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Exploration of Resilience in Relation to Mindfulness, Self-Compassion, and Attachment Styles

by

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## Abstract

This study utilized a cross-sectional design ( $N = 114$ ) to investigate relationships between the constructs of resilience, mindfulness, self-compassion, and attachment styles with the goal of gaining better insights into the nature of these relationships and shedding light on the possible mechanisms through which these constructs may interact and contribute to positive mental health outcomes. Resilience was significantly positively correlated with mindfulness and self-compassion, as well as significantly inversely correlated with attachment anxiety and attachment avoidance. Multiple regression analyses containing the predictors of (a) mindfulness, self-compassion, attachment anxiety, and attachment avoidance, (b) individual mindfulness components, and (c) individual self-compassion components all accounted for a significant amount of variance in resilience scores. Mindfulness and self-compassion were significantly negatively correlated with both attachment anxiety and attachment avoidance. An additional exploratory component of this study examined the effects of yoga practice and amount of experience in practicing yoga on the constructs of interest.

## Table of Contents

Abstract .....	ii
Table of Contents .....	iii
List of Tables .....	v
<b>Chapter One: Introduction .....</b>	<b>1</b>
Background and Overview of the Constructs of Interest.....	2
Overview of the Study .....	7
<b>Chapter Two: Review of the Literature and Purpose of the Study .....</b>	<b>9</b>
Resilience .....	9
Mindfulness .....	14
Self-Compassion .....	20
Attachment .....	26
Yoga Practice .....	35
Emerging Literature Pertaining to Relationships between Constructs of Interest .....	36
Purpose and Research Questions .....	41
Primary Research Questions .....	42
Exploratory Research Question .....	43
Hypotheses .....	43
<b>Chapter Three: Methodology .....</b>	<b>45</b>
Participants .....	45
Procedures .....	47
Measures .....	48
Demographic Questionnaire .....	48
Resilience Scale .....	48
Five Facet Mindfulness Questionnaire .....	50
Self-Compassion Scale .....	52
Attachment Style Questionnaire .....	53
Data Analysis .....	55
<b>Chapter Four: Results .....</b>	<b>56</b>
Descriptive Statistics .....	56
Correlational Analyses .....	57

Multiple Regression Analyses .....	60
Analyses of Variance .....	62
<b>Chapter Five: Discussion .....</b>	<b>65</b>
How Mindfulness, Self-Compassion, and Attachment Relate to Resilience .....	66
Resilience and Mindfulness .....	66
Resilience and Self-Compassion .....	70
Resilience and Attachment .....	74
Attachment – Relationships with Mindfulness and Self-Compassion .....	77
Effects of Yoga Practice .....	80
Limitations .....	83
Future Directions .....	85
Conclusions and Practice Implications .....	87
References .....	89

## List of Tables

Table 1. Participant Characteristics .....	46
Table 2. Descriptive Statistics for Assessed Variables .....	56
Table 3. Correlations between Assessed Variables .....	58
Table 4. Regression Analysis Showing Prediction of Resilience by Self-Compassion Factors ..	60
Table 5. Regression Analysis Showing Prediction of Resilience by Mindfulness Facets .....	61
Table 6. Regression Analysis Showing Prediction of Resilience by Total Mindfulness, Total Self-Compassion, Attachment Anxiety, and Attachment Avoidance .....	61
Table 7. Effects of Yoga Practice on Mindfulness, Attachment, Self-Compassion, and Resilience .....	62
Table 8. Effects of Yoga Experience on Mindfulness, Attachment, Self-Compassion, and Resilience .....	64

## **Chapter One: Introduction**

Research in the field of psychology has traditionally followed a problem-oriented approach, focusing much of its attention on psychopathology, maladaptive behaviours, and investigation of factors that contribute to deficits in psychological functioning (Almedom & Glandon, 2007; Richardson, 2002; Southwick, Litz, Charney, & Friedman, 2011). A vast knowledge base now exists in all of these areas, but much less is known about factors that foster positive adaptation and promote psychological health and well-being. Dissatisfaction with the problem-focused approach has led to a paradigm shift in recent years, with researchers and clinicians alike increasingly recognizing that the conceptualization of mental health as merely the absence of psychological symptoms or disorder is inadequate (Almedom & Glandon, 2007; Davydov, Stewart, Ritchie, & Chaudieu, 2010; Richardson, 2002; Vaillant, 2003). Defining mental health in negative terms, namely as the absence of mental illness, has been more amenable to research purposes. Psychological symptoms, deficits in functioning, and other signs of mental illness are not only overtly observable but quantifiable as well, which is essential for scientific investigation (Vaillant, 2003). While these are certainly important areas of study, their scope is relatively limited and does not allow for the examination of positive indicators of mental health and psychological well-being.

The World Health Organization (WHO, 2004, 2005) has emphasized the need for mental health to be reconceptualised in positive rather than negative terms, and defines it as

...a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community. In this positive sense, mental health is the foundation for individual well-being and the effective functioning of a community. (WHO, 2000, p. 1)

The WHO (2004, 2005) has also called for research methodologies to be refined and focused on positive indicators of well-being and mental health outcomes. It is very encouraging to see the literature moving in this direction, beyond psychopathology and toward factors that support individual growth and development, facilitate positive adaptation, nurture strengths, and promote psychological well-being. The present study will contribute new insights to this literature by investigating relationships between four constructs that have all been theoretically and empirically linked to positive mental health – resilience, mindfulness, self-compassion, and attachment styles, namely low levels of attachment anxiety and attachment avoidance.

### **Background and Overview of the Constructs of Interest – Resilience, Mindfulness, Self-Compassion, and Attachment**

One area of the research literature that has greatly expanded as a result of this shift away from a deficit-focused approach is that of resilience. What started out as an attempt in the 1970s to identify factors that put children growing up in adverse circumstances at risk for developmental problems and psychopathology has expanded into a vast and growing field of research (Luthar, Cicchetti, & Becker, 2000; Prince-Embury & Saklofske, 2013; Reich, Zautra, & Hall, 2010; Richardson, 2002; Southwick et al., 2011). Numerous risk and protective factors have been identified over the years, research interest has broadened to the study of resilience across the lifespan, and focus has shifted to investigation of the mechanisms that underlie resilience – how it develops, the processes through which risk and protective factors exert their influence, and what we can do to foster resilience in clinical practice with various populations (Almedom & Glandon, 2007; Davydov et al., 2010; Feder, Nestler, & Charney, 2009; Richardson, 2002; Southwick et al., 2011).

Resilience is a complex, multidimensional construct that must be considered from a biopsychosocial perspective (Almedom & Glandon, 2007; Davydov et al., 2010; Feder et al., 2009; Reich et al., 2010; Richardson, 2002; Southwick et al., 2011). Perhaps as a result of the complexity inherent in this construct, there is an ongoing debate in the literature concerning the definition and nature (i.e., whether it is a trait or a process) of resilience (e.g., Davydov et al., 2010; Luthar et al., 2000; Prince-Embury & Saklofske, 2013; Southwick et al., 2011). Nevertheless, all conceptualizations of resilience share an emphasis on successful adaptation to stress and evoke notions such as flexibility, internal strength, bouncing back, and even growth in the face of adversity. There is also widespread agreement in the literature that resilience and mental health are closely linked; some conceptualizations of mental health in fact consider resilience as a defining element (Vaillant, 2003; WHO, 2004, 2005). Other literature describes resilience and mental health as integrated constructs (Davydov et al., 2010), and it also appears to be the case that the terms resilience and mental health are often used interchangeably across the psychological literature without being operationally defined. This study adopts the perspective that resilience and mental health are integrated constructs, not synonymous but closely related. For the purposes of this study, resilience is also conceptualized as a trait and operationally defined using Wagnild and Young's (1993) definition as "a personality characteristic that moderates the negative effects of stress and promotes adaptation" (p. 165).

The past few decades have also seen Western psychology increasingly turning toward and incorporating concepts from Eastern psychology, to the point that this has now become an area of immense research interest (e.g., Kabat-Zinn & Davidson, 2011; Walsh & Shapiro, 2006). This surge of attention has gone hand in hand with the literature's broadening focus on positive mental health and factors that promote personal growth and well-being. Eastern Buddhist



philosophy is concerned primarily with alleviation of human suffering, examination of the nature of the mind, and helping people live fuller, happier, and more meaningful lives (Fulton & Siegel, 2005; Germer, Siegel, & Fulton, 2005; Kabat-Zinn, 2003; Kabat-Zinn & Davidson, 2011; Nyanaponika, 1965, 1994). Buddhist teachings deal with universal human concerns and offer a wealth of insight into the phenomenological and psychological nature of the human experience. Buddhism is therefore much more of a wisdom tradition than a theistic tradition; its teachings are meant to be reflected upon rather than unquestioningly believed, and people are encouraged to take away only that which resonates with their experience (Kabat-Zinn & Davidson, 2011; Nyanaponika, 1965, 1994). Deriving benefit from ideas and practices that originated in Buddhism, many of which are increasingly being applied in secular settings, does not preclude belief in other religious traditions (Kabat-Zinn & Davidson, 2011).

The coming together of Eastern and Western psychology is enriching our understanding of the workings of the human mind and has opened up new areas of investigation in the realm of positive mental health. “In the Buddhist tradition, the quality of ease of being and the understanding of the nature of our life...is the standard for perfect mental health” (Kabat Zinn & Davidson, 2011, p. 33). Development of insight and understanding is at the core of all Buddhist teaching and vital to overcoming suffering, as is evident in the description of Buddhism as “essentially a path to inner freedom which centres upon the discipline of seeing” (Nyanaponika, 1994, p. xv). This “discipline of seeing” refers to clear understanding and mindful awareness, or “a penetrating insight into the nature of things as they really are” (Nyanaponika, 1994, p. xv).

Ancient Buddhist wisdom teaches that the way to develop insight and understanding is through mindfulness, and it is precisely this key concept of the Buddhist tradition that has become widely researched in Western psychology. One of the most frequently cited definitions

of mindfulness in Western literature is that of John Kabat-Zinn (2003); it is “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment to moment” (p. 145). A large body of research now supports the benefits of mindfulness training across diverse populations, and the focus of investigation is now turning more toward the concept of mindfulness itself – its underlying components and mechanisms, how it works to promote positive mental health, and its applications in clinical practice (Brown, Ryan, & Creswell, 2007). Recent years have also seen emergence of research interest in another central Buddhist concept, this being self-compassion, a way of relating to oneself characterized by warmth, kindness, and self-acceptance (e.g., Gilbert, 2009; Neff, 2003a, 2009). The roots of both mindfulness and self-compassion go back over 2,500 years to the very origins of the Buddhist tradition (Nyanaponika, 1965, 1994). These two qualities work together to promote well-being and ameliorate suffering, so the pursuit of new research knowledge pertaining to self-compassion has the potential to further enhance our understanding of mental health and resilience.

The current and widespread research interest in Buddhist concepts is actually rather fitting, as the Buddhist tradition has always put great emphasis on knowledge, understanding, and clear seeing of reality, which necessitates investigation (Kabat-Zinn & Davidson, 2011). The Buddha himself has even been described as a “born scientist” (Kabat-Zinn, 2003, p. 145); his wisdom and insight into human nature was the result of a steadfast contemplative form of investigation, and the practices that the Buddha taught were all highly refined through experimentation. His Holiness the Dalai Lama has always expressed appreciation of and great interest in the scientific research of Buddhist concepts. This sentiment was reflected in his words at a recent meeting of the Mind and Life Dialogues, a forum that allows scientists, clinicians, and

practitioners from Western medicine and psychology to come to together and share insights with scholars of the contemplative traditions (Kabat-Zinn & Davidson, 2011). In the words of the Dalai Lama,

One of the unique things about Buddhism...is that investigation and experiment play a very important part. Many troubles come out of ignorance, and the only antidote to ignorance is knowledge. Knowledge means a clear understanding of reality, which must come through investigation and experiment...I think both science and Buddhist investigation are actually trying to find reality.” (Kabat-Zinn & Davidson, 2011, p. 22)

It is in this spirit of investigation that the present study strives to contribute new insights to the literature regarding the role of mindfulness and self-compassion in promoting psychological well-being.

The final concept under investigation in the present study is that of adult attachment. Although research in the attachment field was initially limited to children, this is no longer the case and adult attachment is currently another prevalent area of study in the psychological literature. From the very beginning, Bowlby’s (1969, 1973, 1988) theory of attachment was concerned with development throughout the lifespan, not just the childhood years. Bowlby developed the theory to explain how early childhood experiences can either lead to the development of resilient personalities and positive mental health or, conversely, maladaptive personality development and psychopathology. Attachment theory is supported by an extensive body of research, and it is now widely accepted that secure attachment promotes positive psychological functioning while insecure attachment is associated with various indicators of mental health problems and psychological disorders (e.g., Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2009).

Until very recently, attachment-related constructs have not been examined in relation to mindfulness and self-compassion, and although the theoretical literature has long suggested that secure attachment promotes resilience (e.g., Bowlby, 1988; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2009; Sperling & Berman, 1994), few studies have examined this link directly. This is in fact true for all of the constructs being investigated in this study. The vast majority of research on mindfulness, self-compassion, and attachment has thus far focused on delineating associations with variables such as various symptoms of psychopathology (e.g., depression and anxiety), stress, mood disturbance, and somatic symptoms. The association with mental health or resilience is then inferred by the absence of indicators of mental disorder.

### **Overview of the Study**

As was discussed previously, there is a shift occurring in the literature away from a problem-oriented approach and toward one that focuses on positive indicators of mental health (Almedom & Glandon, 2007; Davydov, et al., 2010; Richardson, 2002; Vaillant, 2003). Consistent with this new approach, the primary aim of this study was to gain better insights into the nature of the relationships between resilience, mindfulness, self-compassion, and attachment styles. Relationships between these constructs were explored using correlational and multiple regression analyses. To determine which factors of mindfulness, self-compassion, and attachment are most strongly related to and predictive of resilience, all multiple regression analyses were conducted with resilience as the primary outcome variable. Additional goals of this study included examining how mindfulness and self-compassion are related to attachment styles, as well as exploring the effects of yoga practice on the constructs of interest.

Resilience was expected to be positively correlated with mindfulness and self-compassion, and inversely correlated with attachment anxiety, and attachment avoidance. The

multiple regression models consisting of (a) mindfulness, self-compassion, attachment anxiety, and attachment avoidance, (b) individual mindfulness components, and (c) individual self-compassion components were all expected to account for a significant amount of variance in resilience scores. The study was exploratory in regard to the effects of yoga practice on mindfulness, self-compassion, attachment anxiety, and attachment avoidance.

The following chapter presents a review of the literature concerning the constructs being explored in this study, as well as a detailed discussion of the purpose of the study and associated research questions and hypotheses. Chapter three describes the study's methodology and Chapter four presents the results. The thesis concludes with the discussion in Chapter five.

## **Chapter Two: Review of the Literature and Purpose of the Study**

This chapter will review key literature regarding resilience, mindfulness, self-compassion, and attachment styles, as well as recent empirical studies that have begun to examine relationships between these constructs. The purpose, research questions, and hypotheses of the current study will then be discussed.

### **Resilience**

The term resilience has come to be quite widely used, not only in the theoretical and research literature but in everyday discourse as well, and this has resulted in a number of challenges for the study of resilience. Perhaps the greatest issue is a lack of an agreed upon definition of resilience, as well as disagreement about what the construct itself represents (e.g., Davydov et al., 2010; Luthar et al., 2000; Prince-Embury & Saklofske, 2013; Southwick et al., 2011). Some researchers view resilience as a trait, others conceptualize it as a process or an outcome, and still others see it as some combination or all of the above. These differences in the construct's conceptual definition have resulted in the application of widely differing methodologies to the study of resilience as well as ways of assessing it, making it difficult to draw comparisons between studies (e.g., Luthar et al., 2000; Prince-Embury & Saklofske, 2013). While it is important to be aware of these issues, it also has to be emphasised that resilience is a complex, multifaceted construct. Accordingly, the fact that it has been conceptualized in a number of different ways is understandable, and even to be expected, given its multidimensional nature.

Reich and colleagues (2010) have recently proposed that “resilience may well be one of the most heuristic and integrative concepts to appear in 21st-century thinking in the social sciences” (p. xi). The conceptual complexity inherent in the construct does not lend itself to a

simple definition or a single way of assessment. Varied approaches to the study of resilience, rather than posing a challenge to the field, can contribute new and valuable insights to the existing literature. A number of authors have in fact proposed that the study of resilience is best approached through multidisciplinary efforts, as it is increasingly being recognized that what underlies resilience is likely a complex interplay of social, environmental, psychological, genetic, and epigenetic mechanisms (Davydov et al., 2010; Feder et al., 2009; Richardson, 2002).

