

# **The relationship between mindfulness and emotional regulation in emerging adulthood**

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## Summary

Mindfulness, a multifaceted concept originally derived from Buddhist psychology (Kabat-Zinn, 1982), is a state of consciousness that emphasises observing and attending to current experiences, including inner experiences such as thoughts and emotions, with a non-judgemental attitude and acceptance (Bishop et al., 2004). Research has recently begun to explore the role of mindfulness as an important factor that might influence and foster adaptive emotional regulation (Bullis, Bøe, Asnaani, & Hofmann, 2014). However, what remains unclear and undefined is how mindfulness is specifically related to emotional regulation, especially in emerging adulthood.

The aim of this study was therefore to explore (a) if a linear relationship exists between emerging adults' facets of mindfulness and emotional regulation; (b) the degree to which the five facets of mindfulness, namely observing, describing, acting with awareness, non-reactivity, and non-judging contribute to emotional regulation; and (c) whether this set of variables were able to contribute a significant amount of variance in emotional regulation if we controlled for the possible effect of gender. Participants consisted of an availability sample of 214 (135 female and 79 male) emerging adult students. Mindfulness was measured with the Five Facets of Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) and emotional regulation was measured with the Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004).

Statistical data analyses, utilising SAS, revealed that four facets of mindfulness, namely describe, acting with awareness, non-judging, and non-reactivity are associated with difficulties with emotional regulation, and three of these facets (i.e. acting with awareness, non-judging, and non-reactivity) contribute independently to emotional regulation difficulties. Results revealed no practically significant differences between male and female

participants' levels of mindfulness and their difficulties with emotional regulation. In general, findings contribute to an enriched understanding of mindfulness as a construct, and the mechanisms through which mindfulness may foster adaptive emotional regulation. Although these findings are preliminary, they suggest that a specific focus on only three facets of mindfulness, namely acting with awareness, non-judging, and non-reactivity in mindfulness-based interventions, may foster adaptive emotional regulation.

**Keywords**

Mindfulness, emotional regulation, emerging adulthood, young adulthood, student, self-regulation, emotional dysregulation

## Opsomming

Indagtigheid (*mindfulness*), 'n multidimensionele konsep wat oorspronklik uit die Boedhistiese sielkunde kom (Kabat-Zinn, 1982), verwys na 'n staat van bewussyn wat gekenmerk word deur die observering van en aandag op huidige belewenisse van denke en emosie, spesifiek met 'n nie-veroordelende en aanvaardende houding (Bishop et al., 2004). Navorsing het veral onlangs begin om indagtigheid te verken as 'n belangrike faktor wat aanpassende emosie-regulering kan beïnvloed en bevorder (Bullis, Bøe, Asnaani, & Hofmann, 2014). Wat egter steeds onduidelik en ongedefinieerd is, is spesifiek hoe indagtigheid met emosieregulering verband hou, spesifiek gedurende ontluikende volwassenheid.

Die doel van hierdie studie was daarom om te verken (a) of 'n liniêre verband tussen indagtigheid en emosieregulering in ontluikende volwassenes bestaan; (b) tot watter mate die vyf fasette van indagtigheid, naamlik observeer, beskryf, bewuste optrede, nie-reaktiwiteit, en nie-veroordeling tot emosie-regulering bydra; en (c) of hierdie veranderlikes 'n betekenisvolle hoeveelheid variansie in emosie-regulering verklaar indien daar vir geslag gekontroleer word. Deelnemers het bestaan uit 'n beskikbaarheidsteekproef van 214 (135 vroulike en 79 manlike) studente. Indagtigheid is gemeet met die *Five Facets of Mindfulness Questionnaire* (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) en emosie-regulering met die *Difficulties with Emotion Regulation Scale* (DERS; Gratz & Roemer, 2004).

Statistiese ontleding, wat met SAS gedoen is, toon dat vier fasette van indagtigheid, naamlik beskryf, bewuste optrede, nie-reaktiwiteit, en nie-veroordeling geassosieer word met emosie-regulering, en dat drie hiervan (bewuste optrede, nie-reaktiwiteit, en nie-veroordeling) onafhanklik tot emosieregulering bydra. Resultate toon geen prakties

betekenisvolle verskille tussen manlike en vroulike deelnemers nie. Die resultate dra by tot begrip vir indagtigheid as konstruk, asook die meganismes waardeur indagtigheid aanpassende emosie-regulering kan bevorder. Alhoewel die bevindinge voorlopig is, suggereer dit dat 'n spesifieke fokus op slegs drie fasette van indagtigheid, naamlik bewuste optrede, nie-reaktiwiteit, en nie-veroordeling genoeg sou kon wees om aanpassende emosie-regulering te bevorder.

**Sleutelwoorde**

Indagtigheid, emosie-regulering, ontluikende volwassenheid, jongvolwassenheid, student, selfregulering, emosie-disregulering

## Preface

### Article format

This mini-dissertation meets the requirements for partial fulfilment of the degree Magister Scientiae in Clinical Psychology at the Potchefstroom Campus of the North-West University and was prepared in article format according to university regulations.

### Journal

This mini-dissertation has been compiled in accordance with the requirements set by the *Journal of Psychology in Africa*. The manuscript and the reference list have been styled according to the specifications of the APA (American Psychological Association; 6<sup>th</sup> edition) publication guidelines for the purpose of examination. Where journal specifications differ from the APA publication guidelines, the appropriate amendments will be made before submission for publication.

### Page numbers

For examination purposes, the pages prior to the article are number in roman numerals, starting from the title page.

**Permission to submit article for examination purposes**

I, the supervisor of this study, hereby declare that the article entitled *The relationship between mindfulness and emotional regulation in emerging adulthood*, written by S van der Merwe, does reflect the research regarding the subject matter. I hereby grant permission that she may submit the mini-dissertation for examination purposes and I confirm that the mini-dissertation submitted is in fulfilment of the requirements for the degree Magister Scientiae in Clinical Psychology at the Potchefstroom Campus of the North-West University. The article may also be sent to the Journal of Psychology in Africa for publication purposes.

---

Prof Karel FH Botha

### **Note to examiners**

This article is presented with the aim to submit it for publication in *The Journal of Psychology in Africa (JPA)*.

Please note:

1. For examination purposes, the pages of this dissertation will commence numbering from the title page in roman numerals and follow with standard numerals, starting from the beginning of the article.
2. Although the JPA guidelines were strictly followed, one exception was made: Tables and figures were included in the article itself to simplify the examination process and to ease legibility of the article.

### **Author guidelines: Journal of Psychology in Africa**

The *Journal of Psychology in Africa* publishes original empirical research articles, research reviews, conceptual development articles and thematic issues. Manuscripts can be regular research reports, brief reports, and those that address topical professional issues, including case analysis reports. Book reviews are accepted for publication as special announcements. Specifically, manuscripts with the following qualities are encouraged: 1) Combine quantitative and qualitative data, 2) Take a systematic qualitative or ethnographic approach, 3) Use an original and creative methodological approach, 4) Address an important but overlooked topic, 5) Present new theoretical or conceptual ideas; and 6) Present innovative context sensitive applications. Manuscript for publication consideration should show an awareness of the cultural context of the research questions asked, the measures used, the results obtained, and interpretations proposed. Finally, the papers should be practical, based on local experience, and applicable to crucial efforts in key areas of psychology for development in African cultural heritage settings.

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By submitting to *JPA* for publication review, the author(s) agree to any originality checks during the peer review and production processes. A manuscript is accepted for publication review on the understanding that it contains nothing that is abusive, defamatory, fraudulent, illegal, libellous, or obscene. During manuscript submission, authors should declare any competing and/or relevant financial interest, which might be potential sources of bias or constitute conflict of interest. The submitting author must provide contact information for all co-authors. The author who submits the manuscript accepts responsibility for notifying all co-authors and must provide contact information on the co-authors.

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## **Manuscripts**

Manuscripts should be submitted in English. The manuscripts should be typewritten and double-spaced, with wide margins, using one side of the page only. Manuscripts should conform to the publication guidelines of the latest edition of the American Psychological Association (APA) publication manual of instructions for authors.

## **Manuscript format**

All pages must be numbered consecutively, including those containing the references, tables and figures. The typescript of a manuscript should be arranged as follows:

- **Title:** this should be brief, sufficiently informative for retrieval by automatic searching techniques and should contain important key words (preferably <13 words).

- **Author(s) and Address(es) of author(s):** The corresponding author must be indicated. The author's respective addresses where the work was done must be indicated. An e-mail address, telephone number and fax number for the corresponding author must be provided.
- **Abstract:** Articles and abstracts must be in English. Submission of abstracts translated to French, Portuguese and/ or Spanish is encouraged. For databased contributions, the abstract should be structured as follows: *Objective* - the primary purpose of the paper, *Method* - data source, participants, design, measures, data analysis, *Results* - key findings, implications, future directions and *Conclusions* - in relation to the research questions and theory development. For all other contributions (except editorials, book reviews, and special announcements), the abstract must be a concise statement of the content of the paper. Abstracts must not exceed 150 words. The statement of the abstract should summarise the information presented in the paper but should not include references.
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  - (1) Do not align text using spaces or tabs in references. Use one of the following: (a) use CTRL-T in Word 2007 to generate a hanging indent; or (b) MS Word allows author to define a style (e.g., reference) that will create the correct formatting.
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- **References in text:** References in running text should be quoted as follows: (Louw & Mkize, 2012), or (Louw, 2011), or Louw (2000, 2004a, 2004b). All surnames should be cited the first time the reference occurs, e.g., Louw, Mkize, and Naidoo (2009) or (Louw, Mkize, & Naidoo, 2010). Subsequent citations should use et al., e.g. Louw et al. (2004) or (Louw et al., 2004). ‘Unpublished observations’ and ‘personal communications’ may be cited in the text, but not in the reference list. Manuscripts submitted but not yet published can be included as references followed by ‘in press’.

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### ***Reference samples***

#### **Journal article**

Peltzer, K. (2001). Factors at follow-up associated with adherence with adherence with directly observed therapy (DOT) for tuberculosis patients in South Africa. *Journal of Psychology in Africa, 11*, 165-185.

#### **Book**

Gore, A. (2006). *An inconvenient truth: The planetary emergency of global warming and what we can do about it*. Emmaus, PA: Rodale.

#### **Edited book**

Galley, K. E. (Ed.). (2004). *Global climate change and wildlife in North America*. Bethesda, MD: Wildlife Society.

#### **Chapter in a book**

Cook, D. A., & Wiley, C. Y. (2000). Psychotherapy with members of the African American churches and spiritual traditions. In P. S. Richards & A. E. Bergin (Ed.), *Handbook of psychotherapy and religiosity diversity* (pp 369-396). Washington, DC: American Psychological Association.

**Magazine article**

Begley, S., & Murr, A. (2007, July 2). Which of these is not causing global warming? A. Sport utility vehicles; B. Rice fields; C. Increased solar output. *Newsweek*, 150(2), 48-50.

**Newspaper article**

(unsigned)

College officials agree to cut greenhouse gases. (2007, June 13). *Albany Times Union*, p. A4.

(signed)

Landler, M. (2007, June 2). Bush's Greenhouse Gas Plan Throws Europe Off Guard. *New York Times*, p. A7.

**Unpublished thesis**

Appoh, L. (1995). *The effects of parental attitudes, beliefs and values on the nutritional status of their children in two communities in Ghana* (Unpublished master's thesis).

University of Trondheim, Norway.

**Conference paper**

Sternberg, R. J. (2001, June). *Cultural approaches to intellectual and social competencies*.

Paper presented at the Annual Convention of the American Psychological Society, Toronto, Canada.

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## Literature orientation

### Introduction

This literature orientation provides an extensive overview of the concept of mindfulness with specific reference to its relationship with emotional regulation. Firstly, mindfulness is defined, while the conflicts in establishing an operational definition within Western psychology are highlighted. Secondly, a brief discussion on mindfulness measures and interventions is provided. Finally, mindfulness is compared with and differentiated from emotional regulation. It is important to note that the terms ‘emotional regulation’ and ‘emotion regulation’ are used interchangeably in the literature, but for the purpose of this study, the researcher will refer to ‘emotional regulation’, with the exception of definitions or direct quotations, during which the term preferred by the authors is cited.

