

The development and evaluation of a mindfulness-based stress reduction programme for young adult females

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It all starts here [™]

Mind is one of the most beautiful mechanisms. Science has not yet been able to create anything parallel to it. Mind remains the masterpiece – so complicated, so tremendously powerful, with so many potentialities.

Watch it! Enjoy it!

(Osho)

It is not stress that kills us; it is our reaction to it.

(Hans Selye)

To pray is to ask and speak to God, to meditate is to listen to God.

“Aan sy liefde is daar geen einde nie”

Psalm 136.

Acknowledgements

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Summary

Young adult women from the middle and higher socio-economic classes in South Africa are playing an increasingly important role in society at all levels. At the same time, they face demanding challenges, for example gender issues, work–life balance and gender-related health concerns, which may jeopardize not only their own well-being, but also that of their families and the country in general. Mindfulness-based stress reduction (MBSR) programmes have increasingly emerged as a popular approach to prevent and manage stress. Although MBSR programmes have been proven effective in addressing stress, anxiety and depression-related problems, most research has been done in the USA and Europe. As a result, there is a need to develop and evaluate MBSR programmes specifically for young adult South African females in the emerging middle and upper socio-economic classes.

The general aim of this study was to explore the nature of stress and mindfulness in young adult females and to develop and evaluate an MBSR programme based on the perceptions, experiences and needs of young adult South African females. The study is presented in the form of three independent, but related articles, each addressing one aspect of the study's aims. The first article presents a literature review on national and international perspectives on stress and mindfulness in young adult females. The second article reports on the use of Interactive Qualitative Analysis to develop a hypothetical model of participants' subjective stress experience. The third article details the application of a multi-method pre-test post-test intervention design to measure the impact of a self-developed MBSR programme on perceived stress and mindfulness levels.

From the literature review it was concluded that young adult females often find it difficult to cope with challenges and as a result experience distress that may impact negatively on their wellbeing. As typical stress management approaches often neglect preventive and promotive aspects, a strong argument is provided for using an MBSR

approach as it has been shown to be effective not only in decreasing stress, but also in facilitating resourceful and proactive coping abilities through three change mechanisms. A hypothetical model of participants' perceptions of stress, mindfulness and wellbeing in their daily lives clearly shows how mindfulness influences stress, relationships and health in a dynamic, unfolding process. This finding was used to develop and evaluate a programme appropriate for young adult South African females. Findings show that the programme was effective for stress and two components of mindfulness, namely awareness and non-judgement, confirming previous research on the effectiveness of MBSR.

The study concludes that an MBSR programme for young adult South African females proved to be effective in the short term regarding this group of participants' stress, awareness and judgement, and that even though there were some limitations, the study made a valuable contribution to the available knowledge about young adult females' experience of stress, mindfulness and wellbeing.

Key terms: mindfulness; mindfulness-based stress reduction; stress; young adulthood; wellbeing.

Opsomming

Jong volwasse vroue uit die middel en hoër sosio-ekonomiese klasse in Suid-Afrika speel 'n toenemend belangrike rol op alle vlakke van die samelewing. Terselfdertyd word hulle gekonfronteer met veeleisende uitdagings, byvoorbeeld geslagskwessies, werk–lewe balans en geslagsverwante gesondheidsbekkommernisse. Dit stel nie net hulle eie welstand in gevaar nie, maar ook die van hulle gesinne en die land in die algemeen. *Mindfulness-based stress reduction** programme kom al hoe meer na vore as 'n gewilde benadering om stres te voorkom en te bestuur. Alhoewel daar bewys is dat MBSR-programme effektief is vir die hantering van stres, angs en depressie-verwante probleme, is meeste van die navorsing in die VSA en Europa gedoen. Daar is dus 'n behoefte aan die ontwikkeling en evaluasie van 'n MBSR-program wat spesifieke ontwerp is vir jong Suid-Afrikaanse vroue in die middel en hoër sosio-ekonomiese klasse.

Die algemene doelstelling van hierdie studie was om die aard van stres en *mindfulness* in jong volwasse vroue te ondersoek en om 'n MBSR-program te ontwerp en te evalueer aan die hand van die persepsies, ervarings en behoeftes van jong Suid-Afrikaanse vroue. Die studie word aangebied in die vorm van drie onafhanklike maar samehangende artikels wat elk 'n aspek van die studie se doelstelling aanspreek. Die eerste artikel bied 'n literatuurstudie van die nasionale en internasionale perspektiewe op stres en *mindfulness* in jong volwasse vroue. Die tweede artikel rapporteer oor die gebruik van Interaktiewe Kwalitatiewe Analise om 'n hipotetiese model van deelnemers se subjektiewe streservaring te ontwikkel. Die derde artikel bied 'n gedetailleerde bespreking van die gebruik van 'n multi-metode voortoets-natoets intervensie-ontwerp om die impak van 'n self-ontwikkelde MBSR-program op die waargeneemde stres en *mindfulness*-vlakke van deelnemers te meet.

Die literatuurstudie toon dat jong volwasse vroue dit dikwels moeilik vind om die uitdagings te hanteer en as gevolg daarvan stres ervaar wat hulle welstand negatief kan beïnvloed. Aangesien tipiese stresbestuursbenaderings dikwels voorkomende en bevorderende aspekte afskeep, bied die studie 'n sterk argument ten gunste van die gebruik van 'n MBSR-benadering, aangesien dit na bewyse stres effektief verminder, maar ook vindingryke en proaktiewe hanteringsvermoë fasiliteer deur middel van drie veranderingsmeganismes. 'n Hipotetiese model van deelnemers se persepsies van stres, *mindfulness* en welstand in hulle daaglikse lewe wys duidelik hoe *mindfulness* stres, verhoudings en gesondheid beïnvloed tydens 'n dinamiese, ontvouende proses. Hierdie bevinding is gebruik om 'n gepaste program vir jong Suid-Afrikaanse vroue te ontwikkel en te evalueer. Die resultate het getoon dat die program effektief was vir stres en twee komponente van *mindfulness*, naamlik bewustheid en nie-veroordeling. Dit bevestig vorige navorsing oor die effektiwiteit van MBSR.

Die studie kom tot die gevolgtrekking dat 'n MBSR-program vir jong volwasse Suid-Afrikaanse vroue baie effektief was op die kort termyn met betrekking tot die groep deelnemers se stres, bewustheid en oordeel, en dat die studie, ongeag sekere tekortkominge, 'n waardevolle bydrae maak tot die beskikbare kennis rakende volwasse vroue se ervaring van stres, gedagtigheid en welstand.

Sleutelterme: *mindfulness*; *mindfulness-based stress reduction*; stres; jong volwassenes; welstand.

**Daar is nog geen Afrikaanse ekwivalent vir mindfulness wat wyd aanvaar en gebruik word nie. Dus bly hierdie studie by mindfulness ter wille van duidelikheid.*

Preface

This thesis is submitted in accordance with rule A.8, and specifically in article format as described in rule A.8.2.b of the North-West University.

This thesis comprises three manuscripts, of which one has been submitted for publication by the *Journal of Psychology in Africa* (JPA) (manuscript 1).

The referencing style and editorial approach of this thesis is in line with the prescriptions of the *Publication Manual* (6th edition) of the American Psychological Association (APA). All three manuscripts have been styled according to these guidelines, but were appropriately revised to the specifications of the JPA on submission.

For the purpose of this thesis, the page numbering is consecutive as a whole. However, each manuscript is numbered starting from page 1 for publication purposes.

Guidelines for authors: Journal of Psychology in Africa

The first article has been submitted to the *Journal of Psychology in Africa* for publication.

The following is a copy of the guidelines for prospective authors from this journal.

Instructions to authors

The **Journal of Psychology in Africa** includes original articles, review articles, book reviews, commentaries, special issues, case analyses, reports, special announcements, etc. Contributions should attempt a synthesis of local and universal methodologies and applications. Specifically, manuscripts should: 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, and 5) Present new theoretical or conceptual ideas. Also, all papers must show an awareness of the cultural context of the research questions asked, the measures used, and the results obtained. Finally the papers should be practical, based on local experience, and applicable to crucial development efforts in key areas of psychology.

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By submitting to the *Journal of Psychology in Africa* 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 author who submits the manuscript accepts responsibility for notifying all co-authors and must provide contact information on the co-authors. The Editor-in-Chief will collaborate with Taylor and Francis using the guidelines of the Committee on Publication Ethics [<http://publicationethics.org>] in cases of allegations of research errors; authorship complaints; multiple or concurrent (simultaneous) submission; plagiarism complaints; research results misappropriation; reviewer bias; and undisclosed conflicts of interest.

Manuscripts

Manuscripts should be written in English and conform to the publication guidelines of the latest edition of the American Psychological Association (APA) publication manual of instructions for authors. They should be typewritten and double-spaced, with wide margins, using one side of the page only. Manuscripts should be submitted to the Editor-in-Chief, *Journal of Psychology in Africa*, Professor Elias Mpofu, PhD., CRC, Associate Professor, Faculty of Health Sciences, University of Sydney, Cumberland Campus, East Street, PO Box 170, Lidcombe, NSW 1825, Australia, email: e.mpofu@usyd.edu.au. We encourage authors

to submit manuscripts via e-mail, in MS Word, but we also require two hard copies of any e-mail submission. Before submitting a manuscript, authors should peruse and consult a recent issue of the *Journal of Psychology in Africa* for general layout and style. 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:

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- **Abstract:** Articles and abstracts must be in English. Submission of abstracts translated to French, Portuguese and/ or Spanish is encouraged. For data-based 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, 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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Solemn declaration

I, Helene Swiegers, declare herewith that the thesis entitled “The development and evaluation of a mindfulness-based stress reduction programme for young adult females”, which I herewith submit to the North-West University, Potchefstroom Campus, in compliance with the requirements set for the Ph.D. in Psychology, is my own work, has been language edited and has not already been submitted to any other university.

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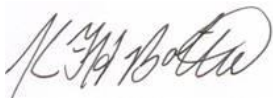
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.....

Prof. K. F. H. Botha

Chapter 1:

Introduction

Orientation

This study focuses on mindfulness and stress in young adult females. In particular, the intention is to develop and evaluate a mindfulness-based stress reduction (MBSR) programme based on the perceptions, experiences and needs of a group of young adult females in a South African context. The focus is specifically on young adult females in an emerging middle and upper socio-economic class because of the important role they play and will play in future within the South African economic and social context.

