Hypothesis 3, investigating the predictive

capacities of resiliency and causal attributions with regards to various outcomes was performed

by first reducing the dimensions of our outcome variables via a factor analysis followed by

performing three hierarchical multiple regression analyses upon these newly created criterion

variables with the mentioned predictor variables associated with resiliency and causal

attributions. Path analysis was used to assess hypotheses 4, testing the King-Rothstein (2010) model of resiliency providing, for illustrative and informative purposes, confirmation of the model that may be used to guide future research on this construct and model. Finally, multiple regression was used to perform the exploratory mediation analyses.

Results

Sample Characteristics

Student sample. Student participants expressed a wide range of time occurring between the experienced adversity and testing ranging from one to 59 months. On average 9.45 (*S.D.* = 12.13) months had passed between the time of experienced adversity and the time of induced prime during testing. Most cases of adversity reflected on by the student sample during the inducing prime occurred outside the workplace (71.4%). Although 11.9% of student participants expressed their adversity as occurring within the workplace and 16.7% indicated it as occurring in a mixed environment, where an adversity may have impacted them both at home and the workplace (for example, ending a romantic relationship with a co-worker).

General Sample. The participants in the generalized sample expressed a wide range of time occurring between the experienced adversity and testing ranging from 0 to 372 months. On average 37.74 (*S.D.* = 56.06) months had passed between the time of experienced adversity and the time of induced prime during testing. Most cases of adversity reflected on by the general sample during the inducing prime occurred outside the workplace (48.7%). Although 29.6% of participants expressed their adversity as occurring within the workplace and 21.7% indicated it as occurring in a mixed environment.

Group comparisons of mean differences. Chi-square tests of categorical differences were conducted to examine group differences in the demographic variables of biological sex,

highest level of academic accomplishment, and the nature of the experienced adversity. The

percentage of participants that were male or female did not differ according to sample

(χ^2(1, 194) = 1.510, *ns*). However, as expected, there were statistically significant differences in

the distribution of academic achievement between the two samples (χ^2(3, 192) = 46.04, *p* <

.001). However, as these differences were more likely to be reflecting the noted difference in

mean age between the sample, rather than intelligence and since intelligence has not always

demonstrated itself to be associated with coping outcomes (for example see, Bak, Krabbendam,

Delespaul, Huistra, Walraven, & van Os, 2008) this was not considered to be linked to possible

differences in resiliency, causal attributions, or related outcomes. Similarly, statistically

significant differences were found between samples with regards to the nature of the

environment in which the experienced adversity occurred (χ^2(1, 194) = 7.582, *p* < .05).

Although the King-Rothstein model and Workplace Resiliency Index were developed to

specifically examine workplace adversity, how one proceeds through the resiliency process

regardless of the source of adversity should still generally be the same as the same components

are likely to remain at play. Therefore, this noted difference was also thought to play little to no

role in one's resiliency, causal attributions, and related outcomes. Therefore, there was no

theoretical reason to control for these variables in future analyses.

Independent samples *t*-tests were also performed to investigate possible group differences

in means of age, months between the experienced adversity and testing. As expected, there were

significant differences in participant age between the two sampled groups (*t*(149) = -14.449,

p < .001) such that the student sample (*M* = 19.60, *S.D.* = 0.84) had a lower average age than the

generalized online sample (*M* = 33.37, *S.D.* = 11.32). However, there is no theoretical reason to

suspect that participant age would be in any way related to the engagement in the resiliency

process. Regardless of age, individuals should be just as likely to want to reduce adversity and pursue happiness and growth. Furthermore, the preliminary literature on coping (not necessarily resiliency; Diehl, Chiu, Hay, Lumley, Gruhn, & Labouvie-Vief, 2013) expresses this as a complex, non-linear relationship between age and coping styles suggesting that age may do more harm than good if added into future linear analyses as a covariate. Similarly, there were significant differences in the number of months passed between the experienced adversity and testing such that students ($M = 9.45$, $S.D. = 12.13$) had more recently experienced the adverse event than the general population ($M = 37.56$, $S.D. = 55.92$; $t(188) = -5.724$, $p < .001$).   Due to the fact that this study is not longitudinal by design and that resiliency is conceptualized as a process, individuals may theoretically be likely to vary where they are within that particular process under the basis of time. It is possible that recently experienced adversity may have a greater impact on individuals than adversity that occurred long ago. Therefore, it would be prudent to examine time passed since the adverse experience as a possible covariate in future analysis involving the predictive outcomes.

Internal Consistency, Correlations and Regressions Of Predictors

The internal consistency reliabilities are presented in Tables 1 and 2. The reliabilities for most of the variables used in this study were found to be acceptable according to the guidelines discussed by George and Mallery (2003), with internal consistency alpha coefficients less than .60 being considered poor. Most of the scales used in this study had acceptable levels of internal consistency ranging from .701 to .944 with the exception of scales measuring controllability ($\alpha = .650$), and stability ($\alpha = .678$), which are deemed to be functional but questionable by George and Mallery (2003).

A correlation matrix of all variables and covariance matrix of all modeled variables used in this study are presented in Table 2. These correlation analyses provided mixed support for hypothesis 1(a-c). In line with hypothesis 1-a cognitive self-regulation was found to be positively correlated with unstable causal attributions ($r = .157, p < .05$). In line with hypothesis 1-b affective self-regulation was also found to be positively correlated with unstable causal attributions ($r = .156, p < .05$). Finally, in line with hypothesis 1-c, behavioural self-regulation was also found to be positively correlated attributions of causality ($r = .193, p < .01$), although this correlation was associated with internal rather than external causality. However, no other correlations between causal attributions and self-regulatory processes were found to reach levels of significance. Therefore, there was mixed support for hypotheses 1 (a-c), some causal attributions demonstrate small but significant correlations with some self-regulatory processes. More specifically, individuals that demonstrate cognitive and affective self-regulation also tend to demonstrate a tendency to attribute adverse events to external causes. Similarly, individuals adhering to stronger internal causes tend to demonstrate higher levels of behavioural self-regulation. Although this finding is opposite to the expected direction of causality it isn't incredibly surprising. This may be simply due to the fact that it is quite easy to take actions to modify one's own behaviour, rather than the behaviour of another.

Hypothesis 2 proposed that the three causal attributional loci of internal-external locus, controllability, and stability of the adverse event would add significantly to the prediction of each of the (affective, cognitive, and behavioural) self-regulatory variables involved in the resiliency process. Three multiple regression analyses with forward entry were conducted to assess the predictive capacities of the three causal attributional loci (causality, controllability, and stability) with regards to the cognitive, affective, and behavioural self-regulatory processes.

The first analysis investigating the predictive capacity of causality, controllability, and stability attributions on cognitive self-regulatory processes produced mixed results. Causal attributional loci of internal causality ($B = -.172$, *Beta* $= -.175$, $t(192) = -2.180$, $p < .05$) and stability ($B = -.236$, *Beta* $= -.229$, $t(192) = -2.852$, $p < .05$) were found to explain a small but significant proportion of variance (*Adjusted* $R^2 = .041$, $F(1, 176) = 4.725$, $p < .05$) of cognitive self-regulatory processes. However, the attributional locus of controllability failed to contribute significantly to the prediction of cognitive self-regulation. The second analysis investigating the predictive capacity of causality, controllability, and stability attributions on affective self-regulatory processes also produced mixed results. Locus of stability ($B = -.085$, *Beta* $= -.159$, $t(192) = -2.164$, $p < .05$) was found to explain a small but significant proportion of variance (*Adjusted* $R^2 = .020$, $F(1, 181) = 4.684$, $p < .05$) of affective self-regulatory processes. However, all other causal attributional loci failed to contribute significantly to the prediction of affective self-regulation. Likewise, the third analysis investigating the predictive capacity of causality, controllability, and stability attributions on behavioural self-regulatory processes yielded mixed results. Similar to the findings predicting cognitive self-regulation, causal attributional loci of internal causality ($B = -.199$, *Beta* $= -.242$, $t(192) = -3.013$, $p < .01$) and stability ($B = -.142$, *Beta* $= -.167$, $t(192) = -2.085$, $p < .05$) were also found to explain a small but significant proportion of variance (*Adjusted* $R^2 = .042$, $F(1, 176) = 4.957$, $p < .01$) of behavioural self-regulatory processes. The attributional locus of controllability, however, similarly failed to contribute significantly to the prediction of behavioural self-regulation. Therefore, causal attributions (specifically causality and stability) demonstrate predictive capacities with regards to affective, behavioural, and cognitive self-regulation components of resiliency.

Factor Analysis and Regressions Of Outcomes

The third hypothesis of this study, investigating the proposed additive predictive power of the causal attributional loci (causality, controllability, and stability) to the components of the King-Rothstein model in the prediction of several resiliency-related outcomes: psychological well-being, symptoms of psychological illness, burnout, and intentions to withdraw from work, also produced mixed results. To test the differential predictive capacities of resiliency components in isolation versus in conjunction with causal attributions a series of hierarchical linear regression analyses were performed. In each of these analyses time passed since the occurrence of the adverse event was controlled for as a covariate. The resiliency components were comprised of the initial responses to the adverse experience, affective, behavioural, and cognitive personal characteristics, opportunities, supports, and resources, affective, behavioural, and cognitive self-regulatory processes. Causal attributions of causality, controllability, and stability were added as predictors of the investigated outcome measures as well. Analyses were also performed in reverse order to ascertain which factor is most likely the most significant predictor of the proposed outcome variable.

First, to protect against type one error a factor analysis was performed with varimax rotation upon the set of investigated outcome variables. Varimax, an orthogonal rotation, was chosen over direct oblimin (and other oblique factor analysis methods) as we were interested in investigating independent variables while simultaneously maximizing our effect size. The number of factors was decided according to those with an eigen value greater than one. Three factors were deemed to have met the eigen-value greater than one decision rule. The rotated component matrix is presented in Table 3, along with factor loadings and communality values. Three factors are clearly drawn from this analysis. The variables loading onto each factor were

examined for meaningful interpretation. Factor 1 was exclusively comprised of the six components of wellbeing (autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life and self acceptance). Factor 2 was exclusively comprised of symptoms of psychological illness and stress (depression, anxiety, and stress). Factor 3 is primarily comprised of positive job-related factors (personal accomplishment, job satisfaction, and co-worker, supervisor, and peer support). Therefore, factors were labeled wellbeing, symptoms of psychological illness, and job satisfaction and support (for factors 1, 2, and 3 respectively). Reliability analyses were then performed on each of the factors drawn from the factor analysis, the results of which are likewise reported in Table 3. Therefore, the three factors drawn from this analysis (job satisfaction and support, symptoms of psychological illness, and wellbeing) will be the used to test hypothesis 4. All associated correlations and covariances associated with the factors derived from this analysis are presented in Tables 1 and 2 respectively.

Table 3

Rotated component matrix, factor loadings, reliabilties, descriptives, and communalities of the factor analysis of resiliency-relevant outcomes

	Factor 1 (Wellbeing)	Factor 2 (Symptoms of psychological illness)	Factor 3 (Job satisfaction and support)
Personal accomplishment	-.551	.038	**.566**
Job satisfaction	-.366	.106	**.597**
Co-worker support	-.347	-.041	**.667**
Supervisor support	.041	.180	**.881**
Peer support	.006	.084	**.682**
Stress	-.173	**.906**	.124
Depression	-.446	**.751**	.170
Anxiety	-.141	**.916**	.083
Autonomy	**.548**	-.442	.192
Environmental mastery	**.770**	-.440	-.216
Personal growth	**.825**	-.015	-.060
Positive relations with others	**.617**	-.441	-.329
Purpose in life	**.826**	-.282	-.218
Self acceptance	**.778**	-.350	-.263
Mean (S.D.)	-.0077 (.970)	.0374 (.988)	.0583 (1.033)
Skewness (S.D.)	.687 (.204)	-.050 (.204)	.689 (.204)
Kurtosis (S.D.)	.403 (.406)	.351 (.406)	-.189 (.406)
α	.901	.747	.888

A hierarchical linear regression analysis was performed to assess the differential predictability of job satisfaction and support, by examining the contribution of time passed since the occurrence of the experienced adversity (entry 1), then with the components of the King-Rothstein model of resiliency before (entry 2) and after (entry 3) the addition of causal attributional loci to the equation (see Table 4). The results of this analysis indicated that the amount of time passed since the occurrence of the experienced adversity did not contribute to the prediction of job satisfaction and support (entry 1; $F(1, 110) = 0.074$, ns, $R^2 = .001$). However, both the components of resiliency (entry 2; $F(9, 110) = 13.990$, $p < .001$) and causal attributions (entry 3; $F(12, 110) = 10.619$, $p < .001$) were found to contribute to the model in the prediction of job satisfaction and support. The variables comprising the original model of resiliency successfully predicted 55.5% of the variance of the job satisfaction and support (entry 2;

$R^2 = .555$), whereas 56.5% of the variance in job satisfaction and support could be accounted for by the combined use of both resiliency components and causal attributions as predictors (entry 3;

$R^2 = .565$). However, there was not a significant increase in added predictive validity of job satisfaction and support to indicate that the addition of causal attributional loci of causality, controllability, and stability, contribute additively to the prediction of job satisfaction at the .05 level of significance ($\Delta R^2 = .010$, Significance $\Delta F(3, 98) = .508$). Upon further examination of the standardized regression coefficients, affective ($\beta = -.206$, $p < .01$ and $\beta = -.194$, $p < .01$ for entry 1 and 2 respectively) and cognitive self-regulatory processes ($\beta = .284$, $p < .05$ and $\beta = .291$, $p < .01$ for entry 1 and 2 respectively) and behavioural ($\beta = .449$, $p < .001$ and $\beta = .440$, $p < .001$ for entry 1 and 2 respectively) and cognitive personal characteristics ($\beta = .206$, $p < .01$ and $\beta = .219$, $p < .01$ for entry 1 and 2 respectively) were found to contribute significantly to prediction of job satisfaction and support. This was such that, lower levels of affective self-

regulatory processes and higher levels of cognitive self-regulatory processes and cognitive as well as behavioural personal characteristics were associated with high levels of job satisfaction and support. However, no other predictors reached levels of significance.

Table 4

Hierarchical regression analysis job satisfaction and support

	Entry 1	Entry 2	Entry 3
Months since the occurrence of adversity	-.026	.060	.062
Affective self-regulatory processes		-.206**	-.194**
Behavioural self-regulatory processes		-.004	-.020
Cognitive self-regulatory processes		.284*	.291**
Affective personal characteristics		-.078	-.064
Behavioural personal characteristics		.449***	.440***
Cognitive personal characteristics		.206**	.219**
Opportunities, supports, and resources		.125	.121
Initial reactions		.131	.128
Causality attributions			-.039
Controllability attributions			.089
Stability attributions			.016
R^2	.001	.555	.565
Adj. R^2	-.008	.515	.512
ΔR^2		.554	.010
F	0.074	13.990***	10.619***
Sig *F* Change		.000	.508

Note. The values represent standardized regression coefficients. *$p < .05$, **$p < .01$, ***$p < .001$.