### Mindfulness

In the last three decades, a surge of interest has developed in the empirical investigation of the concept and applications of mindfulness (Chiesa, 2013). More recently, both scientific and lay communities have come to recognise the potential of mindfulness in a large variety of clinical interventions, ranging from treating physical conditions to psychological disorders (Chiesa & Serretti, 2010; Grecucci et al., 2015). Mindfulness is primarily known as an element of Buddhist tradition (e.g. Gunaratana, 2002), in which it is most often associated with formal practice of mindfulness meditation (Shapiro, Carlson, Astin, & Freedman, 2006) and has been referred to as the ‘heart’ of Buddhist meditation (Kabat-Zinn, 2003). Mindfulness is, however, more than an element of meditation. The term derives from the Pali language word *sati* that can be translated as “remembrance” or memory (Bodhi, 2011), but as a mode of consciousness it commonly signifies presence of mind (Bodhi, 2000; Nyaniponika, 1973). In short, classical Buddhist literature considers

mindfulness “a lucid awareness of what is occurring within the phenomenological field” (Chiesa, 2013, p. 258), while meditation plays a key role in the development of mindfulness (Brown & Ryan, 2003).

Conversely, since the integration of mindfulness in modern Western psychology, there has been a lack of consensus concerning the operational definition of mindfulness. Currently, no singular definition of mindfulness exists. However, the most often cited is that of Jon Kabat-Zinn, father of the mindfulness integration movement in psychotherapy (Zack, Saekow, Kelly, & Radke, 2014). Kabat-Zinn (1994) has defined mindfulness as “paying attention in a particular way, on purpose, in the present moment, and non-judgementally” (p. 4). Alternatively, a revised version of this definition considers mindfulness “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgementally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p.145). In short, Epstein (1999) has termed this “bare attention.”

Bishop et al. (2004) have attempted to operationalise this definition, and conceptualise mindfulness as a particular focus of attention that encompasses both an attentional and an acceptance-based component. The attentional component pertains to the ability to achieve awareness of the present moment, which is honed by the self-regulation of attention towards the present moment, resulting in deliberate and sustained observation of thoughts, feelings, physical sensations and other occurring stimuli. The acceptance-based component concerns the quality of awareness, which is characterised by adopting an orientation marked by curiosity, openness, and acceptance to experiences, rather than judging, ignoring, or minimising them, especially when they are unpleasant. More specifically, Bishop et al. (2004) suggest that the former component describes mindfulness as a mental skill or state that emerges when the individual is purposefully addressing his/her own attention to the present moment experience, whereas the latter component accounts for

personality characteristics that underlie mindfulness tendencies, both of which are intricately linked. These two components are common to most definitions of mindfulness (Keng, Smoski, & Robins, 2011).

Shapiro et al. (2006) suggest a three-component model of mindfulness and argue that, in addition to attention and attitude, components similar to that of Bishop et al. (2004), intention should be considered as well. Mindful intention emphasises the conscious effort to be mindful in attitude and attention (Bishop et al., 2004; Burke, 2010) and refers to personal motivation or vision why the individual engages in mindfulness practice (Zack et al., 2014). This hypothesis is based on the notion that intention might significantly influence the outcome of meditation practice (Shapiro et al., 2006). The authors further indicate that this model implies that mindfulness training would lead to a change in relationship to an experience, which, in turn, would allow for changes in self-regulation and improved cognitive and behavioural flexibility (Shapiro et al., 2006).

It is important to note that the abovementioned definitions are the most commonly cited in current literature, and that an extensive review is beyond the scope of this literature orientation. However, taken together, mindfulness involves perceiving thoughts, feelings, and physical sensations without trying to avoid these experiences, and without becoming overwhelmed by them. It involves perceiving internal and external states, as opposed to judging experiences as ‘good’ or ‘bad’, and has a quality of intentional present moment awareness rather than acting on ‘automatic-pilot’ (Baer et al., 2006). It is important to note that Bishop et al. (2004) explicitly state that although self-regulation of attention involves a non-elaborative awareness of thoughts, feelings, and sensations, mindfulness is not suppression. Rather, in mindfulness practice, one’s entire experience is considered and acknowledged, and attention is re-directed back to the present moment to avoid further elaboration of thoughts, feelings, and sensations (Bishop et al. 2004).

## Measures of mindfulness

Over the last decade, several psychometric questionnaires have been developed that focus on mindfulness as a state or a trait and as a single or multi-faceted construct. In contrast with the complex and multifaceted definitions employed, in the development of mindfulness questionnaires, several authors conceptualised mindfulness as a single-faceted construct, with present-centred attention as the main feature (Chiesa, 2013). The most commonly cited scales pertaining to this stance include the following:

- The Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003). This 15-item questionnaire is designed to assess open or receptive present-centred awareness and attention as the core characteristic of mindfulness. This scale was developed from several sources, including the authors' personal experience and knowledge of mindfulness, published writings on mindfulness and attention, and existing scales assessing conscious states of various kinds.
- The Freiburg Mindfulness Inventory (FMI) (Buchheld, Grossman, & Walach, 2001). Construction of the FMI was particularly inspired by the Buddhist roots of mindfulness (Bergomi, Tschacher, & Kupper, 2013). Consequently, item construction and selection were based on an extensive review of Buddhist and insight meditation literature, as well as interviews with meditation experts. This 30-item scale, which was later revised to a 14-item short form (Walach, Buchheld, Buttenmüller, Kleinknecht, & Schmidt, 2006), is therefore concerned with the measurement of mindfulness among experienced meditators.
- The Cognitive and Affective Mindfulness Scale – Revised (CAMS-R; Feldman, Hayes, Greeson, & Laurenceau, 2007). The CAMS-R is a 12-item inventory that measures mindfulness in general daily experience. This scale was designed to address

four components allegedly needed to reach a mindful state, which includes attention, awareness, present-focus, and acceptance/non-judgement of thoughts and feelings.

Mindfulness as measured by the CAMS-R is unique in two ways: 1) it is understood as the willingness and ability to be mindful rather than as a realisation of mindfulness experience during the day, and 2) it is particularly related to psychological distress (Hayes & Feldman, 2004).

Overall, several studies have provided preliminary evidence to suggest that the abovementioned questionnaires could measure an overall mindfulness construct (e.g. Brown & Ryan, 2003; Walach et al., 2006; Sauer et al., 2013). In contradiction to these studies, it has been suggested that the operationalisation of mindfulness as a single-faceted construct does not account for the complexity inherent to the original definition of mindfulness (Leary, & Tate, 2007). Consequently, the following measures defining mindfulness as a multi-faceted construct are often utilised:

- The Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004). This is a 39-item instrument designed to measure four elements of mindfulness, namely observing, describing, acting with awareness, and accepting without judgement. Development of the KIMS relied largely on the DBT conceptualisation of mindfulness skills, i.e. the intentional process of observing, describing, and participating in reality non-judgementally, in the moment, and with effectiveness (Dimidjian & Linehan, 2003). In sum, it measures an overall tendency to be mindful in daily life and does not require experience in meditation.
- More recently, Baer et al. (2006) combined items from five different mindfulness self-report questionnaires (the KIMS, the FMI, the MAAS, CAMS, and the SMQ) to develop the Five Facets of Mindfulness Questionnaire (FFMQ). Factor analysis revealed a five-factor structure of mindfulness, characterised by observing,

describing, acting with awareness, non-reactivity, and non-judging. These factors combined structured the 39-item multifaceted FFMQ scale.

Currently, the latter multifaceted measure is the most commonly used self-report measure of mindfulness (Roemer, Williston, & Rollins, 2015). The FFMQ is considered a comprehensive scale that integrates the conceptualisations of mindfulness underlying five validated mindfulness scales, and measures clearly distinct facets of mindfulness (Bergomi et al., 2013). It is therefore a suitable instrument for the assessment of differential contributions of mindfulness aspects. Therefore, for the purpose of the current study, the Five Facets of Mindfulness Questionnaire (FFMQ; Baer et al., 2006) was utilised to measure mindfulness.

It is important to note that all the above-mentioned questionnaires implicitly assume and investigate mindfulness as a trait-like quality. Lau et al. (2006), however, put forth that, based on the original theory of Bishop et al. (2004), mindfulness can also be described as a mode or state-like quality that is maintained only when attention to experience is intentionally cultivated with an open, non-judgemental orientation to experience. It is noteworthy that these two classifications are not mutually exclusive. Mindfulness is often used to refer to a dispositional quality that varies among individuals, which can be elicited and promoted by brief or lifelong practices, as well as treatment programmes (Roemer et al., 2015).

### **Mindfulness interventions**

Despite the lack of consensus on an unequivocal definition of mindfulness, significant evidence for the effectiveness of a variety of mindfulness-based interventions exists. Since the introduction of Mindfulness Based Stress Reduction (MBSR) in the clinical setting at the end of the 1970's (Kabat-Zinn, 1982), an increasing number of interventions aimed at fostering mindfulness in daily living have been developed. These interventions include,

among others, Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002), Mindfulness-Based Relapse Prevention (Bowen et al., 2009), Dialectical Behaviour Therapy (DBT; Linehan, 1993), and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999). Taken together, mindfulness-based interventions (MBIs) have shown efficacy for treatment of several mood and anxiety disorders (e.g. Chiesa & Serretti, 2011; Goldin & Gross, 2010; Hofmann, Sawyer, Witt, & Oh, 2010), attention-deficit hyperactivity disorder (Smalley et al., 2009), eating disorders (Baer, Fischer, & Huss, 2005), borderline personality disorder patients (Lynch, Trost, Salsman, & Linehan, 2007), and stress and improved well-being in healthy subjects (Baer, 2003; Chambers, Gullone, & Allen, 2009; Chiesa & Serretti, 2009).

Although the advantages of MBI's seem well established, the psychological mechanisms through which this type of intervention fosters improvement, and especially influences emotions, remain unclear (Grecucci et al., 2015). Some authors recently proposed that one pathway for the documented psychological effects of mindfulness may be through facilitation of more adaptive emotional regulation (Bishop et al., 2004; Grecucci et al., 2015; Roemer et al., 2015). Bishop et al. (2004) speculate that mindfulness may promote an objective and adaptive way of responding to emotional triggers, in contrast to dysfunctional and automatic patterns of emotional reactions. However, only a few studies have examined the effects of mindfulness on emotional regulation (e.g. Jain et al., 2007; Jha, Krimping, & Baime, 2007; Ortner, Kilner, & Zelazo, 2007). The results of these studies have been promising, suggesting a meaningful relationship between mindfulness and emotional regulation, with mindfulness significantly contributing to improved emotional regulation. Before further exploration of the relationship between these concepts, it is important to define emotional regulation.

## **Emotional regulation**

Emotional regulation can be described as extrinsic and intrinsic processes through which individuals monitor, evaluate, and modify emotional reactions to achieve a desired outcome (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Schreiber, Grant, & Odlaug, 2012). The most comprehensive definition is provided by Eisenberg, Smith, Sadovsky, and Spinrad (2004), who state that,

...emotion-related regulation is the process of initiating, avoiding, inhibiting, maintaining or modulating the occurrence, form, intensity, or duration of internal feeling states, emotion-related physiological processes, emotion-related goals, and/or behavioural concomitants of emotion, generally in the service of accomplishing one's goals (p. 260)

In short, emotional regulation refers to the process of influencing which, when and how both positive and negative emotions are experienced and expressed (Gross, 1998), with an emphasis on modulation rather than elimination of emotional responses (Roemer et al., 2015).