The recent paradigm shift in psychology away from a problem-oriented approach to one increasingly focused on health promotion and factors that enhance well-being has brought increasing attention to resilience in the research literature, but this has not always been the case. Until about 20 years ago, resilience research was focused primarily on the childhood years, and specifically on children growing up in adverse, high-risk conditions. Early researchers in the 1970s (e.g., Garmezy, Masten, & Tellegen, 1984; Werner, 1982) sought to identify the risk and protective factors that could explain why some children were able to progress through normal development and even thrive despite great adversity, while others could not cope and experienced negative outcomes.

Early literature referred to the children who did well in the face of adversity as “invulnerable” (e.g., Anthony & Cohler, 1987) or “invincible” (Werner, 1982), which has since been recognized as misleading (Earvolino-Ramirez, 2007; Rutter, 1993). Invulnerability implies “absolute resistance to damage” (Rutter, 1993, p. 626) across all situations and circumstances, which is simply not possible. Resistance to stress and adversity is not absolute; it exists on a continuum and varies not only depending on the circumstances but also across domains of functioning. The term resilient therefore replaced invulnerable as it was more appropriate and more accurately reflected the lived experience of the children in the early studies. This early

research defined resilience as essentially the absence of psychopathology in children exposed to adversity, which proved to be a rather limiting point of view. Assessment of resilience was also restricted to already existing instruments such as measures of intelligence and school achievement, as well as attainment of positive outcomes such as reaching of developmental milestones (Prince-Embury & Saklofske, 2013). Although limited in their scope, these early studies did identify several protective factors that appeared to decrease children's vulnerability to developing serious problems and psychopathology.

One of the foundational studies in the resilience literature was conducted by Werner and Smith (1977, 1992, 2001), who followed the longitudinal development of underprivileged children growing up in Kauai, Hawaii. Werner and Smith identified a number of characteristics of the children themselves as well as their families and larger communities that contributed to their resilience. The individual qualities that appeared to be protective included an easy temperament, evidence of a positive social orientation and autonomy from an early age, having varied interests and hobbies, positive self-concept, strong communication and reasoning skills, as well as an internal locus of control. The protective family and community characteristics included having a close, nurturing bond with at least one caregiver, and availability of emotional support outside the family in the form of close friendships and supportive relationships with older adults such as teachers or neighbours (Werner & Smith, 1992). Some additional protective factors identified by reviews of the literature include personality characteristics such as self-efficacy, self-esteem, good problem-solving and critical thinking skills, flexibility, adaptability, and effective emotion regulation; a family environment characterized by support, warmth, and cohesion; and external support systems that include caring adults who can serve as positive role models (Davydov et al., 2010; Feder et al. 2009; Richardson, 2002; Rutter, 1993).



Following this initial focus on risk and protective mechanisms, interest in the field shifted toward examination of the mechanisms and processes underlying resilience, including how resilience or resilient qualities develop (Richardson, 2002). Rutter (1993) emphasised the need to consider individual difference in vulnerability and resistance to stress, and he also reasoned that reduction of risk and adversity, although important, was not enough. Even though many protective factors had been identified, very little was known about the mechanisms through which they function and how they could be cultivated or influenced in a way that would promote resilience (Rutter, 1987, 1993). Rutter proposed that “particular attention needs to be paid to the mechanisms underlying developmental processes that enhance people’s ability to cope effectively with *future* stress and adversity and those that enable people to overcome the sequelae of *past* psychological hazards” (1993, p. 630), in effect calling for research in the field to broaden in scope toward prevention and clinical applications in addition to mere identification of risk and protective factors.

Richardson (2002) has proposed a resiliency model that strives to describe the key processes of resilience as well as associated practical applications, highlighting the benefits of identifying and nurturing clients’ personal strengths and their innate resilience. Two concepts are key to Richardson’s model, biopsychospiritual homeostasis and resilient reintegration. Biopsychospiritual homeostasis is the “adapted state of mind, body, and spirit” (Richardson, 2002, p. 311) that is achieved when an individual is able to successfully adapt, physically and mentally, to disruptions brought on by various external and internal stimuli. Richardson makes an important point in highlighting that disruption can result from external stressors and adversities as well as internal ones, and also from various life events that are not necessarily adverse but nonetheless require adaptation to change. Resilient reintegration refers to the

development of insight and personal transformation in the face of adversity; and is specifically defined by Richardson as “the reintegrative or coping process that results in growth, knowledge, self-understanding, and increased strength of resilient qualities” (p. 310). The opposite of resilient reintegration is dysfunctional reintegration, in which disruption is dealt with through negative coping mechanisms such as substance use or other destructive behaviours.

Richardson (2002) believes that resilience is an innate human quality that can be accessed and nurtured through psychotherapy, and that a deeper level of healing can be achieved through this sort of resilience-based therapy. Other current conceptualizations of resilience agree with Richardson that resilience goes beyond coping with stress, staving off mental health problems, and returning to previous levels of functioning (Zautra, Hall, & Murray, 2010). While these are certainly fundamental components of resilience, it is increasingly being recognized that resilient individuals are able to maintain engagement and a sense of purpose in life during stressful times, and often not just recover from adverse events but also experience transformation and personal growth as a result. Zautra and colleagues’ (2010) definition of resilience encompasses this perspective:

Individual resilience may be defined by the amount of stress that a person can endure without a fundamental change in capacity to pursue aims that give life meaning. The greater a person’s capacity to stay on a satisfying life course, the greater his or her resilience. (p. 6)

The authors further go on to say that “survival is not enough for resilience. A fulfilling life is also fundamental to well-being” (p. 7). The present study also utilizes this perspective of resilience, one focused on positive adaptation, growth, and ability to find meaning even in the most difficult circumstances.

Now that many risk and protective factors have been identified, research in the field of resilience is currently focused on exploring the processes and mechanisms that underlie resilience. Much research to date has focused on the mechanisms through which indicators of vulnerability exert their influence. Zautra and colleagues (2010) have emphasized that a key goal of new resilience research should be further exploration of known resilience processes, which are factors that contribute “unique physical and mental advantages not accounted for by assessments of relative risk” (pp. 9-10), as well as the investigation of previously unexamined factors that could potentially enhance resilience resources and processes. The present study directly addresses this new research direction. The capacities for mindfulness and self-compassion, as well as low levels of attachment anxiety and attachment avoidance, are increasingly being recognized as positive indicators of mental health. It is therefore likely that all these factors are related to resilience, potentially by playing a role in the processes and mechanisms underlying resilience. The results of this study have the potential to provide new insights into the nature of these processes and relationships.

### **Mindfulness**

The Buddha’s teachings lie at the heart of much of Eastern philosophy, and what lies at the heart of the Buddha’s teachings is mindfulness. The Buddha’s principal message, originally put forth over 2,500 years ago, is the timeless message of healing and cultivation of inner freedom (Fulton & Siegel, 2005; Germer et al., 2005; Nyanaponika, 1965, 1994). Buddhist philosophy deals with that which is common to all human experience, the human mind and human suffering, and the Buddha’s teachings sought to help people learn how to alleviate this suffering and overcome pain and sorrow. The Buddha saw great power and healing potential in mindfulness, and believed that the *Way of Mindfulness* was the path to achieving inner peace and

freedom from suffering (Fulton & Siegel, 2005; Nyanaponika, 1965, 1994). “Mindfulness, I declare, is all helpful” (Nyanaponika, 1994, p. 72), he is said to have pronounced. The Buddha’s teachings can be summarized as focusing on three main points; knowing the mind, shaping the mind, and freeing the mind (Nyanaponika, 1965). Mindfulness, being at the heart of the Buddha’s healing message, plays a key role in all aspects of this teaching. As Nyanaponika (1965) explains, mindfulness

...is the unfailing master key for knowing the mind, and is thus the starting point; the perfect tool for shaping the mind, and is thus the focal point; the lofty manifestation of the achieved freedom of the mind, and is thus the culminating point. (p. 24)

The ever-expanding research literature is now confirming what ancient Buddhist wisdom has known all along; the cultivation of mindful awareness in our daily lives can indeed have deeply transformative effects on our lives, not only through alleviation of suffering but also by allowing us to become fully immersed in and aware of the richness of our moment-to-moment experience (e.g., Germer et al., 2005; Shapiro & Carlson, 2009; Siegel, 2007a, 2007b; Siegel, Germer, & Olendzki, 2009).

There is no single definition of mindfulness in Buddhist philosophy and the term appears in many different contexts, as mindfulness is fundamentally and simply a way of relating to our experience, both internal and external, and this relating can come in many different forms (Germer, 2005; Nyanaponika, 1965; Siegel, 2007a, 2007b). There certainly is the form of mindfulness that comes along with methodical, disciplined meditative practice, but equally important is the application of mindful awareness in daily life (Kabat-Zinn & Davidson, 2011; Nyanaponika, 1965, 1994; Shapiro & Carlson, 2009; Siegel, 2007a, 2007b). Mindfulness is not an unusual, unknown mental state akin to a sort of mystical experience, experienced by only a

select few; quite on the contrary it is a universal human capacity (e.g., Kabat-Zinn & Davidson, 2011; Nyanaponika, 1965, 1994). Everyone experiences mindful moments at least occasionally, what is rare is the continued, sustained mindfulness that allows us to develop insights into the workings of our mind and develop a healthier way of relating to ourselves and our experience (Shapiro & Carlson, 2009; Siegel, 2007a; Nyanaponika, 1965, 1994). We all have the potential to experience this form of mindfulness and apply it in all aspects of our lives, but it takes time and practice to cultivate and refine. The fact that this mental faculty is accessible to everyone, and so powerful yet simple at the same time, needs to be emphasized. Nyanaponika (1994) beautifully describes the quiet inner workings of mindfulness in the following passage:

...Mindfulness...is of an unobtrusive nature. Its virtues shine inwardly, and in ordinary life most of its merits are passed on to other mental faculties which generally receive all the credit. One must know mindfulness well and cultivate its acquaintance before one can appreciate its value and its silent penetrative influence. Mindfulness walks slowly and deliberately, and its daily task is of a rather humdrum nature. Yet where it places its feet it cannot easily be dislodged, and it acquires and bestows true mastery of the ground it covers. (pp.71-72)

In order to fully understand the definitions of mindfulness proposed by researchers and clinicians in the West, it is important to appreciate the ancient Eastern roots of the word. Mindfulness originates from the translation of the Pali word *sati*, which in its most general sense denotes awareness (Nyanaponika, 1994; Shapiro & Carlson, 2009). In addition to awareness, which is emphasized in all translations, other connotations of the word *sati* include attention (Nyanaponika, 1965), presence of mind (Siegel et al., 2009), as well as circumspection, discernment, and retention (Shapiro & Carlson, 2009). It is also essential to recognize that all

East Asian languages use just one word to refer to both the mind and the heart (Kabat-Zinn, 2003; Kabat-Zinn & Davidson, 2011). In Buddhist philosophy, the mind and the heart are seen as deeply interconnected, one and the same. Any discussion of mindfulness therefore concerns not only what in the Western worldview are seen to be matters of the mind, but matters of the heart as well; “ ‘mindfulness’ equally means ‘heartfulness’ ” (Kabat-Zinn & Davidson, 2011, p. 37).

Several definitions of mindfulness have been proposed by researchers and clinicians in the West, but they all share an emphasis on the notion of present moment awareness. John Kabat-Zinn, a pioneer in the research and therapeutic applications of mindfulness, defines mindfulness as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment to moment” (Kabat-Zinn, 2003, p. 145). Siegel (2007a, 2007b) conceptualizes mindfulness as an integrated state of mental processing encompassing internal attunement, refinement of focus and awareness, dissolving of top-down constraints, and freedom from prior learning and habitual patterns. It is a state characterized by awareness, flexibility, adaptability, and coherence; a state that ultimately creates and supports the capacity to alter self-defeating and maladaptive thinking habits and patterns of emotional reactivity (Siegel, 2007a, 2007b).

The intentional awareness and accepting, nonjudgmental attitude toward internal experience that mindfulness fosters is hypothesized to change neural patterns of activation in the brain (e.g., Siegel 2007a, 2007b; Treadway & Lazar, 2009), and research evidence in support of this hypothesis is accumulating. Recent research is also indicating that mindfulness does not only have the potential to change the function of the brain, but ultimately also its structure (e.g., Chiesa, Brambilla, & Serretti, 2010; Davidson et al., 2003; Hölzel et al., 2008; Hölzel et al.,

2011; Ives-Deliperi, Solms, & Meintjes, 2010; Lazar et al., 2005). It is hypothesized that these long-term transformations in neural activity and structure result in mindfulness developing into a stable individual trait. As Siegel (2007a) suggests, engagement in regular mindfulness practice

...can create intentional states of brain activation that may ultimately become traits of the individual...new patterns of repeated neural circuit activation strengthen the synaptic connections associated with those states that then lead to synaptic strengthening and synaptic growth. This is the mechanism by which practice harnesses neural plasticity to alter synaptic connections in a way that transforms a temporary state into a more long-lasting trait of the individual. (p. 259)

Although the word mindfulness can also be used to refer to the particular state of mind that is created during specific practices aimed at the cultivation of mindfulness, this study is concerned with exploring the dispositional, trait form of mindfulness discussed above.

Research on mindfulness is still a relatively recent addition to the psychological literature, but the surge of interest in this construct over the past two decades has already produced an extensive body of research. Although much remains to be discovered, research is consistently demonstrating that trait mindfulness is associated with various indicators of positive psychological functioning, and interventions aimed at increasing mindfulness appear to promote positive mental health outcomes in varied populations. Trait mindfulness has been shown to be inversely associated with depression and anxiety (Brown & Ryan, 2003; Cash & Whittingham, 2010); general psychological symptoms, experiential avoidance, dissociative experiences (Baer, Smith, & Allen, 2004; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006); negative affectivity, rumination, self-consciousness, anger (Brown & Ryan, 2003); difficulties with emotion regulation (Baer et al., 2006); neuroticism (Baer et al., 2004, 2006; Brown & Ryan, 2003);

alexithymia (Baer et al., 2004, 2006; Dekeyser, Raes, Leijssen, Leysen, & Dewulf, 2008); and social anxiety (Brown & Ryan, 2003; Dekeyser et al., 2008). Positive associations have been found between trait mindfulness and self-esteem, positive affectivity, optimism, self-actualization, autonomy, competence (Brown & Ryan, 2003); conscientiousness, agreeableness (Baer et al., 2004), self-compassion (Baer et al., 2006); life satisfaction (Baer et al., 2004; Brown & Ryan, 2003); and emotional intelligence (Baer et al., 2006; Brown & Ryan, 2003).

In recent years, a number of systematic reviews and meta-analyses of mindfulness-based interventions have integrated findings from various areas of medicine and psychology. Mindfulness training has consistently been shown to result in positive effects for various clinical as well as non-clinical populations. One of the first meta-analyses of mindfulness-based interventions with both clinical and non-clinical populations was conducted by Grossman, Niemann, Schmidt, and Walach (2004). Twenty studies were included in this meta-analysis and the results indicated significant medium-strength effect sizes for both mental health variables ( $d = 0.54$ ) and physical health variables ( $d = 0.53$ ). Significant improvements were observed in a variety of measured constructs, including psychological well-being, depression, anxiety, sleep, medical symptoms, pain, physical impairment, and physical as well as psychological dimensions of quality of life. Based on the results of this meta-analysis and the consistent relatively strong effect sizes seen across varied samples, Grossman and colleagues (2004) concluded that mindfulness training has the potential to improve coping with distress and disability not only for individuals suffering from a variety of clinical disorders, but also for otherwise healthy individuals exposed to stress in their everyday lives.

Reviews of the literature focused on specific populations have additionally found mindfulness training to be associated with positive effects among individuals struggling with



anxiety disorders (Vøllestad, Nielsen, & Nielsen, 2012), depression (Chiesa & Serretti, 2011; Klainin-Yobas, Cho, & Creedy, 2012), substance use disorders (Zgierska et al., 2009), sleep disturbance (Winbush, Gross, & Kreitzer, 2007), eating disorders (Wanden-Berghe, Sanz-Valero, & Wanden-Berghe, 2011), chronic medical diseases (Bohlmeijer, Prenger, Taal, & Cuijpers, 2010), cancer patients (Ledesma & Kumano, 2009; Ott, Norris, & Bauer-Wu, 2006; Shennan, Payne, & Fenlon, 2011), as well as healthy populations (Chiesa & Serretti, 2009; Irving, Dobkin, & Park, 2009).

As the potential of mindfulness to promote positive psychological functioning and mental health has been supported by an extensive body of research, the focus in the study of mindfulness is now turning toward examining its underlying components and mechanisms of action (Brown et al., 2007). This may have contributed to the emerging research interest in self-compassion, since in Buddhist philosophy the qualities of mindfulness and self-compassion are deeply interconnected and considered to work together in the cultivation of well-being (Nyanaponika, 1965, 1994).