To confirm these findings, a similar hierarchical linear regression analyses was performed in model 2, reversing the order of entry such that causal attributions were added to the equation first, followed by resiliency components, and then time passed since the occurrence of the experienced adversity. In this way, we assess the differential predictability of job satisfaction and support, with causal atributional loci before (entry 1) and after (entry 2) the addition of the components of the King-Rothstein model of resiliency were to the equation, and (entry 3) the amount of time passed since the occurrence of the experienced adversity (see table 5). The results of this analysis demonstrated that causal attributions (entry 1; $F(3, 110) = 1.443$, ns, $R^2 = .041$) were not significantly predictive of job satisfaction and support. However, the components of resiliency (entry 2; $F(11, 110) = 11.559$, $p < .001$) and the amount of time passed since the occurrence of experienced adversity were found contribute to a significant model predicting job satisfaction and support (entry 3; $F(12, 110) = 10.619$, $p < .001$). The combined use of both causal attributions and resiliency components as predictors successfully predicted similar amounts of variance in job satisfaction and support as that of the full model also including time passed since the experience of adversity (entry 2 $R^2 = .562$ versus entry 3 $R^2 = .565$). However, where the addition of resiliency components added to the predictive validity of job satisfaction and support at the .05 level of significance ($\Delta R^2 = .523$, Significance $\Delta F(8, 99) = .000$), the addition of time passed since the experienced adversity did not ($\Delta R^2 = .003$, Significance $\Delta F(1, 98) = .409$). Upon examination of the standardized regression coefficients, in entry 1, no variables reached formal levels of significance. Further examination of the standardized regression coefficients when resiliency coefficients and time passed since the experienced adversity were added indicated affective ($\beta = -.194$, $p < .05$ during entry 2 and 3 respectively) and cognitive ($\beta = .315$, $p < .01$ and $\beta = .291$, $p < .05$ during entry 2 and 3

respectively) self-regulatory processes, as well as behavioural ($\beta = .426$, $p < .001$ and $\beta = .440$, $p < .001$ during entry 2 and 3 respectively) and cognitive ($\beta = .222$ $p < .01$ and $\beta = .219$, $p < .01$ during entry 2 and 3 respectively) personal characteristics as contributing factors to prediction of job satisfaction and support. No other predictors reached levels of significance.

Table 5
Hierarchical regression analysis job satisfaction and support

	Entry 1	Entry 2	Entry 3
Causality attributions	-.201	-.045	-.039
Controllability attributions	.056	.087	.089
Stability attributions	-.123	.010	.016
Affective self-regulatory processes		-.194*	-.194*
Behavioural self-regulatory processes		-.016	-.020
Cognitive self-regulatory processes		.315**	.291*
Affective personal characteristics		-.066	-.064
Behavioural personal characteristics		.426***	.440***
Cognitive personal characteristics		.222**	.219**
Opportunities, supports, and resources		.097	.121
Initial reactions		.111	.128
Months since the occurrence of adversity			.062
R^2	.039	.562	.565
Adj. R^2	.012	.514	.512
ΔR^2		.523	.003
F	1.443	11.559***	10.619***
Sig *F* Change		.000	.409

Note. The values represent standardized regression coefficients. *$p < .05$, **$p < .01$, ***$p < .001$.

A second pair of model contrasts performed with hierarchical linear regression analyses was performed to assess the differential predictability of symptoms of psychological illness, using the same models as above (see table 6). The results of this analysis indicated that the amount of time passed since the occurrence of the experienced adversity did not contribute to the prediction of symptoms of psychological illness (entry 1; $F(1, 110) = 1.047$, ns, $R^2 = .010$). However, the results of this analysis also demonstrated that both the components of resiliency ($F(9, 110) = 5.804$, $p < .001$) and causal attributions ($F(12, 110) = 5.097$, $p < .001$) were significant. The variables comprising the original King-Rothstein model of resiliency (entry 2) successfully predicted 34.1% of the variance of symptoms of psychological illness ($R^2 = .341$, Significance $\Delta F(8, 101) = .000$), whereas the combined use of both resiliency components and causal attributions as predictors (entry 3) accounted for 38.4% of the variance in symptoms of psychological illness ($R^2 = .384$). However, the additional variance able to be predicted by causal attributional loci, was not enough to formally conclude that causal attributional loci contribute additively to the predictive validity of symptoms of psychological illness ($\Delta R^2 = .043$, Significance $\Delta F(3, 98) = .082$). However, this improvement in predictive power by adding causal attributions to resiliency components was found to reach levels of marginal, if not formal, significance. Upon further examination of the standardized regression coefficients cognitive self-regulatory processes ($\beta = -.405$, $p < .01$ and $\beta = -.396$, $p < .01$ for entry 2 and 3 respectively), as well as affective ($\beta = -.268$, $p < .05$ and $\beta = -.289$, $p < .05$ for entry 2 and 3 respectively) and behavioural personality characteristics ($\beta = .261$, $p < .05$ and $\beta = .286$, $p < .05$ for entry 2 and 3 respectively) were found to contribute significantly to prediction of symptoms of psychological illness. This was such that, higher levels of resilient behavioural personal characteristics and lower levels of cognitive self-regulatory processes and resilient affective personal characteristics

were associated with symptoms of psychological illness. However, no other predictors reached

levels of significance.

Table 6
Hierarchical regression analysis symptoms of psychological illness

	Entry 1	Entry 2	Entry 3
Months since the occurrence of adversity	-.098	-.037	-.044
Affective self-regulatory processes		.026	-.004
Behavioural self-regulatory processes		-.109	-.075
Cognitive self-regulatory processes		-.405**	-.396**
Affective personal characteristics		-.268*	-.289*
Behavioural personal characteristics		.261*	.286*
Cognitive personal characteristics		.087	.054
Opportunities, supports, and resources		.006	-.016
Initial reactions		-.002	-.014
Causality attributions			.118
Controllability attributions			-.057
Stability attributions			-.123
R^2	.010	.341	.384
Adj. R^2	.000	.282	.309
ΔR^2		.331	.043
F	1.047	5.804***	5.097***
Sig *F* Change		.000	.082

Note. The values represent standardized regression coefficients. *$p < .05$, **$p < .01$, ***$p < .001$.

To confirm these findings, a similar hierarchical linear regression analyses was performed in model 2, reversing the order of entry such that causal attributions were added to the equation first, followed by resiliency components, and then time passed since the occurrence of the experienced adversity. In this way, we assess the differential predictability of symptoms of psychological illness, with causal atributional loci before (entry 1) and after (entry 2) the addition of the components of the King-Rothstein model of resiliency were to the equation, and (in entry 3) the amount of time passed since the occurrence of the experienced adversity (see table 7). The results of this analysis demonstrated that causal attributions did not prove to be statistically significant predictors of symptoms of psychological illness ($F(3, 110) = 2.082$, ns). However, the components of resiliency (entry 2; $F(11, 110) = 5.581$, $p < .001$) and time passed since the experienced adverse event (entry 3; $F(12, 110) = 5.097$, $p < .001$) were found to produce a statistically significant model predicting symptoms of psychological illness. However, whereas the components of resiliency were found to significantly improve the predictive power of the model ($R^2 = .383$, Significance $\Delta F(8, 99) = .000$), time passed since the experienced adversity was not ($R^2 = .384$, Significance $\Delta F(1, 98) = .624$). Upon examination of the standardized regression coefficients, attributions of causality were first found to be reach values indicating significant predictive power (entry 1; $\beta = .233$, $p < .05$). However, when other variables were added to the model causality was no longer found to be a statistically significant predictor of symptoms of psychological illness ($\beta = .122$, ns and $\beta = .118$, ns for entry 2 and 3 respectively) in this model. Further examination of the standardized regression coefficients indicated cognitive self-regulatory processes ($\beta = -.414$, $p < .01$ and $\beta = -.396$, $p < .01$ for entry 2 and 3 respectively), as well as affective ($\beta = -.288$, $p < .05$ and $\beta = -.289$, $p < .05$ for entry 2 and 3 respectively) and behavioural ($\beta = .296$, $p < .01$ and $\beta = .286$, $p < .05$ for entry 2 and 3

respectively) personal characteristics as contributing factors to prediction of symptoms of psychological illness. No other predictors reached levels of significance.

Table 7
Hierarchical regression analysis symptoms of psychological illness

	Entry 1	Entry 2	Entry 3
Causality attributions	.243**	.122	.118
Controllability attributions	.009	-.056	-.057
Stability attributions	.020	-.118	-.123
Affective self-regulatory processes		-.004	-.004
Behavioural self-regulatory processes		-.078	-.075
Cognitive self-regulatory processes		-.414**	-.396**
Affective personal characteristics		-.288*	-.289*
Behavioural personal characteristics		.296**	.286*
Cognitive personal characteristics		.051	.054
Opportunities, supports, and resources		.001	-.016
Initial reactions		-.001	-.014
Months since the occurrence of adversity			-.044
R^2	.055	.383	.384
Adj. R^2	.029	.314	.309
ΔR^2		.323	.002
F	2.082	5.581***	5.097***
Sig *F* Change		.000	.624

Note. The values represent standardized regression coefficients. *$p < .05$, **$p < .01$, ***$p < .001$.

A third pair of hierarchical linear regression analyses was performed to assess the differential predictability of wellbeing, using the same pattern of model testing as above (see table 8). The results of this analysis indicated that the amount of time passed since the occurrence of the experienced adversity did not reach formal levels of significance, suggesting that time passed since the adversity was not significantly predictive of wellbeing, although it was found to produce a marginally significant model (entry 1; $F(1, 110) = 3.509, p = .064$, $R^2 = .031$). Similarly, the results of this analysis indicated that the components of resiliency (entry 2; $F(9, 110) = 1.507$, ns) and causal attributions (entry 3; $F(12, 110) = 1.252$, ns) do not significantly contribute to a model predictive of wellbeing. Although an examination of the standardized regression coefficients suggested that there may be some marginally predictive capacities for opportunities supports and resources ($\beta = -.237, p < .05$ and $\beta = -.233, p = .053$ in entry 2 and 3 respectively) with regards to wellbeing. However, as neither of these models was able to yield values indicating statistically significant prediction, this claims is only speculative in nature.

Table 8
Hierarchical regression analysis wellbeing

	Entry 1	Entry 2	Entry 3
Months since the occurrence of adversity	.177	.130	.121
Affective self-regulatory processes		-.047	-.053
Behavioural self-regulatory processes		-.001	-.015
Cognitive self-regulatory processes		-.211	-.217
Affective personal characteristics		.072	.078
Behavioural personal characteristics		.144	.125
Cognitive personal characteristics		-.023	-.007
Opportunities, supports, and resources		-.237*	-.233
Initial reactions		.069	.053
Causality attributions			-.104
Controllability attributions			.070
Stability attributions			-.085
R^2	.031	.118	.133
Adj. R^2	.022	.040	.027
ΔR^2		.087	.015
F	3.509	1.507	1.252
Sig *F* Change		.279	.649

Note. The values represent standardized regression coefficients. *$p < .05$, **$p < .01$, ***$p < .001$.

Similar to the analyses performed with regards to job satisfaction and support and symptoms of psychological illness, a hierarchical linear regression analyses was performed in model 2, reversing the order of entry such that causal attributions were added to the equation first, followed by resiliency components, and then time passed since the occurrence of the experienced adversity with regards to the prediction of wellbeing (see table 9). The results of this analysis similarly demonstrated that causal attributions (entry 1; $F(3, 110) = 0.457$, *ns*), components of resiliency (entry 2; $F(11, 110) = 1.244$, *ns*), nor time passed since the adverse experience (entry 3; $F(12, 110) = 1.252$, *ns*) were significantly predictive of wellbeing. Although an examination of the standardized regression coefficients indicated that there may be a substantial (although marginal) influence of opportunities, supports, and resources ($\beta = -.281$, $p < .05$ and $\beta = -.233$, $p = .053$ for entry 2 and 3 respectively). Again, as this model was not able to yield values indicating statistically significant prediction of wellbeing, these claims are only speculative in nature. No other variables were found to approach values indicating significant prediction of wellbeing.

Table 9

Hierarchical regression analysis wellbeing

	Entry 1	Entry 2	Entry 3
Causality attributions	-.110	-.115	-.104
Controllability attributions	.046	.067	.070
Stability attributions	-.059	-.098	-.085
Affective self-regulatory processes		-.053	-.053
Behavioural self-regulatory processes		-.006	-.015
Cognitive self-regulatory processes		-.169	-.217
Affective personal characteristics		.075	.078
Behavioural personal characteristics		.098	.125
Cognitive personal characteristics		.000	-.007
Opportunities, supports, and resources		-.281*	-.233
Initial reactions		.019	.053
Months since the occurrence of adversity			.121
R^2	.013	.121	.133
Adj. R^2	-.015	.024	.027
ΔR^2	.013	.109	.012
F	.713	1.244	1.252
Sig *F* Change		.156	.257

Note. The values represent standardized regression coefficients. *$p < .05$, **$p < .01$, ***$p < .001$.

Model Integrity and Contrasts

Hypothesis 4 was proposed for illustrative purposes. Using a path analysis approach, the King-Rothstein (2010) model of resiliency will be supported (as depicted in Figure 1). Three models were constructed and tested for the illustrative purposes of this hypothesis. In accordance with the King-Rothstein model the observed variables included in this path analysis were initial responses to experienced adversity, opportunities, supports, and resources, affective, behavioural, and cognitive personal characteristics, affective, behavioural, and cognitive self-regulatory processes. Each model differed with regards to the outcome variable predicted: job satisfaction and support, symptoms of psychological illness, and wellbeing. All analyses were performed in the software package MPlus using the default estimation technique of robust maximum likelihood (Muthén & Muthén, 2010).

The first model tested the ability of the King-Rothstein (2010) resiliency model and its ability to predict job satisfaction and support. Path analysis produced a chi-square value suggesting any further results should be interpreted with caution, $X^2(8) = 38.396$, $p < 0.001$. However the comparative fit index (*CFI*) that approached, but failed, to meet the minimum of .90 value indicating good model fit, (Bentler, 1990; *CFI* = 0.859). Furthermore, the root mean squared error of approximation (RMSEA) was found to be outside the acceptable upper bound limit of 0.10. This suggests a lack of convergence between the model and the data (MacCallum et al., 1996; *RMSEA* = 0.140, *C.I.* = 0.098 to 0.186). This indicated poor support for the King-Rothstein (2010) model for its prediction of the outcome job satisfaction and support.