Article 1 provides a comprehensive discussion and definition of the key concepts, therefore this section only gives a brief definition as an introduction to the problem statement:

- **Young adult female** - In this study, ‘young adult female’ refers to women in the post-adolescent / young adulthood developmental phase, between the ages of 20 and 30, a phase where the main task, according to Erikson, is to establish *intimacy* (Gross, 2010), something that is only possible once *identity* formation is well on its way. This process is, however, challenged by daily changes and difficult decisions related to tertiary education, finding a job, gender issues, health, marriage, and starting a family (compare Aldwin, 2011; Glynn, MacLean, Forte, & Cohen, 2009).
- **Stress** – The study follows a transactional approach to stress based on Lazarus and Folkman’s (1984) classical idea that stress results when environmental demands are perceived as exceeding the individual’s resources. In this study, the definition is, however, expanded based on research over the past 30 years regarding the interplay between biology, cognition and affect. As a result, stress in this study is defined as the

outcome of those events appraised as challenging and that trigger affective states that engender behavioural and biological responses that may increase risk for disease (Cohen et al., 2016).

- **Mindfulness** - This study supports the classical definition of Kabat-Zinn (1994, p.4): “the conscious or purposeful paying of attention in a particular way, on purpose, in the present moment, and non-judgmentally”. It implies among other things goal-oriented conscious attention, non-striving, non-judging, acceptance, patience, trust and openness (Shapiro & Schwartz, 2000), clarity of awareness, non-discriminatory, flexible and stable awareness, an empirical stance toward reality (Brown, Ryan & Cresswell, 2007) and sensitivity to context and perspective (Langer, 2005).
- **Mindfulness-based stress reduction** - MBSR is a standardized meditation programme that integrates Buddhist mindfulness meditation with contemporary clinical and psychological practice. It comprises three different techniques: body scan, sitting meditation, and Hatha yoga practice (Kabat-Zinn, 1990). The goal of MBSR is to guide participants to achieve greater awareness of themselves, their thoughts and their bodies (Ando, Natsume, Kukihara, Shibata, & Ito, 2011) to teach them to observe situations and thoughts non-judgementally without reacting impulsively, and to develop a more reflexive awareness of inner and outer experiences (Chiesa & Serretti, 2009).

Problem statement

The argument of the study is based on three broad questions:

- “What are the challenges young adult female’s faces, and why should a MBSR approach be considered to help young adult females engage with these challenges in a healthy way?”
- “How do young adult female South Africans perceive the relationship between stress, mindfulness and psychological well-being in their daily lives, and subsequently, how

can a hypothetical model based on this contribute towards developing a relevant MBSR programme?”

- “What would the impact of an MBSR programme, specifically developed with young adult South Africans females in mind, be on participants’ mindfulness and levels of stress?”

The study argues that young adult women in South Africa, specifically those in the middle and higher socio-economic classes, like elsewhere in the world, play an increasingly important role in society at all levels. Yet, at the same time, they face demanding challenges, for example gender issues, work-life balance and gender-related health concerns, all of which may jeopardize not only their own well-being, but also that of their families and the country in general. Therefore, if South Africa would like to benefit optimally from the contribution the young adult women in the growing middle and higher socio-economic class can make to the future economy and well-being of the country, more research should be done to provide better, more pro-active, scientific means of support and resilience to women.

Further, mindfulness-based stress reduction (MBSR) programmes have increasingly emerged as a popular approach to prevent and manage stress. As the mindfulness approach is still relatively young and not yet convincingly integrated into scientific domain and as such, there should be much more exploration to gauge its place in literature and specifically to establish its position within evidence-based research. However, more is needed than just a literature review - it is extremely important to get an insider’s perspective on how young adult South African females not only perceive the challenges they face, but also how they subjectively perceive the relationship between these challenges, their own experience of stress, mindfulness and well-being. This perspective is important as it reflects a transactional and dynamic understanding of the relationship between self and context.

Finally, although MBSR has been proven effective in addressing stress, anxiety and depression-related problems, most research has been done in the USA and Europe. Given the increasing importance of the role young adult females, specifically those from the emerging middle and upper socio-economic classes, play in South Africa and the lack of research on MBSR in a South African context, there is a specific need to develop and evaluate MBSR programmes for this group.

Aims of the study

The general aim of this study is to explore the nature of stress and mindfulness in young adult females and to develop and evaluate an MBSR programme based on the perceptions, experiences and needs of young adult South African females.

The specific aims are to:

1. explore national and international research on stress and mindfulness in young adult females, specifically to
 - a. present a better understanding of the stress-related challenges young adult females in general, and particularly in SA, face; and
 - b. explain how the mechanisms of change in mindfulness approaches could benefit young adult South African females regarding their daily stressors;
2. determine the perceived cause-effect relationship between stress, mindfulness and wellbeing in a sample of young adult females and to develop a hypothetical model based on this perceived relationship; and to
3. determine the impact of an MBSR programme on the stress and mindfulness of a group of young adult South African females by
 - a. developing an MBSR programme according to core MBSR characteristics and the challenges young adult South African females face;

- b. exploring the subjective impact of the programme on participants' mindfulness, and finally,
- c. determining if there is a statistical difference between pre- and posttest scores on participants' mindfulness and levels of stress.

Central theoretical argument

The central theoretical argument of this study is that young adult South African females face a number of challenges that may jeopardize their wellbeing if appropriate and pro-active steps are not taken to facilitate their psychological strengths. MBSR may provide a mechanism of change that facilitates strengths that other approaches are not able to give. Developing an MBSR programme specifically for young adult South African females based on core MBSR principles and perceptions of stress and mindfulness in their daily lives, should therefore improve their mindfulness and decrease their perceived stress levels.

A brief note on the theoretical / philosophical orientation of the study

As this study integrates concepts of mindfulness, programme development, stress and the developmental challenges of young adult females, it does not take a particular theoretical stance, but rather prefers to stay neutral as far as possible. Throughout the study, some emphasis is placed on the idea that humans are seen as pro-active, self-regulatory agents of their own change processes based on Albert Bandura's Social Cognitive Theory (Bandura, 2006). This is perhaps the closest that the researcher will come to any commitment to a specific paradigm. However, this is not underscored as such, nor is it used as exclusive framework for interpreting the results to come to a conclusion.

Furthermore, although the concept of mindfulness has its roots in the Buddhist tradition, Kabat-Zinn (2003) clearly indicates that MBSR remains a secular intervention. There is therefore no need to change one's own religion to participate in MBSR programmes. According to Kabat-Zinn, the scripts from Buddhist authors that are occasionally read by

MBSR instructors during MBSR lessons are considered inspiring lectures for participants rather than dogmatic tenets or beliefs. It therefore does not in any way ‘belong’ to any religious, cultural, scientific or philosophical viewpoint.

Ethical approval

This study is a sub-project in a larger research project titled “The nature and dynamics of self-regulation in different South African health contexts” of Professor Karel Botha. This sub-study was ethically approved by Human Research Ethics Committee (HREC) of the Faculty of Health Sciences of the North-West University (approval number 00103-11-S1). For the duration of this study, monitoring reports were submitted to the ethics committee. The study did not pose any foreseeable risks to participants. Participation was voluntary and participants were free to withdraw from the study at any point without explanation or personal consequences. None of the participants’ names were divulged and even though there was a possibility that they may know some of the other participants in the group, the process was structured in such a way that personal information or sensitive issues were not disclosed. All data are kept securely on a password-protected computer by the researcher. Hard copies of data are securely stored in the office of the COMPRES research entity on the Potchefstroom Campus of the NWU.

Format and methodology

The study is presented in the form of three independent, but related articles, each addressing one of the study’s aims. Each article presents a different phase of the research process. The three articles are integrated by means of an overall summary, conclusion and recommendations.

Article 1 – Stress and mindfulness: implications and future course of action for young adult South African females

This article addresses the first aim of the study, which is to explore national and international research on stress and mindfulness in young adult females. The article presents a review of the literature (comprehensively described in Chapter 2). On exploring the literature, it soon became evident that the most important theoretical gap regarding this study was to motivate, based on scientific evidence/literature, *why* a mindfulness approach should be considered as opposed to more ‘traditional’ stress approaches like stress relaxation or cognitive behavioural approaches. It was therefore decided not to do a systematic review, but rather to take a more explorative approach. The article does not present empirical data, nor evidence for clinical decisions. It rather provides an argument for, and a conceptualization of how, in theory, stress in young adult females may be addressed by change mechanisms in mindfulness approaches. It provides a theoretical departure point from which researchers could develop and empirically evaluate mindfulness approaches relevant to the typical stressors young adult South African females face.

Article 2 – Young adult females’ perception of stress, mindfulness and psychological wellbeing in their daily lives: an IQA perspective

This study addresses aim two, which is to determine the perceived cause–effect relationship between stress, mindfulness and wellbeing in a sample of young adult females and to develop a hypothetical model based on this perceived relationship. The article is based on Interactive Qualitative Analysis (IQA) (Northcutt & McCoy, 2004) as this enabled the researcher to explore participants’ perception of the relationship between two or more phenomena and to develop a conceptual map thereof. The uniqueness of IQA is that participants are co-experts of the phenomenon under investigation and therefore entrusted

with identifying the themes in consultation with the participants during the discussion group. As it follows a set of accountable and systematic procedures, trustworthiness, validity and reliability are inherently addressed.

Article 3– The impact of a mindfulness-based stress reduction programme for young adult females

Article 3 addresses aim three, which is to develop a mindfulness-based stress reduction (MBSR) programme and to evaluate its effect on the stress and mindfulness levels of a sample of young adult South African females. A multi-method pre-test post-test intervention design was followed to develop and measure the impact of the programme on perceived stress. Two sets of guidelines were followed to develop the intervention. The basic tenets of a MBSR programme were followed and thereafter integrated with key issues that emerged from Chapters 1 and 2. Stress was measured with the Perceived Stress Scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983), while mindfulness was first explored by participants' subjective reflections on their daily stress experiences and secondly measured with the Five Facets Mindfulness Questionnaire (FFMQ) (Baer, Smith, Hopkins, Krietemeyer & Toney, 2006).