Gratz and Roemer (2004) further postulate that emotion regulation reflects six different abilities, namely (1) acceptance of emotional experience, (2) clarity about one's feelings, (3) awareness of one's emotions, (4) ability to engage in goal-directed behaviour, (5) impulse control, and (6) access to emotion regulation strategies. Difficulties with emotion regulation may reflect disruptions in any or all of these six abilities. The Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer 2004) measures this more comprehensive and integrative set of abilities related to emotion regulation (Coffey, Hartman, & Fredrickson, 2010). Therefore, this study utilised this measure to determine participants' emotion regulation abilities.

In everyday life, individuals are continually exposed to potentially emotionally arousing stimuli, ranging from internal sensations (e.g. increase in heart rate) to external events (e.g. music playing) (Koole, 2009). Therefore, it can be inferred that individuals engage in some form of emotional regulation almost constantly (Davidson, 1998). Thus, it is not surprising that several lines of research increasingly view emotional regulation as an essential component of mental health and wellbeing (e.g. Cicchetti, Ackerman, & Izard, 1995; Davidson, 2000; Gross, 1998). Additionally, past studies have found that maladaptive emotional regulation strategies are associated with a variety of forms of psychopathology (Gross & Muñoz, 1995; Moore, Zoellner, & Mollenholt, 2008; Schreiber et al., 2012). Therefore, improved understanding of concepts such as mindfulness and the mechanisms through which it fosters more adaptive emotional regulation may be very valuable in fostering improved mental health.

### **Mindfulness and emotional regulation**

From above-mentioned definitions and conceptualisations, there are many apparent connections between mindfulness and emotional regulation. Firstly, there seems to be an overlap in their conceptual definitions – both include awareness (monitoring) and acceptance of emotional responses. However, the awareness and acceptance associated with mindfulness extends beyond the individual's emotions and emphasise moment-to-moment awareness and acceptance of all internal (i.e. thoughts, feelings and bodily sensations) and external (i.e. the surrounding environment) stimuli (Bishop et al., 2004). On the contrary, sole awareness and acceptance of emotions are considered ineffective in fostering more adaptive emotional regulation (e.g. Baker, Holloway, Thomas, Thomas, & Owens, 2004; Tull & Roemer, 2007). The emphasis in emotional regulation is to move beyond awareness and acceptance, and take action to modulate emotional reactions to achieve a desired outcome (Roemer et al., 2009).

Secondly, Mennin and Fresco (2013) suggest that by promoting enhanced and expanded attention and awareness in the present moment, mindfulness may improve individuals' ability to expand beyond a narrow focus on the threat in a situation, while simultaneously focusing on aspects of their own experience (e.g. body awareness). Consequently, an attentive and nonreactive attitude toward emotional stimuli may increase the gap between impulse and action (Broderick & Jennings, 2012). This will in turn enable improved detection of the need to implement or adjust regulation strategies, therefore enabling flexible use of emotional regulation strategies (Teper, Segal, & Inzlicht, 2013). Therefore, mindfulness is hypothesised to foster increased acceptance of and familiarity with one's internal world, which results in improved ability to manage negative affect through decreased rumination and reactivity to one's internal world (Keng et al., 2011; Shapiro et al., 2006).

Thirdly, Roemer et al. (2015) emphasise that the quality of awareness, and not merely the presence of awareness, in facilitating of adaptive emotional regulation. Similarly, Baer et al. (2006), found that variations in the three acceptance-based facets of mindfulness (acting with awareness, non-judgement, and non-reactivity), which pertains to the quality of awareness, significantly predicted improvements in psychological outcomes. However, what remains unclear and undefined, is how mindfulness is specifically related to emotional regulation (Luberto, Cotton, McLeish, Mingione, & O'Bryan, 2014). Considering the benefits reviewed above of both mindfulness and emotional regulation in promoting improved mental health, elucidating the exact mechanisms through which mindfulness fosters adaptive emotional regulation may allow for more targeted and refined application of mindfulness and may advance theory and research in this field (Chambers et al., 2009; Shapiro et al., 2006; Luberto et al., 2014).

## **Manuscript for examination**

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The relationship between mindfulness and emotional regulation in emerging adulthood

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## **Abstract**

This study aims to investigate the relationship between mindfulness and emotional regulation among emerging adults in the South African context by determining which facets of mindfulness is associated with and contributes to emotional regulation. An availability sample of 214 (135 female and 79 male) emerging adult students completed the Five Facets of Mindfulness Questionnaire (FFMQ; Baer et al., 2006) and the Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). Correlational and regression analyses revealed that, irrespective of gender, four facets of mindfulness, namely describe, acting with awareness, non-judging, and non-reactivity are inversely associated with difficulties with emotional regulation, and three of these facets (i.e. acting with awareness, non-judging, and non-reactivity) contribute independently to emotional regulation difficulties. The findings suggest that a specific focus on only three facets of mindfulness, namely acting with awareness, non-judging, and non-reactivity in mindfulness-based interventions may foster adaptive emotional regulation.

## **Keywords**

Mindfulness, emotional regulation, emerging adulthood, self-regulation, difficulties with emotional regulation

## **The relationship between mindfulness and emotional regulation in emerging adulthood**

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### **Introduction**

Over the last decade, mindfulness as a psychological construct has gained increased attention in both research and clinical settings. Mindfulness, a concept originally derived from Buddhist psychology (Kabat-Zinn, 1982), is most commonly defined as “non-elaborative awareness of the present-moment experience” (Chambers et al., 2009, p. 561). Alternatively, Zack et al. (2014) more specifically describe it as an accepting, non-judgemental, curious and open orientation towards the present-moment experience (Bishop et al., 2004; Shapiro et al., 2006). Mindfulness can therefore be regarded as a state of consciousness that emphasises observing and attending to current experiences, including inner experiences such as thoughts and emotions, with a non-judgemental attitude and acceptance (Bishop et al., 2004).

Literature suggests a lack of consensus among researchers on whether mindfulness refers to a state, or a number of related processes or facets (Baer et al., 2006; Chambers et al., 2009). Several authors have argued that it is essential to conceptualise complex constructs such as mindfulness as a multifaceted construct to clarify their relationship with other variables effectively (for e.g. Schneider, Hough, & Dunnette, 1996; Smith, Fischer, & Fister, 2003). Baer et al. (2006) identified five facets of mindfulness based on empirical research, namely (a) Observing: noticing, or attending to thoughts, feelings, perceptions, or sensations;

(b) Describing: the ability to describe or label experiences with words; (c) Acting with awareness: the ability to concentrate and not to be distracted, (d) Non-reactivity: noting thoughts and feelings without the need to respond to them, and (e) Non-judging: the acceptance of thoughts and emotions experienced. These facets are included in the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) which is internationally used as a standard self-report measure within a variety of clinical and research settings. Consequently, for the purpose of this study, mindfulness is conceptualised as a multifaceted construct defined by these five facets.

It is clear that scientifically defining the concept of mindfulness remains challenging (Bishop, 2002). However, the efficacy of mindfulness-based interventions in both clinical and nonclinical populations is becoming more evident in several empirical studies. Mindfulness-based interventions in clinical populations have been proven to prevent relapse and effectively treat major depression (Kumar, Feldman, & Hayes, 2008), generalised anxiety disorder (Roemer et al., 2009), attention-deficit hyperactivity disorder (Smalley et al., 2009), eating disorders (Baer et al., 2005), and borderline personality disorder (Bohus et al., 2004). In nonclinical populations, mindfulness-based interventions have been associated with improved wellbeing (Chambers et al., 2009) and quality of life (Gard et al., 2012), adaptive coping during stress-related experiences (Davidson et al., 2003), lowered intensity of negative affect (Brown & Ryan, 2003) and reduced anxiety (Shapiro, Schwartz, & Bonner, 1998).

Chambers et al. (2009) hypothesise that the efficacy of mindfulness-based interventions may be attributed to the non-reactive, non-evaluative awareness associated with mindfulness. Furthermore, Shapiro et al. (2006) state that having the capacity to “stand back” and witness internal states non-judgementally might increase an individual’s freedom to choose how to respond to these states. Therefore, being mindful may enable the individual to

attend to present-moment emotions, cognitions and behaviour and choose to self-regulate it in ways that foster health and greater well-being (compare Bishop et al., 2004; and Shapiro et al., 2006). Recently, based on this hypothesis, mindfulness is often associated with self-regulation (Bullis et al., 2014). Self-regulation consists of a complex interplay between cognitive, emotional and physical processes. However, due to the importance of emotional regulation in the mental health of emerging adults (Monshat et al., 2013), this study is specifically concerned with the relationship between mindfulness and emotional regulation.

Emotional regulation can be described as the “dynamic flexibility in emotional experience” (Diamond & Aspinwall, 2003, p. 125) in which the individual has the capacity to modify and mobilise emotions selectively and proactively in service of context specific goals (Aldao, 2013). Typical processes of emotional regulation include identification and acceptance of emotional experiences, management of distress and modulation of excitement, sustaining motivation, prioritising among competing goals, and following adaptive adjustment of behavioural responses (Ochsner & Gross, 2005). It is therefore not surprising that several lines of research have identified the ability to regulate emotions effectively as an essential component of mental health (for e.g. Gross & Muñoz, 1995; Hayes & Feldman, 2004) and maintaining well-being in the face of negative experiences (Ochsner & Gross, 2005). Additionally, difficulties in emotional regulation have been identified as a core feature of various mental disorders in the fourth text-revised and fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, & DSM-V; American Psychiatric Association, 2000, 2013). These mental disorders include, among others, major depressive disorder, disruptive mood dysregulation disorder, conduct disorder, feeding and eating disorders, anxiety disorders, and substance-related and addictive disorders (Broderick & Jennings, 2012; Repetti, Taylor, & Seeman, 2002).

Research has recently begun to explore the role of mindfulness as an important factor that might influence and foster adaptive emotional regulation (Bullis et al., 2014). A study by Roemer et al. (2009) found that participants with generalised anxiety disorder displayed significantly lower levels of mindfulness and significantly higher levels of difficulty in emotional regulation compared to individuals in a non-anxious control group. Kumar et al. (2008) demonstrate a significant correlation between increased mindfulness and reduction of rumination and avoidance (two maladaptive emotional regulation strategies) in a clinical sample of depressed participants after receiving exposure-based cognitive therapy that included mindfulness training. Jermann et al. (2009) also found a negative relationship between mindful attention and awareness and depressive symptoms in a French sample. They further indicate that this relationship was mediated by the nonadaptive emotional regulation strategy of self-blame.

Although these research findings are encouraging, many aspects of the relationship between mindfulness and emotional regulation remain unexplored and unclear (Hill & Updegraff, 2012). Theoretically, it seems that mindfulness should predict more adaptive emotional regulation as it is postulated to contribute to improved awareness and flexibility in dealing with challenges and uncertainty. However, little is known about which facets of mindfulness are related to adaptive emotional regulation (Hill & Updegraff, 2012). A study by Bullis et al. (2014) reveals that merely observing mindfully was insufficient in reducing subjective stress. This study further highlights the importance of describing emotional experiences for effective reduction of stress and therefore effective emotional regulation. These findings may therefore suggest that it is rather the quality of mindfulness that is clinically significant for emotional regulation (Roemer et al., 2009), and not merely the presence of some mindful traits. Furthermore, even though emotional awareness is

theoretically implied in the definition and description of mindfulness, empirical evidence focuses heavily on mindfulness as a cognitive ability only.

Another gap in the literature pertains to the underexplored relationship between mindfulness and emotional regulation in young adults specifically, as the majority of studies concerns middle adulthood with clinical disorders (for e.g. Hayes & Feldman, 2004; Hill & Updegraff, 2012). Adulthood is commonly considered to consist of three phases, namely early adulthood (age 20-40), middle adulthood (age 40-65), and late adulthood (age 65 and onwards; Louw & Louw, 2007). Papalia, Olds and Feldman (2009) further distinguish emerging adulthood (age 18-25) from young adulthood (age 26-40). Emerging adulthood is considered an exploratory period of experimentation before assuming adult roles and responsibilities (Arnett, 2000, 2007) marked with several challenging milestones such as entering university or college, leaving the primary residence, living independently and taking responsibility for planning and achieving academic or work success.