The second (and best) model (see Table 10), tested the ability of the King-Rothstein (2010) resiliency model and its ability to predict symptoms of psychological illness. Path analysis similarly produced a chi-square value suggesting results should be interpreted with caution,

$X^2(8) = 20.895$, $p < 0.01$. However, the comparative fit index (*CFI*), was found to surpass the minimum value of .90 indicating good model fit, (Bentler, 1990; *CFI* = 0.929) and the root mean squared error of approximation (RMSEA) was found to be within the acceptable upper bound limit of 0.10. This suggests a convergence between the model and the data (MaCallum et al., 1996; *RMSEA* = 0.091, *C.I.* = 0.044 to 0.139) thereby indicating substantial support for the King-Rothstein (2010) model and it's prediction of the outcome symptoms of psychological illness.

The final model tested the ability of the King-Rothstein (2010) resiliency model and its ability to predict wellbeing. Path analysis also produced a chi-square value suggesting results should be interpreted with caution, $X^2(8) = 24.146$, $p < 0.01$. However, the comparative fit index (*CFI*) was found to surpass the minimum value of .90 indicating good model fit (Bentler, 1990; *CFI* = 0.905). However, the root mean squared error of approximation (RMSEA) was found to be slightly outside the acceptable upper bound limit of 0.10 suggesting the model approaches convergence between the model and the data (MacCallum et al., 1996; *RMSEA* = 0.101, *C.I.* = 0.057 to 0.149) thereby indicating some weak support for the King-Rothstein (2010) model and it's prediction of the outcome wellbeing.

Table 10

Weighted least squares with missing values for a path model of resiliency associations and symptoms of psychological illness

Parameters			Unstandardized	SE	Sdx
			Direct Effects		
Initial responses	→	Affective self-regulation	0.056	0.059	0.067
Affective personal characteristics	→	Affective self-regulation	-0.003	0.040	-0.006
Behavioural personal characteristic	→	Affective self-regulation	0.096*	0.041	0.166*
Cognitive personal characteristics	→	Affective self-regulation	0.102*	0.041	0.179*
Opportunities, supports, and resources	→	Affective self-regulation	0.065	0.064	0.072
Initial responses	→	Behavioural self-regulation	0.176	0.096	0.127
Affective personal characteristics	→	Behavioural self-regulation	0.134*	0.065	0.149*
Behavioural personal characteristics	→	Behavioural self-regulation	0.205**	0.067	0.214**
Cognitive personal characteristics	→	Behavioural self-regulation	0.075	0.066	0.078
Opportunities, supports, and resources	→	Behavioural self-regulation	0.096	0.103	0.064
Initial responses	→	Cognitive self-regulation	0.573***	0.106	0.342***
Affective personal characteristics	→	Cognitive self-regulation	0.242**	0.072	0.222**
Behavioural personal characteristics	→	Cognitive self-regulation	0.150*	0.074	0.129*
Cognitive personal characteristics	→	Cognitive self-regulation	-0.071	0.073	-0.062
Opportunities, supports, and resources	→	Cognitive self-regulation	0.269*	0.114	0.148*

Initial responses	→	Affective personal characteristics	0.383***	0.106	0.249***
Initial responses	→	Behavioural personal characteristics	0.092	0.103	0.063
Initial responses	→	Cognitive personal characteristics	0.034	0.104	0.024
Affective self-regulation	→	Symptoms of psychological illness	0.006	0.013	0.030
Behavioural self-regulation	→	Symptoms of psychological illness	-0.007	0.009	-0.062
Cognitive self-regulation	→	Symptoms of psychological illness	-0.023**	0.007	-0.246***
Affective personal characteristics	←→	Behavioural personal characteristics	13.589**	4.746	0.209**
Behavioural personal characteristics	←→	Cognitive personal characteristics	15.493**	4.665	0.244***
Cognitive personal characteristics	←→	Affective personal characteristics	13.920**	4.777	0.213**
Affective self-regulation	←→	Behavioural self-regulation	8.242***	2.287	0.266***
Behavioural self-regulation	←→	Cognitive self-regulation	11.942**	4.043	0.216**
Cognitive self-regulation	←→	Affective self-regulation	0.540	2.452	0.016

Note. *p < .05, **p < .01, ***p < .001.

Exploratory Analyses

Finally, for informative and illustrative purposes, to examine the possibility of causal attribution-outcome relationships mediated by self-regulatory processes a mediation analysis was performed (as per the guidelines of Baron & Kenny, 1986). To test this mediated relationship, the variable symptoms of psychological illness was selected based on prior findings, demonstrating it to be the outcome variable most easily predicted by causal attributions and resiliency.

Attributions of internal causality were found to directly predict symptoms of psychological illness ($R^2 = .034$, $F(1, 136) = 4.789$, $p < .05$). Indicating that if one perceives things as being caused by some fault of their own, they would be more likely to develop symptoms of psychological illness. For example a soldier with post-traumatic stress may believe that an act of war resulting in the death of an enemy may be entirely their fault. Although causality was found to be directly predictive of behavioural self-regulation ($R^2 = .037$, $F(1, 185) = 7.153$, $p < .01$) it was not found to significantly predict affective ($F(1, 186) = 0.466$, ns) nor cognitive ($F(1, 180) = 1.192$, ns) self-regulation. This indicates that those who attribute adversity to internal causes are likely to regulate their behaviours for example, seeking help. Given that behavioural self-regulation was found to be the only investigated mediator significantly predicted by causality, regression analysis continued examining mediation strictly through this variable. Behavioral self-regulation was found to significantly predict symptoms of psychological illness ($R^2 = .20$, $F(1, 134) = 33.350$, $p < .001$), thereby demonstrating the possibility of a causality-symptom relationship fully-mediated via behavioural self-regulation. This may suggest that symptoms of psychological illness may only be impacted by causal attributions indirectly, in the presence of behavioural self-regulation.

Testing for full mediation, causality and behavioural self-regulation were simultaneously regressed upon symptoms of psychological illness. This produced a significant regression equation ($F(2, 133) = 4.858$, $p = .01$) where behavioural self-regulation and causality predicted 7% of the variance in symptoms of psychological illness ($R^2 = .069$). Examination of the regression coefficients, behavioural self-regulatory processes were found to be a significant predictor of symptoms of psychological illness ($\beta = -.188$, $p < .05$), whereas causality was not ($\beta = .147$, ns). The significance of behavioural self-regulatory processes in the absence of the significance of causality indicates that self-regulatory processes fully mediate the causality-symptoms of psychological illness relationship. For example, an individual who attributes adversity to having an internal cause may be likely to regulate their behaviour in a stifling way (for example, avoidance) which may lead them to develop elevated levels of stress or psychological illness. Attributions of controllability ($R^2 = .034$, $F(1, 136) = 4.789$, $p < .05$) and stability ($R^2 = .034$, $F(1, 136) = 4.789$, $p < .05$) were not, however, found to directly predict symptoms of psychological illness thereby suggesting absence of any mediated relationships involving attributions of controllability or stability, and symptoms of psychological illness.

Discussion and Conclusions

This study sought to develop a deeper understanding of resiliency, causal attributions and their relationships to various outcomes. The overarching goal of this study sought to answer questions related to the possible relationship between causal attributions and resiliency and how causal attributions may be integrated into the King-Rothstein (2010) model. More specifically, the goals of this study were to test the (1) relatedness and (2) predictive relationships between causal attributions with regards to resiliency; (3) investigate the predictive capacities of causal attributions and components of resiliency to various related outcomes; and (4) test the validity of

the King-Rothstein model of resiliency. There was mixed support for hypotheses 1(a-c), indicating that unstable and external causal attributions may be positively associated with affective and cognitive, and behavioural self-regulatory processes respectively. The magnitude of these correlations were quite small, indicating that affective, cognitive, and behavioural self-regulatory processes and causal attributions may be independent, although related, constructs or that causal attributions play a small role in the self-regulatory processes of resiliency, specifically. Although not all causal attributions were found to correlate positively with each of the three self-regulatory processes, these specific relationships indicate a meaningful association exists between these two abstract constructs.

The results pertaining to the predictive capacities of causal attributions with regards to (affective, behavioural, and cognitive) self-regulatory processes were also met with mixed support. The first of these three tested hypotheses (hypothesis 2a) examined the predictive capacities of causal attributions toward cognitive self-regulation was met with mixed support. More specifically, the attributional loci of causality and stability, but not controllability, were significantly predictive factors of cognitive self-regulation. This is particularly important in association with the results from hypothesis 3, which demonstrated that cognitive self-regulation seems to be the driving force behind many of the predictions of resiliency-related outcomes. The second of the three tested hypotheses (hypothesis 2b) was also met with mixed support, indicating the attributional locus of stability was also able to predict affective self-regulatory processes. Likewise, the third analysis investigating the predictive capacity of causality, controllability, and stability attributions on behavioural self-regulatory processes (hypothesis 2c) indicated that causality and stability were predictive of behavioural self-regulatory processes. Interestingly, this study found that controllability was not significantly predictive of any of the

self-regulating processes. This failure to find controllability as a significant predictor of self-regulatory processes may be due to the relatively low internal consistency of this construct. Assuming this is not the case, at a theoretical level, this failure to find a significant association or prediction between controllability and self-regulatory processes may be interpreted as an indication that resilient individuals may be resilient whether or not they believe they have any control over adversity. Given the findings of this present study individuals seem to rely primarily on their self-regulatory processes, beyond attributions of controllability, stability or even causality, to see them through adversities over which they have no control over. The only attribution that seems to be demonstrably effective in impacting outcomes is causality, although indirectly through behavioural self-regulation. This seems to indicate that if one perceives an adverse experience as stemming from an internal causes this may facilitate better psychological health, indirectly via behavioural self-regulatory processes. More specifically, perceptions of internal causality may motivate individuals to pursue actions in hopes of a solution. For example, if one experiences the adversity of a heart attack and ascribes it to their own eating behaviour and sedentary lifestyle, they may be more likely to pursue diet and lifestyle changes than if they believe it's the inability of his or physician to cure them of their ailments. In this way, causal attributions may facilitate an increase in stress relieving behaviours. The exact processes involved in this mediation relationship and their precise effects leading to resilient outcomes, however, were not a primary focus of this study. More research is needed to pursue these predictive relationships and the mediums by which they facilitate specific self-regulatory processes that result in healthy outcomes.

The results of the analyses investigating the additive predictive power of causal attributions with regards to the components of resiliency and resiliency outcomes generally suggested that

the components of the King-Rothstein model of resiliency were the driving predictive force behind resiliency-relevant outcomes relating to job satisfaction and support, as well as symptoms of psychological illness, but not wellbeing. More specifically, job satisfaction and support was best predicted by affective and cognitive self-regulatory processes as well as behavioural and cognitive personal characteristics. This was a robust finding given that it controlled for time passed since the occurrence of the adverse event and was further confirmed when the order of entry and contrast between causal attributions and resiliency was reversed and examined again. Counter to the expected outcome of hypothesis 3, causal attributions were not found to be significantly predictive of job satisfaction and support. Together, these findings indicate that job satisfaction and support is influenced primarily by one's affective and cognitive self-regulatory capacities that are likely to mitigate the impact of negative and unsupportive workplace experiences. This suggests that individuals that are more aware of their cognitive and affective states are therefore better cognitively and emotionally grounded and likewise demonstrate higher levels of job satisfaction in the workplace. Thus, constructs focusing on such affective and cognitive regulation, such as mindfulness, may play a substantial role in the resiliency-job satisfaction and support relationship. We originally posited that these two factors work in conjunction with one another, such that individuals with a higher degree of cognitive regulation may be less likely to ruminate on negative experiences and thus are better able to maintain more stable emotions, for example. However, given that these two components of resiliency are not found to demonstrate a significant association between one another ($r = .105$, *ns*), it is likely that these two factors act independently to predict job satisfaction and support rather than in association with one another. This has the practical implication that efforts made to foster self-regulatory processes and resultant outcomes may best focus on encouraging these factors in

isolation of one another. Such efforts may also focus more on affective, rather than cognitive, self-regulation since affective self-regulation was found to be a better predictor of outcomes associated with job satisfaction and support. Behavioural and cognitive characteristics were also found to be among the most significant predictors of job satisfaction and support. In fact, behavioural personal characteristics were the leading predictor of this particular outcome. It is possible that sampling characteristics may affect the relative weights of these results. Although, given the diversity of the online sample recruited for the purposes of this study, this is not expected to be the case. Further research using more diverse samples is encouraged to examine this possibility. Practically speaking, this finding indicates that organizations may prevent problems relating to job satisfaction and support from a selection standpoint. Hiring individuals who have demonstrated, or behaviourally and cognitively resilient characteristics may prevent declines in job satisfaction or intra-organizational support from occurring after later experiences of adversity. However, more research is needed to determine whether these outcomes occur directly via resilient personal characteristics or as mediated via resilient self-regulatory processes before selection methods should be employed over self-regulatory training programs.

The results pertaining to the predictive capacities of causal attributions and resiliency with regards to symptoms of psychological illness were similarly enlightening. Symptoms of psychological illness were best predicted by the cognitive self-regulatory component of resiliency, followed by affective and behavioural personality characteristics. However, again, it is possible that the relative weights of these predictors may change as a result of the sample. These findings should similarly be considered robust given they also controlled for time passed since the occurrence of the adverse event and they were also further confirmed when the order of entry and contrast between causal attributions and resiliency was reversed and examined again.

Attributions regarding the causal source of the adversity were also found to significantly predict symptoms of psychological illness; however, counter to the predictions of hypothesis 3, it was only found to marginally add to the prediction of this particular outcome. Therefore, although not formally significant, this finding indicates another topic worthy of investigation in future research. Nonetheless, it should be noted that although causality was found to be a significant predictor in the generated regression equation, the regression equation itself, representing the predictive capacity of causal attributions alone with regards to symptoms of psychological illness, was not found to reach values that would indicate that causal attributions alone are significant predictors of symptoms of psychological illness. Thus, future research efforts may be best spent further examining the resiliency-causal attribution relationship with regards to outcomes of symptoms of psychological illness. Although this finding may only pertain to the constructed factor more than it does each of its components, as other studies have demonstrated causal attributions to be predictive of anxiety (Nurmi, Aunola, Salmela-Aro, & Lindroos, 2003; Hope, Gansler, & Heimberg, 1989), depression (Dunkel, Kendel, Lehmkuhl, Hezer, & Regitz-Zagrosek, 2011; Hartley & MacLean, 2009), and stress (King, 2003). However, after applying a Bonferroni correction to these specific correlation values (presented in Table 1), it appears these findings have not been replicated in this study. This may be a result of having a low degree of variability and a generally psychologically healthy sample ($M = 6.33$, $S.D. = 4.79$, $M = 5.47$, $S.D. = 5.31$, and $M = 3.96$, $S.D. = 3.99$, for stress, depression, and anxiety respectively). Studies exploring the differences between those who have experienced adversity and gone on to either develop clinical disorders or not may expand the variance and allow for further exploration of these relationships. It is also possible that this could exist simply as a statistical artifact of causal attributions being a worse predictor relative to the predictive capacities of the self-regulatory

processes of resiliency. However, examining the predictive capacities of causal attributions (at entry 1, model 2) with regards to symptoms of psychological illness, this does not seem to be the case as causal attributions did not seem to be significantly predictive enough to produce a statistically significant model given the isolated entry of causal attributions into the model.