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Chapter 2

Article 1

Stress and mindfulness: Implications and future course of young adult South African females

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Abstract

The aim of this review was to explore national and international research on the stress-related challenges young adult females face and to explain how the mechanisms of change that form part of mindfulness approaches could help young adult South African females with their daily stressors. Young adult South African females are often challenged by issues revolving on gender and gender roles, specifically related to work contexts and challenges related to motherhood and gender-specific physical health concerns. Mindfulness approaches may have long-term proactive benefits that traditional stress management approaches lack. Three specific mechanisms of change, namely meta-awareness, decoupling and emotion differentiation are introduced to argue why and how a proactive coping mindset could be facilitated in young adult females. Finally, limitations are discussed and recommendations for further research are made.

Introduction

In modern western societies, the transition to adulthood (roughly between the ages of 18 and 30) has become increasingly prolonged (Amato, 2011). As a result, this phase is often seen as a period of great variability (Settersten & Ray, 2010) and it is not universally understood and described. Different concepts are used to describe this transitional phase. Arnett (2004), for example, refers to this phase as young adulthood, while more recently, the concept *emerging adulthood*, has also been introduced (e.g., Arnett, 2004; Hagan & Foster, 2003). As there is no real consensus on the similarities and differences between the terms *young adulthood* and *emerging adulthood*, the term *young adulthood* is used in this study. It refers to the post-adolescent developmental phase—typically between the ages of 20 and 30—during which a number of developmental tasks have to be completed and important transitions have to be made. According to Erikson, the main task is to establish intimacy within relationships (Gross, 2010). Intimacy is however, challenged by daily changes and difficult decisions related to tertiary education, finding a job, gender issues, health, marriage, and starting a family (compare Aldwin, 2011; Glynn, MacLean, Forte, & Cohen, 2009). In this regard, Rao, Hammen and Daley (1999, p.908) indicate that young adulthood represents a major developmental transition point, marked by a “juncture at which self-determined objectives and priorities as well as role demands change considerably”.

According to Aldwin (2011) “ young adults are exposed to a number of important life events, such as graduation, marriage, divorce, beginning a new job and having children”. Benton, Robertson, Tseng, Newton and Benton (2003) further indicate that young adult females have to make these transitions within a context where gender issues still play a significant role. A quick pace of life, together with the accumulation of multiple roles, specifically in modern Western society is, according to Glynn, MacLean, Forte, and Cohen (2009) and Pearlin, Schieman, Fazio, and Meersman (2005), likely to lead to stress and

lowered wellbeing in young adult females. Hildingh, Luepker, Baigi and Lidell (2006) further state that young adult females are also, in comparison to men, more often challenged with health and beauty expectations. It is therefore not a surprise that globally, subjective, mental and stress-related health among young adult females constitutes significant public health concerns and that they report higher stressors and health problems compared with older women and men in the same age (Michel, Bisegger, Fuhr, Abel, & The Kidscreen Group, 2009; Patel, Flisher, Hetrick, & McGorry, 2007).

In South Africa, stress in young adult females have been explored in different contexts, for example eating disordered behaviours on campuses (Edwards & Moldan, 2004; Kirsten, Du Plessis & Du Toit, 2007); alcohol abuse among university students (Pengpid, Peltzer, & van den Heever, 2013); unwanted early sexual experiences (Revell, Vansteenwegen, Nicholas & Dumont, 2008); HIV/AIDS (Day, Gray, & Budgell, 2011); alcohol use during pregnancy (Marais et al., 2010); and role-conflict in dual career families (Naidoo & Jano, 2003). From these studies it is clear that young adult females in South Africa, like elsewhere in the world, are challenged with a number of conflicts that they often don't manage appropriately and that expose them to unhealthy high levels of stress.

What is more, different sections of South African society face different challenges. On the one extreme end of the continuum, a large group of South African women are faced with extreme poverty, have to cope with being single mothers, and are challenged by high levels of child abuse, obesity, HIV/AIDS, gender-specific cancers and foetal alcohol syndrome. On the other end of the continuum, many South African women don't necessarily feel despaired about their socio-economic situation, but struggle to maintain the balance between work, family and society demands. This second group does not belong to any specific ethnic or cultural group anymore—with growing modernization and an increasing middle class consisting of all ethnic groups, this is a fast-growing group. They are often in important

leadership positions in different sectors in society, or dynamic young students that may play an important role in a future South Africa. The focus of this study can be more directed on every day, “non-traumatic” stress and challenges this last group typically face.

Problem statement and aim

For the healthcare system in South-Africa to effectively address the challenge of increased demand and decreased resources, a shift of responsibility from the system back to the individual is both necessary and beneficial. From another perspective, if South Africa would like to benefit optimally from the increasing importance of women in the economy and wellbeing of the country, more research should be done on better, more pro-active, scientific means of support to women so that their contribution is not at the cost of their own or their families’ wellbeing. This is especially true for students and women in the growing middle and upper socio-economic classes.

Although a large number of stress management techniques and programmes have been developed, applied and evaluated over the years, there is no clear evidence on their long-term benefits and the extent to which they instil the proactive skills necessary to thrive in challenging environments. Recently, mindfulness and mindfulness-based stress reduction (MBSR) programmes have emerged as popular concepts in medical and other clinical settings, particularly as a strength to prevent and manage stress. Basically, mindfulness refers to a specific way of paying attention to being in the moment, non-judgementally and non-reactively.

Mindfulness is increasingly regarded as a promising approach to engage with life and its challenges proactively and to be able to not only prevent negative stress (distress) (Bamber & Schneider, 2016; Khoury, Sharma, Rush, & Fournier, 2015; Song & Lindquist, 2015), but also to thrive and flourish amidst stress (Brown, Ryan, & Creswell, 2007; Skinner & Beers,

2016). It has the potential to fill the very limitations of traditional stress management techniques and programmes mentioned above.

However, as research on mindfulness is still “in its infancy” (Davidson & Kaszniak, 2015, p.590), certain questions remain unanswered, for example, what the mechanisms for change are in MBSR (Khoury et al., 2013); how to develop brief, effective MBSR programmes (Song & Lindquist, 2015); how to reliably measure mindfulness (Davidson & Kaszniak, 2015); as well as the difference in effectiveness between structured MBSR and other interventions is (Bamber & Schneider, 2016). Perhaps most important for this study, as evident from the lack of research, is that the relation between mindfulness and stress in young adult females in South Africa with their particular challenges and stressors, has not been well researched and is not understood.

Therefore, the questions: What challenges and stressors do young adult females typically face as reported in the literature? Why should a mindfulness approach be considered to address stress in young adult females? What are the mechanisms of change in mindfulness approaches? What benefits could these mechanisms have in addressing the challenges young adult females in South Africa face? Exploring these questions could be an important first step towards developing appropriate mindfulness interventions for young adult females in a South African context.

The aim of this article is therefore to explore national and international research on stress and mindfulness in young adult females, with the specific aims to i) present a better understanding of the stress-related challenges young adult females in general, and particularly in SA, face; and (ii) explain how the mechanisms of change in mindfulness approaches could help young adult South African females deal with their daily stressors.

Even though this article does not present empirical data or evidence for clinical decisions, it provides an argument for and a conceptualization of how stress in young adult

females may be theoretically addressed by the change mechanisms in mindfulness approaches. It provides a theoretical point of departure from which researchers could empirically develop and evaluate mindfulness approaches relevant to typical stressors young adult South African females face.

Method

A literature review was done to identify relevant aspects in the literature and to disseminate the ideas that could enhance our understanding of the relevant concepts. A scope review revealed that a systematic review, given its aim to answer specific questions based on a synthesis of the literature, would not have contributed to the broader, more explorative aims of this study, so a different format was selected.

The North-West University database was used to access Ebscohost, Science Direct, Psychinfo, Pubmed and ERIC. Specific aspects of the search were focused on international literature, while others, like the challenges young adult SA females face, focused more on South African publications. As a general rule, book chapters and theses/dissertations were included, while conference abstracts were excluded. Key words used were young/emerging adulthood, female/women; South Africa, stress/stressor/anxiety, challenges, coping/coping mechanisms, and mindfulness/MBSR programmes. These key words were searched through Boolean operators AND, OR and NOT. To ensure rigor (Green, Johnson, & Adams, 2006), a preliminary search of the literature was done to see what related work has already been published and to help refine the topic and objective of the review.

A brief overview of stress research

The concept of stress is highly time and context-bound, as the meanings and status of stress and related concepts vary greatly (Becker, 2010). Hans Selye, a pioneer in stress research, defines stress from a biomedical viewpoint as “the nonspecific response of the body

to any demand made upon it” (Selye, 1974, p. 151). Selye’s focus is on the impact of stress, clearly illustrated in his general adaptation syndrome. He describes the three stages of adaptation to stress as the *alarm stage*, which refers to the first response to the stressor; the *stage of resistance*, which refers to the continued exposure to the stressor and how the individual learns to cope; and finally, the *stage of exhaustion*, which takes place when the depletion of energy reserves leads to fatigue and eventually death. In contrast to Selye, Lazarus and Folkman (1984, p.4) approach stress more from a psychological viewpoint, indicating that “appraisals of stress arise when environmental demands exceed the individual’s resources, especially in situations that are personally significant”.

Although Lazarus and Folkman initiated a paradigm shift towards a more transactional view in stress research (Aldwin, 2011), Cohen, Gianaros and Manuck (2016) argue that we are still a long way from understanding the real dynamic nature of stress. More recently there has been a move towards a more holistic understanding of stress, most often evident in bio psychosocial approaches, which basically explains how stress develops when environmental factors trigger biological vulnerability. According to Cohen et al. (2016), the best way to explain stress is from the perspective of a stage model of disease. This model proposes that events that the individual appraise as stressful trigger affective states that engender behavioural and biological responses that may increase risk for disease.

Stress responses

Repeated exposure to stress may be harmful to physical and/or mental health by destabilizing the neural, psychological and endocrine equilibrium of the body (Lupien, 2007). Glucocorticoids (*cortisol*) and catecholamines (*adrenaline* and *noradrenaline*) that are secreted in response to a stressor act on the body to give rise to the fight-or-flight response during which one would, for instance, experience an increase in heart rate and blood pressure (Lupien et al., 2006). However prolonged activation of the stress response through

disturbance of the HPA axis and increased cortisol levels may, increase a person's risk of immunosuppression (resource) and metabolic syndrome and its consequences like cardiovascular disease, hypertension, obesity and diabetes (Adam & Empel 2007; Brunner, Chandola, & Marmot 2007; Lambert, Schlarch, Lambert, Dawood, & Esler, 2010).