### **Self-Compassion**

Although the concept of self-compassion is perhaps less familiar than mindfulness within the traditional Western worldview, like mindfulness it has had a fundamental place in Eastern philosophy for thousands of years (Nyanaponika, 1965, 1964). Self-compassion has received increasing attention over the past decade in theoretical and research literature alike, likely stemming at least in part from the increasing dialogue and exchange of ideas between Western psychology and Buddhist philosophy. This meeting of philosophies has already resulted in a much enriched understanding of mental health and treatment of psychological difficulties, and the recent focus on exploring self-compassion has the potential to further our knowledge in this

area even more (Barnard & Curry, 2011; Gilbert, 2009; Neff, 2003a). The way we treat ourselves has a profound impact on our well-being and our sense of self. As Gilbert (2009) reminds us, many forms of psychological suffering share a chronic lack of self-kindness and self-acceptance, together with relentless self-judgment, self-criticism, and shame. Learning to approach ourselves with kindness, compassion, and a desire to care for and nurture ourselves can therefore be a deeply healing process (Gilbert, 2009; Neff, 2003a, 2011).

According to Kristin Neff (2003a, 2011), who essentially introduced the concept of self-compassion to the psychological literature in North America, self-compassion is a concept that embodies mental well-being and a healthy attitude toward oneself. Self-compassion, as Neff (2003a) defines it, “involves being touched by and open to one’s own suffering, not avoiding or disconnecting from it, generating the desire to alleviate one’s suffering and to heal oneself with kindness” (p. 87). Neff has conceptualized self-compassion as comprising three distinct but interacting components that mutually enhance one another:

- (a) self-kindness – extending kindness and understanding to oneself rather than harsh judgment and self-criticism, (b) common humanity – seeing one’s experiences as part of the larger human experience rather than seeing them as separating and isolating, and (c) mindfulness – holding one’s painful thoughts and feelings in balanced awareness rather than over-identifying with them. (2003a, p. 89)

The idea of cultivating this kind of compassionate attitude toward oneself is unfamiliar to many people in the West, where compassion has traditionally been conceptualized in terms of compassion for others. In Buddhist philosophy, however, self-compassion is considered to be just as important, if not more important, than compassion towards others (Nyanaponika, 1965, 1994). The ability to treat oneself with kindness is an essential prerequisite to being able to show

that same kindness to others (Gilbert, 2009; Neff, 2011; Nyanaponika, 1965, 1994).

Furthermore, relating to oneself in a compassionate and non-judgemental way actually encourages social connectedness and feelings of compassion, concern, and acceptance toward others as well (Gilbert, 2009; Neff, 2003a).

Each of the self-compassion components introduced above are conceptualized as having two parts, “the presence of one construct and the negation of another” (Barnard & Curry, 2011). Although these dichotomous parts are integrated into the definitions presented above, for clarity they can be summarized as: “self-kindness versus self-judgment, a sense of common humanity versus isolation, and mindfulness versus overidentification” (Neff, 2009, p. 561). Self-kindness involves the ability to treat oneself with warmth, acceptance, understanding, and patience (Barnard & Curry, 2011; Gilbert, 2009; Neff, 2003a, 2009). This sensitive and kind attitude is extended to all aspects of the self, especially in times of struggle, when self-compassionate individuals are able to recognize their distress and take steps toward healing. They support, soothe, and comfort themselves as they work to move through the distressing experience rather than being demeaning and self-judgmental (Barnard & Curry, 2011; Gilbert, 2009; Neff, 2009). Self-criticism is very common, especially among people with mental health struggles; so common in fact that many people become so accustomed to it that they are not even aware of the extent to which they constantly attack, berate, and shame themselves (Barnard & Curry, 2011; Gilbert & Procter, 2006). This sort of self-judgment only serves to intensify distress and suffering, and is thus extremely harmful (Barnard & Curry, 2011; Gilbert & Procter, 2006).

The second component of self-compassion, common humanity, not only promotes a feeling of connection to others but also helps individuals recognize that struggles and suffering are a shared human experiences, that everyone fails and makes mistakes, and that they do not

have to feel ashamed of their perceived flaws and inadequacies (Barnard & Curry, 2011; Neff, 2003a, 2009). A lack of self-compassion, however, can lead people to believe that no one understands their struggles, or that they are the only ones who fail, make mistakes, or have particular shortcomings. People who feel that they are the only ones experiencing particular struggles feel disconnected from others, and those who feel ashamed of their failures often withdraw; both scenarios resulting in a profound sense of isolation (Barnard & Curry, 2011; Neff, 2003a, 2009).

In light of the deep connection between mindfulness and self-compassion in Buddhist philosophy, it is only fitting that mindfulness is considered to be a central component of self-compassion. One valuable contribution of mindful awareness is that it allows us to recognize when we are in pain or suffering, which is a necessary precondition for offering support, soothing, and kindness to ourselves (Barnard & Curry, 2011; Neff, 2009). Development of this awareness is essential; as Neff (2009) explains, “while it might seem that personal suffering is blindingly obvious, people do not always pause to acknowledge their own pain when they are busy judging themselves or coping with life’s challenges” (p. 562). Mindfulness also allows us to hold painful feeling and thoughts in awareness without ruminating about them or becoming completely fixated and absorbed by them, which Neff refers to as overidentification. Overidentifying with one’s emotions or suffering intensifies the negative emotional experience, clouds objectivity, and prevents not just full awareness of the present moment but also the opportunity to develop deeper understanding and learn from it (Barnard & Curry, 2011; Neff, 2009).

Self-compassion is a relatively new concept in the Western literature and its meaning is often misunderstood. Some people see self-compassion as an indulgence or hold the

erroneous assumption that it will lead to complacency, passivity, and self-pity (Barnard & Curry, 2011; Gilbert, 2009; Neff, 2003a). On the contrary, rather than promoting complacency, self-compassion encourages an intrinsic desire to promote one's health and well-being (Barnard & Curry, 2011; Neff, 2003a, 2009). This includes taking potentially difficult steps to make needed changes, such as giving up harmful habits. Rather than promoting self-pity, which involves absorption and overidentification with one's suffering, self-compassion encourages the complete opposite, mindful awareness. Self-compassionate individuals also tend to have a greater degree of self-awareness, including recognition of their faults and weaknesses (Barnard & Curry, 2011; Neff, 2003a, 2009). When individuals treat themselves with kindness, patience, and non-judgment, they are able to see their weaknesses, failings, and mistakes more clearly and without defensiveness. An attitude of self-compassion "provides the emotional safety needed to see the self clearly without fear of self-condemnation" (Neff, 2003a, p. 87).

The fact that self-compassionate individuals are able to extend understanding and support to themselves when they are unsuccessful at their endeavours rather than turning to harsh self-criticism gives them the confidence to pursue opportunities and take on challenges that allow them to learn and grow (Neff, 2009). This willingness to approach challenges and opportunities for growth, along with the feelings of connection to and compassion for all of humanity that self-compassion fosters, also inspires self-compassionate individuals to pursue work aimed at alleviating the suffering of others. As Gilbert (2009) wittily explains, self-compassion "is not simply a case of sitting around contemplating one's navel or just having nice thoughts about oneself. Developing self-compassion can be hard work and can inspire us to hard work" (p. 75). For self-compassionate individuals, action to promote one's own well-being as well as the well-

being of others is never undertaken to bolster social approval. Self-compassion cultivates a truly intrinsic, genuine motivation to learn, grow, help others, and discover one's full potential.

Although research on self-compassion is in its infancy, the literature available to date suggests that self-compassion is an adaptive, transformative quality that promotes personal growth and psychological resilience (e.g., Barnard & Curry, 2011; Gilbert, 2009; Gilbert & Procter, 2006; Neff, 2003a, 2009). Research has determined that self-compassion is positively associated with life satisfaction (Neff, 2003b; Wei, Liao, Ku, & Shaffer, 2011); self-acceptance, autonomy, competence, self-determination (Neff, 2003b); happiness, positive affect (Neff, Rude, & Kirkpatrick, 2007; Wei et al., 2011); optimism, reflective and affective wisdom, personal initiative, agreeableness, conscientiousness (Neff, Rude, & Kirkpatrick, 2007), connectedness (Neff, Kirkpatrick, & Rude, 2007); and self-esteem (Neff, 2003b; Neff & Vonk, 2009). Self-compassion is also inversely associated with symptoms of depression and anxiety, self-criticism (Neff, 2003b; Neff, Kirkpatrick, & Rude, 2007); negative affect (Neff, Rude, & Kirkpatrick, 2007); rumination, thought suppression (Neff, Kirkpatrick, & Rude, 2007); neuroticism (Neff, Rude, & Kirkpatrick, 2007); and neurotic perfectionism (Neff, 2003b).

MacBeth and Gumley (2012) recently conducted the first meta-analysis of studies investigating relationships between self-compassion and various aspects of mental health. Fourteen studies that represented a total of twenty samples were included in the analysis, and 32 effect sizes were calculated for depression, anxiety, and stress. All of the included studies, which comprised both clinical and non-clinical samples, used Neff's (2003b) Self-Compassion Scale. Overall, MacBeth and Gumley found a large effect size of  $r = -0.54$  (95% CI =  $-0.57$  to  $-0.51$ ;  $Z = -34.02$ ;  $p < .0001$ ) for the relationship between self-compassion and mental health

symptoms. More specifically, higher levels of self-compassion were associated with lower levels of depression ( $r = -0.52$ ), anxiety ( $r = -0.51$ ), as well as stress ( $r = -0.54$ ).

### **Attachment**

Attachment theory was born out of John Bowlby's interest in understanding individual differences in personality development and unearthing the developmental origins of mental health problems (Ainsworth, 1989; Ainsworth & Bowlby, 1991; Bowlby, 1988). The foundational principle of attachment theory is that early experiences in relationships with close family members, particularly the mother, have a profound and persistent impact on not only later social adjustment but essentially all other domains of functioning as well (Ainsworth & Bowlby, 1991; Bowlby, 1988; Mikulincer & Shaver, 2007). In its early years, the theory was developed and advanced primarily through the collaboration between John Bowlby and Mary Ainsworth, a partnership that began in 1950 and lasted 40 years (Ainsworth, 1989; Ainsworth & Bowlby, 1991; Bretherton, 1992). Although Bowlby (e.g., 1988) and Ainsworth (e.g., 1989) both emphasized the continuity of attachment patterns into adulthood and their influence on individual functioning throughout the lifespan, prior to the 1990s the vast majority of research and literature in the field was concerned primarily with the early childhood years.

Bowlby's focus over the years was largely on theory development, incorporating concepts and insights from his ongoing clinical practice as well as literature from various related fields, including ethology, evolution theory, developmental and cognitive psychology, systems theory, and the psychoanalytic orientation within which he was trained (Ainsworth & Bowlby, 1991; Bowlby, 1988; Bretherton, 1992). Ainsworth became greatly interested in Bowlby's ideas while working as part of his research team in London in the early 1950s, and devoted much of the rest of her career to the empirical study of attachment theory and collaborating with Bowlby

on expanding the theory and its applications (Ainsworth & Bowlby, 1991; Bowlby, 1988).

Among Ainsworth's many contributions to attachment theory are her development of a novel methodology, the strange situation, to investigate the attachment patterns between infants and their caregivers; her conceptualization of maternal sensitivity to infant signals as playing a fundamental role in the development of these attachment patterns; as well as her introduction of the concept of an attachment figure serving as a 'secure base' from which an infant feels safe to explore the world (Bretherton, 1992).

Attachment theory has evolved considerably with growing interest in adult attachment research over the years, but three concepts emphasized by Bowlby (1988) himself remain central:

(a) the primary status and biological function of intimate emotional bonds between individuals, ...utilizing working models of self and attachment figure in relationship with each other, (b) the powerful influence on a child's development of the ways he is treated by his parents, especially his mother figure, and (c)...a theory of developmental pathways should replace theories that invoke specific phases of development. (p. 120)

Drawing on the primate ethology concept of behavioural systems, which are evolution-derived patterns of behaviour that increase the likelihood of species survival, Bowlby (1969) proposed that innate to human nature is the *attachment* behavioural system, which instinctively serves to protect people from danger through the maintenance of proximity to others who can provide protection. Although the activity of the attachment system is most crucial to survival in infancy and childhood, and indeed is most overtly visible during the early years, Bowlby always emphasized that it remains active across the lifespan, with the same fundamental goal of



maintaining a sense of safety and security (Bowlby, 1988; Berman & Sperling 1994, Mikulincer & Shaver, 2007).

The attachment system is activated any time an individual's sense of security is threatened; once activated it initiates behaviours aimed at re-establishing proximity to an attachment figure, which concurrently re-establishes a sense of safety (Bowlby, 1969; Mikulincer & Shaver, 2007). The way an attachment figure responds to attachment behaviours plays a significant role in how they develop over time and into adulthood (Bowlby, 1969). In infancy and early childhood attachment behaviour is exhibited by overt actions such as cooing, crying, calling, or physically seeking out the attachment figure, while older children and adults can also use the strategy of symbolic proximity seeking (Bowlby, 1969; Mikulincer & Shaver, 2007). This strategy allows individuals to successfully deal with threats to security and re-establish a sense of safety by cognitively activating mental representations of a caring and supportive attachment figure (Mikulincer & Shaver, 2007).

These mental representations refer to another key concept in attachment theory, that of internal working models, defined by Berman and Sperling (1994) as "cognitive-affective-motivational schemata built from the individual's experience in his or her interpersonal world" (p. 8). These models are proposed to develop as repeated experiences with attachment figures and the attachment patterns they create become incorporated into enduring cognitive structures. According to Bowlby (1988), "as a child grows older, the pattern becomes increasingly a property of the child himself, which means that he tends to impose it, or some derivative of it, upon new relationships" (p. 127). As these attachment patterns are internalized, two kinds of internal models form: working models of others and working models of self. Working models of others shape the way individuals expect to be treated by other people; they are a representation of

how one has been treated by significant attachment figures, including their availability, responsiveness, and sensitivity (Berman & Sperling, 1994; Bowlby, 1988). Working models of self reflect how individuals come to feel about themselves in the context of attachment relationships. As working models of self develop, they integrate how individuals are treated, what they are told about the kind of people they are, the degree to which they feel they are loved, and “how acceptable or unacceptable [they are] in the eyes of [their] attachment figures” (Bowlby, 1988, p. 203).

Internal working models of self and others make up the core of an individual's attachment style and associated personality characteristics. As early working models are strengthened through similar patterns of interaction over time, they become increasingly persistent and resistant to change (Bowlby, 1988; Rothbard & Shaver, 1994; Siegel, 1999). Eventually they come to operate at a largely unconscious level and exert great influence over how one perceives the world, including what they believe themselves capable of, how they expect others to treat them and feel about them, and how they interpret others' actions and intentions. In Bowlby's (1973) words,

...an unwanted child is likely not only to feel unwanted by his parents but to believe that he is essentially unwanted, namely unwanted by anyone. Conversely, a much-loved child may grow up to be not only confident of his parents' affection but confident that everyone else will find him lovable too. Though logically indefensible, these crude over-generalizations are none the less the rule. Once adopted, moreover, and woven into the fabric of the working models, they are apt henceforward never to be seriously questioned. (pp. 204-205)

Internal working models are thus the mechanisms through which attachment styles continue to impact functioning and psychological well-being throughout the lifespan (Bowlby, 1988; Rothbard & Shaver, 1994; Siegel, 1999).

The concept of attachment styles was born out of Ainsworth's investigations of infant's patterns of behaviour in the Strange Situation, a laboratory procedure she developed to activate the infants' attachment system and thus allow for the assessment of attachment between infants and their caregivers. Although Ainsworth's initial studies (e.g., Ainsworth & Bell, 1970) did not use the term attachment style, subsequent studies introduced the term to describe the categories that infants were classified into based on their patterns of behaviour in response to separation and reunion with a caregiver, as well as their engagement with and exploration of the environment when the caregiver was absent (Ainsworth, Blehar, Waters, & Wall, 1978). The infants in Ainsworth and colleagues' (1978) studies were classified as expressing one of three attachment styles – secure, avoidant, or anxious – conceptualized to exist in a two dimensional space, underlying which were the dimensions of anxiety and avoidance.

Infants whose caregivers are available, sensitive, and responsive to their needs develop a secure attachment style. This is evidenced in the Strange Situation by their active exploration of the environment prior to separation from the caregiver, signs of distress in response to separation, ability to quickly recover and return to play after the initial upset, followed by initiation of physical contact and expression of happiness upon the caregiver's return (Ainsworth et al., 1978; Siegel, 1999). Avoidant attachment style develops as a result of infants' repeated unsuccessful proximity seeking attempts with caregivers who are imperceptive, unresponsive, and rejecting. These infants effectively learn to deactivate their attachment system and thus shut off future proximity seeking behaviours. In the Strange Situation, they do not display any signs

of distress upon separation, ignore and even actively avoid caregivers when they return, and maintain focus on play throughout (Ainsworth et al., 1978; Siegel, 1999).