Kovacs et al. (2006) state that emotional regulation is developed and fine-tuned through learning processes, which may include successful management of life challenges. Faced with significant life challenges during emerging adulthood, these individuals seem to be a particularly vulnerable group concerning challenges to emotional regulation. Therefore, this study focused on students in the emerging adulthood phase (age 18-25). Additionally, understanding mindfulness and emotional regulation in this population group may be valuable in fostering better ability to manage these challenges and following increased well-being. This is supported by the potential value mindfulness has for better emotional regulation – Monshat et al. (2013), for example, found that continuous engagement in mindfulness practice improved the emotional regulation and confidence to manage life challenges in a group of young adults.

Yet another question that remains unclear is the role gender plays in the relationship between mindfulness and emotional regulation. Some studies (for example Cloete, Botha & Breytenbach, 2012; Fogarty et al., 2013) have shown gender effects in mindfulness and self-regulation. However, results are varied and inconclusive. Finally, the relationship between mindfulness and emotional regulations seems remarkably understudied within the South African context.

The abovementioned gaps demonstrate the need for further theoretical development and understanding of the relationship between mindfulness and emotional regulation. The present study may be valuable in contributing to the process of developing a theoretical foundation from which to develop both facilitation and programmes, specifically within a South African tertiary education context.

The question this study attempted to address was: What is the relationship between mindfulness and emotional regulation in a sample of emerging adults in a South African context? More specifically:

- a. Do emerging adults with high levels of mindfulness experience high levels of emotional regulation?
- b. How much do the mindfulness facets of observing, describing, acting with awareness, non-reactivity, and non-judging contribute to emotional regulation?
- c. Is this set of variables able to contribute a significant amount of variance in emotional regulation if we control for the possible effect of gender?

## **Aims**

The overarching aim of the study was to determine the relationship between mindfulness and emotional regulation in a sample of emerging adults in a South African context. Specific aims were to determine:

- a. if a linear relationship exists between emerging adults' facets of mindfulness and emotional regulation
- b. the degree to which the five facets of mindfulness, namely observing, describing, acting with awareness, non-reactivity, and non-judging contribute to emotional regulation; and
- c. whether this set of variables were able to contribute a significant amount of variance in emotional regulation if we controlled for the possible effect of gender.

## **Method**

### **Design and participants**

A quantitative, cross-sectional, exploratory design was employed. The participants consisted of an availability sample of 214 (135 female and 79 male) students from the North-West University, Potchefstroom campus. All participants were emerging adults between the ages of 18 and 25 with a mean age of 20.69 years. Eighty one percent of participants were Afrikaans speaking, 4.74% were English speaking, 9.48% were Setswana speaking, and the rest (4.68%) indicated a variety of African languages as their first language. The majority of participants were registered for courses in Education Sciences, Arts or Economic and Management Sciences. Despite the fact that the inclusion of students only may limit the generalizability of the study, the following can be identified as possible benefits: (1) The

findings may have more practical applicability as recommendations could be directed specifically towards student counselling and academic services, and (2) a more homogenous sample can contribute to more reliable results.

## **Recruitment**

After ethical approval had been granted by the Health Research Ethics Committee (HREC) of the NWU (Approval number NWU 00103-11-A1), an appointment was made with the Student dean at the NWU Potchefstroom Campus to explain the nature, aims and scope of the research study. After he provided written consent (Appendix A), lecturers from different faculties at the NWU, Potchefstroom campus were identified, approached, and asked to act as gatekeepers for the study. Lecturers from the Faculties of Education Sciences, Economic and Management Sciences and Arts faculties provided permission. Students were recruited via an invitation from the gatekeepers by means of email forums or email groups to attend information sessions. During these sessions, the purpose of the study and all the ethical aspects relating to informed consent, voluntary participation and withdrawal, confidentiality and dissemination of the results were explained.

## **Data Collection**

Once written informed consent for voluntary participation was obtained (Appendix B), participants were invited to either a lecture or a seminar room to complete the measures through which data on biographical aspects, mindfulness and emotional regulation were obtained. No incentives, academic or financial, were provided to participants.

### **Biographical information**

Participants were required to provide the following biographical information: Gender, age, and field of study.

## **Mindfulness**

***Five Facet Mindfulness Questionnaire (FFMQ)***. The Five Facet Mindfulness Questionnaire (Baer et al., 2006) is a 39-item scale that measures five facets of mindfulness (see earlier), namely a) Observing, b) Describing c) Acting with awareness, d) Non-reactivity and e) Non-judging. Items are rated on a five-point Likert scale ranging from 1 (never or rarely) to 5 (very often or always true). Therefore, this measurement provided a multifaceted and comprehensive measure of participants' mindfulness. The subscales demonstrated adequate to good internal consistency with alpha coefficient values ranging from .75 to .91 (Baer et al., 2006), as well as adequate construct validity (Baer et al., 2008) in American and European contexts.

In this study, reliability analysis of FFMQ subtests revealed good levels of internal consistency, with Cronbach alpha coefficients for the total population ranging between .71 and .86. Cronbach alpha coefficients calculated separately for gender groups yielded values between .69 and .87 for females, and .74 and .87 for males.

## **Emotional regulation**

***Difficulties in Emotion Regulation Scale (DERS)***. The DERS (Gratz & Roemer, 2004) is a self-report measure that assesses multiple aspects of emotional regulation. This measure contains six subscales, namely: a) Non-acceptance of emotional responses; b) Difficulties engaging in goal directed behaviour; c) Impulse control difficulties; d) Lack of emotional awareness; e) Limited access to emotion regulation strategies; and f) Lack of emotional clarity. Each item is rated on a five-point Likert-type scale, ranging from 1 (almost never) to 5 (almost always). Higher scores indicate greater difficulties in emotional regulation. For aim one of the study, the six subscales were independently correlated with the five facets of mindfulness. For the second aim of this study, emotional regulation was

perceived as an outcome variable, therefore only a total score was used in the multiple regression analysis. Gratz and Roemer (2004) reported Cronbach's alpha coefficients greater than .80 for each subscale and internal consistency of 0.90. They also reported good test-retest reliability, especially pertaining to non-clinical samples.

In this study, reliability analysis of the DERS revealed good levels of internal consistency, with Cronbach alpha coefficients for the total population ranging between .76 and .88 for subscales, and a Cronbach alpha of .91 for the scale overall. Cronbach alpha coefficients of subscales calculated separately for gender groups yielded values between .75 and .89 for females, and .76 and .87 for males. Total scale Cronbach alpha coefficients for females and males yielded values of .91 and .92, respectively.

Taking into account MSA values, percentage variances explained, as well as values of communalities following factor analyses conducted on all subtests of both measuring instruments, construct validity could not be assured for the population group concerned. Both measures, however, demonstrated content validity. Despite the lack of assured construct validity, it was decided to preserve the constructs as defined at the time of standardisation of the measures because of particularly good reliability established.

### **Data analysis**

Statistical data analyses were performed by the Statistical Consultation Services of the North-West University, Potchefstroom, utilising SAS (SAS Institute Inc., 2015). Preliminary data analyses involved drawing frequency tables to describe the socio-demographic variables of the study population and computing descriptive statistics to describe the sample means and standard deviations. In addition, Cronbach alpha reliability coefficients were computed for all subtests of the measures (Nunally & Bernstein, 1994), and confirmatory factor analyses were done to confirm construct validity of subtests.

Pearson's correlation coefficients were calculated to establish whether a relationship between mindfulness and emotional regulation existed in an effort to address the first aim. Due to the convenience sampling utilised in the present study, the interpretation of comparisons between group means were done according to Cohen's effect sizes,  $d$  (Cohen, 1988). Effect sizes indicate practical significance i.e. the extent to which a difference is large enough to have an effect in practice (Steyn, 2009). Likewise, interpretations of the practical significance of correlations were done using the Pearson correlation coefficient as effect sizes. No inferential statistics were therefore interpreted, although  $p$ -values are reported as if random sampling was assumed. The following guidelines were used for  $d$ -values regarding differences between means: small effect:  $d = |0.2|$ ; medium effect (noticeable with the naked eye):  $d = |0.5|$ ; large effect (practically significant):  $d \geq |0.8|$ . Guidelines for practical interpretation of the strength of correlation coefficients,  $r$ , were as follows:  $r = |0.1|$  (small effect);  $r = |0.3|$  (medium effect, noticeable with the naked eye) and  $r \geq |0.5|$  (large effect or practically significant) (Cohen, 1988).

Multiple regressions with stepwise forward selection were calculated to address the second aim. Regression analyses applied the FFMQ subscales and gender as predictor variables, respectively, and the total DERS score as outcome variable. Similar to above, effect sizes for the multiple regressions i.e. the practical significance of goodness-of-fit of the multiple regression, represented by the coefficient of determination ( $R^2$ ), were interpreted according to Cohen  $f^2$  (Ellis & Steyn, 2003). The following guidelines were used:  $f^2 < 0.15$  (small effect);  $0.15 < f^2 < 0.35$  (medium effect); and  $f^2 > 0.35$  (large effect or practically significant) (Cohen, 1988).

### **Ethical considerations**

The following ethical aspects were taken into consideration for the present study.

### **Informed consent**

It was ensured that written informed consent was obtained from all participants prior to participation. The researcher ensured that all participants had a thorough understanding of the purpose and methods used in the study, the possible risks involved, and expectations. Furthermore, the researcher ensured that participants had the capacity to acquire and retain knowledge regarding informed consent by excluding individuals announced incapable by law from the study (e.g. individuals with an intellectual disability). However, taking into consideration that the study targeted a student sample, it ran a low risk of encountering individuals incapable of providing written informed consent. Participants were given the power of free choice by informing them that participation is voluntary and that they have the right to withdraw from the study at any given moment during the process.

### **Respect for autonomy and confidentiality**

The research process attempted to respect the participant as a person and treated him/her with human dignity. Participation was voluntary and no individual was forced into participation. Individuals had the right to withdraw during any stage of the study without any consequences or negative implications. Regarding confidentiality, participants received a participant number and only their gender, age and field of study were requested on the questionnaires. These details were used solely for matching purposes during comparison and only the researcher and study leader have access to the biographical data and completed questionnaires.

### **Respect for privacy**

The privacy of participants was respected at all times. Participants had the right to withhold any personal information if they wished to do so. The researcher was present during completion of the questionnaires, but ensured minimal invasion of the participant's personal space during completion of questionnaires. Although participants were encouraged to

complete all the questions, they were not forced to answer any questions. Participants were also allowed to withdraw during completion of the questionnaire battery if he/she felt that his/her privacy had been invaded. Data are stored on a password-protected computer in the project leaders' office for a minimum of 5 years. All data will be destroyed after 5 years.

### **Beneficence**

*Direct benefits:* Participants were informed that they could request individual feedback from the researcher after the study has been completed. The study provided them with the opportunity to reflect upon and become more aware of their own levels of mindfulness and emotional regulation. *Indirect benefits:* The data will be used to contribute to the current understanding of both mindfulness and self-regulation theory. This in turn could benefit psychologists to develop more improved training programmes and therapeutic interventions for clients who experience challenges regarding emotional regulation.

### **Non-harm/risk**

Considering that the present study was non-experimental and only required completion of a questionnaire battery, it could be considered no more than a very low risk for participants. Prior to the study, it was noted that should the researcher become aware that a participant feels uncomfortable for whatever reason, reasonable steps would be taken to ensure minimisation of harm.

### **Integrity**

The researcher committed and continued to commit herself to honesty throughout the research process, adhering to the abovementioned ethical principles and working carefully to prevent errors that might have invalidate the data collected.

## Results

It is important to note that due to the use of non-random sampling in this study, interpretation of all results was done according to effect sizes ( $d$ -values). However,  $p$ -values are reported in tables for completeness.