Gender differences have been observed in the pattern of cortisol activation during the stress response using functional brain imaging (Stark et al., 2006). The levels of testosterone in the average male blunt activity in the HPA axis, which may further explain why males report fewer stressful events and are less susceptible to anxiety disorders (Bale & Epperson, 2015).

Frequent and repeated stressors can also have negative mental consequences, for example a risk to develop low self-esteem, emotional overeating, anxiety disorders, depression, and in extreme cases it can even be a trigger for the onset of psychosis in individuals with a genetic predisposition (Sadock & Sadock, 2011). According to Chiesa and Serretti (2009), continuous stress may lead to unproductive rumination that consumes energy and strengthens the experience of stress itself. Furthermore, intensified stress can undermine resilience factors such as hope and the capacity to forgive.

Although stress is often linked to physical and mental health problems, researchers increasingly refer to concepts such as stress-related growth, benefit finding, or adversarial growth (Linley & Joseph, 2006) where stressful experiences fundamentally change individuals for the better. On a purely biological level, hormones released during the stress response can boost memory and performance on cognitive tasks (Cahill, Gorski, & Le, 2003). For example, the narrowing of perspective enhances intention and increases the speed with which the brain processes information (Hancock & Weaver, 2005). Roepke and Seligman (2014) found engagement with new possibilities to be a powerful predictor of growth in the aftermath of adversity. Ambriz, Izal and Montorio (2012) found that self-esteem, optimism,

internal control, coping aimed at acceptance and at seeking emotional support, as well as social contacts can mediate the negative effects of stress and enhance positive adaptation.

Challenges and stressors young adult females face.

In this section, a number of specific developmental and contextual challenges young adult females face are briefly discussed and contextualized with special reference to how these contribute to the daily stress they experience.

It is clear that stress is a complex and dynamic process, characterized by a transactional relationship between biological, psychological and social processes. Context is therefore crucially important and often has a distinguished impact on how stress is perceived and experienced by different gender, age and ethnic groups. In addition to the developmental phase in which young adult females find themselves, they are potentially challenged by how gender is interpreted. Gender, as a social construct, can be understood in relation to social structures, norms, values and practices connected to cultural beliefs. Gender roles are culturally defined sets of stereotyped behaviour that differentiate maleness and femaleness (Gibbons et al., 1997). The behavioural cues and actions are known as scripts and refer to the characteristic ways in which gender, sexuality, and relationships are negotiated at the three interrelated levels of mutually shared conventions: the cultural, interpersonal, and individual levels (O'Sullivan, Harrison, Morrell, Monroe-Wise, & Kubeka, 2006). Despite increased gender equality and empowerment, household units still tend to have traditional structures that contribute to males being perceived as the dominant gender (Hartmann, 2010).

Work-related challenges.

More young adult females have to work and/or are continuing their education beyond high school because of increasing financial pressure and the changing requirements of jobs (Amato et al., 2008). For example, in post-apartheid South Africa the economically active population is almost evenly distributed across gender (women comprise 46.0%) (South

African Department of Labour, 2013). Perhaps as a result of an increase in women in the workplace, it is not surprising that they experience stress similar to men and other age groups when it comes to job demands and work–life balance (Bobat, Mshololo, & Reuben, 2012; Kulik, Shilo-Levin, & Liberman, 2016; Naidoo & Jano, 2003), time management (Bobat et al., 2012), and difficulties in making the transition from education to work (Dietrich, Jokisaari & Nurmi, 2012).

Traditional stereotyped role expectations often spill over to organizational policies and practices (Bobbitt-Zeher, 2011; Cha, 2013) and become entrenched in a gender-biased organizational culture (Prescott & Bogg, 2011). Therefore, women’s work–life role structures often pose unique challenges to career-orientated women, especially when they choose a traditionally male-dominated career (Hartmann, 2010). One implication of this is that the more frequent appointment of women managers within a male-dominant work environment is often still difficult to accept. Young adult females are therefore increasingly exposed to stress related to being a manager in the workplace. In this regard, Eagly and Carli (2003, p.15) argue that “male-dominated environments can be difficult for women”, as women often seem to receive less favourable evaluations than equivalent male leaders, which increases women’s chances of leaving their job or being excluded from male networks. This may link up with the present discourse on authentic leadership and the statement that women often feel inauthentic in male-dominated workplaces (Faulkner, 2011). In the South African context, women in leadership positions are also required to deal with numerous challenging situations (Teferra & Altbach, 2004). For example, Gouws (2008) refers to a South African study that reported that 30 per cent of the respondents felt that women are too “emotional” for leadership positions.

Motherhood challenges.

Becoming a mother challenges women to effectively integrate different roles, for example adjusting to the new-born, being a spouse, having a job and running a household.

This challenge is more evident in young mothers, as having a baby at age 18 will be completely different from having a baby at age 35. Becoming a parent at an early age is often associated with poverty, parenting strain and social isolation, especially if it occurs without the support of a romantic partner (Edin & Kefalas, 2005). Single mothers, lacking partner support and the economy of scale when a household is shared, may have the most stressful lives and, for this reason can have the lowest level of wellbeing. As a result, they probably have, like young single mothers elsewhere in the world, an elevated risk of developing depression (Avison, Ali, & Walters, 2007; Tobias, Gerritsen, Kokaua, & Templeton, 2009) and other mental health problems like bulimia nervosa (Tantillo, 1998). More specifically, a stress proliferation perspective (Pearlin et al., 2005) holds that adopting multiple family roles early in life is problematic because young adults do not yet have the personal or financial resources to take on the responsibilities of marriage or parenthood.

However, as indicated previously, there is a worldwide trend that young adult females who have finished their education, postpone family formation. They first want to begin full-time employment and succeed in their careers, a trend also noticed among university students in South Africa (Mamabolo, Langa, & Kiguwa, 2009). However, problematic outcomes occur if the demands of multiple roles conflict with one another or produce role overload (Glynn et al., 2009). Therefore, becoming a mother at an older age may also have disadvantages because it often interferes with a number of newly established roles and may even contribute to uncertainty and confusion about when it would be the “best time” to start a family.

Pregnancy itself poses a number of challenges. Peltzer, Shikwane, and Matseke (2011) found high rates of severe psychological distress in a sample of pregnant young South African women. One of the main issues contributing to this uncertainty and confusion during pregnancy seems to be financial, as women from low socio-economic status tend more often to struggle with the responsibility of having a baby. As a result, they often engage in

destructive coping behaviours like excessive alcohol consumption, drug use, and other risky behaviours.

Another issue is that of body image as women are increasingly comparing themselves with the westernized “thin ideal”, failing to obtain a favourable outcome, which increases the incidence of depression (Van den Berg, Paxton, Keery, Wall, Guo, & Neumark-Sztainer, 2007, Kotze & Nel 2013) and sexual-related conflict (Cohen, Blasey, Barr Taylor, Weiss & Newman, 2016). If young adult females are comparing their bodies to unrealistic perceptions, motherhood can also lead to unrealistic expectations and have an influence on women’s psychological wellbeing.

Health and medical challenges.

Young adult females find themselves in a physical development phase during which a number of changes and challenges take place. There are sexual relations, marriage, pregnancy and subsequent changes in body shape and mass, and vulnerability to a variety of health risks. In addition, contemporary society emphasizes success, health, fitness and beauty, yet it simultaneously provides access to unhealthier food and lifestyle choices. Due to the overwhelming nature of contradictory choices and decisions, different roles, daily tasks and unrealistic expectations about having perfect health and the perfect body, negative body image (Neighbors & Sobal, 2007; Smith-Jackson, Reel, & Thackeray, 2014; Toole & Craighead, 2016) and eating-related issues (Finch & Tomiyama, 2015; Hensley Choate, & Schwitzer, 2009) are widespread concerns among young adult females. Furthermore, gender-specific physical health issues like breast and gynaecological cancer (Phillips-Salimi & Andrykowski, 2013) seem to be on the increase due to lifestyle changes. Breast cancer, an especially devastating emotional experience, is the most common cancer among women (Phillips-Salimi & Andrykowski, 2013; Shapiro et al., 2001; Stark & House, 2000).

In South Africa there are further specific challenges like living with HIV/AIDS (Harrison, Colvin, Kuo, Swartz, & Lurie, 2015), emotional abuse (Jina et al., 2012), and sexual abuse (Harrison, et al., 2015). According to Peltzer et al. (2012), South Africa only has 0.7 % of the world's population, yet it has 28 % of the world's population that is co-infected with HIV and tuberculosis (TB). Harrison et al. (2015) indicate that HIV prevalence is more than three times higher among young women aged 20-24 in comparison to males aged 20-24. According to Draper, Davidowitz and Goedecke (2015), research suggests that in South Africa, a country undergoing epidemiological transitions, the prevalence of obesity is specifically evident in adult women. An interesting finding from their study was that even though a sample of black women in Khayelitsha, a township near Cape Town, have positive attitudes and intentions towards weight-loss and knowledge about how to lose weight, they seem not to be supported by their community. As a result, they fear stigmatization and experience disempowerment about managing their weight. This shows the complex interplay between body size, weight loss and cultural ideals and how this interaction influences young adult South African women.

Responses to the challenges young adult females face.

There is strong evidence that young adult South African females often struggle with the challenges they face. Women with breast cancer, eating disorders and infertility strongly experience their suffering in the form of loss, isolation, loneliness, anger, and emptiness (Fernandes, Papaikonomou, & Niewoudt, 2006). Studies have found unhealthy stress responses in women with breast cancer (Lo Castro, & Schlebusch, 2006) an average level of coping resources and adjustment among medical professional women (Brown-Baattjes, Fouché, Watson, & Povey, 2006).