The results pertaining to the predictive capacities of causal attributions and resiliency with regards to wellbeing ran counter to the predicted hypothesis. Wellbeing was not found to be predicted by causal attributions nor components of resiliency. Similar to the findings regarding the predictive capacities of these two constructs with regards to the other two predicted outcomes (job satisfaction and support and symptoms of psychological illness), these findings are considered to be rather robust given that they were further confirmed when alternating the order of construct entry and examining differential predictive power.   Discovering that this variable was not predicted by either the King-Rothstein model of resiliency or causal attributions produced more questions than answers. Given that wellbeing, a salutogenic variable tied to many positive outcomes including psychological health (Barrowclough, Gregg, & Tarrier, 2008) and physical health (Segerstrom, Taylor, Kemeny, Reed, & Visscher, 1996; Brewin, 1984) and achievement (Soric, 2009; Soric & PalekCic, 2009), it was assumed that a similarly salutogenic process would be associated with this salutogenic outcome. However, this was clearly not the case. This may illustrate the problem of finding the proper resiliency outcome for each given adverse context. There was great diversity in adverse experiences among participants in each sample, ranging from obtaining a substandard grade or work review, living with life-threatening illnesses, and death of significant others. Since the resiliency scale that was incorporated into this study was designed for use in the workplace and given that this instrument demonstrated itself to successfully predict work-related positive outcomes (such as job satisfaction and

support), it could be possible that the resiliency scale best predicts work-related components of resiliency and work-relevant outcomes but not other forms of adversity. However, the findings regarding symptoms of psychological illness in this study suggest that this is unlikely to be the case. Moreover, given that there are theoretical reasons for why symptoms of psychological illness and psychological wellbeing should be conceptualized as two variables sharing a strong, negative association with one another, the results of this study may be a statistical artifact of the factor analysis procedure that formed the two variables. The theoretical implications of this finding are that wellbeing may be one salutogenic outcome that is unrelated to resiliency, as defined by the King-Rothstein (2010) model. Wellbeing may be a construct derived from more than causal attributions, self-regulation, personal characteristics, responses, and supports. The finding that opportunities, supports, and resources were found to be marginally significant predictors of wellbeing may be worthy of future pursuit. Although not formally significant, this may be an indication of where future research specifically focusing on the prediction of wellbeing may begin. Practically speaking, this finding suggests that other avenues to fostering wellbeing should be pursued. Although not strictly supported by the findings in this study, fostering opportunities, resources, and supports may be one method of encouraging this particular outcome.   However, this is only conjecture of where research may begin to approach this topic given the tenuous nature of this finding and the lack of concrete interpretation that can be derived from it.

        The results of the illustrative analysis examining whether the King-Rothstein model of resiliency would be supported was also met with mixed support. The King-Rothstein models constructed predicting psychological illness and wellbeing (separately) demonstrated adequate fit with the data, in support of the overall King-Rothstein model. Counter to the findings regarding

the prediction of wellbeing in hypothesis three, this seems, at first blush, to provide some

evidence that wellbeing and other general outcomes, that are not work-related, may be predicted

by resiliency through this model. However, investigating the individual parameter estimates

associated with the prediction of wellbeing revealed that, although the model itself converged

and demonstrated acceptable indexes of model fit, none of the parameter estimates predicting

wellbeing were found to reach levels indicating significant prediction of wellbeing. Oddly

enough, however, the regression analyses in hypothesis 3 also suggested that resiliency should be

predictive of job satisfaction and support. Despite these prior results, the path model used to test

hypothesis 4 was not found to demonstrate sufficient model fit with the data. There were some

noted differences between the model examined in hypothesis 4 and the regression analyses

performed while investigating hypothesis 3. Perhaps the most substantial is that two of the three

strongest predictors of job satisfaction and support happened to be behavioural and affective

personal characteristics. Both behavioural and affective personal characteristics, (given the

nature of the King-Rothstein model) were not proposed to have any direct effects on predicted

outcomes, but were instead believed to function indirectly via self-regulatory processes to

relevant outcomes. However, the analyses testing these paths of personal characteristics to

various relevant outcomes for mediation via self-regulatory processes was beyond the scope of

this research. We speculate that personal characteristics may have direct effects on various

specific outcomes. However, further research must be performed to examine the presence or

absence of this direct or indirect relationship. This brings in to question the proposed form of the

model with self-regulation acting as the driving predictive force behind predicting relevant

outcomes. Given the findings regarding differential factor loadings with regards to each

predicted outcome in hypothesis three, it seems likely that each of the components of the

resiliency model may differentially predict different outcomes. Therefore, it may follow that the

form of the model and interplay of the components comprising the model may change in

conjunction with each different outcome variable intended to be predicted. Where work-related

factors associated with job satisfaction and support may be more easily predicted by personal

characteristics, more general outcomes such as symptoms of psychological illness and wellbeing

may depend a great deal more on other factors (perhaps opportunities, supports, and resources as

hypothesis 3 would suggest). Future research may be needed to establish both (1) how accurate

the model predicts various different outcome variables as is, and (2) how the model may be

altered to accommodate for these recent findings.

The exploratory mediation analyses conducted in this study for illustrative and

informative purposes generally indicated that if causal attributions played any successful role in

the King-Rothstein model with regards to prediction of resiliency outcomes, it was likely in

conjunction with the components of resiliency (as mediated by self-regulatory factors), rather

than on their own. In conjunction with the marginally significant findings in hypothesis three

with regards to the prediction of symptoms of psychological illness, this finding indicates that

causal attributions may have a significant role in the resiliency model and in the prediction of

specific resiliency outcomes. However, this speculation should be made with some caution.

Precisely whether causal attributions necessarily fit within the model, or are simply another

external predictor, remains to be seen. Future research performed with larger, more diverse,

samples are necessary to understand the precise role of causal attributions as they relate to the

components, outcomes and general construct of resiliency.   Given the generalized replication of

the findings borne from this study, it may be safe to say that, it would appear that causal

attributions are likely an external predictor associated with resiliency although not necessarily

under the domain of the superordinate construct of resiliency.

This study was not without limitations. It should be noted that although the current study incorporated the use of causal modeling analyses, this study did not intend to examine causal relationships. Being cross-sectional in design, this study was limited to exploring only associative relationships amongst the variables included in this analysis. Future longitudinal research is warranted to investigate the integrity of the King-Rothstein model as it was originally intended: beginning with the adverse experience and ending with the various outcomes that may result from the individual components of resiliency. Such longitudinal analysis may reveal a great deal about the differential importance of various resiliency components at various time points after experiencing adversity. As the King-Rothstein process model of resiliency indicates, shortly after experiencing adversity, initial reactions and personal characteristics should be quite important. However, after one has had enough time to process the experience, one's self-regulatory processes may be more important. Yet, at this time, these hypotheses are strictly theoretical in nature and are largely up for debate.

A further limitation of this study surrounds the path analysis performed in this study. Given this study included only 196 participants and our relatively low degrees of freedom, it can rightfully be assumed that this particular analysis suffered from low power (MaCcallum, Browne, & Sugawara, 1996). This may have somewhat limited our ability to detect significant differences from the proposed and expected covariance matrixes. Therefore, it is appropriate to reiterate that the results of hypothesis 4 should be interpreted with caution and that these models were constructed strictly for illustrative and informative purposes, suggesting paths for future research. Larger studies are clearly needed to accurately assess such a complex model.

Another such limitation of this research lies in the fact that the model and measure of

resiliency were theoretically designed to reflect workplace adversity, whereas the vast majority

of adverse experiences reflected on by both students and the general sample were found to occur

outside the workplace. This may have affected the results of this study in many ways, including

diminishing (or obscuring) the (possible) effects found in this study. Nevertheless, in spite of

this incongruence, some support was found for each of the hypotheses to varying degrees.

Therefore it would appear that the contextual nature of the adversity that the resiliency model

and questionnaire examined were not impacted by those without work-related experiences. This

seems to provide substantial support for the possibility of replicating the results of these findings

(at the very least) given an entirely work-adversity focused sample. Future research would do

well to pursue large multi-sample studies able to investigate the differences between type of

experienced adversity, thereby examining the generalizability of the proposed model of

resiliency with regards to adversity in general, rather than as limited to the workplace. The

results of this study seem to provide some hope for such studies and resiliency research

involving this model in general.

     Some may also perceive that the use of a self-generated adversity prime rather than a

prescribed prime administered to participants is another limitation of this study. However, there

are merits and flaws to either priming option that should be taken into account. At first blush

prescribing a specific prime of adversity to participants (for example, getting fired) may be

initially perceived as controlling for the degree of adversity reflected upon by participants that

was included in the wide range of adverse experiences provided by participants in this study

(ranging from bad grades to the death of a loved one), it doesn't necessarily take into account

individual differences given contextual reactions to that particular adversity. Moreover, there is

no guarantee that participants have any frame of reference based in personal or vicarious

experience to be able to place themselves in that particular situation nor is it a given that the

participant will perceive the prescribed event as adverse. For example, the range of reactions to

the experience of being fired from their job may span the spectrum of hospitalization to

celebration. Whereas, in allowing participants to self-generate their specific adverse experiences

as primes, participants are guaranteed to have perceived the event as an adverse personal

experience that they can relate to. This is not to say that prescribed priming is a poor way of

approaching this research question.   It is, however, to provide an explanation for the particular

priming approach used in this study. Future research may be well spent approaching the study of

resiliency using a wide variety of differing samples (with personal adverse experiences) and

primes to better understand the process of resiliency as applied to a broad range of adverse

experiences.

In sum, this study has revealed a great deal about the effectiveness of the King-Rothstein

model of resiliency, the role of causal attributions, and the predictive power that each of these

two constructs have with regards to positive and negative outcomes. Broadly speaking, the

findings of this study indicate that causal attributions are a related, but separate, construct from

resiliency. Although this counters the argument that causal attributions fall under the

superordinate construct, it does not suggest that resiliency is not a superordinate construct

comprised of other influential variables capable of fostering salutogenic personal characteristics

and self-regulatory processes that promote positive outcomes following experienced adversity.

Generally speaking, the components of the King-Rothstein model seem to be a better predictor

than causal attributions when investigating the relevant examined positive and negative

outcomes incorporated in this study. This does not suggest that causal attributions are unable to

predict positive or negative outcomes. In fact, it is likely that causal attributions are able to

predict such outcomes given the findings of prior research (Le Foll, Rascle, & Higgins, 2008; Mancini & Gangemi, 2004; Dienstbier, Hillman, Lehnhoff, Hillman, & Valkenaar, 1975). However, as demonstrated in this study, the components of the King-Rothstein model of resiliency seem to be superior predictors of symptoms of psychological illness, job satisfaction and support, and wellbeing. Programs designed to fortify and foster the development of resilient self-regulatory processes (and other resiliency components) may be a more effective approach to promoting resilient outcomes than attribution training. However, future comparative research is still needed to demonstrate the effectiveness of either of these programs with regards to resilient outcomes. Still, there is substantial evidence, garnered from this research, to indicate that modifications may need to be made with regards to the King-Rothstein model and how its components interact and predict various outcomes. Furthermore, exactly how the model may be altered to accommodate for the interaction of components within the model and with regards to the components of resiliency and predicted outcome measures still needs to be explored. For example, this study demonstrated that personal characteristics often contribute substantially to job satisfaction and support and symptoms of psychological illness. This seems to be in line with the body of research demonstrating that general personal characteristics such as wellbeing (Joshanloo, Rastegar, & Bakhshi, 2012) and psychological illness (Claes, Vanderevcken, Vandeputte, & Braet, 2013) are often found to be predicted by personality. As it stands the King-Rothstein model implicates self-regulatory processes as the primary resiliency components by which positive and negative outcomes occur. Although not the primary focus of this piece of research, future research may examine the differential predictive capacities of each component of the King-Rothstein resiliency model with regards to various outcomes, in an attempt to better inform us as to the structure of the model as well as to facilitate an understanding of the most

optimal predictor, given each of the resiliency components.

No one experiences life without experiencing some form of adversity, whether experienced at home, in the workplace, or in broader society. This is one of the first investigations examining resiliency through the lens of a comprehensive, theoretically driven model able to predict relevant outcomes. This is also one of the first investigations examining the role of causal attributions under the framework of resiliency theory and their role in resiliency-relevant outcomes. This preliminary work serves to provide a better understanding of these two constructs, their associations, and predictive capacities with regards to various outcomes. Although the results of this analysis indicate that causal attributions did not appear to be a construct under the larger domain of resiliency, causal attributions were found to be significantly associated and predictive of several components of resiliency; thus, causal attributions and resiliency are related, although separate, constructs. Moreover, these two constructs seem to demonstrate differential predictive capacities toward various resiliency outcomes in favour of the newly conceptualized construct of resiliency (as defined by King & Rothstein, 2010). The components of resiliency seem to be a powerful predictor of work and life outcomes relative to causal attributions. Generally, all individuals should benefit from demonstrably effective self-regulatory training as all individuals are expected to experience adversity at some point in life. The findings of this study indicate that such training may be particularly beneficial to prevent the development of symptoms of psychological illness. Similarly, this may be effectively applied within organizations that are known to expose their members to greater than normal adverse experiences (emergency workers, soldiers, or highly competitive work environments). To a degree, organizations have a moral or ethical obligation to uphold in these environments that expose their organizational members to frequent and / or

extreme adversity. There are several managerial implications that may uphold this

organizational responsibility that come to mind. Managers should not motivate employees with

a "fabled proverbial carrot" that does not exist. Failing to provide or make accessible the

rewards used as a motivator for organizational members can be perceived as an adverse event

and may harm organizational trust. Additionally, organizations may do well to train their

managers to encourage resilient affective, cognitive, and behavioural self-regulatory processes

specifically when breaking bad news to their subordinates. Although, more research needs to be

done regarding the efficacy of such encouragement, assisting a subordinate to not ruminate so

much on adverse experiences, to feel thankful for the good outcomes everyday, and to seek

solutions to potential problems may go a long way in upholding this organizational responsibility

to members in adverse work environments. Such organizations may also benefit from training

programs designed to nurture self-regulatory processes that are predictive of job satisfaction and

support as well as processes that reduce the likely hood of developing symptoms of

psychological illness. Furthermore, given sufficient future research, one-day organizations may

do well to select employees based on an individual's demonstration of resilient personal

characteristics. There is a lot of work that needs to be done to solidify our understanding of

resiliency before selection decisions can be made on the basis of this variable, although this

study indicates there may be some hope for this in the future. Once this work is finally complete,

effective training and therapeutic programs may also be developed to foster a greater quality of

life for those that experience high levels of adversity day-to-day. This, alone, is reason enough

to pursue this research in hopes of bettering the lives of others.