Anxiously attached infants, on the other hand, experience repeated hyperactivation of their attachment system in response to their caregivers' inconsistent availability and responsiveness in meeting their needs (Ainsworth et al., 1978; Siegel, 1999). In an effort to elicit a response from their inconsistent caregivers, these infants have to exaggerate their expressions of distress and often engage in excessive proximity seeking behaviours, which is precisely what is observed in the Strange Situation. They are often weary of exploration even in the presence of the caregiver, become very distressed on separation, and are difficult to soothe after reunion, exhibiting a conflicting reaction of simultaneous anger and preoccupation with the parent (Ainsworth et al., 1978; Siegel, 1999).

The work of Ainsworth and her team has been replicated and expanded upon by countless succeeding studies, and ultimately extended to the study of attachment styles in later childhood, adolescence, as well as adulthood. Current conceptualizations of adult attachment styles are closely related to Ainsworth's foundational work. Bartholomew and Horowitz (1991) developed a model of individual differences in adult attachment that has proven to be very influential in research and clinical practice. This model is based on Bowlby's concept of working models, specifically the notion that an individual can hold either a positive or a negative working model of self and also a positive or a negative working model of others, resulting in four possible prototypic categories of adult attachment. Bartholomew and Horowitz classified these combinations as follows: 1) secure – positive working model of self and positive working model of others; 2) preoccupied – negative working model of self and positive working model of others; 3) fearful-avoidant – negative working model of self and negative working model of

others; and 4) dismissive-avoidant – positive working model of self and negative working model of others. The model of others was conceptualized as representing the avoidance dimension of attachment, while the model of self represented the dependence dimension, since then more commonly referred to as the anxiety dimension (e.g., Mikulincer & Shaver, 2007). These two dimensions correspond to those proposed by Ainsworth and colleagues (1978) to underlie infant attachment patterns.

Literature is largely in agreement that conceptualizing attachment styles as regions in a two-dimensional space is more appropriate than categorical representations (e.g., Feeney, Noller, & Hanrahan, 1994; Mikulincer & Shaver, 2007; Stein et al., 2002). The two dimensions supported by most research correspond to those originally proposed by Ainsworth – anxiety and avoidance. In this conceptualization, low anxiety and low avoidance confer a secure attachment style. Insecure attachment is manifested by elevated levels of anxiety, avoidance, or both. Variations in levels of anxiety and avoidance account for individual differences in attachment patterns and behaviours. When attachment is conceptualized in categorical terms, many individuals do not clearly fit into any single category and do not possess all the prototypical characteristics that are theoretically ascribed to individuals in that category (Feeney et al., 1994; Mikulincer & Shaver, 2007; Stein et al., 2002). Dimensional measures are therefore more sensitive to the variation in individual functioning that results from the interplay between attachment anxiety and attachment avoidance. As stated by Mikulincer and Shaver (2007), “categorical measures throw away important information about individual differences within categories” (p. 96).

Keeping individual variation in mind, some commonalities tend to exist among individuals who experience high levels of attachment anxiety or attachment avoidance. All

forms of adult insecure attachment tend to be associated with disorders of the self, which manifest through difficulties in constructing a stable and cohesive sense of self (Mikulincer & Shaver, 2007). Along with this lack of self-cohesion, insecure individuals tend to have a distorted sense of self-worth and they commonly struggle with feelings of worthlessness, hopelessness, low self-esteem, and self-doubt (Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2009). Although some form of global distress and difficulties with relationships are common among both anxious and avoidant individuals, these groups employ different secondary attachment strategies when their attachment system is activated and as a result the specific struggles they experience also vary.

Individuals high in attachment anxiety turn to hyperactivation strategies in times of stress (Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2009). As the attachment system is hyperactivated, the individual experiences an intense emotional state in which attention is directed toward self-relevant sources of distress. This exacerbates feelings of helplessness, worthlessness, vulnerability, and fear of abandonment, resulting in efforts to elicit attention and compassion from others. Anxious individuals often struggle with a pervasive negative view of their competencies across all areas of their life and commonly feel that they have little control over what happens to them. Due to constantly doubting their own self-worth, anxious individuals experience intense worries about others not seeing them as valuable and lovable, which ultimately leads to fears of rejection and abandonment. Attachment anxiety is commonly associated with a wide range of mental health problems, including, as summarized by Shaver and Mikulincer (2009), “global distress, depression, anxiety, eating disorders, substance abuse, conduct disorders, and severe personality disorders” (p. 75).

Whereas the research evidence for the association between attachment anxiety and varied forms of psychological distress is extensive and clear, research findings concerning avoidant attachment have been inconsistent (Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2009). As reviewed by Shaver and Mikulincer (2009), some studies have shown associations with problems such as low self-esteem, perfectionism, self criticism, substance abuse, conduct disorders, hostile view of others, and personality disorders (particularly schizoid and avoidant), but many other studies have not found any associations between avoidant attachment and indicators of well-being. Avoidant individuals tend to think of themselves as unique and sometimes even better than others. As a result of their early experiences, they have learned that seeking support from attachment figures is futile. As they get older, avoidant individuals develop a preference for emotional distance, often become excessively self-reliant, and utilize defensive deactivation strategies to deal with distress. These deactivation strategies allow them to dissociate from their emotions and suppress feelings of vulnerability, while at the same time express an image of strength and self-efficacy, possibly even grandiosity. The research findings indicating no associations with psychological distress may therefore indicate the operation of these defensive self-enhancement strategies. On the other hand, the studies that do find associations with psychological distress may be detecting times when the defensive strategies break down (Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2009). As Shaver and Mikulincer (2009) explain, “it seems that under highly demanding and distressing conditions...deactivating strategies seem to collapse and in such cases avoidant individuals may exhibit high levels of distress and emotional problems” (p. 75).

In contrast to the psychological difficulties commonly experienced by individuals with insecure attachment styles, the existing body of literature has consistently demonstrated that

secure attachment style is negatively associated with symptoms of psychological distress and positively associated with indicators of psychological well-being (Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2009). Through positive interactions with available and responsive caregivers in infancy and childhood, securely attached individuals easily come to view themselves as lovable and valuable, and develop a sense of self-worth that persists into adulthood (Bowlby, 1973, 1988; Mikulincer & Shaver, 2007). The positive self-representations fostered through secure attachment instill feelings of strength, competence, self-efficacy, and trust in one's own abilities to cope with distressing feelings and situations. Quite the reverse of the lack of coherence and stability of self-concept experienced by insecure individuals, secure attachment promotes the development of a stable, balanced, and coherent sense of self. This sense of self-cohesion “provides a subjective feeling of solidity, stability, and permanence, and allows a person to feel coherent, consistent, and clear-minded even under threatening or unpredictable conditions” (Mikulincer & Shaver, 2007, p. 153). In effect, a secure attachment style, or low levels of attachment anxiety and avoidance, may be a fundamental component to the development of resilience.

### **Yoga Practice**

While the primary focus of this study was investigation of the nature of the relationships between resilience, mindfulness, self-compassion, and attachment styles, an additional exploratory component sought to ascertain the possible effects of yoga practice on these variables. A vast amount of lay literature now exists that purports yoga to have wide-ranging physical and psychological benefits, but this topic has received little attention in the scientific literature thus far. As this was an exploratory component of the study with a limited literature



base, yoga practice is discussed here to a lesser depth than the previously covered main constructs under investigation.

The practice of yoga as we know it today has come to be synonymous with the physical practice of postures that emphasises breathing and cultivation of mindful awareness. The yoga practice of thousands of years ago was first and foremost an ancient wisdom tradition, with physical practice comprising only one part of a comprehensive philosophy concerned with a deep and authentic exploration of the human experience, the roots and alleviation of suffering, and the transformation of the mind that results from learning to dis-identify from our thoughts and being fully present in every moment of our lives (e.g., Cope, 1999, 2007; Stone, 2010). All the forms of yoga being practiced today were founded upon these same principles, though certainly there is wide variation among individual practitioners in terms of the extent to which they are interested in the non-physical components of yoga practice.

Research interest in the benefits of yoga practice has likely been inspired by the growing popularity of other concepts from Eastern philosophy in the literature. Compared to meditation, mindfulness, and self-compassion, yoga has thus far received relatively little attention in the literature, but recent investigations have linked yoga practice with various benefits to physical and psychological well-being (e.g., Cowen & Adams, 2005; Evans, Tsao, Sternlieb, & Zeltzer, 2009; Lavey et al., 2005; Ross & Thomas, 2010; Woolery, Myers, Sternlieb, & Zeltzer, 2004). The present study seeks to contribute to this literature by investigating yoga practice in relation to mindfulness, self-compassion, attachment styles, and resilience.

### **Emerging Literature Pertaining to Relationships between Constructs of Interest**

To the author's best knowledge, at the time of writing relationships between resilience, mindfulness, self-compassion, and attachment styles have not previously been investigated in a

single study. However, interest in studying these constructs, in different combinations and in relation to other constructs, has recently been increasing, especially in the last five years.

Following the theoretical links that have been suggested between attachment and self-compassion in the literature, researchers have begun to conduct studies to investigate the nature of this relationship. For example, as part of a study on attachment styles and depressive symptoms, Cantazaro and Wei (2010) considered the mediating role of self-criticism in a sample of 424 undergraduate students. As previously discussed, research has found that low levels of self-compassion tend to be associated with high levels of self-criticism, therefore Cantazaro and Wei's study can inform the self-compassion literature as well. A moderate positive relationship was observed between attachment anxiety and two measures of self-criticism, while attachment avoidance was positively correlated with only one of the measures. The mediation model demonstrated that attachment anxiety and attachment avoidance both had indirect effects on depressive symptoms through self-criticism (Cantazaro & Wei, 2010).

More recently, Wei et al. (2011) investigated the relationships between attachment, self-compassion, empathy, and well-being, with the specific purpose of examining whether self-compassion and empathy played a mediating role in the relationships between attachment styles and subjective well-being. The relationships between these variables were examined among two groups of participants, college students ( $n = 195$ ) as well as community adults ( $n = 136$ ). The authors measured levels of attachment anxiety and attachment avoidance, and the latent variable of subjective well-being was assessed by combining participants' scores on measures of happiness, life satisfaction, positive affect, and negative affect (Wei et al., 2011). Regarding variables of interest in the present study, Wei and colleagues' models indicated that while self-compassion was a mediator in the relationship between attachment anxiety and subjective well-

being in both samples, it was a significant mediator in the association between attachment avoidance and subjective well-being only in the sample of community adults and not college students.

Relationships between attachment, resilience, and well-being were examined by Karreman and Vingerhoets (2012) in a sample of 632 participants who were recruited as part of larger study on music and emotions in the Netherlands. Attachment in this study was assessed using a questionnaire that measures four categorical attachment styles: secure, fearful, preoccupied, and dismissing. Small but significant correlations were found between well-being and three of the four attachment styles; the association was negative for fearful ( $r = -.24$ ) and preoccupied ( $r = -.28$ ) attachment, and positive for secure attachment ( $r = .29$ ). There was no relationship between dismissing attachment and well-being ( $r = .07$ ). Resilience was significantly related to well-being ( $r = .44$ ) as well as all four attachment categories; positively with secure ( $r = .26$ ) and dismissing ( $r = .28$ ) attachment, and negatively with fearful ( $r = -.17$ ) and preoccupied ( $r = -.43$ ) attachment. Resilience and emotion regulation played a mediating role in the relationships between attachment styles and well-being (Karreman & Vingerhoets, 2012).

Simeon and colleagues (2007) also examined relationships between resilience and attachment styles, among other variables, in a sample of 54 healthy adults. Although the findings are informative, the authors did not specify how they defined resilience for the purposes of their study and the outcome measure was not a measure of resilience but rather defense styles, which the authors considered to provide one index of resilience. As such it could be argued that they did not necessarily measure the construct of resilience, and it may have been more appropriate for them to discuss their results in terms of defense styles rather than resilience.

Nevertheless, Simeon and colleagues concluded that resilience was positively and significantly correlated with secure attachment ( $r = .29$ ) and, although the results only approached significance, negatively correlated with preoccupied ( $r = -.25, p = 0.074$ ) and fearful ( $r = -.24, p = 0.091$ ) attachment styles.

Several authors have written about the potential benefits of mindfulness for individuals with insecure attachment (e.g., Shaver, Lavy, Saron, & Mikulincer, 2007; Siegel, 2007a), and this concept is now beginning to be investigated empirically as well. Cordon, Brown and Gibson (2009) conducted a study with 185 participants enrolled in the Mindfulness Based Stress Reduction (MBSR) program to determine whether participation in the program can provide stress reduction benefits for individuals with insecure attachment styles. Participants were classified into two groups according to a self-report attachment measure: securely attached ( $n = 86$ ) and insecurely attached ( $n = 99$ ). The insecure group was found to have significantly higher perceived stress scores than the secure group both pre-treatment and post-treatment, but both groups reported significant decreases in scores over the course of the intervention. In fact, the insecure participants' perceived stress scores actually declined more, though this result only approached significance ( $p = .06$ ). Cordon and colleagues hypothesized that the group-based, social nature of the intervention may prove to be too stressful for some insecurely attached individuals, resulting in higher dropout rates in this group as compared to the secure group, which is in fact what they observed. However, the dropout rate for the insecure group (18% versus 9% for the secure group) was still within the typically reported range for MBSR programs, and overall the results support the notion that mindfulness training can be beneficial for insecurely attached individuals (Cordon et al., 2009).

Thompson, Arnkoff, and Glass (2011) conducted a review of the literature pertaining to mindfulness, acceptance, and psychological resilience following exposure to trauma. They concluded that there is strong and growing evidence in the literature indicating that trait mindfulness and acceptance are associated with fewer psychological symptoms in response to trauma, as well as overall better adjustment and greater positive outcomes. This suggests that the tendency to approach experience with an attitude of mindful and accepting awareness may be an important component of psychological resilience to trauma. Thompson and colleagues propose, “trait mindfulness and acceptance may be an overlooked pathway to resilience” (2011, p. 221). In contrast to the potential protective effects of mindfulness and acceptance, this review also found that attempts to cope through emotional disengagement strategies, experiential avoidance, and dissociation are more likely to lead to negative outcomes such as greater psychological dysfunction and symptom severity, as well as increased risk of post traumatic stress disorder.

As discussed by Thompson and colleagues (2011), and also reflected in the wider literature on mindfulness and self-compassion, mindfulness and acceptance may confer resilience to trauma through several mechanisms. A focus on the present may prevent re-experiencing of the trauma as well as fears about the future. Furthermore, maintaining mindful awareness of present-moment experience, including any psychological and physiological reactions that one is experiencing related to the traumatic event, can prevent hyperarousal and promote emotional processing (Thompson et al., 2011). Experiential avoidance, on the other hand, ultimately leads to greater symptom severity. An accepting, nonjudgmental approach to one’s experiences also serves to facilitate coping and helps survivors tolerate their reactions to the traumatic event (Thompson et al., 2011).

The literature reviewed above is reflective of the shift in the field toward investigation of positive indicators of psychological well-being. It also indicates that an increasing number of researchers and clinicians are considering resilience, mindfulness, self-compassion, and attachment styles to be some of the most important constructs of study in the empirical work in this area. Most of the reviewed studies employed mediation and moderation models as part of their analyses. Results from these studies provide interesting insights regarding the relationships between variables under investigation, but they need to be interpreted with some caution. All of the studies thus far have been cross-sectional in nature, and as such no causal inferences about the directionality of the relationships can be made. Furthermore, as some of the authors themselves have pointed out (e.g., Cantazaro & Wei, 2010; Wei et al., 2011), the predictor, mediating, and moderating roles of different variables assessed in any particular study are often interchangeable, and variables assumed to be moderators or mediators may in actuality just be covariates in the models. Due to these limitations, the present study explores the relationships between variables of interest using correlational and multiple regression analyses. The literature in the field is not yet sufficiently developed to the extent that would allow for theoretically supported hypotheses to be made regarding possible moderating or mediating roles of any of the variables under investigation.

### **Purpose of the Study**

The primary purpose of this study was to gain better insights into the nature of the relationships between resilience, mindfulness, self-compassion, and attachment styles through correlational and multiple regression analyses. Examination of the direction and strength of the relationships between these variables as well as their component factors is a unique contribution of this study. Identifying which factors of mindfulness, self-compassion, and attachment are

most strongly related to and predictive of resilience will add valuable knowledge to the resilience and mental health literature, potentially shed light on the mechanisms through which mindfulness and self-compassion promote psychological well-being, and may lead to potential practice implications as well. For example, it may be particularly beneficial for the factors found to be most strongly related to resilience to be incorporated into psychotherapy, and they could also be possible targets for new interventions. The results of this study will also contribute to the attachment literature, as mindfulness and self-compassion have only very recently been examined in relation to attachment, and no previous studies have investigated how the various component factors of mindfulness and self-compassion are related to the attachment dimensions of anxiety and avoidance.