A large variety of stress management techniques and programmes (for example physical approaches like breathing and physical relaxation exercises; cognitive approaches

like CBT and guided imagery; emotive approaches like anger management and behavioural approaches like systematic desensitization) have been developed, applied and evaluated. This makes it difficult, if not impossible to provide a standard description. In most cases, stress interventions consist of a number of different techniques from different categories, often motivated by the fact that as stress is a multidimensional phenomenon, it should only be addressed by a holistic approach.

Although there is ample evidence that stress interventions, when presented in a professional context by well-trained professionals, are effective in decreasing stress levels, they do have some important limitations, specifically regarding the aim of this article. For example, Tetrick and Winslow (2015) indicate that stress management interventions, especially in workplace contexts, tend to be ameliorative, with a focus on restoring depleted resources. Preventive resource enhancement is usually left to health promotion and wellness programmes. One consequence of this would be that preventive skills training is only available to those working in companies that offer these health and wellness programmes. In support of this, Hargrove, Quick, Nelson and Quick (2011) indicate that the theory of stress prevention (TPSM), which is widely used in the USA by the military, corporations and stress researchers, has, among others, not fully developed the eustress dimension. Its focus is on prevention of distress, but not on enhancing eustress.

Therefore, stress intervention programmes are specifically criticized for their lack of long-term benefits, like the extent to which they instil proactive skills necessary to thrive/flourish in challenging environments. Fortunately, there are always new innovations in stress intervention approaches that specifically seek new ways to not only address stress in a reactive way, but to provide more long-term resilience in a proactive way. Recently, mindfulness and mindfulness-based stress reduction programmes have emerged as popular concepts in medical and other clinical settings, particularly as a strength that seems to be able

to fill the gaps of traditional stress approaches. Similarly, Baer et al. (2012) recently found that increases in mindfulness preceded improvements in perceived stress among participants in an MBSR program.

Definition and conceptualization of mindfulness.

The term mindfulness stems from the Pali concept *sati Sampajanna*, which if directly translated, refers to awareness, circumspection, discernment and retention (Shapiro & Carlson, 2009). The practice of mindfulness originated from a 2 500-year-old Buddhist tradition and has been referred to as a psychological process, a technique, method or skill, characterized by the ability to intentionally pay attention to the present moment with an orientation of acceptance and curiosity marked by non-evaluative observation (Bishop et al., 2004; Germer, 2005a; Hayes & Shenk, 2004).

Kabat-Zinn (1994, p.4) defines mindfulness as “the conscious or purposeful paying of attention in a particular way, on purpose, in the present moment, and non-judgmentally”. According to Shapiro and Schwartz (2000), mindfulness involves goal-oriented conscious attention or attending through non-striving, non-judging, acceptance, patience, trust and openness. Bishop et al. (2004) operationalize mindfulness by describing it as the self-regulation of attention towards the immediate present moment and adopting an orientation characterized by curiosity, openness, and acceptance. Brown et al. (2007) list clarity of awareness at any given moment; non-discriminatory, flexible and stable awareness; an empirical stance towards reality; and a present-oriented consciousness as characteristics of mindfulness. In a more practical sense, Brown and colleagues indicate that mindfulness involves a state of mind in which attention and awareness allow the individual to experience reality as it is, rather than to react to it habitually or to automatically process it through discriminative or categorical filters. As a result, consciousness takes on a clarity and freshness that permits more flexible behavioural responses.

Langer (2005) indicates that when people are mindful, they become sensitive to context and perspective and are situated in the present. Langer sees the essence of mindfulness as noticing new things. In contrast, Langer states, when people are mindless, they are trapped in rigid mindsets and their behaviour is governed, rather than guided, by rule and routine and by an unquestioning acceptance of a single-minded evaluation of what is noticed. It is clear that mindlessness may contribute to ineffective appraisal of stressors. Zhu, Carpenter and Kolimi (2015) indicate that mindlessness or automatic completion of tasks occurs in a great deal of people's daily behaviours. In this mode, people do not consciously pay attention to new signals and information, but rely on old categories and act from a single perspective.

Mindfulness-based stress reduction (MBSR).

Mindfulness-based stress reduction (MBSR) is only one of a number of different mindfulness-based approaches, including Zen meditation, Mindfulness-Based Cognitive Therapy (MBCT) (Segal, Williams & Teasdale, 2002), Dialectical Behaviour Therapy (DBT) (Linehan, 1993). MBSR has been used since 1979 by Kabat-Zin at the Massachusetts Medical Centre as a method to relieve chronic pain (Kabat-Zin & Baer, 2003). According to Chiesa and Serretti (2009), MBSR is a standardized approach that integrates Buddhist mindfulness meditation with contemporary clinical psychology. It comprises three different techniques: body scan, sitting meditation, and Hatha yoga practice. The programme consists of interventions and homework for at least 45 minutes a day, 6 days a week for up to 8 weeks. According to Ando et al. (2011), the goal of MBSR is to guide participants to achieve greater awareness of themselves, their thoughts, and their bodies through class discussion, meditation, and yoga exercises. Chiesa and Serretti (2009) point out that MBSR teaches participants to observe situations and thoughts non-judgmentally without reacting impulsively and helps people to develop a more reflexive awareness of inner and outer experiences. It therefore represents an efficacious tool for the reduction of stress.

Mechanisms of change in mindfulness approaches.

Although a wide variety of mechanisms are indicated in the literature, some based on scientific evidence, others on mere speculation and theory, three core mechanisms are discussed, namely meta-awareness, decoupling and emotional differentiation, as they seem to have particular value for the questions this study aims to answer.

Meta-awareness

According to Vago (2013), all people's perceptions and cognitions related to fears, expectations, attitudes, values, and self-image, are distorted or biased to varying degrees. During stress, however, mental processes often become particularly habitual and automatic, requiring much effort to change. Facilitating mindfulness provides access to multiple modalities of awareness, sharpens perception, and improves speed and accuracy of engagement to and disengagement from attention. It also enhances those executive functions responsible for control, monitoring and emotional regulation. All in all, it facilitates meta-awareness, which in turn (i) replaces maladaptive self-representations with perceptions and evaluations that allow for a more accurate world view, reflection of reality and self-knowledge; and (ii) provide the individual a clear picture of what is happening in the present moment. The person is therefore able to act congruently with his or her intentions and goals.

Decoupling / desynchrony

In a brilliant exposition of the mechanisms of change in mindfulness approaches, Levin, Luoma and Haeger (2015) indicate that mindfulness approaches do not change the nature of one's internal experiences (thoughts and feelings), but rather changes how one relates to them. According to Hayes, Villatte, Levin and Hildebrandt (2011), this subsequently helps the individual to achieve a decentred awareness of internal experiences, and in doing so, to prevent thoughts and feelings to have inappropriate or excessive influence over the individual's behaviour. This is known as "decoupling" (Ostafin & Marlatt, 2008)

and “desynchrony” (Hayes et al., 2011) while concepts like “decentring”, “reperceiving”, “psychological distancing” (Vago, 2013) and “disidentification” (Skinner & Beers, 2016), have also been used by a number of different researchers. Vago suggests that a decoupled perspective allows one to disengage from self-focused thinking, subsequently providing space between perceptions and responses. Examples of decoupling include a reduced relationship between negative affect and overeating or smoking, or between irrational beliefs and acting upon those beliefs.

Levin et al. (2015) further indicate that although internal experiences act as eliciting stimuli, its effect on overt behaviour is not fixed. This is because the function of internal experiences depends on the current and historical context in which it occurs. Levin, Hildebrandt, Lillis, & Hayes (2012) explain this by pointing to the effect that body dissatisfaction (internal experience) may have on overt behaviour (restricted eating or eating healthier). The outcome depends on the specific context in which the body dissatisfaction occurs. Levin et al. (2015) report a number of studies that indicate how mindfulness approaches decouple the normative relationship between internal experiences and behaviours like substance abuse, depression, eating problems, and relationship difficulties.

Emotion differentiation and regulation

Levin et al. (2015, p.30) refer to emotion differentiation as the “ability to identify and label discrete emotional experiences beyond more global valence”, for example, the ability to describe an emotion as “sad”, “angry” or “guilty” rather than merely as “bad”. This ability is related to at least one specific mindful component, namely “describe” as indicated, for example, on the Five Facets Mindfulness Questionnaire (FFMQ)(Baer, Smith, Hopkins, Krietemeyer & Toney, 2006). According to Gratz and Tull (2012), emotional differentiation is one aspect of emotion regulation. They define it as “a multidimensional construct involving awareness, understanding and acceptance of emotions; the ability to inhibit impulsive

behaviours when experiencing negative emotions; flexible use of appropriate strategies to modulate the intensity and duration of emotional responses; and willingness to experience negative emotions as part of pursuing meaningful activities in life” (p.7). According to these authors, mindfulness-based approaches promote emotional awareness and clarity by facilitating the observation of emotions as they occur in the moment. As a result, contact with these emotions is increased, which subsequently enhances the ability to identify, label, and differentiate between emotional states.

Previous research on the impact/efficacy of MBSR programmes.

Various studies have shown the advantages of using MBSR in stress and stress-related illnesses. MBSR programmes have proved to be effective in reducing symptoms of stress, anxiety, and depression (Chambers, Lo, & Allen, 2008; Chiesa & Serretti, 2009; Creswell, Pacilio, Lindsay, & Brown, 2014; Hoge et al., 2013; Khoury, et al., 2015; Song & Lindquist, 2015). Oman, Shapiro, Thoresen, Plante, & Flinders (2008) found that MBSR decreased levels of perceived stress and increased forgiveness. In a comparison between cognitive behavioural therapy (CBT) and MBSR, Arch et al. (2013) found both to be effective at reducing the severity of anxiety disorders. It is interesting to note, however, that they found CBT to be more effective at reducing anxious arousal, whereas MBSR to be more effective at reducing symptoms of worry.

Research has further suggested that MBSR add value and meaning to the lives of patients with chronic and often incurable conditions for example high blood pressure and cholesterol (Ryback, 2006), cancer (Ott, 2006), psoriasis (Kabat-Zinn, 2003), traumatic brain injury (Bédard et al., 2003; McMillan, Robertson, Brock, & Chorlton, 2002), insomnia (Lundh, 2005; Thomas, Inka, Burkhard, Matthias, & Johannes, 2006) and pain (Dahl & Lundgren, 2006; Plews-Ogan, Owens, Goodman, Wolfe, & Schorling, 2005),

Finally, MBSR has also been shown to prompt improvements in positive psychological traits and psychological wellbeing (Bao, Xue & Kong 2015; Christopher, Christopher, Dunnagan, & Schure, 2006; Newsome, Christopher, Dahlen, & Christopher, 2006; Rosenzweig, Reibel, Greeson, Brainard, & Hojat, 2003; Benton et al., 2003).