References

Alessandri, G., Vecchione, M., Caprara, G., & Letzring, T. D. (2012). The ego resiliency scale revised: A cross-cultural study in Italy, Spain, and the United States. *European*

Andre-Petersson, L., Engstrom, G., Hedblad, B., Janzon, L., & Rosvall, M. (2007). Social support at work and the risk of myocardial infarction and stroke in women and men. *Social Science and Medicine, 64*(4), 830-841. doi: 10.1016/j.socscimed.2006.10.020

Aznar, M. P., de, A. G., & Aznar, M. J. (2006). Estrés y malestar en el profesorado. *International Journal of Psychology & Psychological Therapy, 6*(1), 63-76. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/621315401?accountid=15115

Baek, H., Lee, K., Joo, E., Lee, M., & Choi, K. (2010). Reliability and validity of the Korean version of the Connor-Davidson resilience scale. *Psychiatry Investigation, 7*(2), 109-115. doi:10.4306/pi.2010.7.2.109

Bandura, A., Adams, N. E., & Beyer, J. (1977). Cognitive processes mediating behavioral change. *Journal of Personality and Social Psychology, 35*(3), 125-139. doi: 10.1037/0022-3514.35.3.125.

Barrowclough, C., Gregg, L., & Tarrier, N. (2008). Expressed emotion and causal attributions in relatives of post-traumatic stress disorder patients. *Behaviour Research and Therapy, 46*(2), 207-218. doi:http://dx.doi.org/10.1016/j.brat.2007.11.005

Béjean, S., & Sultan-Taïeb, H. (2005). Modeling the economic burden of diseases imputable to stress at work. *The European Journal of Health Economics, 6*(1), 16-23. doi: 10.1007/s10198-004-0251-4

Betancourt, H. (1990). An attribution-empathy model of helping behavior: Behavioral intentions

and judgments of help-giving. *Personality and Social Psychology Bulletin, 16*(3), 573-591.

doi: 10.1177/0146167290163015

Baruch-Feldman, C., Brondolo, E., Ben-Dayan, D., & Schwartz, J. (2002). Sources of social

support and burnout, job satisfaction, and productivity. *Journal of Occupational Health

Psychology, 7*(1), 84-93. doi: 10.1037/1076-8998.7.1.84

Boeschen, L. E., Koss, M. P., Figueredo, A. J., & Coan, J. A. (2001). Experiential avoidance and

post-traumatic stress disorder: A cognitive mediational model of rape recovery. *Journal of

Aggression,* 4, 211-245.

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human

capacity to thrive after extremely aversive events? *American Psychologist*, *59*(1), 20-28.

doi: http://dx.doi.org.proxy1.lib.uwo.ca:2048/10.1037/0003-066X.59.1.20

Brandtstadter, J. (1999), 'Sources of resilience in the aging self: toward integrating perspectives',

in T.M. Hess and F. Blanchard-Fields (eds), Social Cognition and Aging, San Diego, CA:

Academic Press, pp. 123–41.

Brewin, C. R. (1984). Attributions for industrial accidents: Their relationship to rehabilitation

outcome. *Journal of Social and Clinical Psychology, 2*(2), 156-164. Retrieved from

https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/617044195?accountid=15115

Carver, C. S. (1998). Resilience and thriving: Issues, models, and linkages. *Journal of Social

Issues, 54*(2), 245-266. doi: 10.1111/0022-4537.641998064

Chang, S. M., Hong, J., & Cho, M. J. (2012). Economic burden of depression in South Korea.

Social Psychiatry and Psychiatric Epidemiology, 47(5), 683-689. doi:10.1007/s00127-011-

0382-8

Cherry, N. M., Chen, Y., & McDonald, J. C. (2006). Reported incidence and precipitating factors of work-related stress and mental ill-health in the united kingdom (1996-2001). *Occupational Medicine, 56*(6), 414-421. doi:10.1093/occmed/kql041

Claes, L., Vandereycken, W., Vandeputte, A., & Braet, C. (2013). Personality subtypes in female pre- bariatric obese patients: Do they differ in eating disorder symptoms, psychological complaints and coping behaviour? *European Eating Disorders Review,21*(1), 72-77. doi:http://dx.doi.org/10.1002/erv.2188

Curtis, W.J. and Cicchetti, D. (2003), 'Moving research on resilience into the 21st century: theoretical and methodological considerations in examining the biological contributors to resilience', Developmental Psychopathology, 15(3), 773–810.

Davis, J. R., & Gold, G. J. (2011). An examination of emotional empathy, attributions of stability, and the link between perceived remorse and forgiveness. *Personality and Individual Differences, 50*(3), 392-397. doi: http://dx.doi.org/10.1016/j.paid.2010.10.031

Davis-Sacks, M., Jayaratne, S., & Chess, W. A. (1985). A comparison of the effects of social support on the incidence of burnout. *Social Work, 30*(3), 240-244. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/617144110?accountid=15115

De Vente, W., Kamphuis, J. H., & Emmelkamp, P. M. G. (2006). Alexithymia, risk factor or consequence of work-related stress? *Psychotherapy and Psychosomatics, 75*(5), 304-311. doi:10.1159/000093953

Derogatis L. R. *SCL-90-R. Cuestionario de 90 síntomas re- visado* [*SCL-90-R Symptom Checklist Revised*]. Madrid, Spain: TEA; 2002.

Derogatis, L. R. (1977). *SCL-90 administration, scoring, and procedures manual 1 for the revised version.* Baltimore: Johns Hopkins University School of Medicine.

Dienstbier, R. A., Hillman, D., Lehnhoff, J., Hillman, J., & Valkenaar, M. C. (1975). An emotion-attribution approach to moral behavior: Interfacing cognitive and avoidance theories of moral development. *Psychological Review, 82*(4), 299-315. doi: 10.1037/h0076826

Dunkel, A., Kendel, F., Lehmkuhl, E., Hetzer, R., & Regitz-Zagrosek, V. (2011). Causal attributions among patients undergoing coronary artery bypass surgery: Gender aspects and relation to depressive symptomatology. *Journal of Behavioral Medicine,34*(5), 351-359. doi:http://dx.doi.org/10.1007/s10865-011-9324-x

Duval, T. S., & Silvia, P. J. (2002). Self-awareness, probability of improvement, and the self-serving bias. *Journal of Personality and Social Psychology, 82*(1), 49-61. doi: http://dx.doi.org/10.1037/0022-3514.82.1.49

Dyrbye, L. N., Massie, F. S., Eacker, A., Harper, W., Power, D., Durning, S. J., . . . Shanafelt, T. D. (2010). Relationship between burnout and professional conduct and attitudes among US medical students. *JAMA: Journal of the American Medical Association, 304*(11), 1173-1180. doi:10.1001/jama.2010.1318

Dyrbye, L. N., Thomas, M. R., Power, D. V., Durning, S., Moutier, C., Massie, F. S., Shanafelt, T. D. et al. (2010). Burnout and serious thoughts of dropping out of medical school: A multi-institutional study. *Academic Medicine, 85*(1), 94-102. doi:10.1097/ACM.0b013e3181c46aad

Dyrbye, L. N., Thomas, M. R., Huntington, J. L., Lawson, K. L., Novotny, P. J., Sloan, J. A., & Shanafelt, T. D. (2006). Personal life events and medical student burnout: A multicenter study. *Academic Medicine*, *81*(4), 374-384. doi: http://dx.doi.org.proxy1.lib.uwo.ca/10.1097/00001888-200604000-00010

First M, Gibbon M, Spitzer R, Williams J: User's Guide for the Structured Interview for DSM-IV Axis 1 Disorders - Research Version. New York: Biometrics Research; 1996.

Furze, G., Lewin, R. J. P., Roebuck, A., & Thompson, D. R. (2001). Attributions and misconceptions in angina: An exploratory study. *Journal of Health Psychology, 6*(5), 501-510. doi:10.1177/135910530100600504

George, D., & Mallery, P. (2003). SPSS for Windows step by step: A simple guide and reference. 11.0 update (4th ed.). Boston: Allyn & Bacon.

Goldman-Mellor, S. J., Saxton, K. B., & Catalano, R. C. (2010). Economic contraction and mental health: A review of the evidence, 1990-2009. *International Journal of Mental Health*, *39*(2), 6-31. doi: http://dx.doi.org.proxy2.lib.uwo.ca:2048/10.2753/IMH0020-7411390201

Green, K. T., Calhoun, P. S., Dennis, M. F., & Beckham, J. C. (2010). Exploration of the resilience construct in posttraumatic stress disorder sensitivity and functional correlates in military combats veterans who have served since September 11, 2001. *Journal of Clinical Psychiatry, 71*(7), 823-830. doi:10.4088/JCP.09m05780blu

Hansson, M., Chotai, J., & Bodlund, O. (2010). Patients' beliefs about the cause of their depression. *Journal of Affective Disorders, 124*(1-2), 54-59. doi: 10.1016/j.jad.2009.10.032

Hartley, S. L., & MacLean, W. E., Jr. (2009). Depression in adults with mild intellectual disability: Role of stress, attributions, and coping. *American Journal on Intellectual and Developmental Disabilities, 114*(3), 147-160. doi:http://dx.doi.org/10.1352/1944-7588-114.3.147

Herbst, M. (2009, July 10). Business week-unemployed lose with hour and wage cuts. *Business Week*, Retrieved from

http://www.businessweek.com/bwdaily/dnflash/content/jul2009/db20090710_255918.htm

Holden, L., Scuffham, P. A., Hilton, M. F., Ware, R. S., Vecchio, N., & Whiteford, H. A. (2011). Which health conditions impact on productivity in working Australians? *Journal of Occupational and Environmental Medicine, 53*(3), 253-257. doi:10.1097/JOM.0b013e31820d1007

Hom, P. W., Griffeth, R. W., & Sellaro, L. (1984). The validity of Mobley's (1977) model of employee turnover. *Organizational Behavior and Human Performance, 34,* 141-174.

Hope, D. A., Gansler, D. A., & Heimberg, R. G. (1989). Attentional focus and causal attributions in social phobia: Implications from social psychology. *Clinical Psychology Review, 9*(1), 49-60. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/617568791?accountid=15115

Isaksen, J. (2000). Constructing meaning despite the drudgery of repetitive work. *Journal of Humanistic Psychology, 40*(3), 84-107. doi:10.1177/0022167800403008

Iverson, R. D., Olekalns, M., & Erwin, P. J. (1998). Affectivity, organizational stressors, and absenteeism: A causal model of burnout and its consequences. *Journal of Vocational Behavior, 52*(1), 1-23. doi: 10.1006/jvbe.1996.1556

Janoff-Bulman R. (1992). Shattered assumptions: towards a new psychology of trauma. New York, NY: Free Press.

Joshanloo, M., Rastegar, P., & Bakhshi, A. (2012). The big five personality domains as predictors of social wellbeing in Iranian university students. *Journal of Social and Personal Relationships, 29*(5), 639-660. doi:http://dx.doi.org/10.1177/0265407512443432

Kerr, R., McHugh, M., & McCrory, M. (2009). HSE management standards and stress-related work outcomes. *Occupational Medicine, 59*(8), 574-579. doi: 10.1093/occmed/kqp146

Khan, A., & Husain, A. (2010). Social support as a moderator of positive psychological strengths and subjective well-being. *Psychological Reports, 106*(2), 534-538. doi:10.2466/PR0.106.2.534-538

King, K. R. (2003). Racism or sexism? attributional ambiguity and simultaneous memberships in multiple oppressed groups. *Journal of Applied Social Psychology, 33*(2), 223-247. doi:http://dx.doi.org/10.1111/j.1559-1816.2003.tb01894.x

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.

Krieglmeyer, R., Wittstadt, D., & Strack, F. (2009). How attribution influences aggression: Answers to an old question by using an implicit measure of anger. *Journal of Experimental Social Psychology, 45*(2), 379-385. doi:10.1016/j.jesp.2008.10.003

Lambert, V. A., Lambert, C. E., Petrini, M., Li, X. M., & Zhang, Y. J. (2007). Workplace and personal factors associated with physical and mental health in hospital nurses in china. *Nursing & Health Sciences, 9*(2), 120-126. doi: 10.1111/j.1442-2018.2007.00316.x

Lambert, V. A., Lambert, C. E., & Yamase, H. (2003). Psychological hardiness, workplace stress and related stress reduction strategies. *Nursing & Health Sciences, 5*(2), 181-184. doi: 10.1046/j.1442-2018.2003.00150.x

Le Foll, D., Rascle, O., & Higgins, N. C. (2008). Attributional feedback-induced changes in functional and dysfunctional attributions, expectations of success, hopefulness, and short-term. *Psychology of Sport and Exercise, 9*(2), 77-101. doi: 10.1016/j.psychsport.2007.01.004

Leong, F. T., & Vaux, A. (1991). The relationship between stressful life events, psychological distress, and social desirability. *Measurement and Evaluation in Counselling and Development, 23*(4), 171-178. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/617938947?accountid=15115

Lerner, R. M. (1984). *On the Nature of Human Plasticity*, New York: Cambridge University Press.

Levenstein, S., Prantera, C., Varvo, V., & Scribano, M. L. (1993). Development of the perceived stress questionnaire: A new tool for psychosomatic research. *Journal of Psychosomatic Research, 37*(1), 19-32. doi: 10.1016/0022-3999(93)90120-5

Li, T., & Fung, H. H. (2011). The dynamic goal theory of marital satisfaction. *Review of General Psychology*, *15*(3), 246-254. doi: http://dx.doi.org.proxy1.lib.uwo.ca/10.1037/a0024694

Luthans, F. (2002). The need for and meaning of positive organizational behaviour. *Journal of Organizational Behaviour, 23,* 695-706.