This study also included an additional exploratory component that sought to obtain preliminary data regarding the effects of yoga practice on the variables of interest. The aim was to ascertain whether yoga practitioners differ from individuals who do not practice yoga in levels of resilience, mindfulness, self-compassion, attachment anxiety, and attachment avoidance, as well as whether practitioners with more experience (three or more years) differ on these variables from those with less experience (less than three years). By investigating yoga practice in relation to resilience, mindfulness, self-compassion, and attachment styles, this study will also contribute to the newly emerging literature exploring the potential benefits of yoga for mental health and psychological well-being.

### **Research Questions and Hypotheses**

1. What is the nature of the relationships between resilience, mindfulness, self-compassion, and attachment styles?

Specifically, the strength and direction of the associations between resilience, as measured by the Resilience Scale (Wagnild & Young, 1993), and each of the following variables will be examined: total mindfulness and the five factors of mindfulness as measured by the Five Factor Mindfulness Questionnaire (Baer et al., 2006), total self-compassion and individual components of self-compassion as measured by the Self-Compassion Scale (Neff, 2003b), and the two dimensions of attachment anxiety and attachment avoidance as measured by the Attachment Style Questionnaire (Feeney et al., 1994). Particular attention will also be paid to how attachment anxiety and attachment avoidance are related to the individual components of mindfulness and self-compassion.

Resilience is expected to be positively correlated with total mindfulness, all five facets of mindfulness, total self-compassion, as well as the self-compassion components of self-kindness, common humanity, and mindfulness. Negative correlations are expected between resilience and the self-compassion components of self-judgment, isolation, and overidentification, as well as attachment anxiety and attachment avoidance. It is also hypothesised that attachment anxiety and attachment avoidance will be negative correlated with total mindfulness, all five facets of mindfulness, total self-compassion, and the self-compassion components of self-kindness, common humanity, and mindfulness. Both of the attachment dimensions are expected to be positively correlated with the self-compassion components of self-judgment, isolation, and overidentification.

2. What are the relative predictive weights of mindfulness, self-compassion, attachment anxiety, and attachment avoidance on resilience?

If total mindfulness, total self-compassion, attachment anxiety, and attachment avoidance are found to be significantly correlated with resilience, all of these variables will be entered into



a multiple regression model to examine their relative contributions to resilience. Two additional multiple regression analyses will be conducted to assess the relative predictive weights of the individual mindfulness and self-compassion components, provided they are all significantly correlated with resilience.

It is hypothesised that all three of the proposed multiple regression models will account for a significant amount of variance in resilience scores. At this time, the research literature is not sufficiently developed to allow for the proposal of hypotheses regarding the relative contributions of any specific factors that will be examined.

3. What effects does yoga practice have on resilience, mindfulness, self-compassion, attachment anxiety, and attachment avoidance?

Specifically, are there differences in these variables 1) between participants who practice yoga and those who do not, and 2) between more and less experienced (three or more years versus less than three years) yoga practitioners?

In view of the fact that this study is exploratory in regards to the effects of yoga practice, no specific hypotheses are proposed. It is unclear whether differences in the assessed variables should be expected between participants who practice yoga and those who do not, since a considerable proportion of the participants who identified themselves as yoga practitioners indicated that they practice only occasionally or have not been practicing for very long. This may decrease the possibility of finding significant differences between the groups. In terms of differences between practitioners with more or less experience, it is tentatively proposed that in comparison to those who have been practicing for less than three years, those who have three or more years of experience will demonstrate higher levels of resilience, mindfulness, and self-compassion, as well as lower levels of attachment anxiety and attachment avoidance.

## Chapter Three: Methodology

### Participants

Participant characteristics are presented in Table 1. The sample consisted of 114 adults representing a wide range of ages (18 to 57); the mean age of the participants was 31.93 ( $SD = 9.82$ ). A majority of the participants were women (83.3 %,  $n = 95$ ) and most were also current students (14.9 %,  $n = 17$  were undergraduate students and 38.6 %,  $n = 44$  were graduate students). The education level of the remaining participants was as follows: 28.9 % ( $n = 33$ ) had completed a graduate degree, 8.8 % ( $n = 10$ ) had completed an undergraduate degree, 4.4 % ( $n = 5$ ) were college or technical school graduates, and 4.4 % ( $n = 5$ ) were high school graduates. Regarding ethnic background, eight participants chose not to respond to the question. The participants who did respond were largely of Caucasian/European ethnic background (90.6 %,  $n = 96$ ), followed by Asian (6.6 %,  $n = 7$ ), Hispanic (1.9 %,  $n = 2$ ), and East Indian (0.9 %,  $n = 1$ ).

Almost half of the participants (48.2 %,  $n = 55$ ) indicated that they practice yoga. Of the participants who practice yoga, 63.6 % ( $n = 35$ ) had been practicing for three years or longer. In terms of practice frequency, 34.5 % ( $n = 19$ ) responded that they practice at least once per week, 30.9 % ( $n = 17$ ) practice a few times per month, and 34.5 % ( $n = 19$ ) practice a few times per year. More specific information about participants' length and frequency of practice is provided in Table 1.

Table 1

*Participant Characteristics*

	Frequency	%	<i>M</i>	<i>SD</i>
Sex				
Female	95	83.3		
Male	19	16.7		
Age (Years)			31.93	9.82
Education level				
High school	5	4.4		
College/technical school	5	4.4		
Current undergraduate student	17	14.9		
Current graduate student	44	38.6		
Undergraduate degree	10	8.8		
Graduate degree	33	28.9		
Yoga practitioner				
Yes	55	48.2		
No	59	51.8		
Practice experience ( <i>n</i> = 55)				
Less than 6 months	2	1.8		
6 months to 1 year	7	6.1		
1 to 3 years	11	9.6		
3 to 5 years	16	14.0		
Over 5 years	19	16.7		
Frequency of practice ( <i>n</i> = 55)				
Few times per year	19	16.7		
Few times per month	17	14.9		
1 to 2 times per week	5	4.4		
3 to 5 times per week	6	5.3		
6 to 7 times per week	8	7.0		

*Note.* *N* = 114 except where indicated otherwise.

## Procedures

This study received approval from the University of Calgary Conjoint Faculties Research Ethics Board. Participants were recruited through the University of Calgary and a local yoga studio between the months of September and December 2012. Recruitment was conducted through poster advertisement (around the university campus and yoga studio), the Graduate Students' Association email newsletter, as well as faculty and class email lists (e.g., faculty of education, undergraduate psychology classes). Participants had to be 18 years of age or older in order to be eligible to participate. All recruitment notices explained that the study was investigating relationships between mindfulness, attachment styles, self-compassion, and resilience. Contact information for the primary researcher was provided to allow potentially interested individuals to ask questions or request more information about the study. Individuals who were interested in participating could access the study through a SurveyMonkey link that was provided on all recruitment notices.

When potential participants visited the site, an informed consent page was presented that outlined the purpose of the study and what they would be asked to do, and also explained that participation was completely voluntary and anonymous. Participants were also assured that they could withdraw from the study at any time, in which case any responses they provided up to that point would not be included in the analysis. By selecting "Accept" at the bottom on the consent page, participants indicated that they understood the information provided about their participation and agreed to participate in the study. The participants first completed a brief demographic questionnaire, followed by measures of mindfulness, attachment styles, self-compassion, and resilience, all of which are described below. The time required to complete the

online questionnaires was approximately 15 to 25 minutes. No remuneration or compensation was provided to participants.

## **Measures**

### **Demographic Questionnaire**

Appendix C contains a copy of the brief author-designed demographic questionnaire used to gather information regarding participant characteristics, including gender, age, education level, ethnic background, and experience with yoga practice.

### **Resilience Scale**

The Resilience Scale (RS; Wagnild & Young, 1993) is a 25 item self-report instrument designed to assess degree of individual resilience. Responses are scored on a 7-point scale with two anchoring statements (from 1 = strongly disagree to 7 = strongly agree). All items are positively worded and respondents are asked to indicate what number best represents their feelings about each statement. All item scores are summed to arrive at a total resilience score. The possible range of scores is 25 to 175; scores of 147 and above signify high resilience, scores of 121 to 146 signify moderately low to moderate levels of resilience, and scores of 120 or below are indicative of low resilience (Wagnild, 2009).

Wagnild and Young (1993) developed the RS based on the findings of a qualitative study with older women who experienced successful adaptation to a major life event at some point in their lives, together with a review of the resilience literature available at the time. The conceptual foundation for the scale was the five characteristics of resilience identified in the qualitative study: perseverance, equanimity, self-reliance, meaningfulness, and existential aloneness. Items for the scale were selected on the basis of being representative of these five characteristics. An initial exploratory principal components analysis of the RS suggested one

substantial dominant factor underlying the data, though further analysis of percent variance accounted for by each factor and eigenvalues greater than 1.0 revealed a two-factor solution, which the authors labeled Personal Competence and Acceptance of Self and Life. Although these factors are occasionally considered as subscales of the RS, the vast majority of research only utilizes the total RS score, which is also the case in the present study.

The initial psychometric evaluation by Wagnild and Young (1993) indicated high internal consistency reliability with an alpha coefficient of .91 in a sample of 810 adults between the ages of 53 and 95. Wagnild's (2009) review of the RS reported alpha coefficients ranging from .72 to .94, although only one of the 12 reviewed studies had an alpha coefficient below .85. Test-retest reliability was not assessed by Wagnild and Young, but they reported findings from an ongoing study that assessed resilience during pregnancy and the postpartum period, with test-retest reliability coefficients ranging between .67 and .84. Construct validity of the RS has been supported by results indicating correlations in the expected directions with related and unrelated constructs, including positive correlations with life satisfaction, morale, physical health, health promoting activities, purpose in life, and sense of coherence, and negative correlations with depression, stress, anxiety, loneliness, and hopelessness (Wagnild & Young, 1993; Wagnild, 2009).

In a recent methodological review of 19 available resilience measures (Windle, Bennett, & Noyes, 2011), the RS was one of only 6 measures to receive maximum scores in two quality criteria used in the assessment procedure (content validity and construct validity), rating it among the highest in overall quality. An earlier review of resilience measures by Ahern, Kiehl, Lou Sole, and Byers (2006) demonstrated that the RS has been validated and reliably used with all age groups, both sexes, and various ethnic groups, and also concluded that the RS is the most

appropriate measure of resilience for the adolescent population. Both of these reviews agreed that the RS has more support than any other scale for use in all ages, and it has also been the most widely used in the research literature (Ahern et al., 2006; Windle et al., 2011). The RS was selected for use in the present study due to its wide use and proven reliability with all age groups and particularly young adults, as they comprise a substantial proportion of the sample.

### **Five Facet Mindfulness Questionnaire**

The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) is a 39 item self-report instrument designed to allow for a multifaceted assessment of mindfulness. Participants are asked to answer each of the items on 5-point Likert-type scale (1 = never or very rarely true to 5 = very often or always true), and five subscale scores are calculated by summing the responses on the items making up each subscale. The five facets of mindfulness assessed by the FFMQ, corresponding to the five subscales, are as follows: observing (attending to/noticing internal and external stimuli), describing (noting or mentally labeling these stimuli with words), acting with awareness (as opposed to auto-pilot), nonjudging of inner experience (refraining from evaluation of one's sensations, thoughts, and emotions) and nonreactivity to inner experience (allowing thoughts and feeling to come and go). A total mindfulness score is calculated by summing the five subscale scores.

The FFMQ was developed through an extensive five-part study in which Baer and colleagues (2006) first investigated the psychometric properties of five existing mindfulness questionnaires and then conducted a factor analysis of the combined pool of items from all the questionnaires. A five-factor model emerged from this analysis and was further verified by hierarchical confirmatory factor analysis, suggesting that items from the existing measures contained five unique and interpretable facets of mindfulness. Items that were identified as

having the highest loadings on the five derived factors were selected to comprise the five subscales of the FFMQ. Internal consistency of the subscales was deemed to be adequate to good, with the following alpha coefficients obtained by Baer and colleagues: Observing = .83, Describing = .91, Acting with Awareness = .87, Nonjudging = .87, and Nonreactivity = .75. Test-retest reliability was not assessed.

Examination of relationships between the mindfulness facets and related constructs revealed that the facets were differentially related, in both strength and magnitude, to other constructs (Baer et al., 2006). This indicates that all of the facets provide useful information for understanding associations between mindfulness and other variables, and also provides evidence for the FFMQ's construct validity. For example, openness to experience was most strongly related to the Observing facet ( $r = .42$ ), emotional intelligence was most strongly related to the Describing facet ( $r = .60$ ), and self-compassion was most strongly related to the Nonreactivity facet ( $r = .53$ ). The Nonjudging facet had particularly strong negative correlations with psychological symptoms ( $r = -.50$ ), neuroticism ( $r = -.55$ ), thought suppression ( $r = -.56$ ), difficulties with emotion regulation ( $r = -.52$ ), and experiential avoidance ( $r = -.49$ ), while the Acting with Awareness facet had the highest negative correlations with dissociation ( $r = -.62$ ) and absent-mindedness ( $r = -.61$ ).

Construct validity of the FFMQ was further assessed in a subsequent study that obtained data from four different groups, these being experienced meditators, demographically similar nonmeditators, community adults, and students (Baer et al., 2008). The meditators obtained significantly higher scores than the other groups, and mediation analyses revealed that, when considered separately, the facets of Observing, Describing, Nonjudging, and Nonreactivity each mediated the relationship between meditation experience and well-being (Baer et al., 2008).



## **Self-Compassion Scale**

The Self-Compassion Scale (SCS; Neff, 2003b) is a 26 item self-report questionnaire that provides a Total Self-Compassion score as well as six subscale scores: Self-Kindness, Self-Judgment, Common Humanity, Isolation, Mindfulness, and Overidentification. Participants are asked to respond to each of the items on a 5-point scale ranging from “Almost Never” to “Almost Always”. Subscale scores are calculated by obtaining the mean of the items comprising each subscale, with higher scores indicating a higher level of the subtrait being measured. Mean scores on the six subscales are added (after reverse-coding items comprising the Self-Judgment, Isolation, and Overidentification subscales) to create a total self-compassion score.

Two initial studies described by Neff (2003b) found that a six-factor model fit the data well, and these factors represent the six SCS subscales. Furthermore, inter-correlations between these factors were explained by a single higher-order factor of self-compassion, suggesting that “self-compassion appears to be an overarching factor emerging out of the combination of subscale components rather than an underlying factor” (p. 234).

Initial validation studies of the SCS conducted by Neff (2003b) demonstrated high internal consistency reliability (.92 for total score) and test-retest reliability over a three week period (.93 for total score). Internal consistency reliability coefficients for each of the subscales were as follows: Self-Kindness (.78), Self-Judgment (.77), Common Humanity (.80), Isolation (.79), Mindfulness (.75), and Overidentification (.81). Test-retest reliability for the subscales was: Self-Kindness (.88), Self-Judgment (.88), Common Humanity (.80), Isolation (.85), Mindfulness (.85), and Over-Identification (.88).

Convergent and discriminant validity for the SCS was established by examining relationships with measures of anxiety symptoms (in two samples,  $r = -.65$  and  $r = -.66$

respectively), depression symptoms (in two samples,  $r = -.51$  and  $r = -.55$  respectively), life satisfaction ( $r = .45$ ), self esteem ( $r = .59$ ), self-acceptance ( $r = .62$ ), thought suppression ( $r = -.37$ ), rumination ( $r = -.50$ ), and emotional processing ( $r = .39$ ). All of these correlations are high enough to support the scale's convergent validity but also low enough to indicate that the SCS is measuring a unique psychological construct (Neff, 2003b). Construct validity of the SCS was further assessed by comparing the scores of Buddhist meditators with those of undergraduate students (Neff, 2003b). The Buddhist meditators were found to have significantly higher scores in Total Self-Compassion, Self-Kindness, Common Humanity, and Mindfulness, as well as significantly lower scores on Self-Judgment, Isolation, and Overidentification. By demonstrating that the SCS is able to differentiate between groups that are expected to differ in a theoretically consistent manner, these results support the scale's construct validity (Neff, 2003b).

### **Attachment Style Questionnaire**

The 40 item Attachment Style Questionnaire (ASQ; Feeney et al., 1994) is a self-report instrument used to assess the two dimensions of attachment, Anxiety and Avoidance. Each item is rated on a 6-point scale ranging from "Totally Disagree" to "Totally Agree" and scores on the two dimensions are obtained by calculating the mean of all items that comprise each dimension. Feeney and colleagues (1994) developed the ASQ in an effort to address several issues with the self-report attachment measures that were available at the time. The various measures differed in their theoretical focus and fundamental assumptions regarding issues of attachment, and they also greatly varied in item content.