Only a few studies have been done in South Africa. For example, Whitesman and Mash (2015) found a mindfulness programme to significantly increase mindfulness and decrease the perception of stress in a group of healthcare professionals. Steyn, Steyn, Maree, & Panebianco-Warrens (2016) explored the efficacy of mindfulness training intervention on the psychological wellbeing of undergraduate music students. They found improvements in psychological wellbeing, psychological skills, mindfulness and performance anxiety.

In the USA, due to its effectiveness, mindfulness training has been adopted to various degrees into healthcare systems (Bonadonna, 2003; Shigaki, Glass, & Schopp, 2006). This is in contrast to South Africa where mindfulness approaches still seem to be used informally or by independent individuals from different healthcare professions most of the time. One example of a more formal approach in South Africa is provided by Shai and Sikweyiya (2015), who describe the Sinovuyo Caring Families Programme, which aims to reduce the risk of child maltreatment through the improvement of caregiver–child relationships. It is group-based and includes social learning techniques or approaches, and caregiver mental health through mindfulness-based stress reduction techniques and social support. Similar data are scarce and the researchers are not aware of any previous efforts to design and evaluate a MBSR programme specifically for young adult South African females.

Discussion

Young adult South African females, especially those in the growing middle and higher socio-economic groups, are challenged more often by universal rather than unique stressors. These include typical gender and gender-role issues related to a society in transformation

where, although women are accepted in previously male dominated sectors of society, they still seem to be challenged by scepticism regarding leadership, stress brought about by work life balance and time management. Furthermore, like women all over the world, they need to accept and adapt to and integrate their biological roles, changes and inconveniences related to pregnancy, body image issues and gender-specific health issues with their careers.

The study now proceeds to offer guidelines based on the literature to explain why and how MBSR should be a core ingredient in addressing stress in young adult SA females. The guidelines are firstly based on aspects of mindfulness that are perceived to (i) be key change mechanisms, and (ii) facilitate proactive, long-term skills to attend to and engage in daily life in a constructive healthy way; and secondly how these MBSR aspects could address those broad challenges young adult females face, as identified in the literature.

MBSR addresses the key issue at stake: stress

The most important reason for considering mindfulness approaches to address stress in young adult SA females is because reviews of the benefits of mindfulness consistently posit that mindfulness reduces distress and its physical and psychological costs (Chambers et al., 2008; Chiesa & Serretti, 2009; Creswell, et al., 2014; Hoge et al., 2013; Khoury et al., 2015; Song & Lindquist, 2015). There is no reason to elaborate and explicate this – the core issue at stake is stress management. Even if no other reasons existed to recommend a mindfulness approach, it still, based on evidence, addresses the crucial issue here. This alone cannot be provided as a convincing argument to use MBSR rather than any other stress management interventions.

The reason for focusing on mindfulness is not what it is able to do on the most basic level, but rather in terms of what additional benefits it might have for long-term stress management.

Potential benefits of facilitating meta-awareness

As discussed earlier, Vago (2013) indicates that meta-awareness replaces maladaptive self-representations with a more accurate self- and world view and a clear picture of what is happening in the present moment. This enables the individual to act congruently with his or her intentions and goals. More specifically, Skinner and Beers (2016) indicate that improved awareness facilitates the full and clear observation of thoughts, emotions, sensations, and surroundings as they are. They are less distorted by conceptual filters, aroused emotions, or habitual ways of seeing, which results in an accepting, openhearted, compassionate, and non-judgmental orientation. These recent observations by Vago and Skinner and Beers confirm earlier suggestions by Kabat-Zinn (1982) and Linehan (1993) that mindfulness improves self-observation, which promotes recognition of internal states, understanding of the consequences of one's actions and improved ability to use appropriate coping skills.

Improved meta-awareness may have benefits for young adult females in different ways: first, it could prevent distorted self-views based on gender discrimination and work-related gender challenges and ultimately promote a more accurate self-view. Second, conflict and a lack of social support often lead a lack of acceptance and compassion, or the other way around, with a lack of acceptance and compassion leading to conflict and a lack of social support. Acceptance and compassion are some of the outcomes of meta-awareness through mindfulness. Mindfulness could therefore contribute to better work–life balance by teaching people to be in the present moment and empowering them to act more congruent regarding intentions and goals. What is more, this could prevent unhealthy impulses and choices regarding their physical health. This echoes Skinner and Beers (2016), who argue that mindfulness may allow people to be more “choiceful” and more openly attentive to and aware of themselves and the situations in which they find themselves.

Potential benefits of facilitating decoupling

According to Hayes et al. (2011), Ostafin and Marlatt, (2008), Vago (2013) and Levin, et al., (2015), mindfulness helps the individual to achieve a decoupled or decentred awareness of internal experiences. This prevents thoughts and feelings from having inappropriate or excessive influence over one's behaviour. This ability allows one to disengage from self-focused thinking, subsequently providing a reduced relationship between negative affect or beliefs and impulsively acting upon those emotions and beliefs.

The first obvious benefit of decoupling for young adult females seems to be improvement of the ability to engage in healthy behaviours when experiencing stress, frustration or sadness. Indirectly therefore, it has the potential to have an indirect impact on health challenges like overeating, smoking or problematic alcohol use. Secondly, it may improve their ability to manage gender and relationship-related conflict. Being on the receiving end of gender-based discrimination may elicit strong emotional reactions, characterized by either uncontrolled behaviour and/or developing an unwarranted negative self-esteem. This is because, according to Levin et al. (2015), although internal experiences elicit stimuli, the effect of internal experiences on overt behaviour depends on the current and historical context in which it occurs. Decoupling helps the individual to take a detached or objective stance on his or her thoughts and emotions, without filtering it through memory or cognitive filters. This shifts conscious processing from the content of their thoughts and emotions to more awareness of their thoughts and emotions (Shapiro et al., 2006).

Potential benefits of facilitating emotion differentiation and regulation

It was indicated earlier that emotion differentiation enables the individual to more accurately differentiate between, identify and describe their emotional experiences (Levin et al., 2015) and as a result to better regulate their emotions (Bao et al., 2015) without confusion or loss of contact with present moment experience (Skinner & Beers, 2016). Although the

decoupling mechanism is also involved here (Skinner & Beers, 2016), the differentiation additionally increases the range and adaptability of emotional responses to challenges.

The function of negative affect or emotional experience is to provide the individual with information about the importance of a stressor in relation to available resources. If interpreted effectively, it may have benefits like improved memory, judgmental accuracy, motivation and reduced gullibility (compare Forgas, 2013). However, low mindfulness often causes the emotion to be perceived in an undifferentiated and inaccurate way, which may then result in inappropriate expression of that emotion. MBSR should therefore facilitate exactly this ability to interpret the information available from inner emotional experience more accurately. Young adult females are often frustrated by high demands, whether related to work, family, motherhood or health challenges. Low emotion differentiation and inappropriate emotional expression may inhibit, rather than elicit social support, adding to more distress. In support of this idea, Baer et al. (2006) found that individuals reporting higher levels of mindfulness also reported greater ability to engage in goal-consistent behaviour while upset. As participants engage in sustained, non-judgemental observation of distressing emotion-relevant sensations and cognitions without attempts to avoid or escape them, reductions in emotional reactivity and avoidance behaviours occur through a process of desensitization.

Long-term benefits: Proactive coping and psychological wellbeing

One benefit the combined improved of meta-awareness, decoupling and emotion differentiation may have is that of proactive coping. According to Skinner and Beers (2016), coping is an adaptive process of which the primary function is to monitor and detect threats and to calibrate one's own behaviour to deal effectively with on-going stressors. However, they continue to say that effective coping is not easy because it not only requires accurate information about internal experiences and external conditions, but also continuous access to

and selection of previous successful coping strategies based on anticipated future outcomes. It therefore requires internal composure to ensure individuals are able to recover from setbacks and to adjust flexibly as conditions change. This is exactly what meta-awareness, decoupling and emotion differentiation may be able to provide.

Skinner and Beers (2016) suggest that these mechanisms may make it more likely for stressful events to be appraised as challenges rather than threats. This not only reduces a sense of panic, pressure, or fear, but also promotes a sense of ease, equanimity, and curiosity about challenges and stressors. Acquiring a proactive sense of coping in this way would more than likely instil a general sense of psychological wellbeing in young adult females if this is not already reflected. A number of studies explored and found a link between mindfulness and psychological wellbeing (e.g. Brown & Ryan, 2003; Brown et al., 2007). One possible pathway from mindfulness to psychological wellbeing may be through goal striving and autonomy: Gregoire, Bouffard and Vezeau (2012) found that students who are more attentive and aware tended to strive toward goals that are more autonomously motivated, which in turn fostered their psychological wellbeing.

Conclusion

The aim of this review was to explore national and international research to present a better understanding of the stress-related challenges young adult females in general, and particularly in SA, face. In addition, the review endeavoured to explain how the mechanisms of change in mindfulness approaches could benefit young adult South African females in relation to their daily stressors. It emerged from the literature that young adult South African females are often challenged by gender and gender-role issues, specifically related to work context, work-life balance, as well as choices and challenges related to motherhood- and gender-specific physical health concerns. It was then argued that mindfulness approaches may have long-term proactive benefits that traditional stress management approaches lack.

The review further indicated how three specific mechanisms of change, namely meta-awareness, decoupling and emotion differentiation could equip young adult females with abilities not only to address typical stressors they face, but also how these mechanisms could facilitate a new proactive coping mind set, and in doing so, instil a general sense of psychological wellbeing.

Recommendations cannot be made before certain limitations are considered. Most importantly, the study did not generate empirical data, or even follow a systematic review of the literature. The reader should take this limitation into account and not interpret the study as being a scientific deduction of facts. However, the aim of the study was to provide a theoretical point of departure for future research. As such, it is recommended that researchers empirically explore the challenges and needs young adult females have, that they adjust existing MBSR-interventions accordingly and finally that they present and evaluate its impact.