Luthar, S.S. (2006), 'Resilience in development: a synthesis of research across five decades', in D. Cicchetti and D.J. Cohen (eds), Developmental Psychopathology: Risk, Disorder, and Adaptation, 2nd edn, New York: Wiley, pp. 739–95.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543-562. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/198694465?accountid=15115

Malloy, T. E., & Mays, G. L. (1984). The police stress hypothesis: A critical evaluation. *Criminal Justice and Behavior, 11*(2), 197-224. doi:10.1177/0093854884011002004

Mancini, F., & Gangemi, A. (2004). Il ragionamento emozionale come fattore di mantenimento della patologia. *Sistemi Intelligenti, 16*(2), 237-254. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/620535154?accountid=15115

Manetti, M. L., & Marziale, M. H. P. (2007). Fatores associados à depressão relacionada ao trabalho de enfermagem. *Estudos De Psicologia, 12*(1), 79-85. doi: 10.1590/S1413-294X2007000100010

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *The American Psychologist, 56*(3), 227-238. https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/212149853?accountid=15115

McIntyre, R. S., Liauw, S., & Taylor, V. H. (2011). Depression in the workforce: The intermediary effect of medical comorbidity. *Journal of Affective Disorders*, *128*(1), S29-S36. doi: http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/S0165-0327(11)70006-4

McLarnon, M. J. W., & Rothstein, M. G. (2013). Development and initial validation of the workplace resilience inventory. *Journal of Personnel Psychology, 12*(2), 63-73. doi:http://dx.doi.org/10.1027/1866-5888/a000084

Mealer, M., Jones, J., Newman, J., McFann, K. K., Rothbaum, B., & Moss, M. (2012). The presence of resilience is associated with a healthier psychological profile in intensive care unit (ICU) nurses: Results of a national survey. *International Journal of Nursing Studies, 49*(3), 292. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/927926579?accountid=15115

Meilman, P. W., Pattis, J. A., & Kraus-Zeilmann, D. (1994). Suicide attempts and threats on one college campus: Policy and practice. *Journal of American College Health, 42*(4), 147-154. doi:10.1080/07448481.1994.9939662

Messe, P. (2012). Do discriminatory attitudes to older workers at work affect their retirement intentions? *International Journal of Manpower, 33*(4), 405-423. doi: 10.1108/01437721211243769

Meyer, E. C., Zimering, R., Daly, E., Knight, J., Kamholz, B. W., & Gulliver, S. B. (2012). Predictors of posttraumatic stress disorder and other psychological symptoms in trauma-exposed firefighters. *Psychological Services, 9*(1), 1-15. doi:10.1037/a0026414

Nakao, M. (2010). Work-related stress and psychosomatic medicine. *BioPsychoSocial Medicine, 4* doi: 10.1186/1751-0759-4-4

Niiyama, E., Okamura, H., Kohama, A., Taniguchi, T., Sounohara, M., & Nagao, M. (2009). A survey of nurses who experienced trauma in the workplace: Influence of coping strategies on traumatic stress. *Stress and Health: Journal of the International Society for the Investigation of Stress, 25*(1), 3-9. doi: 10.1002/smi.1217

Nil, R., Jacobshagen, N., Schächinger, H., Baumann, P., Höck, P., Hättenschwiler, J., Holsboer-Trachsler, E., et al. (2010). Burnout—Eine standortbestimmung. *Schweizer Archiv Für Neurologie Und Psychiatrie, 161*(2), 72-77. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/622285752?accountid=15115

Nurmi, J., Aunola, K., Salmela-Aro, K., & Lindroos, M. (2003). The role of success expectation and task-avoidance in academic performance and satisfaction: Three studies on antecedents, consequences and correlates. *Contemporary Educational Psychology, 28*(1), 59-90. doi:http://dx.doi.org/10.1016/S0361-476X(02)00014-0

Olds, D. M., & Clarke, S. P. (2010). The effect of work hours on adverse events and errors in health care. *Journal of Safety Research, 41*(2), 153-162. doi: 10.1016/j.jsr.2010.02.002

Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin. 129,* 52-71.

Paine, W. S. (1984). Professional burnout: Some major costs. *Family & Community Health: The Journal of Health Promotion & Maintenance, 6*(4), 1-11. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/616917516?accountid=15115

Petrelluzzi, K. F. S., Garcia, M. C., Petta, C. A., Grassi-Kassisse, D., & Spadari-Bratfisch, R. (2008). Salivary cortisol concentrations, stress and quality of life in women with endometriosis and chronic pelvic pain. *Stress: The International Journal on the Biology of Stress, 11*(5), 390-397. doi: 10.1080/10253890701840610

Pritchard, C. (1995). Unemployment, age, gender and regional suicide in England and wales 1974–90: A harbinger of increased suicide for the 1990s? *British Journal of Social Work, 25*(6), 767-790. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/618808804?accountid=15115

Roesch, S. C., & Weiner, B. (2001). A meta-analytic review of coping with illness: Do causal attributions matter?. *Journal of Psychosomatic Research*, *50*(4), 205-219. doi: http://dx.doi.org.proxy1.lib.uwo.ca/10.1016/S0022-3999(01)00188-X

Russell, D. (1982). The causal dimension scale: A measure of how individuals perceive causes. *Journal of Personality and Social Psychology, 42*(6), 1137-1145. doi: http://dx.doi.org/10.1037/0022-3514.42.6.1137

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*(4), 719-727. doi:10.1037/0022-3514.69.4.719

Ryff, C. D., & Singer, B. H. (2006). Best news yet on the six-factor model of well-being. *Social Science Research, 35*, 1103-1119. doi: 10.1016/j.ssresearch.2006.01.002

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monograph, 80,* 1-28.

Schat, A. C. H., Kelloway, E. K., & Desmarais, S. (2005). The physical health questionnaire (PHQ): Construct validation of a self-report scale of somatic symptoms. *Journal of Occupational Health Psychology, 10*(4), 363-381. doi: 10.1037/1076-8998.10.4.363

Schwarzwald, J., Weisenberg, M., & Solomon, Z. (1991). Factor invariance of SCL-90—R: The case of combat stress reaction. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 3*(3), 385-390. doi: 10.1037/1040-3590.3.3.385

Segerstrom, S. C., Taylor, S. E., Kemeny, M. E., Reed, G. M., & Visscher, B. R. (1996). Causal attributions predict rate of immune decline in HIV-seropositive gay men. *Health Psychology, 15*(6), 485-493. doi:http://dx.doi.org/10.1037/0278-6133.15.6.485

Seligman, M. (2012, May 3). *Positive psychology center*. Retrieved from http://www.ppc.sas.upenn.edu/

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1), 5-14. doi: 10.1037/0003-066X.55.1.5

Singer, J. N. (2001). Resiliency skills for the 21st century: How to add life to your years and years to your life. *STAR, 39* Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/24027210?accountid=15115

Sivertsen, B., Lallukka, T., & Salo, P. (2011). The economic burden of insomnia at the workplace. an opportunity and time for intervention? *Sleep: Journal of Sleep and Sleep Disorders Research, 34*(9), 1151-1552. Retrieved from https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/1024212502?accountid=15115

Sorić, I. (2009). Regulatory styles, causal attributions and academic achievement. *School Psychology International, 30*(4), 403-420. doi: http://dx.doi.org/10.1177/0143034309106946

Sorić, I., & Palekčić, M. (2009). The role of students' interests in self-regulated learning: The relationship between students' interests, learning strategies and causal attributions. *European Journal of Psychology of Education, 24*(4), 545-565. doi:http://dx.doi.org/10.1007/BF03178767

Spreitzer, G., Sutcliffe, K., Dutton, J., Sonenshein, S., & Grant, A. M. (2005). A socially embedded model of thriving at work. *Organization Science, 16*(5), 537-549. doi: 10.1287/orsc.1050.0153

Su, J., Weng, H., Tsang, H., & Wu, J. (2009). Mental health and quality of life among doctors, nurses and other hospital staff. *Stress and Health: Journal of the International Society for the Investigation of Stress, 25*(5), 423-430. doi: 10.1002/smi.1261

Sutcliffe, K.M. and Vogus, T.J. (2003), 'Organizing for resilience', in K.S. Cameron, J.E. Dutton and R.E. Quinn (eds), Positive Organizational Scholarship: Foundations of a New Discipline, San Francisco, CA: Berrett-Koehler, pp. 94–121.

Toussaint, L., & Webb, J.R. (2005). Theoretical and empirical connections between forgiveness, mental health, and wellbeing. In E.L. Worthington Jr (Ed.), Handbook of forgiveness (pp. 349–362). New York, NY: Routledge.

Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86,* 320-333.

U.S. Bureau of Labour Statistics, (2012). *Bureau of labour statistics data: Labour force statistics from the current population survey*. Washington, DC: U.S. Bureau of Labour Statistics. http://data.bls.gov/timeseries/LNU04000000?years_option=all_years&periods_option=spe cific_periods&periods=Annual+Data

van Dierendonck, D., Diaz, D., Rodriguez-Carvajal, R., Blanco, A., & Moreno-Jimenez, B. (2008). Ryff's six-factor model of psychological well-being: A Spanish exploration. *Social Indicators Research, 87*(3), 473-479. doi: 10.1007/s11205- 007-9174-7

Weiner B. (1986). An attributional theory of motivation and emotion. New York, NY: Springer Press.

Weiner B. (1985). An attributional theory to achievement motivation and emotion. *Psychological Review*, 92, 548-573.

Weiner, B. (1979). A theory of motivation for some class- room experiences. *Journal of Educational Psychology, 71,* 3-25.

Weiner, B., Frieze, I. H., Kukla, A., Reed, L., Rest, S., & Rosenbaum, R. M. (1971).*Perceiving the causes of success and failure.* Morristown, NJ: General Learning Press.

Weng, B. K. (1991). Differential relationship of work stress to mental ill-health and job dissatisfaction among nursing professionals. *Chinese Journal of Psychology, 33*, 77-86. https://www.lib.uwo.ca/cgi-bin/ezpauthn.cgi/docview/618462370?accountid=15115

Wikipedia. (2013). Amazon mechanical turk. Wikipedia. Wikimedia Foundation, Inc. Retrieved from http://en.wikipedia.org/wiki/Amazon_Mechanical_Turk

Figure 1: King and Rothstein's Model of Resiliency
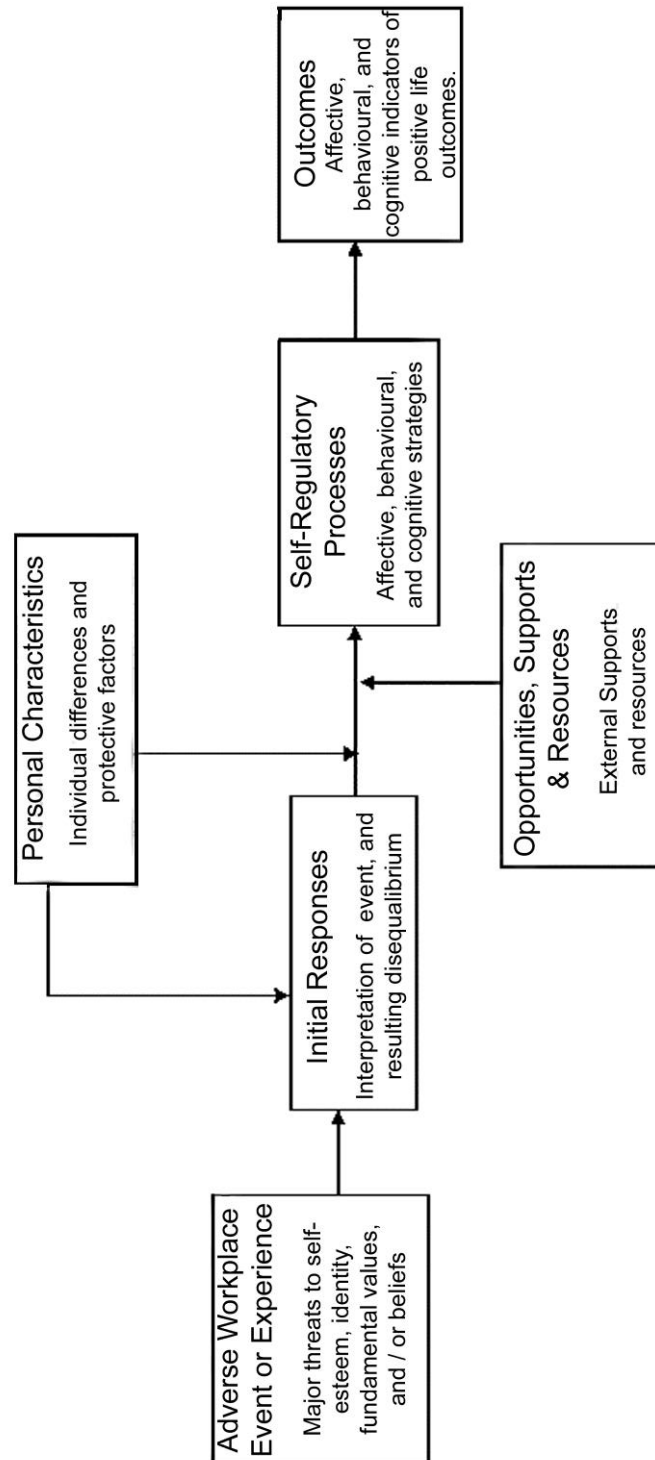
Figure 2: Self-Regulation and Outcomes
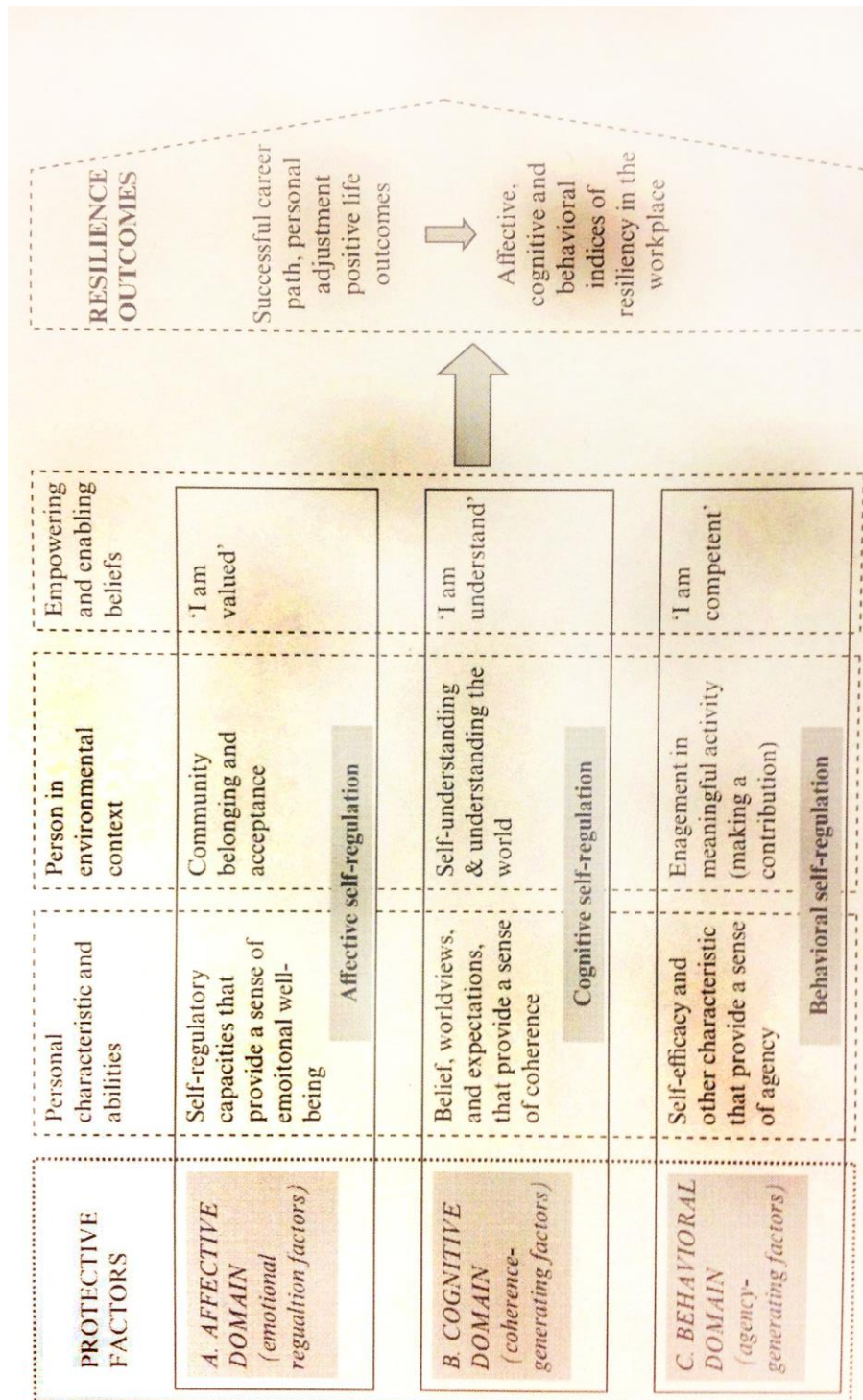
Table 1