Descriptive statistics including means ( $M$ ) and standard deviations ( $SD$ ) for both gender groups are reported in Table 1. Independent-samples  $t$ -tests were conducted to compare all scores and subscale scores between male and female participants. Table 1 indicates that no differences of practical significance (all  $d < 0.5$ ) between male and female participants regarding any of the means of the subtests of the FFMQ or the DERS were evident. Due to the absence of practical significant differences between male and female scores, it was decided to report all subsequent analyses for the group as a whole, irrespective of gender.

Table 1

*Descriptive statistics,  $p$ -values and effect sizes on the subtests of the FFMQ and the DERS for differences between males and females*

Measure subscales	Gender	N	$M$	$SD$	$p$ -value (when random sampling is assumed)	$d$ -value
<i>Mindfulness (FFMQ)</i>						
Observe	M	79	26.77	5.57	.09	0.23
	F	135	28.08	5.04		
Describe	M	79	26.37	5.37	.37	0.12
	F	135	27.08	5.92		
Act with awareness	M	79	25.09	6.46	.07	0.25
	F	135	26.72	6.36		
Non-judge	M	79	23.58	5.98	.19	0.18
	F	135	24.68	5.53		
Non-react	M	79	21.71	4.55	.28	0.15
	F	135	21.05	3.90		

*Emotion Regulation  
(DERS)*

Non-acceptance	M	79	14.41	5.75	.11	0.23
	F	128	13.12	5.43		
Goals	M	79	14.28	4.46	.62	0.07
	F	128	13.94	5.10		
Impulse	M	79	13.27	4.75	.03**	0.30
	F	128	11.80	4.90		
Aware	M	79	15.82	4.36	.61	0.07
	F	128	15.50	4.46		
Strategies	M	79	17.90	6.61	.20	0.18
	F	128	16.69	6.72		
Clarity	M	79	11.27	3.98	.71	0.05
	F	127	11.07	3.24		
DERS total	M	79	86.98	21.39	.10	0.23
	F	128	82.04	19.96		

*Note.* M = male; F = female; FFMQ = Five Facets of Mindfulness Questionnaire; DERS = Difficulties in Emotion Regulation Scale; STD = Standard Deviation; \*\* = statistically significant at .05 level

Correlations between study variables are presented in Table 2. Table 2 indicates that the Act with awareness and Non-judge subscales of the FFMQ were individually negatively correlated, with large and practically significant effects, with difficulties in emotional regulation (DERS total score). Negative correlations with medium effects were revealed between the Describe and Non-react subscales of the FFMQ and difficulties in emotional regulation (DERS total score). The correlation between the Observe subscale of the FFMQ and difficulties in emotional regulation (DERS total score) was, however, non-significant.

Table 2

*Pearson correlation coefficients and p-values<sup>•</sup> between the subtests of the FFMQ and the DERS for all participants in the study population (N=207)*

FFMQ Subscales	DERS Subscales						DERS total score
	Non-acceptance	Goals	Impulse	Aware	Strategies	Clarity	
Observe	.03	-.002	-.03	-.41 <sup>Δ</sup>	-.05	-.13	-.13
	.620	.979	.634	<.001 <sup>*</sup>	.502	.061	.071
Describe	-.28	-.20	-.15	-.49 <sup>Δ</sup>	-.27	-.54 <sup>ΔΔ</sup>	-.44 <sup>Δ</sup>
	<.001 <sup>*</sup>	.004 <sup>*</sup>	.036	<.001 <sup>*</sup>	<.001 <sup>*</sup>	<.001 <sup>*</sup>	<.001 <sup>*</sup>
Act with awareness	-.43 <sup>Δ</sup>	-.38 <sup>Δ</sup>	-.34 <sup>Δ</sup>	-.13	-.46 <sup>Δ</sup>	-.43 <sup>Δ</sup>	-.54 <sup>ΔΔ</sup>
	<.001 <sup>*</sup>	<.001 <sup>*</sup>	<.001 <sup>*</sup>	.054	<.001 <sup>*</sup>	<.001 <sup>*</sup>	<.001 <sup>*</sup>
Non-judge	-.59 <sup>ΔΔ</sup>	-.33 <sup>Δ</sup>	-.31 <sup>Δ</sup>	.08	-.45 <sup>Δ</sup>	-.30 <sup>Δ</sup>	-.50 <sup>ΔΔ</sup>
	<.001 <sup>*</sup>	<.001 <sup>*</sup>	<.001 <sup>*</sup>	.237	<.001 <sup>*</sup>	<.001 <sup>*</sup>	<.001 <sup>*</sup>
Non-react	-.05	-.19	-.30 <sup>Δ</sup>	-.23	-.29	-.25	-.31 <sup>Δ</sup>
	.490	.007 <sup>*</sup>	<.001 <sup>*</sup>	.009 <sup>*</sup>	<.001 <sup>*</sup>	.004 <sup>*</sup>	<.001 <sup>*</sup>

*Note.* <sup>•</sup> = when random sampling is assumed; <sup>Δ</sup> = Medium effect in practice; <sup>ΔΔ</sup> = Large effect in practice and practically significant; <sup>\*</sup> = Correlation is significant at the .01 level (2-tailed); FFMQ = Five Facets of Mindfulness Questionnaire; DERS = Difficulties in Emotion Regulation Scale

Correlations among subtests of both the FFMQ and the DERS revealed that describe or is negatively, but practically significantly associated with difficulties with obtaining emotional clarity. The ability to respond non-judgementally to thoughts and emotions experienced is negatively and practically significantly associated with difficulties in acceptance of emotional responses. Additionally, Table 2 demonstrates medium effect

associations between a substantial number of the FFMQ and the DERS subtests, but these associations are not practically significant.

Due to the significant correlations revealed in Table 2, regression analyses were done with the aim to determine the exact importance of facets of mindfulness as contributors to emotional regulation difficulties. Table 3 summarises results of the multiple regression analyses. These analyses firstly indicated that gender and the Observe subscale of the FFMQ did not contribute significantly to the level difficulties with emotional regulation, and was therefore excluded from further analyses. Table 3 indicates that Describe, Act with awareness, Non-judge and Non-react contribute to fewer difficulties in emotional regulation.

Table 3

*Facets of Mindfulness as Contributors of Difficulties in Emotion Regulation*

Variable	Difficulties in Emotion regulation		
	<i>t</i> -value	<i>p</i> -value (when random sampling is assumed)	<i>f</i> <sup>2</sup>
Describe	-3.50	<.001*	.061
Act with awareness	-6.31	<.001*	.197 <sup>Δ</sup>
Non-judge	-6.32	<.001*	.198 <sup>Δ</sup>
Non-react	-5.59	<.001*	.154 <sup>Δ</sup>
<i>R</i> <sup>2</sup>	.53		

*Note.* <sup>Δ</sup> = medium effect in practice; \* = statistically significant at .01 level

Act with awareness, non-judge, and non-react revealed medium effects, and inversely contributes 19.7%, 19.8%, and 15.4% respectively to emotional regulation difficulties.

## Discussion

This study examined the relationship between mindfulness and emotional regulation within a sample of emerging adult students between the ages of 18 and 25 in the South African context. In order to achieve this, the first objective of the study was to determine whether a linear relationship exists between emerging adults' facets of mindfulness and emotional regulation. Overall, results revealed significant inverse associations between facets of mindfulness, except for observe, and difficulties with emotional regulation. These results are reminiscent of findings by Roemer et al. (2009) that involved university students, and Hill and Updegraff (2012) among a sample of young adults, which revealed strong associations between mindfulness and less emotional difficulties (i.e. self-reported emotion dysregulation). Consequently, as a whole, the present study supports the notion that (self-reported) mindfulness and emotional regulation are linearly associated (Feldman et al., 2007; Kumar et al., 2008; Ortner et al., 2007; Orzech, Shapiro, Brown, & McKay, 2009) within a sample of emerging adult South African students.

More specifically, the relationship between each facet of mindfulness and difficulties with emotional regulation was explored. Firstly, the association between observe and overall difficulties with emotional regulation were found to be insignificant and of no practical value. This echoes existing findings by Baer et al. (2006, 2008) and Desrosiers, Vine, Klemanski, and Nolen-Hoeksema (2013), which in fact demonstrated that higher levels of the tendency to observe was associated with increased anxiety and general psychological distress. Desrosiers et al. (2013) posed that the intensity of symptoms, particularly physiological symptoms, may be so overwhelming that focusing increased attention on these symptoms will likely result in intensification of emotional dysregulation. Furthermore, Desrosiers, Vine, Curtiss, and Klemanski (2014) found that the relationship between observing and symptoms of depression and anxiety depends on the capacity to observe non-reactively. Therefore, these findings,

together with the findings of the present study, emphasise that merely observing might be insufficient in fostering more adaptive emotional regulation.

The ability to describe internal experiences with words demonstrated an inverse association with a medium effect with overall difficulties with emotional regulation. More specifically, describe was strongly and practically significantly associated with emotional clarity as a dimension of emotional regulation difficulties. Similarly, Hill and Updegraff (2012) demonstrate that (self-reported) mindfulness was associated with greater emotion differentiation. Reviewing a series of studies (for e.g. Coffey et al., 2010), Roemer et al. (2015) suggest that clarity of emotion experiences might be a central correlate with mindfulness that promotes healthy emotional regulation. According to Gratz and Tull (2010), the process of describing emotions is expected to facilitate the ability to identify, label, and differentiate between emotional states. The findings of the present study therefore further emphasises the value of fostering the ability to describe internal experiences via mindfulness training in addressing emotional regulation difficulties.

Acting with awareness demonstrated a strong inverse relationship that is practically significant with overall difficulties with emotional regulation. Adams et al. (2014) similarly found that dispositional mindfulness (measured as unidimensional awareness) significantly correlates with reduced emotional volatility in a sample of African American individuals during a smoking cessation programme. Shapiro et al. (2006) hypothesise that being more aware (i.e. attending to one's emotions at a given moment) may facilitate the ability to stand back and choose among effective emotional regulation strategies, as opposed to acting in automatic pilot (Baer et al., 2008). Therefore, findings of the present study implies that fostering improved awareness of the present-moment experience might enrich interventions that aim to address emotional regulation difficulties among emerging adults by reducing

reactivity to stressful events and improving the ability to choose among more adaptive emotional regulation strategies.

Additionally, taking a non-evaluative, non-judgmental stance toward thoughts and feelings revealed a strong, practically significant and inverse association with overall difficulties with emotional regulation, and more specifically with non-acceptance of emotional experiences and responses. This finding supports Gratz and Tull's (2010) notion that taking a non-judgmental and non-evaluative stance towards emotional experiences can facilitate emotional acceptance and increase emotional willingness, while decreasing secondary emotional reactions that often result in emotional dysregulation (Greenberg, 2008). Additionally, accepting one's experiences and refraining from judging have been found to be of greater importance to mental health than simply attending to these experiences (Coffey et al., 2010). The findings of the present study therefore seem to support the notion that adaptive emotional regulation is particularly associated with the acceptance component of mindfulness (in-depth discussion to follow below) (Roemer et al., 2015).

Lastly, non-reactivity also demonstrated an inverse association with difficulties with emotional regulation, but with medium effect, which means that this association is not practically significant. This supports similar findings by Baer et al. (2006) and Reese, Zielinski, and Veilleux (2015) among undergraduate psychology student samples. Several inverse medium effect associations were also revealed between a substantial amount of subscales of both measures, which include associations between observe and aware; describe and aware; act with awareness and non-acceptance; act with awareness and goals; act with awareness and impulse; act with awareness and strategies; act with awareness and clarity; non-judge and goals; non-judge and impulse; non-judge and strategies; and non-react and impulsivity. Being similar to findings by Goodall, Trejnowska, and Darling (2012), even though these associations are not considered practically significant, it is useful in

understanding the relationship between mindfulness and emotional regulation by emphasising the close association between these two psychological constructs.

The second aim of the present study was to determine which facets of mindfulness contribute to emotional regulation. Although statistically significant contributions of all facets of mindfulness (except observe) were evident, results from regression analyses highlighted acting with awareness, non-judging, and non-reactivity as inverse contributors with moderate effects to emotional regulation difficulties. More specifically, non-judging was found to be the most important contributor, predicting 19.8% of the variance in emotional regulation difficulties, followed by awareness (19.7%) and non-reactivity (15.4%). This is in line with findings by Baer et al. (2006), which revealed that variations in these three facets of mindfulness significantly predicted improvements in a variety of psychological symptoms.