Traditionally, attachment measures were designed to be categorical in nature and classified individuals into specific types, assuming that attachment styles were mutually exclusive. Feeney and colleagues (1994) were among the first to question this approach,

proposing instead that attachment styles may be better conceptualized as continuous and dimensional in nature, and they designed their measure accordingly. At the time, there was debate in the literature concerning the number of attachment styles in adults as well as the central dimensions of adult attachment, thus one of Feeney and colleagues' goals in developing the ASQ was to add conceptual clarity to these issues. Another issue that the authors wanted to address was the fact that existing measures required respondents to have experience in close romantic relationships, which limited their use with individuals who did not have such experience as well as in studies that did not specifically want to examine attachment in the context of romantic relationships. The ASQ was thus designed as a broad-based measure of attachment that provides information about individuals' general attachment patterns.

During the development of the ASQ, principal-components analysis revealed two solutions. The three-factor solution yielded factors that were identified as Security, Anxiety, and Avoidance, though traditionally only the Avoidance and Anxiety factors are measures as they represent the two proposed underlying dimensions of attachment, and security is represented by low levels of both. The second solution was a five-factor model that resulted in five additional subscales, but again these have not been utilized in research.

The ASQ has been demonstrated to have good psychometric properties (Feeney et al., 1994). The Anxiety scale had an internal consistency reliability of .85 and test-retest reliability (over a period of 10 weeks) of .80. The Avoidance scale had an internal consistency reliability of .83 and test-retest reliability of .75. In a review of all available adult attachment measures conducted by Ravitz, Maunder, Hunter, Sthankiya, and Lancee (2010), the ASQ was considered to be among the most valid and reliable instruments, and it was also the only psychometrically

sound instrument that assessed attachment dimensions in close relationships in general rather than relationships with specifically parents or romantic partners.

### **Data Analysis**

All data analyses were performed using SPSS for Windows version 19.0. Skeweness and kurtosis values were calculated and frequency histograms were examined to ensure that all the variable distributions approximated normality. Relationships between all the assessed variables were analyzed using Pearson product-moment correlations. Collinearity statistics for all predictor variables were analyzed; tolerance and variance inflation factor values confirmed that multicollinearity between the variables did not exist, indicating they could all be appropriately used in the multiple regression analyses. All multiple regression analyses were performed using the simultaneous method ('enter' method in SPSS). Differences between participants who practice yoga and those who do not, and between those who have over three years of experience and those who have less than three years of experience were assessed using a series of one-way between-subjects ANOVAs.

## Chapter Four: Results

This chapter presents the results of the current study in four sections: descriptive statistics, correlational analyses (pertaining to research question number one), multiple regression analyses (pertaining to research question number two), and analyses of variance (pertaining to research question number three).

### Descriptive Statistics

Table 2 presents the means, standard deviations, ranges, internal consistency reliability coefficients (alphas), skewness, and kurtosis values for all variables measured in the study.

Table 2

#### *Descriptive Statistics for Assessed Variables*

Variable	<i>M</i>	<i>SD</i>	Range	Alpha	Skew	Kurtosis
Resilience	145.49	19.59	84 - 182	.93	-.336	.214
Mindfulness						
Observing	27.40	5.22	13 - 39	.80	-.226	.265
Describing	28.66	6.54	9 - 40	.93	-.309	-.100
Acting with Awareness	26.46	5.79	12 - 40	.90	-.335	-.052
Nonjudging	25.72	5.50	12 - 36	.94	-.170	-.670
Nonreactivity	21.45	4.48	11 - 35	.84	.411	.684
Total Mindfulness	129.69	19.40	88 - 177	.94	.202	-.223
Attachment						
Anxiety	3.13	0.93	1.23 - 5.23	.90	.130	-.673
Avoidance	3.08	0.71	1.44 - 5.13	.89	.216	.030
Self-Compassion						
Self-Kindness	3.10	0.89	1.00 - 5.00	.87	-.017	-.583
Self-Judgment	2.76	1.03	1.00 - 5.00	.89	.173	-.674
Common Humanity	3.25	0.96	1.00 - 5.00	.82	-.210	-.789
Isolation	2.63	1.08	1.00 - 5.00	.87	.351	-.697
Mindfulness	3.39	0.81	1.25 - 5.00	.79	.026	-.295
Overidentification	2.69	1.03	1.00 - 5.00	.85	.227	-.818
Total Self-Compassion	19.65	4.83	7.50 - 29.80	.95	-.090	-.659

*Note.*  $N = 114$  for all variables.

### **Correlational Analyses**

The correlational analyses presented here pertain to research question number one: What is the nature of the relationships between resilience, mindfulness, self-compassion, and attachment styles? Table 3 presents correlations between all the variables assessed in the current study, providing information on both the strength and the direction of the relationships. All the relationships among the variables were in the expected directions.

Table 3

*Correlations between Assessed Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Resilience	-														
2. Observing	.37***	-													
3. Describing	.52***	.27**	-												
4. Acting with Awareness	.49***	.36***	.46***	-											
5. Nonjudging	.44***	.19*	.39***	.44***	-										
6. Non-reactivity	.46***	.28**	.45***	.42***	.38***	-									
7. Total Mindfulness	.65***	.58***	.76***	.77***	.69***	.69***	-								
8. Avoidance	-.68***	-.34***	-.45***	-.48***	-.69***	-.48***	-.69***	-							
9. Anxiety	-.42***	-.22*	-.48***	-.31**	-.49***	-.27**	-.51***	.55***	-						
10. Self-Kindness	.65***	.47***	.52***	.51***	.57***	.51***	.73***	-.64***	-.50***	-					
11. Self-Judgment	-.62***	-.28**	-.44***	-.50***	-.67***	-.49***	-.67***	.70***	.57***	-.69***	-				
12. Common Humanity	.53***	.31**	.38***	.26**	.39***	.41***	.49***	-.45***	-.35***	.66***	-.49***	-			
13. Isolation	-.64***	-.27**	-.38***	-.51***	-.55***	-.51***	-.63***	.75***	.51***	-.54***	.77***	-.47***	-		
14. Mindfulness	.66***	.39***	.35***	.42***	.37***	.64***	.60***	-.51***	-.30**	.73***	-.57***	.69***	-.56***	-	
15. Over-identification	-.62***	-.17	-.38***	-.47***	-.54***	-.59***	-.60***	.65***	.41***	-.59***	.80***	-.45***	.79***	-.65***	-
16. Total Self-Compassion	.74***	.37***	.49***	.54***	.63***	.63***	.75***	-.75***	-.53***	.83***	-.87***	.74***	-.84***	.83***	-.87***

Note:  $N = 114$  for all variables.

\*  $p < .05$ . \*\*  $p \leq .01$ . \*\*\*  $p \leq .001$ . All two-tailed.

Resilience was significantly and positively correlated with all FFMQ scores. The association between Total Mindfulness and resilience was strong ( $r = .65$ ), and the five mindfulness facets were all moderately to strongly related to resilience. The strongest associations were found with the Describing facet ( $r = .52$ ) and the Acting with Awareness facet ( $r = .49$ ). Correlations between resilience and the other facets were as follows: Observing ( $r = .37$ ), Nonjudging ( $r = .44$ ), and Nonreactivity ( $r = .46$ ).

Significant, moderate to strong relationships were also observed between resilience and the two attachment dimensions, both in the negative direction. Higher levels of resilience tended to be associated with lower levels of both Attachment Anxiety ( $r = -.68$ ) and Attachment Avoidance ( $r = -.42$ ).

Total Self-Compassion was related to resilience more strongly than any other variable ( $r = .74$ ), and correlations between resilience and all the SCS subscales were all strong as well: Self-Kindness ( $r = .65$ ), Self-Judgment ( $r = -.62$ ), Common Humanity ( $r = .53$ ), Isolation ( $r = -.64$ ), Mindfulness ( $r = .66$ ), and Overidentification ( $r = -.62$ ).

Both Attachment Anxiety and Attachment Avoidance were significantly correlated with all FFMQ and SCS scores, all in the expected directions. Attachment Anxiety was moderately to strongly related to all FFMQ and SCS scores, the strongest correlations being with Total Mindfulness ( $r = -.69$ ), FFMQ Nonjudging ( $r = -.69$ ), Total Self-Compassion ( $r = -.75$ ), SCS Self-Judgment ( $r = .70$ ), SCS Isolation ( $r = .75$ ), and SCS Overidentification ( $r = .65$ ). The relationships of FFMQ and SCS scores with Attachment Avoidance were in the weak to moderate-strong range, with the strongest correlations existing between Attachment Avoidance and Total Mindfulness ( $r = -.51$ ), FFMQ Nonjudging ( $r = -.49$ ), Total Self-Compassion ( $r = -.53$ ), SCS Self-Judgment ( $r = .57$ ), SCS Isolation ( $r = .51$ ), and SCS Self-Kindness ( $r = -.50$ ).



### Multiple Regression Analyses

The multiple regression analyses presented here pertain to research question number two: What are the relative predictive weights of mindfulness, self-compassion, attachment anxiety, and attachment avoidance on resilience?

To examine the relative predictive weight of the individual factors of self-compassion (as measured by the subscales of the SCS) and mindfulness (as measured by the five facets of the FFMQ) on resilience, two separate multiple regression analyses were conducted. The model comprising of the six self-compassion factors as predictors (see Table 4) accounted for 58% of the variance in resilience scores ( $R^2 = .575, p < .001$ ). SCS Self-Kindness, SCS Isolation (inversely), and SCS Mindfulness emerged as unique, significant predictors. In the model comprising the five facets of mindfulness (see Table 5), Observing, Describing, and Nonjudging were unique, significant predictors of resilience, and the model accounted for 43% of the variance ( $R^2 = .426, p < .001$ ). The two remaining mindfulness facets approached significance: Acting with Awareness,  $p = .073$ , and Nonreactivity,  $p = .069$ .

Table 4

*Regression Analysis Showing Prediction of Resilience by Self-Compassion Factors*

Coefficients	$\beta$	SE	$t$	$p$	$sr^2_p$
Self-kindness*	.248	2.45	2.23	.028	.140
Self-judgment	-.054	2.43	-0.43	.671	-.027
Common humanity	.004	1.90	0.04	.967	.003
Isolation*	-.298	2.05	-2.64	.009	-.167
Mindfulness*	.265	2.71	2.35	.020	.148
Overidentification	-.020	2.46	-0.15	.880	-.010

*Note.*  $R^2$  for model = .575. Predictor variables entered simultaneously into a single regression equation.

\* $p < .05$ .

Table 5

*Regression Analysis Showing Prediction of Resilience by Mindfulness Facets*

Coefficients	$\beta$	SE	$t$	$p$	$sr^2_p$
Observing*	.158	.30	2.00	.048	.146
Describing*	.265	.26	3.01	.003	.219
Acting with Awareness	.165	.31	1.81	.073	.132
Nonjudging*	.172	.30	2.02	.046	.147
Nonreactivity	.160	.38	1.84	.069	.134

*Note.*  $R^2$  for model = .426. Predictor variables entered simultaneously into a single regression equation.

\* $p < .05$ .

To examine how the combination of mindfulness, self-compassion, and attachment contributes to resilience, Total Mindfulness, Total Self-Compassion, Attachment Anxiety, and Attachment Avoidance were entered as predictors into a third regression equation (see Table 6). This model accounted for 60% of the variance in resilience scores, with Total Self-Compassion and Attachment Anxiety (inversely) emerging as significant predictors ( $R^2 = .596, p < .001$ ).

Table 6

*Regression Analysis Showing Prediction of Resilience by Total Mindfulness, Total Self-Compassion, Attachment Anxiety, and Attachment Avoidance*

Coefficients	$\beta$	SE	$t$	$p$	$sr^2_p$
Mindfulness	.155	.10	1.605	.111	.098
Self-Compassion*	.470	.43	4.443	.000	.271
Attachment Anxiety*	-.242	2.09	-2.444	.016	-.149
Attachment Avoidance	.044	2.08	.589	.557	.036

*Note.*  $R^2$  for model = .596. Predictor variables entered simultaneously into a single regression equation.

\* $p < .05$ .

### Analyses of Variance

The analyses of variance presented here pertain to research question number three: What effects does yoga practice have on resilience, mindfulness, self-compassion, attachment anxiety, and attachment avoidance? Differences on these variables were examined between participants who practice yoga and those who do not, as well as between participants who have been practicing yoga for over three years and those who have been practicing for less than three years.

No significant differences were found between the group of participants who practice yoga and those who do not in any of the assessed variables (see Table 7).

Table 7

*Effects of Yoga Practice on Mindfulness, Attachment, Self-Compassion, and Resilience*

Variable	Yoga Practice				F	p
	No (n = 59)		Yes (n = 55)			
	M	SD	M	SD		
Mindfulness						
Observing	26.56	5.37	28.31	4.94	3.264	.073
Describing	28.64	6.73	28.67	6.38	.001	.981
Actaware	26.49	5.53	26.44	6.11	.003	.960
Nonjudging	25.29	5.40	26.18	5.62	.749	.389
Nonreactivity	21.64	3.89	21.24	5.06	.234	.629
Total Mindfulness	128.63	18.07	130.84	20.84	.367	.546
Attachment						
Anxiety	3.23	0.89	3.02	0.96	1.431	.234
Avoidance	3.14	0.72	3.00	0.70	1.099	.297
Total Self-Compassion	19.39	4.71	19.94	4.99	.375	.541
Resilience	143.08	18.63	148.07	20.41	1.860	.175

In the group of yoga practitioners, compared to participants who had less than three years of practice experience, those with three or more years of experience had significantly higher scores on Total Self-Compassion,  $F(1,54) = 5.61, p < .05$ , Total Mindfulness,  $F(1,54) = 5.74, p < .05$ , as well as the two mindfulness facets of Observing,  $F(1,54) = 7.00, p < .05$ , and Nonjudging,  $F(1,54) = 5.62, p < .05$ . The effect sizes for these differences approached a large effect (Cohen, 1988; see table 8). The participants with more practice experience also had significantly lower scores on the anxiety dimension of attachment than those with less experience,  $F(1,54) = 7.12, p < .05$ . The groups did not differ significantly on the remaining variables (Table 8).

Table 8

*Effects of Yoga Experience on Mindfulness, Attachment, Self-Compassion, and Resilience*

	Yoga Practice Experience				<i>F</i>	<i>p</i>	$\eta^2$
	Under three years ( <i>n</i> = 20)		Over three years ( <i>n</i> = 35)				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Mindfulness							
Observing*	26.10	5.62	29.57	4.08	6.98	.011	.116
Describing	26.85	4.71	29.71	7.02	2.64	.110	.047
Acting with Awareness	25.70	6.39	26.86	6.00	0.45	.504	.008
Nonjudging*	23.90	5.81	27.49	5.15	5.62	.021	.096
Nonreactivity	19.75	4.36	22.09	5.29	2.80	.100	.050
Total Mindfulness*	122.30	18.84	135.71	20.59	5.74	.020	.098
Attachment Anxiety*	3.46	0.96	2.78	0.88	7.12	.010	.118
Attachment Avoidance	3.06	0.77	2.97	0.67	0.22	.641	.004
Total Self-Compassion*	17.92	5.28	21.10	4.49	5.61	.022	.096
Resilience	143.70	18.63	150.57	21.22	1.45	.233	.027

*Note.*  $\eta^2$  = partial eta squared. 0.14 = large effect, 0.06 = medium effect, 0.01 = small effect (Cohen, 1988).

\**p* < .05

## Chapter Five: Discussion

In accord with the ever-increasing recognition that mental health is more than the absence of psychopathology and the recent paradigm shift in psychology away from a problem oriented approach to one that focuses on factors that promote psychological well-being, support individual growth and development, and foster positive adaptation, this study investigated relationships between three constructs that have all been linked to positive mental health – resilience, mindfulness, self-compassion, and attachment style. Examination of these constructs within one study is consistent with another trend emerging in the field, the coming together of Western and Eastern psychology in an effort to develop a deeper understanding of the human mind and learn more about ways that we can promote healing and encourage personal growth (Kabat-Zinn & Davidson, 2011; Walsh & Shapiro, 2006). Seeking to contribute new knowledge to this area of research, this study brought together two concepts that have received much interest among researchers and clinicians in Western psychology over the past several decades, resilience and attachment, with two concepts from ancient Eastern philosophy that have recently also garnered much attention in the Western literature, these being mindfulness and self-compassion.

The primary aim of this study was to gain better insights into the nature of the relationships between these variables in the hope of shedding light on the possible mechanisms through which they may interact to ultimately contribute to positive mental health outcomes. This study used a cross-sectional design and employed correlational, multiple regression, and ANOVA analyses. Resilience was considered as the primary outcome variable in all multiple regression analyses, with the goal of identifying which factors of mindfulness, self-compassion, and attachment are most strongly related to and predictive of resilience. A further area of interest was to examine, through correlational analyses, how the various components of

mindfulness and self-compassion are related to attachment styles. Finally, an exploratory element of this study was an investigation of the effects of yoga practice on the variables of interest.