Pearson product correlations amongst resiliency, causal attributions, and outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Causality	(.746)														
2. Controllability	-.05	(.650)													
3. Stability	-.43***	.06	(.678)												
4. Affective personal characteristics	-.06	-.03	-.13‡	(.733)											
5. Behavioural personal characteristics	-.18*	.04	.02	.31***	(.852)										
6. Cognitive personal characteristics	-.03	-.01	.02	.29***	.37***	(.825)									
7. Initial responses	.02	-.07	.18*	.28***	.01	-.02	(.835)								
8. Opportunities, supports, & resources	.04	.00	-.08	.20**	.31***	-.03	.18*	(.944)							
9. Affective self-regulation	-.05	.09	-.16*	.27***	.32***	.24*	.06	.00	(.786)						
10. Behavioural self-regulation	-.19**	.02	-.05	.38***	.48***	.21**	.17*	.11	.41***	(.761)					
11. Cognitive self-regulation	-.08	-.10	-.16*	.54***	.40***	.16*	.53***	.39***	.11	.46***	(.842)				
12. Personal accomplishment	-.04	.01	.03	-.24**	-.20**	-.13‡	-.35***	-.08	-.28***	-.38***	.50***	(.753)			
13. Job satisfaction	-.10	.06	.12	-.24**	-.36***	-.20**	-.17*	-.24**	-.07	-.22*	-.41***	.68***	(.858)		
14. Co-worker support	-.02	-.02	-.09	-.15*	-.26***	-.08	-.12	-.34***	.01	-.13‡	-.25**	.42***	.34***	(.790)	
15. Supervisor support	-.14*	.06	.01	-.05	-.13‡	.05	-.12	-.23*	-.10	-.12	-.22**	.43**	.42***	.43***	(.899)

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

Table 1 Continued
Pearson product correlations amongst resiliency, causal attributions, and outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
16. Peer support	-.03	.01	.02	-.09	-.13‡	-.06	-.08	-.28***	.02	-.01	-.19*	.28***	.27***	.43***	.41***	(.804)	
17. Stress	.08	.04	.03	-.45***	-.09	-.04	-.36***	-.22**	-.09	-.21**	-.49***	.28***	.31***	.11	.21**	.18*	(.890)
19. Anxiety	.17*	.05	-.06	-.38***	-.11	-.07	-.43***	-.22**	-.17*	-.26**	-.44***	.17*	.22**	.11	.17*	.18*	.80***
20. Autonomy	-.22**	.05	.11	.38***	.20***	.29***	.19**	.10	.05	.24**	.42***	-.17*	-.13‡	-.03	.06	.03	-.36***
21. Environmental mastery	-.20**	.02	.06	.45***	.56***	.19*	.37***	.43***	.13‡	.44***	.681***	-.50***	-.46***	-.36***	-.25**	-.21**	-.51***
22. Personal growth	-.03	.08	.00	.27***	.51***	.46***	.14‡	.25**	.12‡	.27***	.42***	-.46***	-.25**	-.33***	-.10	-.26***	-.20**
23. Positive relationships with others	.01	.08	-.02	.37***	.38***	.09	.31***	.59**	.04	.27***	.56***	.37***	.38***	.09	.31***	.59**	.04
24. Purpose in life	-.26***	.03	.04	.38***	.58***	.23**	.31***	.36**	.17*	.46***	.60***	-.53***	-.41***	-.42***	-.22**	-.25**	-.42***
25. Self-acceptance	-.10	-.04	-.05	.40***	.47***	.11	.38**	.42***	-.004	.30***	.64***	-.54***	-.47***	-.35***	-.23**	-.29***	-.45***
26. Job satisfaction and support	-.17*	.09	.05	.34***	.62***	.387***	.27**	.30***	.06	.40***	.56***	-.55***	-.37***	-.35***	.04	.00	-.17
27. Symptoms of psychological illness	.19*	.03	-.07	-.42***	.03	.02	-.34***	-.19*	-.05	-.20*	-.45***	.04	.11	-.04	.18*	.08	.91***
28. Wellbeing	-.11	.09	-.03	-.06	-.13	-.01	-.06	-.35***	.04	.01	-.19*	.57***	.60***	.67***	.81***	.68***	.12

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

Table 1 Continued
Pearson product correlations amongst resiliency, causal attributions, and outcomes

	18	19	20	21	22	23	24	25	26	27	28
18. Depression	(.929)										
19. Anxiety	.69***	(.866)									
20. Autonomy	-.37***	-.41***	(.814)								
21. Environmental mastery	-.70***	-.50***	.47***	(.892)							
22. Personal growth	-.39***	-.19*	.44***	.54***	(.862)						
23. Positive relationships with others	.27***	.56***	.36***	.72***	.55***	(.885)					
24. Purpose in life	-.64***	.39***	.38***	.82***	.65***	.66***	(.888)				
25. Self-acceptance	-.69***	-.41***	.40***	.84***	.52***	.69***	.77***	(.924)			
26. Job satisfaction and support	-.45***	-.14‡	.55***	.77***	.83***	.62***	.83***	.73***	(.747)		
27. Symptoms of psychological illness	.75***	.92***	-.44***	-.44***	-.02	.44***	-.28**	-.35***	.00	(.888)	
28. Wellbeing	.170	.08	.19*	-.22*	-.06	-.33***	-.22**	-.26**	.00	.00	(.901)

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

Table 2
Covariances for all Modeled Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Causality	(.746)	-3.17	-20.77	-6.95	-8.93	-3.83	0.73	0.28	0.82	-2.01	-0.05	-0.69	1.05	-0.59
2. Controllability		(.650)	5.00	1.11	8.34	3.86	-2.20	-0.89	2.59	2.51	-3.14	0.39	0.14	0.39
3. Stability			(.678)	-3.10	3.69	3.64	-5.06	-3.09	-2.95	-4.29	-11.42	0.46	-0.20	-0.22
4. Affective personal characteristics				(.733)	14.65	14.32	11.61	8.70	3.83	16.52	27.48	1.15	-1.59	-0.11
5. Behavioural personal characteristics					(.852)	15.59	2.78	5.91	8.15	17.17	15.10	2.38	0.37	-0.28
6. Cognitive personal characteristics						(.825)	1.05	0.45	8.07	10.10	1.96	1.64	-0.04	-0.12
7. Initial responses							(.835)	5.31	2.37	8.04	21.96	1.14	-1.22	-0.23
8. Opportunities, supports, & resources								(.944)	2.56	5.82	12.96	0.99	-0.53	-1.23
9. Affective self-regulation									(.786)	11.69	4.16	0.30	-0.06	-0.05
10. Behavioural self-regulation										(.761)	23.97	1.65	-0.87	-0.03
11. Cognitive self-regulation											(.842)	3.02	-2.08	-0.67
12. Job satisfaction & support												(.753)	.00	.00
13. Symptoms of psychological illness													(.858)	.00
14. Wellbeing														(.790)

Appendix A: SONA Posting

Study Title: Title of Research**: Processing Adverse Experiences: Causes, Processes, and Outcomes**

Brief Abstract: **This research study is being performed to assess and add to a theoretical model proposed to explain how individuals process adverse experiences, their causes and outcomes. No experience of extreme trauma is necessary to participate in this study.**

Research Investigators:

Aaron Halliday (M.Sc. Candidate)

Dr. Mitch Rothstein (Masters Thesis Supervisor)

   Participants are required for a study regarding adverse life experiences and their correlates. No experience or history of serious trauma is needed to participate. The study will be conducted in the Social Science Center or via the internet. Please email to schedule an appointment. All participants will be asked to complete a battery of questionnaires and the study will take approximately a half hour to complete. Participants will receive one credit for their participation in this study.

Appendix B: M-Turk Poster

1.1 Processing Adverse Experiences: Causes, Processes, & Outcomes

Brief Description: This study assesses a theoretical model proposed to explain how individuals process adverse experiences, their causes and outcomes. No experience of extreme trauma is necessary to participate. The survey will take approximately 30 minutes to complete.

2 Survey link:

2.1.1 Processing Adverse Experiences: Causes, Processes, and Outcomes

2.1.2 <u>Principal Investigators:</u> Aaron Halliday, M.Sc. Candidate & Mitch Rothstein Ph.D

Thank you for participating in this study regarding the processing of adverse experiences. Throughout the study you will be asked to complete several questionnaires that should take approximately 1 hour of your time. The questionnaire battery will ask you reflective questions about your work and life experiences an attributions regarding the cause of these experiences as well as questions regarding your current state of mind and overall health and wellbeing (e.g., physical health, mental health, stress, etc.). The survey will also include questions about demographic information such as age and sex.

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 you provide. There are no known risks to participating in this study.

This survey will take approximately one hour to complete and you will be awarded $2.50 for your time. Participation is voluntary. You are free to decline to answer any questions, though we ask that you try to answer them all. You are also free to withdraw from the study at any time without loss of compensation.

Upon completion of the survey, you will be provided with additional information about this study.

If you have any questions or concerns please email Aaron Halliday or Mitch Rothstein.

Thank you very much for your time,
Aaron Halliday M. Sc. Candidate
Department of Psychology
University of Western Ontario

Mitch Rothstein, Ph.D.
Director, Aubrey Dan Program in Management and Organizational Studies Professor,
Department of Psychology,
University of Western Ontario

Appendix C: Student Letter of Information
Processing Adverse Events: Causes, Processes and Outcomes

LETTER OF INFORMATION

Principal Investigators: Aaron Halliday, M.Sc. Candidate & Mitch Rothstein Ph.D

Thank you for participating in this study regarding the processing of adverse experiences. Throughout the study you will be asked to complete several questionnaires administered over the period of half an hour. The questionnaire battery will ask you reflective questions about your work and life experiences an attributions regarding the cause of these experiences as well as questions regarding your current state of mind and overall health and wellbeing (e.g., physical health, mental health, stress, etc.). The survey will also include questions about demographic information such as age and sex.

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 you provide. There are no known risks to participating in this study.

This survey will take approximately half an hour to complete and you will be awarded 1 class credit toward the 6-credit completion of your introductory psychology class requirement. Participation is voluntary. You are free to decline to answer any questions, though we ask that you try to answer them all. You are also free to withdraw from the study at any time without loss of research credit.

Upon completion of the survey, a letter of information will be given to you that will provide additional information about this study.

If you have any questions or concerns please email Aaron Halliday or Mitch Rothstein.

Thank you very much for your time,
Aaron Halliday M. Sc. Candidate
Department of Psychology
University of Western Ontario

Mitch Rothstein, Ph.D.
Director, Aubrey Dan Program in Management and Organizational Studies Professor,
Department of Psychology,
University of Western Ontario

Appendix D: Non-Student (M-Turk) Letter of Information & Consent

Processing Adverse Events: Causes, Processes and Outcomes

LETTER OF INFORMATION

<u>Principal Investigators:</u> Aaron Halliday, M.Sc. Candidate & Mitch Rothstein Ph.D

Thank you for participating in this study regarding the processing of adverse experiences. Throughout the study you will be asked to complete several questionnaires that should take approximately half an hour of your time. The questionnaire battery will ask you reflective questions about your work and life experiences an attributions regarding the cause of these experiences as well as questions regarding your current state of mind and overall health and wellbeing (e.g., physical health, mental health, stress, etc.). The survey will also include questions about demographic information such as age and sex.

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 you provide. There are no known risks to participating in this study.

This survey will take approximately half an hour to complete and you will be awarded $2.50 for your time. Participation is voluntary. You are free to decline to answer any questions, though we ask that you try to answer them all. You are also free to withdraw from the study at any time without loss of compensation.

Upon completion of the survey, you will be provided with additional information about this study.

If you have any questions or concerns please email Aaron Halliday or Mitch Rothstein.

Thank you very much for your time,
Aaron Halliday M. Sc. Candidate
Department of Psychology
University of Western Ontario

Mitch Rothstein, Ph.D.
Director, Aubrey Dan Program in Management and Organizational Studies Professor,
Department of Psychology,
University of Western Ontario

Appendix E: Consent Form

Organizational Events: Causes, Processes and Outcomes

I have read the letter of information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

_____
Name of Participant (print please)

_____   _____
Signature of Participant   Date

_____
Name of person responsible for obtaining this consent

_____   _____
Signature of person responsible for obtaining this consent   Date

Appendix F: Prime
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Please imagine filling out the next series of surveys after having survived a major loss or setback at school or work. Try to think of some situation that happened to you that you considered to be a difficult experience that required you to change your response, thinking, or behaviour significantly.

If you cannot think of a work- or school-related experience that fits this description, or would prefer not to, please remember some other past event or experience that may be close to this description. Some common examples you may be able to use are:
- Threats to physical safety (e.g., exposure to a hazardous event [fire, burglary, murder])
- 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 workplace relationship(s) (e.g., unable to resolve conflict with a colleague or supervisor)
- Problems with job 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 learning environment)
- Problems with organizational justice (e.g., feeling exploited due to a low reward for effort, feeling treated unjustly)
- Problems with 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 away from home and starting university
- Serious illness or accident
- Serious illness or accident experienced by a close friend or family member
- Death of a 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 will use to provide a frame-of-mind for this questionnaire.
_____
_____
_____
_____

If applicable how many months have passed since this experience / incident has taken place?: _____

Appendix G: Demographic Questionnaire

Please indicate your biological sex: Male

Female

Please indicate your age by indicating your birthdate (dd/mm/yyyy):   __/__/_____

Please indicate the highest academic degree you have *completed in full* to date:

Secondary School
Four-year Undergraduate Degree
Masters Degree
Doctoral Degree

When do you anticipate you will complete your current degree? __/__/____

Appendix H: Causal Dimensions Scale

Instructions: Think about the reason or reasons you have written above. The items below concern your impressions or opinions of this cause or causes of your outcome. Circle one number for each of the following scales.