Taken together, non-judging and non-reactivity is often referred to as the ‘acceptance’ facets of mindfulness (Baer et al., 2006). Therefore, findings of the present study support findings by Coffey et al. (2010) who also found acceptance as the strongest predictor of both positive and negative psychological outcomes. Furthermore, these acceptance-based components together with acting with awareness that are identified in the present study as the most important contributors of mindfulness to emotional regulation for emerging adults, supports Hayes and Feldman’s (2004) suggestion that mindfulness may facilitate adaptive emotional regulation, particularly through the cultivation of compassionate awareness. Therefore, the findings of this study suggest that mindfulness-based interventions may be particularly valuable in fostering adaptive emotional regulation by changing an individual’s relationship to thoughts and feelings, rather than directly changing the content of thoughts (Corcoran, Farb, Anderson, & Segal, 2009). Although these present findings are preliminary, they suggest that a specific focus on acting with awareness, non-judging, and non-reactivity in mindfulness-based interventions may foster adaptive emotional regulation.

Lastly, the third aim of the study was to determine whether this set of variables was able to contribute a significant amount of variance in emotional regulation if we controlled for the possible effect of gender. Results revealed no statistically or practically significant differences between male and female participants' levels of mindfulness and their difficulties with emotional regulation. The literature review revealed that studies concerning mindfulness and emotional regulation rarely include gender as a variable. However, most commonly, no gender-specific effects have been found in mindfulness-based interventions efficacy studies (for e.g. Carson, Carson, Gil, & Baucom, 2004; Nyklíček & Kuijpers, 2008; Short & Mezo, 2010). More specifically, similar to findings of the present study, Goodall et al. (2012) found no gender differences for mindfulness scores among a sample of UK university students (mean age 26.6) with no previous mindfulness training or meditation experience. A review by Nolen-Hoeksema (2012) also highlights the lack of differences between male and female self-reported levels of emotional regulation.

De Vibe et al. (2013) hypothesise that gender differences in reporting may be dependent on whether measurement is concerned with how emotions are *experienced* or how emotions are *expressed*, with the latter more commonly associated with differences between males and females than the former. These authors suggest that males and females tend to experience emotions similarly, although the expression of emotion is often influenced by gender-specific socialisation processes (Fischer, Rodriguez, Mosquera, Van Vianen, & Manstead, 2004). Therefore, the lack of gender differences found in the present study might be accounted for by the fact that participants largely self-reported on *experiences* of mindfulness and emotions.

### **Limitations**

Before a final conclusion can be made, the study has some limitations that warrant mention. Firstly, all constructs were measured exclusively by means of self-report questionnaires. Mindfulness and emotional regulation difficulties are both complex constructs that may not have been fully captured by self-report instruments. Additionally, due to the use of self-report measures, findings are largely based on participants' perceptions of their levels of mindfulness and emotional regulation, which may not reflect actual levels of mindfulness and emotional regulation. Self-report measures may also have limited the ecological validity and inflated results due to common method variance. Secondly, the study relied on availability sampling, which resulted in a homogeneous group. Therefore, the uniformity of the sample used in this study somewhat limits the generalisability of these findings. Thirdly, the cross-sectional nature of the study and the fact that participants were not screened for prior mindfulness practice or beliefs, limits the extent to which causality can be inferred.

Despite these possible limitations, this study contributes to an enriched understanding of mindfulness as a construct and the mechanisms through which mindfulness may foster more adaptive emotional regulation. Furthermore, it focuses on linking specific facets of mindfulness to difficulties with emotional regulation, which extends previous research that has traditionally examined mindfulness from a more global perspective (for e.g. Hill & Updegraff, 2012; Roemer et al., 2009). Consequently, the study has important implications for future interventions, specifically suggesting a focus of attention on inclusion of awareness, non-judging, and non-reactivity in mindfulness-based interventions to foster more adaptive emotional regulation.

## **Conclusion**

The aim of the study was to explore the relationship between mindfulness and emotional regulation among a sample of emerging adult students within the South African context. Overall, the study found a practically significant inverse relationship between mindfulness and difficulties with emotional regulation, irrespective of gender. More specifically, four of the facets of mindfulness, namely describe, acting with awareness, non-judging, and non-reactivity are related to difficulties with emotional regulation. Three of these facets (i.e. acting with awareness, non-judging, and non-reactivity) contribute independently to emotional regulation difficulties. These results support the literature that suggests that mindfulness may facilitate adaptive emotional regulation particularly through the cultivation of compassionate awareness. Therefore, these results suggest that the incorporation of mindfulness concepts into an individual's worldview will likely result in improvements in emotional regulation. Although these present findings are preliminary, they suggest that a specific focus on acting with awareness, non-judging, and non-reactivity in mindfulness-based interventions may foster adaptive emotional regulation. In general, findings contribute to an enriched understanding of mindfulness as a construct, and the mechanisms through which mindfulness may foster more adaptive emotional regulation.

## **Recommendations**

The results of this study have some implications for further research. Future studies could attempt to extend the present findings to more diverse demographical and ethnic groupings of young adults to increase generalisability in a South African (or any other) context. Future studies that employ other methods of assessment than self-report instruments may be valuable to explore the nature of mindfulness and difficulties with emotional regulation more fully. These adaptations are also necessary to explore gender differences (or similarities) regarding mindfulness and emotional regulation more in depth in future. Further

longitudinal, prospective, experiencing sampling designed, as well as experimental and treatment studies, are needed to deepen our understanding of the nature of these interrelationships. Findings suggest that treatment studies that specifically incorporate acting with awareness, non-judging, and non-reactivity may shed additional light on how mindfulness training contributes to fewer difficulties with emotional regulation.

## References

- Adams, C. E., Chen, M., Guo, L., Lam, C. Y., Stewart, D. W., Correa-Fernández, V., ... & Wetter, D. W. (2014). Mindfulness predicts lower affective volatility among African Americans during smoking cessation. *Psychology of Addictive Behaviors, 28*(2), 580–585. doi:10.1037/a0036512
- Aldao, A. (2013). The future of emotional regulation research: Capturing context. *Perspectives on Psychological Science, 8*(2), 155–172. doi:10.1177/1745691612459518
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217–237. doi:10.1016/j.cpr.2009.11.004
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480. doi:10.1037//0003-066X.55.5.469
- Arnett, J. J. (2007). Emerging adulthood: What is it, and what is it good for?. *Child Development Perspectives, 1*(2), 68–73. doi:10.1111/j.1750-8606.2007.00016.x

- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10* (2), 125–143.  
doi:10.1093/clipsy.bpg015
- Baer, R. A., Fischer, S., & Huss, D. B. (2005). Mindfulness and acceptance in the treatment of disordered eating. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 23*(4), 281–300. doi:10.1007/s10942-005-0015-9
- Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky inventory of mindfulness skills. *Assessment, 11*(3), 191–206.  
doi:10.1177/1073191104268029
- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*(1), 27–45.  
doi:10.1177/1073191105283504
- Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., ... & Williams, J. M. G. (2008). Construct validity of the five facet mindfulness questionnaire in meditating and non meditating samples. *Assessment, 15*(3), 329–342.  
doi:10.1177/1073191107313003
- Baker, R., Holloway, J., Thomas, P. W., Thomas, S., & Owens, M. (2004). Emotional processing and panic. *Behaviour Research and Therapy, 42*(11), 1271–1287.  
doi:0.1016/j.brat.2003.09.002
- Bergomi, C., Tschacher, W., & Kupper, Z. (2013). The assessment of mindfulness with self-report measures: existing scales and open issues. *Mindfulness, 4*(3), 191–202.  
doi:10.1007/s12671-012-0110-9

- Bishop, S. R. (2002). What do we really know about mindfulness-based stress reduction?. *Psychosomatic Medicine*, *64*(1), 71–83. doi:10.1097/00006842-200201000-00010
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., & Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice*, *11*(3), 230–241. doi:10.1093/clipsy/bph077
- Bodhi, B. (2000). *A comprehensive manual of Abhidhamma*. Seattle, WA: BPS Pariyatti Editions.
- Bodhi, B. (2011). What does mindfulness really mean? A canonical perspective. *Contemporary Buddhism*, *12*, 19–39. doi:10.1080/14639947.2011.564813
- Bohus, M., Haaf, B., Simms, T., Limberger, M. F., Schmahl, C., Unckel, C., & Linehan, M. M. (2004). Effectiveness of inpatient dialectical behavioral therapy for borderline personality disorder: a controlled trial. *Behaviour Research and Therapy*, *42*(5), 487–499. doi:10.1016/S0005-7967(03)00174-8
- Bowen, S., Chawla, N., Collins, S. E., Witkiewitz, K., Hsu, S., Grow, J., ... & Marlatt, A. (2009). Mindfulness-based relapse prevention for substance use disorders: A pilot efficacy trial. *Substance Abuse*, *30*(4), 295–305. doi:10.1080/08897070903250084
- Broderick, P. C., & Jennings, P. A. (2012). Mindfulness for adolescents: A promising approach to supporting emotion regulation and preventing risky behaviour. *New Direction for Youth Development*, *136*, 111–126. doi:10.1002/yd.20042
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*(4), 822–848. doi:10.1037/0022-3514.84.4.822

- Buchheld, N., Grossman, P., & Walach, H. (2001). Measuring mindfulness in insight meditation (Vipassana) and meditation-based psychotherapy: The development of the Freiburg Mindfulness Inventory (FMI). *Journal for Meditation and Meditation Research, 1*(1), 11–34.
- Bullis, J. R., Bøe, H. J., Asnaani, A., & Hofmann, S. G. (2014). The benefits of being mindful: Trait mindfulness predicts less stress. *Journal of Behavior Therapy and Experimental Psychiatry, 45*, 57–66. doi:10.1016/j.jbtep.2013.07.006
- Burke, C. A. (2010). Mindfulness-based approaches with children and adolescents: A preliminary review of current research in an emergent field. *Journal of Child and Family Studies, 19*(2), 133–144. doi:10.1007/s10826-009-9282-x
- Carson, J. W., Carson, K. M., Gil, K. M., & Baucom, D. H. (2004). Mindfulness-based relationship enhancement. *Behavior Therapy, 35*(3), 471–494. doi:10.1016/S0005-7894(04)80028-5
- Chambers, R., Gullone, E., & Allen, N. B. (2009). Mindful emotional regulation: An integrative review. *Clinical Psychology Review, 29*, 560–572. doi:10.1016/j.cpr.2009.06.005
- Chiesa, A. (2013). The difficulty of defining mindfulness: current thought and critical issues. *Mindfulness, 4*(3), 255–268. doi:10.1007/s12671-012-0123-4
- Chiesa, A., & Serretti, A. (2009). Mindfulness-based stress reduction for stress management in healthy people: a review and meta-analysis. *The Journal of Alternative and Complementary Medicine, 15*(5), 593–600. doi:10.1089/acm.2008.0495

- Chiesa, A., & Serretti, A. (2010). A systematic review of neurobiological and clinical features of mindfulness meditations. *Psychological Medicine*, *40*(8), 1239–1252. doi:10.1017/S0033291709991747
- Chiesa, A., & Serretti, A. (2011). Mindfulness based cognitive therapy for psychiatric disorders: a systematic review and meta-analysis. *Psychiatry Research*, *187*(3), 441–453. doi:10.1016/j.psychres.2010.08.011
- Cicchetti, D., Ackerman, B. P., & Izard, C. E. (1995). Emotions and emotion regulation in developmental psychopathology. *Development and Psychopathology*, *7*(1), 1–10. doi:10.1017/S0954579400006301
- Cloete, A., Botha, K.F.H., & Breytenbach, W.J. (2012) Gender Effects on Self-Regulation Among University Students. *Journal of Psychology in Africa*, *22*(2), 179-186.
- Coffey, K. A., Hartman, M., & Fredrickson, B. L. (2010). Deconstructing mindfulness and constructing mental health: Understanding mindfulness and its mechanisms of action. *Mindfulness*, *1*(4), 235–253. doi:10.1007/s12671-010-0033-2
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences*. Hillsdale, NJ: Erlbaum.
- Corcoran, K. M., Farb, N., Anderson, A., & Segal, Z. V. (2009). Mindfulness and emotion regulation: Outcomes and possible mediating mechanisms. In A. M. Kring & D. M. Sloan (Eds.), *Emotion regulation and psychopathology* (pp. 339–355). New York, NY: Guilford Press.
- Davidson, R. J. (1998). Affective style and affective disorders: Perspectives from affective neuroscience. *Cognition & Emotion*, *12*(3), 307–330. doi:10.1080/026999398379628