Results of the study supported the proposed hypotheses. Consistent with prediction, resilience was significantly and positively correlated with total mindfulness, all five facets of mindfulness, total self-compassion, and the self-compassion components of self-kindness, common humanity, and mindfulness, as well as significantly and inversely correlated with attachment anxiety, attachment avoidance, and the self-compassion components of self-judgment, isolation, and overidentification. As hypothesised, all three multiple regression models also accounted for a significant amount of variance in resilience scores. Results pertaining to the relative contributions of individual factors will be discussed in an upcoming section. In regards to the exploratory investigation of the effects of yoga practice, no differences on the variables of interest were found between participants who practice yoga and those who do not. The tentative prediction that those participants who have three or more years of experience would have higher levels of resilience, mindfulness, and self-compassion, as well as lower levels of attachment anxiety and attachment avoidance than those with less experience was partially supported. Scores on all variables differed as expected, but not all differences reached statistical significance.

### **How Mindfulness, Self-Compassion, and Attachment Relate to Resilience**

#### **Resilience and Mindfulness**

The vast literature on mindfulness that has emerged over the past two decades has clearly demonstrated that mindfulness is a significant factor relevant not only to the study of psychopathology but, perhaps more importantly, mental health as well. There is widespread

agreement among clinicians and researchers that mindfulness has the potential to promote positive psychological functioning and exert a protective influence on mental health. The results of this study are congruent with the theoretical and research literature in this field. Resilience was significantly positively correlated with total mindfulness as well as all five of the mindfulness facets measured by the FFMQ. More specifically, higher levels of resilience were most strongly associated with greater mindfulness skills in the areas of being able to recognize and describe inner experiences, approaching everyday life activities with greater awareness rather than running on auto-pilot, and nonreactivity to inner experiences.

Multiple regression using the five mindfulness facets as predictor variables revealed that together they accounted for 43% of the variance in resilience scores. Although only observing, describing, and nonjudging were found to be significant predictors, acting with awareness and nonreactivity also approached significance ( $p = .07$  for both). It is also noteworthy that when considering the unique contributions of each individual facet (according to their squared semipartial correlation coefficients), the describing facet individually accounted for 22% of the variance in resilience, while the contributions of the other four facets ranged between 13% and 15%. While the describing facet clearly emerged as the strongest predictor of resilience, the other facets individually accounted for similar amounts of variance. It therefore appears that all the mindfulness facets individually make roughly equal individual contributions to resilience, and none can be singled out as being substantially less important than others.

These results suggest that all of the facets of mindfulness likely play a role in the mechanisms through which mindfulness may act to increase resilience and adaptability in times of stress. The processes through which mindfulness promotes well-being that have been discussed in the theoretical literature all begin with the cultivation of awareness, and awareness



could be said to lie at the core of all five of the mindfulness facets. Awareness is a powerful resource that is always available to us, but we need to cultivate and protect it in order to realize its wide-reaching benefits (e.g., Kabat-Zinn, 2005; Siegel, 2007a, 2007b). Refinement of awareness is essential for learning to become more present in our lives, disengaging from habitual, automatic patterns of thinking and behaving, and developing the capacity for more effective emotion regulation. Ultimately, mindful awareness allows us to approach life with greater flexibility, adaptability, openness, and equanimity (e.g., Bishop et al., 2004; Kabat-Zinn, 2005; Siegel, 2007a, 2007b).

Unfortunately, many people tend to be anything but fully aware as they go through their daily lives, chronically disconnected from their thoughts, emotions, perceptions, bodies, and what they are doing at any given moment. This is reflected mostly in the acting with awareness facet of mindfulness, but the others certainly play a role well. As Kabat-Zinn (2005) describes it,

...we tend to be specialists at being out of touch a great deal of the time, and out of touch with just how out of touch we can be...This is mostly due to being perpetually preoccupied, lost in our minds, absorbed in our thoughts, obsessed with the past or the future, consumed with our plans and desires, diverted by our need to be entertained, driven by our expectations, fears, or cravings of the moment, however unconscious and habitual all this may be. (p. 118)

There is a price to be paid for living in this disconnected way. Not only do we miss out on experiencing the richness of each and every moment, but our lives essentially become run by conditioned habits of the mind – repetitive, narrow, and often distorted thinking, overidentification with or suppression of any emerging emotions, and automatic, mindless reactivity (Bishop et al., 2004; Brown et al., 2007; Germer et al., 2005; Kabat-Zinn, 2005;

Shapiro & Carlson, 2009; Siegel, 2007a). This severely limits our ability to accurately perceive our internal and external worlds and thus also our ability to respond in the most appropriate way to unfolding experiences, which is not conducive to effective coping and successful adaptation in challenging situations.

Our ability to be resilient in the face of adversity requires us to see our experiences with more depth and clarity, without the filter of conditioned habits and assumptions. Being in touch with what we are experiencing internally – having awareness of the changing contents of our mind and our emotional state – is also essential. These qualities are captured by the observing and describing facets of mindfulness. By allowing us to disengage from automatic thoughts and patterns of negative behavioural reactivity, mindfulness widens our perspective, encourages flexibility and adaptability, and “is thought to enable one to respond to situations more reflectively (as opposed to reflexively)” (Bishop et al., 2004, p. 232). The nonjudging and nonreactivity facets of mindfulness work together in allowing us to hold painful or unpleasant thoughts and emotions in awareness without overidentifying with them, attempting to suppress them, or responding to them in maladaptive ways (e.g., Baer et al., 2006; Bishop et al., 2004; Kabat-Zinn, 2005; Shapiro & Carlson, 2009; Siegel, 2007a, 2007b). The nonjudging quality of mindfulness highlights the value of acceptance, both of our internal and external experiences.

However, this is not to be confused with resignation, as Kabat-Zinn (2005) poignantly explained:

It takes a huge amount of fortitude and motivation to accept what is – especially when you don’t like it – and then work wisely and effectively as best you possibly can in the circumstances you find yourself in and with the resources at your disposal, both inner and outer, to mitigate, heal, and change what can be changed. (p. 408)

The describing facet of mindfulness was observed to have a particularly strong relationship with resilience, accounting for the most unique variance of all the facets. This suggests that being in touch with ourselves and our unfolding moment-to-moment experiences, and in particular learning to recognize and identify the ever-changing contents of our mind, may be an especially beneficial quality. Indeed, learning to see how the mind works and being able to recognize and name the various thoughts, emotions, habits, impulses, and other mental events as they come and go is considered to be a foundational skill in Buddhist philosophy – “The naming of mental processes is the indispensable preparation for fully understanding them in their true nature, the task of insight” (Nyanaponika, 1994, p. 81). Not only does the very act of turning our awareness inward and naming what we are experiencing have the potential to exert a powerful regulating influence on our mind, it also diminishes the power of habitual patterns and conditioned responses to run our lives. Learning to recognize our mental processes makes them more accessible; it allows us to reflect on and question our ingrained habits and previously unquestioned thinking patterns, thus making them more amenable to change (Nyanaponika, 1994).

### **Resilience and Self-Compassion**

Results of the current study are also consistent with and strongly support the emerging literature concerning the role of self-compassion in promoting mental health and well-being. The relationships between resilience and self-compassion stood out as being particularly strong; the correlation between resilience and total self-compassion was the highest of all measured variables, and correlations between resilience and the six components of self-compassion were also stronger than many of the other variables. Higher levels of self-kindness, feelings of common humanity, and mindfulness were all associated with higher resilience, as were low

levels of self-judgment, feelings of isolation, and overidentification with painful thoughts and emotions. The multiple regression model containing the six self-compassion factors accounted for 58% of the variance in resilience. Self-kindness, isolation (inversely), and mindfulness all emerged as unique, significant predictors, each individually accounting for between 14% and 17% of variance.

These results suggest that the way we treat ourselves can have a considerable impact on our ability to deal with stress, overcome challenges to our well-being, and perhaps even experience a sense of transformation and personal growth in the face of adversity. In order to activate our coping resources, we must first become aware of the fact that we are in pain or suffering (Neff, 2011). While this may sound simple, it is something that many people actually find quite difficult. We are often so out of touch with ourselves that we do not recognize the first signs of suffering, which is made even harder by messages we may have internalized from our families or society as a whole that invalidate our suffering and tell us to push through it at all costs (Neff, 2011). Self-compassion's role in promoting resilience may thus begin by allowing us to more easily recognize when we are in pain or suffering, which then enables us to do something about it. Being able to offer ourselves soothing, care, and support when facing challenges in our lives may also be instrumental in helping us cope.

The finding that the mindfulness component of self-compassion emerged as a significant predictor of resilience is consistent the previous discussion of the possible mechanisms through which mindfulness promotes resilience. Results of this study also suggest that self-kindness may play a particularly important role in fostering resilience. Treating ourselves with kindness and warmth in difficult situations or when experiencing painful emotions creates a feeling of safety that deactivates the threat system (Gilbert, 2009). We can not cope and respond effectively when

operating from a place of fear; feeling calm and secure is essential for activating our coping resources (Gilbert, 2009; Neff, 2011). Self-kindness is also a powerful force for quelling self-criticism, which, in addition to having very detrimental effects on mental health in general, also undermines self-efficacy and creates doubt about our ability to effectively deal with challenging situations (Gilbert, 2009; Neff, 2011). Self-determination, or a belief that one can overcome obstacles and persevere in the face of adversity, is an essential attribute of resilience (Earvolino-Ramirez, 2007). The courage and self-confidence fostered when we treat ourselves with kindness rather than condemnation may therefore be one of the underlying mechanisms through which self-compassion contributes to resilience.

In addition to promoting healthy coping and adaptation in times of stress, by helping us realize our inherent value, self-compassion also instills us with a sense of intrinsic motivation to care for ourselves and work toward improving our own well-being (Barnard & Curry, 2011; Neff, 2003a). The courage and sense of safety fostered by self-compassion encourages people to embrace opportunities for personal growth and do things that might not otherwise be possible (Neff, 2011). Self-compassionate individuals are able to take more risks, they have greater curiosity about life and feel safe in exploring everything it has to offer, and they can recognize when their own actions may be causing them harm and are able to take the difficult but necessary steps to correct their behaviours and get better (Neff, 2009, 2011). Wanting the best for ourselves and continually striving to make choices that improve our well-being ultimately makes us stronger, and may therefore promote resilience as well.

The isolation component of self-compassion was also a strong negative predictor of resilience, suggesting that when people feel a sense of disconnection from others and think they are the only ones going through a particular struggle or experiencing painful emotions, this may

be particularly detrimental to their coping abilities. Social support had been identified as one of the defining attributes of resilience (Earvolino-Ramirez, 2007), further compounding the negative effects of isolation. Self-compassion may perhaps ameliorate some of the negative consequences associated with a lack of social support by encouraging individuals to actively care for and offer themselves the same kind of support and comfort that they would offer a friend in need. Social support is certainly important, but a powerful step toward healing may lie in the realization that we are actually the ones in the best position to sooth and comfort ourselves in times of struggle and suffering. As Neff (2011) explains:

Who is most likely to know the full extent of the pain and fear you face, to know what you need most? Who is the only person in your life who is available 24/7 to provide you with care and kindness? You. (p. 60)

The current study suggests that self-compassion is an especially important component of resilience. In the multiple regression model that included total self-compassion, total mindfulness, attachment anxiety, and attachment avoidance, which together accounted for 58% of the variance in resilience scores, self-compassion was by far the strongest predictor of resilience, making an individual unique contribution of 27%. Attachment anxiety was the only other significant predictor, accounting for 15% of unique variance. In this model, total mindfulness explained 10% all the variance to be accounted for that no other predictor did, but this result was not significant. This does not mean that mindfulness does not play a role in resilience, as the model containing the five mindfulness facet was significant and explained 43% of the variance, but it does indicate that much of the variance that mindfulness contributes is variance that is shared with self-compassion and attachment anxiety.

All of these variables are inter-related and likely influence each other to some extent. It is possible that mindfulness is able to make a stronger contribution to resilience when it operates in concert with self-compassion. As Hayes and Feldman (2004) have pointed out, developing mindful awareness can at first have somewhat destabilizing effects. It is not uncommon for people to feel distressed when they begin to realize just how out of touch they have been, how distorted their thinking patterns may be, and how many painful emotions they have been suppressing. Self-compassion may be instrumental in helping individuals cope with this initial distress and allowing the qualities of mindful awareness to develop to the point where they can have positive effects on psychological well-being. Mindfulness may thus need to be rooted in a foundation of self-compassion in order to promote the development of resilience and help individuals overcome challenging life circumstances.

### **Resilience and Attachment**

The findings pertaining to the relationship between attachment and resilience were also consistent with theory and research literature. The theoretical literature has long proposed that attachment styles exert considerable influence over mental health and resilience. John Bowlby (1988) himself described attachment theory as a theory that explains why some individuals develop resilient personalities while others are “prone to anxiety and depression, or to developing a false self or some other form of vulnerability to mental ill-health” (p. 132). More recently, DiCorcia and Tronick (2011) emphasized that a comprehensive theory of resilience requires a greater focus on developmental processes, in particular a child’s experiences in relationships with their caregivers. This led to their development of the attachment-based Everyday Stress Resilience Hypothesis. According to DiCoricia and Tronick, the roots of resilience lie in a child’s early attachment relationships; “successful regulation of stress and the

growth of regulatory resilience is not solely dependent on infants' internal self-organized regulatory capacities...[it] is critically dependent on the quality of the infant-caretaker relationship" (p. 1594). It warrants mentioning that the authors' discussion was focused specifically on mother-child relationships.

Infants depend on their mothers' sensitivity, responsiveness, and ability to provide external regulation in order to develop their own capacities for stress regulation (Bowlby, 1988; DiCorcia & Tronick, 2011; Mikulincer & Shaver, 2007). As experiences of successful regulation within the infant-caregiver dyad prepare the infants to cope with gradually more demanding stressors, their resilience grows and over time they become increasingly able to regulate distress on their own. Resilience further develops with every new experience of successful coping with everyday stressors, which progressively enhances our ability to cope with more and more challenging situations (DiCorcia & Tronick, 2011). This whole process is critically dependent on the quality of early attachment relationships and the external regulatory support they provide. When such support is lacking, healthy stress and emotion regulation capacities are unable to develop, the infant becomes chronically dysregulated, and development of resilience is severely disrupted (DiCorcia & Tronick, 2011; Mikulincer & Shaver, 2007). Individuals with insecure attachment styles are thus more vulnerable to developing mental health problems and experiencing severe distress and poor adjustment when faced with adversity (Mikulincer & Shaver, 2007).

Results of this study support a link between secure attachment, or low levels of attachment anxiety and avoidance, and resilience. High attachment anxiety was strongly related to low resilience, while high attachment avoidance was moderately related to low resilience. This is consistent with the wider literature; attachment anxiety is commonly found to be more



strongly related to measures of psychological distress and well-being than attachment avoidance. This pattern was also reflected in the multiple regression analysis that used attachment anxiety, attachment avoidance, total mindfulness, and total self-compassion as predictor variables.

Attachment anxiety was a significant predictor of resilience, accounting for 15% of the variance, but attachment avoidance did not make a significant contribution in this model over and above the other variables. These results suggest that DiCorcia and Tronick's (2001) Everyday Stress Resilience Hypothesis regarding the connection between attachment styles and resilience may be more applicable to attachment anxiety than attachment avoidance.

However, all studies of attachment need to consider the complex internal dynamics of avoidant individuals, as this may obscure the full extent of the relationships between attachment avoidance and indicators of psychological well-being. The deactivating and defensive self-enhancement strategies employed by avoidant individuals serve to lessen their psychological distress (Mikulincer & Shaver, 2007), or perhaps merely the awareness of their psychological distress. A recent review of the literature by Diamond and Fagunes (2010) has found consistent evidence across studies of heightened hypothalamic-pituitary-adrenocortical (HPA) axis and autonomic nervous system reactivity to stress among both anxious and avoidant individuals. For anxiously attached individuals, this physiological reactivity to stress went hand in hand with reports of subjective distress or negative affect, but no such reports were observed among the avoidant individuals in any of the reviewed studies. According to Diamond and Fagunes, this may indicate a "general pattern of dissociation between avoidant individuals' self-reported stress and their physiological reactivity to stress" (p. 220). This may be one of the reasons why studies commonly find anxious attachment to be related to indicators of psychological distress more strongly than avoidant attachment. It may also explain, at least in part, why attachment anxiety

was a much stronger predictor of resilience in the current study than attachment avoidance. Avoidant individuals' deactivation strategies may mask much of the distress that their bodies are nonetheless experiencing, which may diminish the strength of the observed relationship between resilience and avoidant attachment.