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Chapter 3

Article 2

Young adult females' perception of stress, mindfulness and psychological wellbeing in their daily lives: An IQA perspective

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Abstract

The aim of this study was to determine the perceived cause-effect relationship between stress, mindfulness and wellbeing in a sample of young adult females and to develop a hypothetical model based on this perceived relationship. Relevant themes were identified through a two-tier process. First, relevant topics were identified from the literature. This was followed by an Interactive Qualitative Analysis of two groups of young adult females (n=9 & n=103, respectively) to develop a hypothetical model of their stress experience. Participants described their daily experience of stress largely in a negative way and indicated that they perceive stress as initiated and maintained by a complex interaction between low mindfulness aspects, eventually contributing to low psychological wellbeing on different levels. The article recommends that the hypothesized model be further explored and confirmed in future research. In terms of mindfulness practice, the article recommends keeping the complex relationship between mindfulness, stress and psychological well-being in mind, specifically the unfolding nature as depicted in the model developed in this study. It may further be critically important to investigate if and how a focus on facilitating healthy observation and engagement with emotions as opposed to avoidance could act as first line of defence against developing distress in work-related contexts.

Introduction

This article is the second of three: The first article presented a literature review that explored young adult females' stress-related challenges and explained how mechanisms of change in mindfulness approaches could benefit them. This article builds on Article 1 (the literature) by introducing empirical data on adult females' (YAF) perception of stress, mindfulness and wellbeing. It develops a conceptual model of their perception with the aim to inform improved scientific decision making towards the development of an appropriate MBSR programme for young adult South African females. Although young adult South African females come from different social contexts, in this study the focus is on an emerging middle class from all cultural groups, including students and working women.

Stress refers to an unpleasant state of emotional and physiological arousal that people experience in situations that they perceive as dangerous or threatening to their well-being (Auerbach & Gramling, 2008). From a stage model of disease perspective, stress is an interactive process. Events appraised as stressful by the individual trigger affective states that engender behavioural and biological responses that may increase risk for disease (Cohen, Gianaros, & Manuck, 2016). Young adult females find themselves in a development phase characterized by transitional life events (Aldwin, 2011) like graduation, marriage, beginning a new job, having children and possibly traumatic events like divorce. Within this transitional developmental phase, they are often challenged by issues like gender inequality and gender-role issues, specifically in the work place (Faulkner, 2011; Hartmann, 2010), work-life balance and time management (Bobat, Mshololo, & Reuben, 2012; Kulik, Shilo-Levin, & Liberman, 2016); choices regarding motherhood (Tobias, Gerritsen, Kokaua, & Templeton, 2009; Mamabolo, Langa & Kiguwa, 2009); and changes and inconveniences related to pregnancy (Peltzer, Shikwane, & Matseke, 2011); body image issues (Kotze & Nel, 2013;

Smith-Jackson, Reel, & Thackeray, 2014) and gender-specific health issues (Harrison, Colvin, Kuo, Swartz & Lurie, 2015).

There is ample evidence that young adult females in South Africa, like elsewhere in the world, often struggle to cope with these challenges effectively. The indicators of this state of affairs include for instance eating disorders on campuses (Edwards & Moldan, 2004.).

Women with health issues experience their suffering in the form of significant loss, isolation, loneliness, anger, and emptiness (Fernandes, Papaikonomou, & Niewoudt, 2006; Lo Castro, & Schlebusch, 2006); and professional women have an average level of coping resources and adjustment (Brown-Baattjes, Fouché, Watson, & Povey, 2006).

Recently, mindfulness and mindfulness-based stress reduction (MBSR) programmes have increasingly emerged in medical and other clinical settings as additional and/or alternative way to manage stress and stress-related disorders. The practice of mindfulness originated from the 2 500-year-old Buddhist tradition and refers to a state of consciousness that enables direction of attention to the present moment while adopting a non-judgemental perspective toward experiences (Kabat-Zinn, 1990). Participation in MBSR provides significant psychosocial benefits for anxiety and depression (Hofmann, Sawyer, Witt, & Oh, 2010), nonclinical stress (Chiesa & Serretti, 2009), work-related stress (Irving, Dobkin, & Park, 2009), quality of life and positive affect (e.g., Hofmann et al., 2010; Khoury et al., 2013; Nyklíček & Kuijpers, 2008; Schroevers & Brandsma, 2010).

From the literature it can be deduced that mindfulness approaches, including MBSR, may be successful in addressing stress in young adult South African females, particularly because of at least four different change mechanisms. The first is *meta-awareness*, the full and clear observation of thoughts, emotions, sensations, and surroundings, which enables the individual to avoid perception through distorted conceptual filters, aroused emotions, or habit (Skinner & Beers, 2016). For young adult females, this may result in a more accepting,

openhearted, compassionate, and non-judgemental orientation towards their challenging contexts. *Decoupling*, the ability to disengage from self-focused thinking, preventing thoughts and feelings from gaining inappropriate or excessive influence over one's behaviour (Hayes, et al., 2011; Vago, 2013; Levin, et al., 2015), may benefit young adult females in that it prevents engagement in unhealthy behaviours like overeating, smoking or problematic alcohol use when experiencing stress. It improves their ability to manage gender and relationship-related conflict by decentring themselves from harmful emotional reactions. (Levin, et al., 2015). *Emotion differentiation* enables the individual to differentiate more accurately between emotions and to identify and describe their emotional experiences (Levin et al., 2015). This helps them to regulate their emotions better (Bao, et al., 2015). MBSR should facilitate the ability to interpret the information available from inner emotional experience more accurately and to engage in goal-consistent behaviour even while upset. Finally, these change mechanisms may facilitate proactive coping, which, according to Skinner and Beers (2016), enable individuals to appraise stressful events as challenges rather than threats, and to promote a sense of ease, equanimity, and curiosity, rather than fear of challenges and stressors. Ultimately, it is clear that MBSR has potential value in not only reducing stress, but also to improve psychological well-being (Chambers, Gullone, & Allen, 2009; Hölzel et al., 2011).

Although evidence does exist that MBSR is effective within a number of contexts, there is a gap in research in the South African context and specifically with regard to stress in non-clinical young adult female samples. To be able to develop a new or adjust a current MBSR programme for young adult females in South Africa, it would make sense first to get an insider's perspective of how young adult females themselves perceive and experience stress, mindfulness and psychological wellbeing in their daily contexts.

The theoretical departure for this study is therefore based on the view that stress, mindfulness and psychological wellbeing are dynamically related. In order to best understand this dynamic relationship, a systems perspective was employed to explore participants' subjective experience of these variables in their daily lives. According to Northcutt and McCoy (2004), systems have two broad components, namely elements and the relationships among the elements. Understanding a system means identifying the elements of the system; describing the relationships among the elements; and understanding how the elements and relationships dynamically interact to result in different states of the system. Therefore, to be in the best position to develop a MBSR programme specifically for young adult South African females, we need to understand the perceived nature of the relationship between stress, mindfulness and psychological wellbeing within their context. In this study, the Interactive Qualitative Analysis (IQA) (Northcutt & McCoy, 2004) approach was followed as it allowed the researcher to develop a model of the participants' experience of the relationship between stress, mindfulness and psychological wellbeing within their daily contexts by means of a systematic facilitation of a group process and a systematic representation of the discourse created by the group.

Therefore, the research question can be formulated as: How do young adult female South Africans perceive the cause–effect relationship between stress, mindfulness and psychological well-being in their daily lives? How can this perceived relationship be developed into a hypothetical model that will contribute to a better understanding of the dynamics of stress, mindfulness and well-being in their daily lives? The aims of the study are to (i) determine the perceived cause-effect relationship between stress, mindfulness and wellbeing in a sample of young adult females; and to (ii) develop a hypothetical model based on this perceived relationship.

Method

Design

IQA (Northcutt & McCoy, 2004) enables the researcher to explore participants' perception of the relationship between two or more phenomena and to develop a conceptual map of this. The uniqueness of IQA is that participants are co-experts on the phenomenon under investigation and are therefore entrusted with identifying the themes in consultation with the researcher during the discussion group, and as IQA follows a set of accountable and systematic procedures, trustworthiness, validity and reliability are inherently addressed. Although IQA implies a qualitative approach only, it insists that both deduction and induction are necessary to investigate the meaning. In this case, the researchers deduced themes from the literature (deduction), participants were then asked to induce themes (induction), together researchers and participants then defined and refined these (induction and deduction), and finally the researchers deductively analysed the relationship of influence among the themes.

Participants and context

The research was done in three phases. First, a non-probability sample (n=9) of young adult females took part in a discussion group with the aim to help identify themes based on their experience of stress, mindfulness and psychological wellbeing. Participants were postgraduate students in social sciences at the North-West University, aged between 22 and 29. Two were married, three were in relationships and four were single. Seven were Afrikaans and two were English-speaking. This group was recruited by approaching lecturers involved at a postgraduate level to obtain permission and consent. Second, a questionnaire was developed based on the identified themes and administered to a non-probability sample (n=103) of young adult females, consisting of students, teachers and corporate employees from different contexts. They were recruited by approaching the headmasters of two private schools and one public school and the Human Resources department of a private company in

Gauteng, as well as lecturers in two different faculties at the NWU. Participants were invited to take part and one agreeing, informed about the nature of the research. Those who provided consent then completed the questionnaire.

Procedure

Phase 1 – Identification of themes

Stress, mindfulness and psychological wellbeing are complex processes. For this reason, a two-tier process was selected, each with different criteria, to identify themes for the study. The themes were (i) standardized conceptualization of relevant themes, identified from the literature as salient and/or from valid measuring scales; and (ii) participants' subjective experience related to stress, mindfulness and well-being in their daily lives. Using standardized concepts as a guideline was mainly to ensure measurability of the themes once developed and integrated into an intervention. Involving participants to identify themes lies at the heart of the IQA process. This was essential to add rigor and trustworthiness and to refine those themes identified from the first set of criteria.

As starting point, the standardized and widely used Five Facets Mindfulness Questionnaire (FFMQ) was used (Baer, Smith, Hopkins, Krietemeyer & Toney, 2006) to differentiate mindfulness on five factors, namely *non-reactivity*; *acting with awareness*; *non-judge*; *observe*, and *describe*. Stress and psychological well-being, being more familiar concepts, were provisionally used simply as *stress* and *a sense of wellbeing*. The research then explored if, to what extent, and how these concepts emerge as themes or align with the themes identified from the first discussion group.