- Davidson, R. J. (2000). Affective style, psychopathology, and resilience: brain mechanisms and plasticity. *American Psychologist*, *55*(11), 1196–1214. doi:10.1037/0003-066X.55.11.1196
- Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S. F., ... & Sheridan, J. F. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine*, *65*(4), 564–570. doi:10.1097/01.PSY.0000077505.67574.E3
- Desrosiers, A., Vine, V., Curtiss, J., & Klemanski, D. H. (2014). Observing nonreactively: A conditional process model linking mindfulness facets, cognitive emotion regulation strategies, and depression and anxiety symptoms. *Journal of Affective Disorders*, *165*, 31–37. doi:10.1016/j.jad.2014.04.024
- Desrosiers, A., Vine, V., Klemanski, D. H., & Nolen-Hoeksema, S. (2013). Mindfulness and emotion regulation in depression and anxiety: Common and distinct mechanisms of action. *Depression and Anxiety*, *30*(7), 654–661. doi:10.1002/da.22124
- De Vibe, M., Solhaug, I., Tyssen, R., Friborg, O., Rosenvinge, J. H., Sørli, T., & Bjørndal, A. (2013). Mindfulness training for stress management: A randomised controlled study of medical and psychology students. *BMC Medical Education*, *13*(1), 107–128. doi:10.1186/1472-6920-13-107
- Diamond, L. M., & Aspinwall, L. G. (2003). Emotional regulation across the life span: An integrative perspective emphasizing self-regulation, positive affect, and dyadic processes. *Motivation and Emotion*, *27*, 125–156. Retrieved from <http://www.psych.utah.edu/people/people/diamond/Publications/Emotion%20regulation%20across%20the%20lifespan.pdf>

- Dimidjian, S., & Linehan, M. M. (2003). Defining an agenda for future research on the clinical application of mindfulness practice. *Clinical Psychology: Science and Practice, 10*(2), 166–171. doi:10.1093/clipsy.bpg019
- Eisenberg, N., Smith, C.L., Sadovsky, A. & Spinrad, T.L. (2004). Effortful control: Relations with emotion regulation, adjustment, and socialization in childhood. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 259–282). London: Guilford.
- Ellis, S. M., & Steyn, H. S. (2003). Practical significance (effect sizes) versus or in combination with statistical significance (p-values), *Management Dynamics, 12*(4), 51–53.
- Epstein, R. M. (1999). Mindful practice. *Jama, 282*(9), 833–839. doi:10.1001/jama.282.9.833
- Feldman, G., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J. P. (2007). Mindfulness and emotion regulation: The development and initial validation of the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment, 29*(3), 177–190. doi:10.1007/s10862-006-9035-8
- Fischer, A. H., Rodriguez Mosquera, P. M., Van Vianen, A. E., & Manstead, A. S. (2004). Gender and culture differences in emotion. *Emotion, 4*(1), 87–94. doi:10.1037/1528-3542.4.1.87
- Fogarty, F.A., Lu, L.M., Sollers, J.J., Krivoschekov, S.G., Booth, R.J. & Consedine, N.S. (2013). Why it pays to be mindful: Trait mindfulness predicts physiological recovery from emotional stress and greater differentiation among negative emotions. *Mindfulness*. Springer. Retrieved from <http://dx.doi.org.nwulib.nwu.ac.za/10.1007/s12671-013-0242-6>

- Gard, T., Brach, N., Hölzel, B. K., Noggle, J. J., Conboy, L. A., & Lazar, S. W. (2012). Effects of a yoga-based intervention for young adults on quality of life and perceived stress: The potential mediating roles of mindfulness and self-compassion. *Journal of Positive Psychology, 7*(3), 165–175. doi:10.1080/17439760.2012.667144
- Goldin, P. R., & Gross, J. J. (2010). Effects of mindfulness-based stress reduction (MBSR) on emotion regulation in social anxiety disorder. *Emotion, 10*(1), 83–91. doi:10.1037/a0018441
- Goodall, K., Trejnowska, A., & Darling, S. (2012). The relationship between dispositional mindfulness, attachment security and emotion regulation. *Personality and Individual Differences, 52*(5), 622–626. doi:10.1016/j.paid.2011.12.008
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26*(1), 41–54. doi:10.1023/B:JOBA.0000007455.08539.94
- Gratz, K. L., & Tull, M. T. (2010). Emotion regulation as a mechanism of change in acceptance-and mindfulness-based treatments. In R. A. Baer (Ed.), *Assessing mindfulness and acceptance: Illuminating the processes of change* (pp. 107–133). Oakland, CA: New Harbinger Publications.
- Grecucci, A., De Pisapia, N., Thero, D. K., Paladino, M. P., Venuti, P., & Job, R. (2015). Baseline and strategic effects behind mindful emotion regulation: Behavioral and physiological investigation. *Plos One, 10*(1), 1–17. doi:10.1371/journal.pone.0116541

- Greenberg, L. (2008). Emotion and cognition in psychotherapy: The transforming power of affect. *Canadian Psychology/Psychologie Canadienne*, *49*(1), 49–59.  
doi:10.1037/0708-5591.49.1.49
- Gross, J. J. (1998). Antecedent-and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*(1), 224–237. doi:10.1037/0022-3514.74.1.224
- Gross, J. J., & Muñoz, R. F. (1995). Emotion regulation and mental health. *Clinical Psychology: Science and Practice*, *2*(2), 151–164. doi:10.1111/j.1468-2850.1995.tb00036.x
- Gunaratana, H. (2002). *Mindfulness in plain English*. Boston: Wisdom.
- Hayes, S. C., & Feldman, G. (2004). Clarifying the construct of mindfulness in the context of emotion regulation and the process of change in therapy. *Clinical Psychology: Science and Practice*, *11*(3), 255–262. doi:10.1093/clipsy.bph080
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford.
- Hill, C. L. M., & Updegraff, J. A. (2012). Mindfulness and its relationship to emotional regulation. *Emotion*, *12*(1), 81–90. doi:10.1037/a0026355
- Hofmann, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, *78*(2), 169–183. doi:10.1037/a0018555
- Jain, S., Shapiro, S. L., Swanick, S., Roesch, S. C., Mills, P. J., Bell, I., & Schwartz, G. E. (2007). A randomized controlled trial of mindfulness meditation versus relaxation

- training: Effects on distress, positive states of mind, rumination, and distraction. *Annals of Behavioral Medicine*, 33(1), 11–21. doi:10.1207/s15324796abm3301
- Jermann, F., Billieux, J., Larøi, F., d'Argembeau, A., Bondolfi, G., Zermatten, A., & Van der Linden, M. (2009). Mindful Attention Awareness Scale (MAAS): Psychometric properties of the French translation and exploration of its relations with emotion regulation strategies. *Psychological Assessment*, 21(4), 506–514. doi:10.1037/a0017032
- Jha, A. P., Krompinger, J., & Baime, M. J. (2007). Mindfulness training modifies subsystems of attention. *Cognitive, Affective, & Behavioral Neuroscience*, 7(2), 109–119. doi:10.3758/CABN.7.2.109
- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, 4(1), 33–47. doi:10.1016/0163-8343(82)90026-3
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York: Hyperion.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present and future. *Clinical Psychology: Science and Practice*, 10, 144–156. doi:10.1093/clipsy.bpg016
- Keng, S. L., Smoski, M. J., & Robins, C. J. (2011). Effects of mindfulness on psychological health: A review of empirical studies. *Clinical Psychology Review*, 31(6), 104–1056. doi:10.1016/j.cpr.2011.04.006
- Koole, S. L. (2009). The psychology of emotion regulation: An integrative review. *Cognition and Emotion*, 23(1), 4–41. doi:10.1080/02699930802619031

- Kovacs, M., Sherrill, J., George, C. J., Pollock, M., Tumuluru, R. V., & Ho, V. (2006). Contextual emotion-regulation therapy for childhood depression: Description and pilot testing of a new intervention. *Journal of the American Academy of Child & Adolescent Psychiatry, 45*(8), 892–903. doi:10.1097/01.chi.0000222878.74162.5a
- Kumar, S., Feldman, G., & Hayes, A. (2008). Changes in mindfulness and emotional regulation in an exposure-based cognitive therapy for depression. *Cognitive Therapy and Research, 32*, 734–744. doi:10.1007/s10608-008-9190-1
- Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L., ... & Devins, G. (2006). The Toronto mindfulness scale: Development and validation. *Journal of Clinical Psychology, 62*(12), 1445–1468. doi:10.1002/jclp.20326
- Leary, M. R., & Tate, E. B. (2007). The multi-faceted nature of mindfulness. *Psychological Inquiry, 18*(4), 251–255. doi:10.1080/10478400701598355
- Ledesma, D., & Kumano, H. (2009). Mindfulness-based stress reduction and cancer: a meta-analysis. *Psycho-Oncology, 18*(6), 571–579. doi:10.1002/pon.1400
- Linehan, M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford.
- Louw, D., & Louw, A. (2007). *Child and adolescent development*. South Africa: Psychology Publications
- Luberto, C. M., Cotton, S., McLeish, A. C., Mingione, C. J., & O'Bryan, E. M. (2014). Mindfulness skills and emotion regulation: the mediating role of coping self-efficacy. *Mindfulness, 5*(4), 373–380. doi:10.1007/s12671-012-0190-6

- Lynch, T., Trost, W., Salsman, N., & Linehan, M. (2007). Dialectical behavioural therapy for borderline personality disorder. *Annual Review of Clinical Psychology*, *3*, 181–205. doi:10.1146/annurev.clinpsy.2.022305.095229
- Mennin, D. S., & Fresco, D. M. (2013) Emotion regulation therapy. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 469–490). New York: Guilford.
- Monshat, K., Khong, B., Hased, C., Vella-Brodrick, D., Norrish, J., Burns, J., & Herrman, H. (2013). “A conscious control over life and my emotions:” Mindfulness practice and healthy young people. A qualitative study. *Journal of Adolescent Health*, *52*, 572–577. doi:10.1016/j.jadohealth.2012.09.008
- Moore, S. A., Zoellner, L. A., & Mollenholt, N. (2008). Are expressive suppression and cognitive reappraisal associated with stress-related symptoms?. *Behaviour Research and Therapy*, *46*(9), 993–1000. doi:10.1016/j.brat.2008.05.001
- Nolen-Hoeksema, S. (2012). Emotion regulation and psychopathology: The role of gender. *Annual Review of Clinical Psychology*, *8*, 161–187. doi:10.1146/annurev-clinpsy-032511-143109
- Nunnally, J., & Bernstein, I. H. (1994). *Psychometric theory*. New York: McGraw-Hill.
- Nyaniponika (1973). *The heart of Buddhist meditation*. New York: Weiser Books.
- Nyklíček, I., & Kuijpers, K. F. (2008). Effects of mindfulness-based stress reduction intervention on psychological well-being and quality of life: Is increased mindfulness indeed the mechanism?. *Annals of Behavioral Medicine*, *35*(3), 331–340. doi:10.1007/s12160-008-9030-2