1. Is the cause(s) something that:

| Reflects an aspect of yourself | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Reflects an aspect of the situation |

2. Is the cause(s):

| Controllable by you or other people | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Uncontrollable by you or other people |

3. Is the cause(s) something that is:

| Permanent | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Temporary |

4. Is the cause(s) something:

| Intended by you or other people | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Unintended by you or other people |

5. Is the cause(s) something that is:

| Outside of you | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Inside of you |

6. Is the cause(s) something that is:

| Variable over time | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Stable over time |

7. Is the cause(s):

| Something about you | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Something about others |

8. Is the cause(s) something that is:

| Changeable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Unchanging |

9. Is the cause(s) something for which:

| No one is responsible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Someone is responsible |

Appendix I: Workplace Resiliency Inventory

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	B	C	D	E
Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	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
	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.	A B C D E
	60.	Since the significant event/experience I have found it easy to control my thoughts.	A B C D E

* Indicates that item is reverse-scored.

Appendix J: Affectivity, Burnout, and Absenteeism Scale

Please read the following statements carefully, keeping in mind the significant, difficult work or life experience you described earlier. Beside each statement you will find a numbered scale from 1 to 5 (1 indicating Strongly Agree; 5 indicating Strongly Disagree). Please respond to each statement with regards to your work-life at the time of the difficult work experience that you described earlier. Please indicate your response by selecting a number that best fits with your feelings regarding each statement **as it applies closest to the environment of your adversity**.

For example, if you strongly agree with a statement, select "1" corresponding with that statement. If you are neutral select "3", and if you strongly disagree, select "5".

1. First, please indicate the nature of the environment of the adverse experience (CIRCLE):

   Workplace   Outside of the workplace   Mixed

2. For me life is a great adventure.

   1   2   3   4   5
   Strongly Agree   Strongly Disagree

3. I live a very interesting life.
   1   2   3   4   5
   Strongly Agree   Strongly Disagree

4. I usually find ways to liven up my day.

   1   2   3   4   5
   Strongly Agree   Strongly Disagree

5. Minor setbacks sometimes irritate me too much.

   1   2   3   4   5
   Strongly Agree   Strongly Disagree

6. Often I get irritated at little annoyances.

   1   2   3   4   5
   Strongly Agree   Strongly Disagree

7. There are days when I'm "on edge" all of the time.

   1   2   3   4   5
   Strongly Agree   Strongly Disagree

8. I never control the scheduling of my work.

1	2	3	4	5
Strongly Agree				Strongly Disagree

9. I have a lot of input in deciding what tasks or parts of tasks I will do.

1	2	3	4	5
Strongly Agree				Strongly Disagree

10. I have little to no influence over things that affect me.

1	2	3	4	5
Strongly Agree				Strongly Disagree

11. I generally know what my responsibilities are.

1	2	3	4	5
Strongly Agree				Strongly Disagree

12. I know exactly what is expected of me.

1	2	3	4	5
Strongly Agree				Strongly Disagree

13. I typically receive a clear explanation of what is to be done.

1	2	3	4	5
Strongly Agree				Strongly Disagree

14. I get conflicting requests from two or more people.

1	2	3	4	5
Strongly Agree				Strongly Disagree

15. I do things that are likely to be accepted by one person and not accepted by others.

1	2	3	4	5
Strongly Agree				Strongly Disagree

16. I have to do things that should be done differently.

1	2	3	4	5
Strongly Agree				Strongly Disagree

17. I feel emotionally drained.

1	2	3	4	5
Strongly Agree				Strongly Disagree

18. I feel used up at the end of the day.

1	2	3	4	5
Strongly Agree				Strongly Disagree

19. I feel burned out.

1	2	3	4	5
Strongly Agree				Strongly Disagree

20. I've become more callous towards people in this environment.

1	2	3	4	5
Strongly Agree				Strongly Disagree

21. I worry that this work is hardening me emotionally.

1	2	3	4	5
Strongly Agree				Strongly Disagree

22. Please respond to this question by selecting I strongly agree.

1	2	3	4	5
Strongly Agree				Strongly Disagree

23. I really don't care what happens to the people I interact with day to day.

1	2	3	4	5
Strongly Agree				Strongly Disagree

24. I feel I'm positively influencing other people's lives through my work.

1	2	3	4	5
Strongly Agree				Strongly Disagree

25. I have accomplished many worthwhile things in this environment.

1	2	3	4	5
Strongly Agree				Strongly Disagree

26. I feel good after working closely with the people I work with day to day.

1	2	3	4	5
Strongly Agree				Strongly Disagree

27. I find real enjoyment in my work.

1	2	3	4	5
Strongly Agree				Strongly Disagree

28. I like my work better than the average person does.

1	2	3	4	5
Strongly Agree				Strongly Disagree

29. I am seldom bored with my job.

1	2	3	4	5
Strongly Agree				Strongly Disagree

30. I would not consider taking another career path.

1	2	3	4	5
Strongly Agree				Strongly Disagree

31. Most days I am enthusiastic about my work.

1	2	3	4	5
Strongly Agree				Strongly Disagree

32. I feel fairly well satisfied with my work.

1	2	3	4	5
Strongly Agree				Strongly Disagree

The following three statements are about **people in different occupations or professions that you work with** (Fellow staff in the workplace, school staff and administrators at school, etc.)

1. People (from different occupations or professions) can be relied upon when things get difficult on my job.

1	2	3	4	5
Strongly Agree				Strongly Disagree

2. People (from different occupations or professions) are willing to listen to my job-related problems.

1	2	3	4	5
Strongly Agree				Strongly Disagree

3. People (from different occupations or professions) are helpful to me in getting the job done.

1	2	3	4	5
Strongly Agree				Strongly Disagree

The following three statements are about **the person you are responsible too** (e.g., your immediate manager, administrator, supervisor, or proff.):

1. This person is very concerned about the welfare of those under her/him.

1	2	3	4	5
Strongly Agree				Strongly Disagree

2. This person is willing to listen to work-related problems.

1	2	3	4	5
Strongly Agree				Strongly Disagree

3. This person can be relied on when things get difficult at work.

1	2	3	4	5
Strongly Agree				Strongly Disagree

The following three statements are about **people in the same occupation or profession that you work with (peer workers, peer students, etc.)**:

1. My peers can be relied upon when things get difficult on my job.

1	2	3	4	5
Strongly Agree				Strongly Disagree

2. My peers are willing to listen to my job-related problems.

1	2	3	4	5
Strongly Agree				Strongly Disagree

3. My peers are helpful to me in getting the job done.

1	2	3	4	5
Strongly Agree				Strongly Disagree

Appendix K: Scales of Psychological Wellbeing

Beside each statement you will find a numbered scale from 1 to 6 (1 indicating Strongly Disagree; 6 indicating Strongly Agree) please indicate your response by selecting a number that best fits with your feelings regarding each statement. It is asked that participants respond to each question as accurately as possible.

1. Sometimes I change the way I act or think to be more like those around me.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

2. In general, I feel I am in charge of the situation in which I live.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

3. I am not interested in activities that will expand my horizons.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

4. Most people see me as loving and affectionate.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

5. I feel good when I think of what I've done in the past and what I hope to do in the future.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

6. I feel like many of the people I know have gotten more out of life than I have.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

7. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

8. Please respond to this question by selecting strongly disagree.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

9. The demands of everyday life often get me down.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

10. In general, I feel that I continue to learn more about myself as time goes by.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

11. Maintaining close relationships has been difficult and frustrating for me.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

12. I live life one day at a time and don't really think about the future.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

13. In general, I feel confident and positive about myself.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

14. My decisions are not usually influenced by what everyone else is doing.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

15. I do not fit very well with the people and the community around me.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

16. I am the kind of person who likes to give new things a try.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

17. I often feel lonely because I have few close friends with whom to share my concerns.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

18. I tend o focus on the present, because of the future nearly always bringing me problems.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

19. When I compare myself to friends and acquaintances, it makes me feel good about who I am.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

20. I tend to worry about what other people think of me.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

21. I am quite good at managing the many responsibilities of my daily life.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

22. I don't want to try new ways of doing things – my life is fine the way it is.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

23. I enjoy personal and mutual conversations with family members or friends.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

24. I have a sense of direction and purpose in life.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

25. My attitude about myself is probably not as positive as most people feel about themselves.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

26. Being happy with myself is more important to me than having others approve of me.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

27. I often feel overwhelmed by my responsibilities.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

28. I think it is important to have new experiences that challenge how you think about yourself and the world.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

29. It is important to me to be a good listener when close friends talk to me about their problems.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

30. My daily activities often seem trivial and unimportant to me.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

31. I made some mistakes in the past, but I feel that all in all everything has worked out for the best.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

32. I tend to influence people with strong opinions.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

33. If I were unhappy with my living situation, I would take effective steps to change it.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

34. When I think about it, I haven't really improved much as a person over the years.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

35. I don't have many people who want to listen when I need to talk.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

36. I don't have a good sense of what it is I'm trying to accomplish in life.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

37. The past had its ups and downs, but in general, I wouldn't want to change it.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

38. People rarely talk me into doing things I don't want to do.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

39. Please respond to this question by selecting strongly agree.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

40. I generally do a good job of taking care of my personal finances and affairs.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

41. In my view, people of every age are able to continue growing and developing.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

42. I feel like I get a lot out of my friendships.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

43. I used to set goals for myself, but that now seems like a waste of time.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

44. In many ways, I feel disappointed about my achievements in life.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

45. It is more important to me to "fit in" with others than to stand alone on my principles.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

46. I find it stressful that I can't keep up with all of the things I have to do each day.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

47. With time, I have gained a lot of insight about life that has made me a stronger, more capable person.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

48. It seems to me that most other people have more friends than I do.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

49. I enjoy making plans for the future and working to make them a reality.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

50. When I look at the story of my life, I am pleased with how things have turned out.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

51. I have confidence in my opinions, even if they are contrary to the general consensus.

1	2	3	4	5	6

Strongly   Strongly
Disagree   Agree

52. I am good at juggling my time so that I can it everything in that needs to get done.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

53. I have the sense that I have developed a lot as a person over time.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

54. People would describe me as a giving person, willing to share my time with others.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

55. I am an active person in carrying out the plans I set for myself.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

56. When I look at the story of my life, I am pleased about how things have turned out.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

57. It's difficult for me to voice my own opinions on controversial matters.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

58. My daily life is busy, but I derive a sense of satisfaction from keeping up with everything.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

59. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

60. I have not experienced many warm and trusting relationships with others.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

61. Some people wander aimlessly throughout life, but I am not one of them.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

62. When I look at the story of my life, I am pleased with how things have turned out so far.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

63. I often change my mind about decisions if my friends or family disagree.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

64. I get frustrated when trying to plan my daily activities because I never accomplish the things I set out to do.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

65. For me, life has been a continuous process of learning, changing, and growth.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

66. I often feel like I'm on the outside looking in when it comes to friendship.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

67. I sometimes feel as if I've done all there is to do in life.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

68. I like most parts of my personality.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

69. I am not the kind of person who gives in to social pressures to think or act in certain ways.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

70. Please respond to this question by selecting strongly agree.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

71. My efforts to find the kinds of activities and relationships that I need have been quite successful.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

72. I enjoy seeing how my views have changed and matured over the years.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

73. I know that I can trust my friends, and they know they can trust me.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

74. My aims in life have been more a source of satisfaction than frustration to me.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

75. I like most aspects of my personality.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

76. I am concerned about how other people evaluate the choices I have made in life.

| 1 | 2 | 3 | 4 | 5 | 6 |

Strongly   Strongly
Disagree   Agree

77. I have difficulty arranging my life in a way that is satisfying to me.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

78. I gave up trying to make big improvements or changes in my life a long time ago.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

79. I find it difficult to really open up when I talk with others.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

80. I find it satisfying to think about what I have accomplished in life.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

81. For the most part, I am proud of who I am and the life I lead.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

82. I judge myself by what I think is important, not by the values of what others think is important.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

83. I have been able to build a home and a lifestyle for myself that is much to my liking.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

84. There is truth to the saying you can't teach an old dog new tricks.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

85. My friends and I sympathize with each other's problems.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

86. In the final analysis, I'm not so sure that my life adds up to much.

1	2	3	4	5	6
Strongly Disagree					Strongly Agree

Appendix L: Depression, Anxiety, Stress Scale 21-item

Please indicate the frequency with which you experienced the following over the past week according to the scale provided.

	0 Did not apply to me at all.	1 Applied to me some of the time.	2 Applied to me a considerable amount of time.	3 Applied to me most of the time
1. I found it hard to wind down.	0	1	2	3
2. I was aware of dryness of mouth	0	1	2	3
3. I couldn't seem to experience any positive feelings at all.	0	1	2	3
4. I experienced breathing difficulty (e.g., shortness of breath, etc.).	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 (e.g., 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 get panic and make a fool of myself.	0	1	2	3
10. I felt I had nothing to look forward too.	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 downhearted 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

	0 Did not apply to me at all.	1 Applied to me some of the time.	2 Applied to me a considerable amount of time.	3 Applied to me most of the time
16. I was unable to feel enthusiastic about anything.	0	1	2	3
17. I felt that I wasn't worth much as a person.	0	1	2	3
18. I felt I was rather touchy.	0	1	2	3
19. I was aware of the action of my heart in the absence of physical exertion (e.g., heart pounding, etc.)	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

Appendix M: Debriefing Letter
Debriefing

Title of Research: **Processing Adverse Experiences: Causes, Processes, and Outcomes**
Investigators: **Aaron Halliday M.Sc. Candidate**
               Mitch Rothstein Ph.D.

       Adversity and stress has been demonstrated to have far reaching impacts to overall health and wellbeing. However, not all individuals process adversity and stress in the same way. Little is known about retrospective attributions regarding the causes of adverse experiences and individual resiliency processes. The proposed project tests the effectiveness of a model of resilience proposed by King and Rothstein (2010) and examine how individual causal attributions impact this process and various outcomes of experienced adversity. This specific model proposes that the resiliency process that unfolds in an affective, cognitive, behavioural route. This particular model is the only model that was proposed regarding resiliency to date that 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 the proposed resiliency process by King and Rothstein (2010) will be demonstrated by the analyses and that productive causal attributions (attributions that perceive the cause of adversity stemming from internal, unstable [impermanent], and changeable [alterable by the individual] factors) will be more facilitative of effective resiliency processes. It is further predicted that individuals with effective self-regulatory processes, proposed to facilitate effective resiliency processes, and productive causal attributions will be associated with positive outcomes following adversity such as lower levels of stress, higher wellbeing, and greater health, etc. Finally, some exploratory analyses will be performed to investigate how causal attributions may be optimally included in the resiliency process.

       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, thank you.

       If you have any further questions about this research please contact research assistant 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.

If you are interested in learning more regarding resiliency, you should read the following article:

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.

Curriculum Vitae

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        The University of Western Ontario
        Awarded to students nominated by supporting graduate faculty and the
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        Dean's Honor List (2010, 2011)
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Publications:

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(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.v4i0.20