### **Attachment – Relationships with Mindfulness and Self-Compassion**

Examination of how attachment styles are related to the different components of self-compassion and mindfulness was a novel component of this study. Both attachment anxiety and attachment avoidance were significantly correlated with all of the assessed mindfulness and self-compassion variables; all of the relationships for attachment anxiety were in the moderate to strong range, while those for attachment avoidance were consistently lower. This is again consistent with the larger research literature and the common finding that associations between attachment anxiety and variables related to psychological well-being tend to be higher than those for avoidant attachment. Nonetheless, the associations between attachment avoidance and the individual components of mindfulness and self-compassion were all significant and largely moderate in strength. Although more research in this area is needed, current theoretical literature suggests that the relationships between attachment and mindfulness, as well as attachment and self-compassion, are likely bidirectional. It is therefore possible that insecure attachment, which poses challenges in therapy and is difficult to target directly (Levy, Ellison, Scott, & Bernecker, 2011; Meyer & Pilkonis, 2001), may be improved indirectly through helping clients to develop and strengthen the qualities of mindfulness and self-compassion.

A link between attachment and mindfulness was first proposed in the literature by Daniel Siegel (2007). Siegel describes attachment as interpersonal attunement and mindfulness as intrapersonal attunement, and believes that these two forms of attunement mutually support and

influence each other; strengthening one therefore has directly beneficial effects on the other. Like Siegel (2007), Shaver et al. (2007) believe that attachment and mindfulness may share common underlying social and neural processes. Also in agreement with Siegel, Shaver and colleagues suggest that the relationship between attachment and mindfulness is bidirectional. For example, secure attachment relationships with sensitive and responsive caregivers promote the development of effective self-soothing techniques and coherence of mind, which supports the development of mindfulness by allowing individuals to be fully present and aware of their unfolding experiences moment to moment (Shaver et al., 2007). Strengthening mindfulness and learning to approach life with greater acceptance and present moment awareness may in turn promote attachment security; it has the potential to reduce the grasping, hyperactivating, and obsessive tendencies of insecure attachment as well as the suppressing, deactivating tendencies of avoidant attachment (Shaver et al., 2007).

The results are also in agreement with recent studies that have begun to examine the relationships between attachment styles and self-compassion, and this newly emerging research is lending support to the theoretical connections that have been proposed between these constructs. The associations between the two attachment dimensions and most of the individual components of self-compassion were stronger than associations between the attachment dimensions and mindfulness facets. This could indicate that early attachment relationships may exert a somewhat greater impact on how we learn to treat ourselves than on the way we come to relate to our experiences. Although the strength of the associations between the self-compassion components and attachment avoidance was slightly lower than the associations with attachment anxiety, all were still in the moderate to strong range. Insecurely attached individuals in general therefore tend to have lower levels of self-compassion.

Paul Gilbert (e.g., 2005), who was one of the first authors to write about self-compassion and its potential benefits in psychotherapy, strongly believes that early attachment experiences are instrumental to the development of self-compassion, or lack thereof. Neff (2011) has also emphasized that internal working models have a profound impact on how we treat ourselves, that is, with compassion or with contempt. The ability to extend a self-compassionate attitude toward oneself may in effect be a reflection of the internal working models of self that develop as a result of interactions with significant attachment figures. As individuals over time incorporate the way their attachment figures treat and see them into their own self-concepts, their sense of self-worth and how they treat themselves comes to mirror the way they were, or continue to be, treated by their caregivers. Secure individuals, who experienced sensitive, responsive, and supportive interactions with their caregivers that instilled them with a sense of self-worth and self-acceptance from a young age, are likely to learn to treat themselves with kindness, to offer themselves soothing and support in times of struggles, and to refrain from the painful self-criticism that insecurely attached individuals so commonly struggle with (Gilbert, 2009; Mikulincer & Shaver, 2007, Neff, 2011).

Insecure attachment can have a profoundly negative impact on an individual's self-concept. As Mikulincer and Shaver (2007) explain, "during their many demoralizing interactions with attachment figures, insecure people gradually incorporate (or introject) dismissing, degrading, and disapproving messages," (p. 153) likely resulting in feelings of disapproval and contempt toward the self, along with a tendency to engage in harsh self-judgment and self-criticism. Internalized negative messages about the self can lead people to believe they are so flawed that they have no right to be kind to themselves or be accepted for who they are (Neff, 2011). Congruently, the association between attachment insecurity and self-

judgment as well as self-kindness (inversely) was found to be particularly strong in this study. This may reflect the common belief of insecure individuals that they are inadequate, flawed, and unlovable, accompanied by feelings of shame that lead to withdrawal. Insecure individuals may also be more likely to think that others do not understand their struggles or that they are the only ones who fail or make mistakes, further compounding their feelings of isolation.

### **Effects of Yoga Practice on the Variables of Interest**

This study's exploratory investigation of the effects of yoga practice on the variables of interest has yielded interesting preliminary results that suggest further studies in this area would be valuable. Due to the exploratory nature of this portion of this study, participants were only asked limited information regarding yoga practice - whether they practice yoga, how often they practice, and how long they have been practicing. Participants were not asked to specify what type or tradition of yoga they practice, whether they have an interest in yogic philosophy or Eastern philosophy in general, and whether they have experience in other forms of meditation. It therefore cannot be determined whether the obtained results can be attributed solely to yoga practice or whether they are generalizable to all forms of yoga practice. Although these results are very preliminary and need to be interpreted with caution, they provide new insights into possible mechanisms through which yoga practice may contribute to mental health and positive psychological functioning.

In the comparison of participants who do and do not practice yoga, no significant differences were found on any of the measured variables. However, participants who had been practicing yoga for three or more years, compared to participants who had been practicing for under three years, had significantly higher scores in total self-compassion, total mindfulness, and the observe and nonjudging facets of mindfulness, as well as significantly lower levels of

attachment anxiety. These results suggest that yoga practice can indeed enhance elements of psychological well-being, but a certain amount of experience is necessary for this to happen. This is consistent with Eastern literature concerning yoga and mindfulness, which emphasises the importance of practice, training, and commitment in order for benefits to be manifested (e.g.; Nyanaponika, 1965, 1994; Cope, 1999, 2007). Yoga can certainly have a number of positive immediate effects - relaxation of the body, clearing of the mind, calming of the nervous system - but these effects are only temporary (Cope, 1999, 2007; Evans et al., 2009). Deeper transformation that involves changing the way individuals relate to the world and to themselves takes time (e.g., Cope, 1999, 2007; Nyanaponika, 1965, 1994; Stone, 2010).

With practice, the integration of body and mind that at first is experienced only within the context of a yoga class increasingly becomes accessible at any moment, and separation between formal practice and the rest of one's life effectively disappears (Boccio, 2010; Cope, 1999, 2007). This process may be at the heart of the personal growth and transformation supported by yoga practice. The practice of asanas, or postures, goes far beyond being merely a physical endeavour; it provides the opportunity for a direct and authentic personal investigation of experience. As Stone (2010) explains, the body is a starting point of focus common to all yogic traditions:

When we begin by taking care of the body and paying attention to its workings, we find ourselves focusing the mind, settling the breath, and learning much more about the nature of reality than we'd know by extraverted thinking alone. There are some things we just can't figure out with ordinary thinking. (Stone, 2010, p. xx).

Yoga may thus allow practitioners to develop a deep connection to their bodies and also refine their awareness of inner experiences and the workings of the mind; "we use the body to study the mind and work with the mind through the body" (Stone, 2010, p. xvii ).

The observing part of the self thus becomes stronger with asana practice (Cope, 1999), as was reflected in the results pertaining to the observe facet of mindfulness. More experienced yoga practitioners also had significantly higher scores on the nonjudging facet of mindfulness. Through yoga practice, individuals may learn to approach unfolding experiences with mindful awareness and acceptance (Boccio, 2010; Evans et al., 2009; Cope, 1999; Powers, 2010). At the level of the body, asanas sharpen practitioners' ability to recognize the physical sensations that arise and wane as they move through the practice. With refined awareness, practitioners learn that their experience will be different every time they step on the mat. They learn to accept rather than judge themselves for having certain physical limitations or the fact that what their bodies can and cannot do may change from day to day. Similarly, at the level of the mind, practitioners have to learn to deal with the mind's constant commentary about what they are doing and how they are doing it, as well as any emotions that may arise during practice (Boccio, 2010; Cope, 1999; Powers, 2010). One of the greatest insights that can result from yoga practice is that one does not have to resist, deny, fight, or obsess about any of the thoughts, feelings, or physical sensations experienced during practice, and by extension in everyday life as well. Acceptance is essential in this process, and the results of this study suggest that experience helps foster this acceptance and the accompanying nonjudging quality of mindfulness, both on and off the mat.

The potential of yoga practice to change how we relate to ourselves was also supported by the finding that participants with more yoga experience had significantly higher levels of total

self-compassion. Through yoga practice, “our relationship to ourselves becomes increasingly kinder [and] softer” (Powers, 2010, p. 100); it can be a deeply transformative experience for those who are willing to make the commitment. It is notable that although yoga practitioners as a whole did not differ from those who do not practice yoga on attachment anxiety, more experienced practitioners had significantly lower levels of attachment anxiety than less experienced ones. It is possible that individuals lower in attachment anxiety may be more likely to engage in and continue with yoga practice on a long-term basis, but this finding may also indicate that yoga practice could have the potential to promote the development of healthier emotion regulation strategies and more positive internal working models of self and others, particularly for anxiously attached individuals. However, this again is an area where further research is needed. There was no significant difference in resilience between more and less experienced practitioners, though both groups had relatively high mean resilience scores and this analysis was underpowered, making it more difficult to detect significant differences. The results of this exploratory investigation of the effects of yoga practice on mindfulness, self-compassion, attachment styles, and resilience suggests that this is an area worthy of further investigation.

### **Limitations**

Due to the cross-sectional design of this study, no causal inferences can be made regarding the observed relationships between the assessed variables. Although the results were all consistent with theory and the newly emerging empirical literature in this area, more research is needed to further explore and clarify the precise nature of the observed relationships. Mindfulness, self-compassion, and attachment styles are clearly all related to resilience, and increases in any or all of these qualities may indeed directly contribute to fostering resilience, but



future longitudinal and experimental studies are needed to investigate this possibility. The same is true regarding the results pertaining to attachment styles and their association with mindfulness and self-compassion, as well as the results pertaining to yoga practice. However, studies that utilize cross-sectional data provide important foundational knowledge in newly emerging areas of empirical research by examining and confirming proposed theoretical relationships. They also make a valuable contribution by indicating whether future intervention or longitudinal studies are warranted, and cross-sectional data can subsequently be utilized to inform these future investigations.

The use of self-report measures is also a limitation, as self-report measures can be subject to response bias. The questionnaires selected for this study all had strong psychometric properties and participants remained completely anonymous. These factors should lower the risk of response bias and increase the reliability and validity of the results. An additional limitation to consider is the nature of the sample. While the sample consisted of participants with a wide age range, most of the participants were female and a large majority were Caucasian. The education level of most of the participants was also quite high, with a large majority either holding or currently pursuing undergraduate or graduate degrees. All of these factors may impact the generalizability of the results, and future research in this area would benefit from more diverse samples of participants. As was previously discussed, examination of the effects of yoga practice was an exploratory component of this study. Limited information about participants' yoga practice was collected, and examination of the effects of practice frequency was not possible due to the low number of participants who had a regular yoga practice (three or more times per week). Due to the exploratory nature of this part of the study, no Bonferroni corrections were used for the multiple ANOVAs conducted. All of the results pertaining to yoga

practice should be interpreted with caution and research with larger samples of yoga practitioners should be conducted to further elucidate the effects of yoga practice on mindfulness, self-compassion, attachment styles, and resilience.

### **Future Directions**

The associations between mindfulness, self-compassion, attachment styles, and resilience observed in this study indicate that future longitudinal and intervention studies are warranted and would provide valuable new insights into how these factors interrelate and work together to bring about positive mental health outcomes. For example, initial longitudinal studies could investigate how mindfulness, self-compassion, attachment, resilience, and other related factors change during the course of psychotherapy. Patterns of change in these variables could subsequently be examined and compared in different forms of psychotherapy. It would also be valuable for future research in this area to explore the variables and relationships of interest in the present study with clinical populations. This could provide important knowledge that may inform treatment and could potentially be used in the design of new interventions.

It would also be beneficial for more studies of mindfulness-based interventions to start assessing attachment styles, self-compassion, and resilience. Cordon et al. (2009) have shown that MBSR provides stress reduction benefits for insecurely attached individuals, but they did not assess changes in attachment during the course of the intervention and classified participants into only two categories based on a pre-intervention assessment, securely attached and insecurely attached. Future intervention studies should differentiate between anxious and avoidant attachment to examine whether there are differences in how these two groups respond to interventions, and changes in attachment should be measured pre and post intervention to

determine if the intervention under investigation has the potential to decrease levels of insecure attachment.

Although interventions aimed at the cultivation of mindfulness have the potential to indirectly increase levels of self-compassion (Shapiro, Astin, Bishop, & Cordova, 2005; Shapiro, Brown, & Biegel, 2007), the results of this study indicate that future investigations of interventions that target self-compassion directly would be a valuable addition to this field of research. Self-compassion emerged as the strongest predictor of resilience and was also strongly related to attachment insecurity, suggesting that interventions that aim to increase self-compassion may be beneficial for promoting resilience and mental health, and potentially also decrease levels of attachment avoidance and anxiety. Compassionate mind training (Gilbert & Irons, 2005; Gilbert & Procter, 2006) is the only such intervention developed thus far, but it has only been evaluated in one pilot study (Gilbert & Procter, 2006). This intervention would be worthy of further exploration in future randomized studies, and researchers might also want to focus their efforts on the development and evaluation of new self-compassion based interventions or interventions that combine self-compassion and mindfulness training.

As previously mentioned, future investigations may also consider expanding on the exploratory yoga practice component of this study. Studies with larger samples could better evaluate the effects of yoga practice and also allow for a more detailed comparison of different levels of experience and the type or tradition of yoga practiced. Changes in the variables of interest over time could also be assessed through longitudinal studies. The literature supporting a link between yoga practice and physical as well as psychological well-being is growing (Cowen & Adams, 2005; Evans et al., 2009; Lavey et al., 2005; Ross & Thomas, 2010; Woolery et al., 2004). However, randomized controlled studies of yoga interventions are rare and should

therefore be a priority for future intervention studies. It would also be worthwhile to explore the use of yoga as an adjunct to psychotherapy with different client populations.

### **Conclusions and Practice Implications**

The results of this study revealed that mindfulness, self-compassion, and attachment styles are all related to resilience and provided new insights into which specific components of these constructs may be especially salient in promoting resilience. Mindfulness has received a great deal of attention in the research literature over the past two decades for its potential to contribute to psychological health and well-being. Self-compassion, on the other hand, has only recently emerged as an area of interest for researchers but evidence for its link to mental health is accumulating. Results of this study strongly support this link as well, and suggest that there is great value in pursuing further research in this area. The way we relate to ourselves appears to have a profound influence on our ability to be resilient in times of adversity and overcome challenges to our well-being.

In counselling practice, no matter our theoretical orientation or the specific struggles that clients bring to therapy, we always strive to support them in overcoming their difficulties and aim our interventions at enhancing their mental health and well-being. In effect, it could be said that much of our work directly or indirectly involves fostering our clients' resilience. The results of this study indicate that we may be able to nurture resilience in our clients by helping them develop greater self-compassion and learn to approach life in a more mindful way. Although more research in this area is needed, some general implications for counselling practice can be suggested. Encouraging clients to treat themselves with kindness when facing challenging situations can help them feel supported, calm, and secure, and it also mitigates the negative effects of self-criticism. Both of these factors support adaptability and effective coping in times

of stress. Helping clients develop more awareness of the changing contents of their mind and emotional state, learn to disengage from automatic thoughts and patterns of negative behavioural reactivity, and hold unpleasant thoughts and emotions in awareness without overidentifying with them, attempting to suppress them, or responding to them in maladaptive ways may also promote flexibility and resilience.

The theoretical literature and emerging research, including this study, also suggest that helping clients develop greater self-compassion and mindfulness could be particularly helpful for individuals who struggle with insecure attachment. These qualities may help them develop more positive working models of self and others as well as learn more effective emotion regulation strategies. The potential of yoga practice to help with attachment insecurity, particularly attachment avoidance, needs to be investigated further, but clients who express an interest in yoga could be encouraged to pursue it and see if they may find it beneficial. Counsellors working with clients for whom mindfulness-based interventions may be particularly fitting should also consider recommending programs such as MBSR, where available, for their potential to increase self-compassion, support the development of resilience, and promote mental health.

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