- Ochsner, K. N., & Gross, J. J. (2005). The cognitive control of emotion. *Trends in Cognitive Sciences*, 9, 242–249. doi:10.1016/j.tics.2005.03.010
- Ortner, C. N. M., Kilner, S. J., & Zelazo, P. D. (2007). Mindfulness meditation and reduced emotional interference on a cognitive task. *Motivation and Emotion*, 31, 271–283. doi:10.1007/s11031-007-9076-7
- Orzech, K. M., Shapiro, S. L., Brown, K. W., & McKay, M. (2009). Intensive mindfulness training-related changes in cognitive and emotional experience. *The Journal of Positive Psychology*, 4(3), 212–222. doi:10.1080/17439760902819394
- Papalia, D.E., Olds, S.W. & Feldman, R.D. (2009). *Human Development* (11th Ed.). St. Louis: McGraw Hill.
- Reese, E. D., Zielinski, M. J., & Veilleux, J. C. (2015). Facets of mindfulness mediate behavioral inhibition systems and emotion dysregulation. *Personality and Individual Differences*, 72, 41–46. doi:10.1016/j.paid.2014.08.008
- Repetti, R. L., Taylor, S. E., & Seeman, T. S. (2002). Risky families: Family social environments and the mental and physical health of the offspring. *Psychological Bulletin*, 128(2), 330–366. doi:10.1037//0033-2909.128.2.230
- Roemer, L., Lee, J. K., Salters-Pedneault, K., Erisman, S. M., Orsillo, S. M., & Mennin, D. S. (2009). Mindfulness and emotion regulation difficulties in generalized anxiety disorder: Preliminary evidence for independent and overlapping contributions. *Behavior Therapy*, 40(2), 142–154. doi:10.1016/j.beth.2008.04.001
- Roemer, L., Williston, S. K., & Rollins, L. G. (2015). Mindfulness and emotion regulation. *Current Opinion in Psychology*, 3, 52–57. doi:10.1016/j.copsy.2015.02.006

SAS Institute Inc. (2015). *The SAS System for Windows Release 9.3 TS Level 1M0*.

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Sauer, S., Walach, H., Schmidt, S., Hinterberger, T., Lynch, S., Büssing, A., & Kohls, N.

(2013). Assessment of mindfulness: Review on state of the art. *Mindfulness*, 4(1), 3–17. doi:10.1007/s12671-012-0122-5

Schneider, R. J., Hough, L. M., & Dunnette, M. D. (1996). Broadsided by broad traits: How to sink science in five dimensions or less. *Journal of Organizational Behavior*, 17(6), 639–655. doi:10.1002/(SICI)1099-1379(199611)17:6%3C639::AID-JOB3828%3E3.0.CO;2-9

Schreiber, L. R., Grant, J. E., & Odlaug, B. L. (2012). Emotion regulation and impulsivity in young adults. *Journal of Psychiatric Research*, 46(5), 651–658.

doi:10.1016/j.jpsychires.2012.02.005

Segal, Z. V., Williams, M. G., & Teasdale, J. D. (2002). *Mindfulness based cognitive therapy for depression: A new approach to preventing relapses*. New York: Guildford.

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology*, 62(3), 373–386. doi:10.1002/jclp.20237

Shapiro, S. L., Schwartz, G. E., & Bonner, G. (1998). Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine*, 21(6), 581–599. doi:10.1023/A:1018700829825

Short, M. M., & Mezo, P. G. (2010, June). *Examining mindfulness, rumination, and*

*depression in males and females*. Poster presented at the Canadian Psychological

Association 2010 Convention, Winnipeg, Manitoba, Canada: Canadian Psychological Association.

- Smalley, S. L., Loo, S. K., Hale, T., Shrestha, A., McGough, J., Flook, L., & Reise, S. (2009). Mindfulness and attention deficit hyperactivity disorder. *Journal of Clinical Psychology, 65*(10), 1087–1098. doi:10.1002/jclp.20618
- Smith, G. T., Fischer, S., & Fister, S. M. (2003). Incremental validity principles in test construction. *Psychological Assessment, 15*(4), 467–477. doi:10.1037/1040-3590.15.4.467
- Steyn, H. S. (2009). *Manual for the determination of effect size indices and practical significance*, Retrieved from <http://www.nwu.ac.za/content/stats-manual>
- Teper, R., Segal, Z. V., & Inzlicht, M. (2013). Inside the mindful mind: How mindfulness enhances emotion regulation through improvements in executive control. *Current Directions in Psychological Science, 22*(6), 449–454. doi:10.1177/0963721413495869
- Tull, M. T., & Roemer, L. (2007). Emotion regulation difficulties associated with the experience of uncued panic attacks: Evidence of experiential avoidance, emotional nonacceptance, and decreased emotional clarity. *Behavior Therapy, 38*(4), 378–391. doi:10.1016/j.beth.2006.10.006
- Walach, H., Buchheld, N., Büttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness - The Freiburg mindfulness inventory (FMI). *Personality and Individual Differences, 40*, 1543–1555. doi:10.1016/j.paid.2005.11.025
- Zack, S., Saekow, J., Kelly, M., & Radke, A. (2014). Mindfulness based interventions for youth. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 32*(1), 44-56. doi:10.1007/s10942-014-0179-2

## Appendices

## Appendix A



Kantoor van die Dekaan Studentesake  
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15 Julie 2015

Heil die leser

Ek het kennis geneem van navorsing wat deur Prof. Karel Botha en Me. Sunelle van der Merwe van die vakgroep Psigologie onderneem gaan word onder die studente van die Potchefstroomkampus van die Noordwes-Universiteit. Die onderwerp van die navorsing is *:Die verhouding tussen indagtigheid en emosie-regulering in ontluikende volwassenheid.*

Nadat ek my vergewis het van die omvang, metodiek, inhoud en etiese klaring van bogenoemde navorsing, gee ek graag as Dekaan Studentesake my instemming vir die uitvoering en afhandeling van hierdie projek.

Die uwe



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P.H. Fick

## Appendix B

Faculty of Health Sciences

**PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM****The relationship between mindfulness and emotion regulation in emerging adulthood****REFERENCE NUMBER: NWU 00103-11-S1****PRINCIPAL INVESTIGATORS:**

Prof. Karel Botha and Ms Sunelle van der Merwe  
Department of Psychology, North-West University  
018 299 1726

You are being invited to take part in a research project on mindfulness and emotional regulation. Please take some time to read the information presented here, which will explain the details of this project. This study has been approved by the Health Research Ethics Committees at the North West University (Approval nr NWU 00103-11-S1) and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki and Ethical Guidelines for Research of the National Health Research Ethics Council.

**What is this research study all about?**

- The aim of this research is to determine the statistical relationship between mindfulness and emotional regulation in emerging adults (18 to 25 years old) as well as the role of gender within this relationship. Mindfulness refers to the extent to which you process information in an open and flexible way while emotion regulation refers to the strategies you use to manage your emotions.

**Why have you been invited to participate?**

- You have been invited to participate because you comply with the following criteria – you are:
  - Aged between 18 and 25 years
  - A student at a tertiary institution and/or employed with a full time job
  - Proficient in English or Afrikaans and therefore able to reliably complete the questionnaires
  - Willing to participate in the study through informed consent

**What will your responsibilities be?**

- You will be expected to complete two self-report questionnaires that should not take longer than 25 minutes. This will either be done through email (computer based) or, in a lecture hall on the Potchefstroom Campus of the North-West University. You may indicate your preference - final arrangements will be made once you have consented to the study.

**Will you benefit from taking part in this research?**

- **Direct benefits:** You may request individual feedback from the researcher after the study has been completed. This will provide you with the opportunity to reflect upon and become more aware of your own levels of mindfulness and emotional regulation.
- **Indirect benefits:** The data will be used to contribute to current understanding of both mindfulness and self-regulation theory. This in turn could benefit psychologists to develop more improved training programmes and therapeutic interventions for clients who experience challenges regarding emotional regulation.

**Are there risks involved in your taking part in this research?**

- There are no foreseeable risks involved in this study, especially as the topic and process of completing a questionnaire are being more intellectual in nature. Once again, if you feel at unease for whatever reason, you are free to withdraw without providing a reason.

**Who will have access to the data?**

- Participation is confidential and data will be captured anonymously. Your completed questionnaires will therefore only contain a participant number, your age and gender. Only the researchers and statistical consultant will have access to the data. A confidentiality agreement will be signed with the statistical consultant. Data will be

kept safe and secure by storing hard copies in a safe in the researcher's office while electronic data will be password protected.

**What will happen in the unlikely event of some form of discomfort occurring as a direct result of your taking part in this research study?**

- Should you have the need for further discussions after completion of the questionnaire due to possible discomfort an opportunity will be arranged for you.

**1.8 Will you be paid to take part in this study and are there any costs involved?**

- No, you will not be paid to take part in the study. A venue and time will be arranged for you to complete the questionnaire that will not involve any costs.

**1.9 Is there anything else that you should know or do?**

- You can contact Prof Karel Botha at 018 299 1726 if you have any further queries or encounter any problems.
- You can contact the Health Research Ethics Committee at 021 938 9207 or 018 299 2094 if you have any concerns or complaints that have not been adequately addressed by the researcher.
- You will receive a copy of this information and consent form for your own records.

## Declaration by participant

By signing below, I ..... agree to take part in a research study entitled: *The relationship between mindfulness and emotional regulation in emerging adulthood*

### I declare that:

- I have read this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (*place*) ..... on (*date*) ..... 2015.

.....  
Signature of participant

.....  
Signature of witness

## Declaration by person obtaining consent

I (*name*) ..... declare that:

- I explained the information in this document to .....
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use a interpreter.

Signed at (*place*) ..... on (*date*) ..... 20....

.....  
Signature of person obtaining consent

.....  
Signature of witness

## Declaration by investigator

I (*name*) ..... declare that:

- I explained the information in this document to .....
- I encouraged him/her to ask questions and took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above

Signed at (*place*) ..... on (*date*) ..... 2015.

.....  
Signature of investigator

.....  
Signature of witness

### **Critical reflection**

Many studies have associated mindfulness with emotional regulation, however very few have explored the nature of this relationship. Studies focusing on the nature of this relationship are necessary, as both mindfulness and emotional regulation have been identified as central components of mental health (for e.g. Baer et al., 2006; Walach et al., 2006). This study extends previous research by linking specific facets of mindfulness to difficulties with emotional regulation, as opposed to previous studies that has traditionally examined these psychological constructs from a global perspective. Therefore, identifying and defining the nuances of the relationship between mindfulness and emotional regulation, this study can serve as a theoretical basis from which more cost and time effective interventions can be developed. However, due to the quantitative nature of this study, findings remain theoretical and future intervention and treatment studies are needed to determine the clinical relevance of the proposed association between mindfulness and emotional regulation.

Mindfulness and emotional regulation are both complex constructs that may not have been fully captured by the use of only self-report measures in this study. Firstly, reduced emotional awareness might have interfered with participants' ability to respond accurately to items. Further, responses might reflect participants' perceptions of their levels of mindfulness and emotion regulation difficulties and mindfulness skills and may not reflect actual difficulties. Nonetheless, the current findings provide evidence of reliability of the measures used. However, incorporation of other methods of assessment might have captured the nature of the relationship between mindfulness and emotional regulation more fully. Additionally, prior meditation experience may have been a confounding factor, and controlling for this variable, may have given clearer results.

Regarding the target population, studies pertaining to mindfulness and emotional regulation have most often been concerned with adults. Therefore, this study may be

especially valuable by incorporating emerging adults. Fostering more adaptive emotional regulation is especially valuable in the case of emerging adults, because this group is often confronted with unique life challenges that make them vulnerable to developing emotional regulation difficulties. However, incorporating students only can be considered a rather homogenous group, which compromises the generalisability of the findings. Further studies might focus on other contexts that incorporate cultures that are more diverse.

This study has made a positive contribution to mindfulness and emotional regulation literature specifically in the South Africa context. Literature regarding mindfulness in South Africa is still in its infancy. Therefore, adding to existing literature, this study may aid the process of developing context-specific mindfulness-based interventions.