After providing consent, participants (n=9) in the discussion group were invited to attend a three-hour discussion group session that took place in a private lecture room. The group started with a brief welcome and introduction, after which participants were randomly divided into three groups of three each. They were then instructed as follows: "I would like

you to think carefully for a few minutes about what you think, experience and do, positive or negative, when you think about stress”. The reason for formulating the instruction in this way was to ensure that themes relating to stress, mindfulness and psychological wellbeing could emerge. Participants had to discuss their experiences within the small groups and write down their shared experiences. These shared experiences were then written on a whiteboard by a representative of each group, after which the researcher facilitated the process to combine the experiences into themes. This process was facilitated by the researcher to ensure that the emerging themes complied with the criteria indicated by Northcutt and McCoy (2004, p.99–103), namely that themes should (a) describe a construct or a category of meaning, and not a physical object, a person, or a place; (b) be homogeneous, and describe one construct rather than a mixture of different topics; (c) be easy to define; and (d) be conceptually exclusive, and not significantly overlap with other themes.

Nine themes were initially identified by participants, after which a critical reflective process was followed to ensure that all nine themes were appropriately aligned and integrated with the seven themes identified from the first set of criteria. The final nine themes are reported in Table 1 in the results section. Although the initial themes were adjusted and fine-tuned, the researchers are confident that the participants’ experiences regarding stress were still retained in the new themes. Another reason why the original themes were adjusted was to make its wording more suitable for use in a cause–effect questionnaire.

Phase 2 – Developing and administering the questionnaire

A questionnaire was subsequently developed to assess the perceived relations between the different themes. This is known as *theoretical coding* (Northcutt & McCoy, 2004) and it consists of identifying the cause-and-effect relationships between all nine themes.

Participants were instructed as follows: Choose the one statement in each of the following that best reflects your everyday experience:

According to my experience (*Choose only one option in each scenario*).

1. a. *A causes B*
- b. *B causes A*
- c. *A and B do not influence each other*

The first item, for example, included Themes 1 and 2, namely “stress” and “overreact to situations”:

Stress causes that I overreact to situations	
When I overreact to situations it causes stress	
Stress and overreaction to situations have no influence on each other	

The questionnaire was then administered to the group (n=103) of participants.

Phase 3 – Data analysis

The frequency (F) of votes and the cumulative frequency (CF) for each possible relationship theme were calculated (reported in table 2 in the results section) from the completed questionnaires. Thereafter the cumulative percentage of relations (CPR) was calculated based on the number of total possible relationships, followed by the calculation the cumulative percentage of frequencies (CPF) based on the number of votes cast, and lastly, the power analysis (P) as an index of the degree of optimization of the system. The principle of parsimony (to use the fewest number of affinity pairs to represent the greatest amount of variation to attain comprehensiveness and richness from the data) was used to decide the number of affinities to include in the interrelationship diagram (IRD) (Northcutt & McCoy, 2004). These relations were then used to construct the interrelationship diagram (IRD) that indicates the strength and direction of relations that were used in the final mental map. The

strength of each relation is expressed by delta (Δ), which determines the position of the themes in the mental map. The themes with a positive delta (Δ) are relative drivers or causes and those with negative deltas are relative effects or outcomes (Northcutt & McCoy, 2004, p. 173–184). The themes were arranged in descending delta value order to assign their placement in the model or System Influence Diagram (SID). Finally, the model was developed by removing all redundant relationships as explained by Northcutt and McCoy (2004).

Ethical issues

The study is a subproject of a study on the nature and dynamics of self-regulation in the South African context and has been approved by the Ethics Committee of the North-West University (approval number NWU 00103-11-S1). The researcher strictly adhered to the following project principles: All participants received an informed consent form that entailed a complete and clear description of confidentiality, permission, the procedure and dissemination of the results. The research study followed Tracey's (2010, p.846-848) criteria for i) procedural ethics (do not harm, avoid deception, informed consent); ii) relational ethics (recognize and value mutual respect, dignity and connectedness between research team and participants); and iii) exiting ethics (data are kept safe and confidential). Participants were informed about the nature of the study and of the high premium on confidentiality, and had to sign a consent form. It was clearly communicated that participation was voluntary and that participants could withdraw at any stage during the research without providing a reason. Participants did not receive any academic or financial reward and were invited to discuss any emerging issues with the researcher afterwards.

Results

Table 1 shows the final nine themes, including the domain it belongs to (stress, mindfulness or psychological well-being), a brief description of each, and the origin of and

motivation for the inclusion of each. Participants primarily emphasized the negative in their daily stress experiences by focusing almost exclusively on frustrations, weaknesses, lack of ‘know-how’ and negative outcomes. Their experience of *stress* itself was labelled in different ways, most often by using terms like *stress*, *anxiety*, *tension*, *worry* and *nervousness*. It was clear from the discussion group that their description of stress in their own lives match the literature, that is, a subjective perception of demands that exceed their resources, with negative consequences like anger, conflict with others, and loss of control regarding good health intentions. The theme stress was therefore retained as one of the nine themes for inclusion in the questionnaire. It was surprising to find that the mindfulness-related themes emerging from the discussion group strongly related to each of the five mindfulness factors from the FFMQ expressed or described in a negative (lack of) and more personal way. For example, they often mentioned how they “overreact” to specific situations or how they tend to “judge themselves in a negative way”. For this reason, the five mindfulness factors from the FFMQ were renamed to use participants’ own descriptions, namely *I overreact to situations* (rather than non-react), *I struggle to focus on what I do* (rather than acting with awareness), *I judge myself in a negative way* (rather than non-judge); *I avoid my emotions and experiences* (rather than observe), and *I struggle to describe my emotions and experiences* (rather than describe). Finally, three different subthemes related to well-being emerged. Interestingly, there was again an emphasis on the negative (lack of well-being). For example, they often experience *loss of health and energy*, *relational conflict* and *work-related problems*. Based on this we decided to use their themes, rather than *sense of well-being* as it provides a better differentiation of well-being and because it accurately reflects three core domains in the psychological well-being literature (compare Harris, 2010; Lambert et al., 2010; Lewis, Rapoport & Gambles, 2003; Steger & Kashdan, 2007).

Table 1 The 9 themes

Theme	Description of the theme	Origin of theme and motivation for inclusion
1. Stress	General reference to uncertainty or apprehension about any context or situation that demands performance and where participants perceive their resources as lacking.	1. Key concept/variable in the study 2. Participants clearly identified “anxiety” in their lives as related or similar to “stress” and stressful experiences, for example they indicated feeling anxious as “the initial reaction towards stress”; and experiencing worry, nervousness or being concerned to do something or for something to happen.
2. I overreact to situations	Inability to perceive feelings and emotions without reacting to them; getting lost in feelings and not being able to step back, pause and stay calm.	1. Key aspect of Mindfulness, namely Non-reactivity (FFMQ) 2. Participants identified a theme initially named “Self-condemnation”, which has components clearly related to overreacting. It is clearly similar to judging oneself in a negative way: for example in

Theme	Description of the theme	Origin of theme and motivation for inclusion
		certain contexts to force oneself to endure something unpleasant.
3. I struggle to focus on what I do	Inability to focus on what I do and being in the moment is difficult, for example: being easily distracted; daydreaming/being worried; finding it difficult to stay focused; “running on automatic”; rushing through activities.	1. Key aspect of Mindfulness namely Acting with awareness (FFMQ) 2. Participants identified “Destructive coping” as negative and unhelpful coping strategies for stress and revealed that it did not help with stress management; not having positive coping strategies in place to help with coping mechanisms; as a result they started over-thinking the problem and were consumed by only the problem.
4. I judge myself in a negative way	Inability to withhold judgement of inner experiences and criticizing myself for having irrational or inappropriate emotions, for example telling	1. Key aspect of Mindfulness namely Non-judging of inner experiences (FFMQ) 2. “Self-condemnation” is clearly similar to judging oneself in a

Theme	Description of the theme	Origin of theme and motivation for inclusion
	myself I shouldn't be feeling the way I am feeling; judging myself as good or bad when I have distressing thoughts.	negative way: - Self-condemnation kicked in with stress; to express disapproval of oneself. YAF started to judge themselves and felt like they were failures.
5. Avoidance of my emotions and experiences	Inability to observe own emotions and experiences, and natural tendency to avoid my emotions and experience.	1. Key aspect of Mindfulness namely Observing (FFMQ) 2. Participants identified "Avoid stress" - Avoiding the stressor when stress is high and in situations that cause stress; to keep away from stress and stressful situations or to refrain from or get rid of stress; trying to prevent stress from happening. YAF started postponing goals and socialize more and did not keep to their goals. They tried to avoid the stressful situation and tried to postpone their responsibilities.
6. I struggle to	Inability to describe and find the	1. Key aspect of Mindfulness

Theme	Description of the theme	Origin of theme and motivation for inclusion
describe my emotions and experiences	words to describe what I am thinking and feeling, for example: having trouble thinking of the right words to express how I feel about things.	namely Describe (FFMQ) 2. Participants had negative thoughts towards stress; causing destruction and having negative and unhelpful thoughts, clearly related to an inability to be aware of, and describe their inner experiences.
7. Loss of health and energy	Health refers to a person's mental or physical condition, and being in a state free from illness or injury. Energy refers to the strength and vitality required for sustained activity.	1. Key aspects of psychological well-being 2. Destructive coping - Another aspect of destructive coping as identified by participants relates to thinking of negative and destructive ways to cope, for example to be more dependent on smoking, drinking, eating, nail-biting and sleeping.
8. Conflict in my relationships	Conflict refers to a serious disagreement or argument and an incompatibility of opinions and	1. Key aspect of psychological well-being 2. Destructive thoughts – One

Theme	Description of the theme	Origin of theme and motivation for inclusion
	principles etc. Relationships refers to the way in which two or more people or things are connected or the way in which two or more people or groups regard and behave towards each other.	aspect of participants' destructive thoughts was that they felt that they had to please people and that other people control their plans and behaviours.
9. Work-related problems	Work is the activity involving mental or physical effort done in order to achieve a result. This activity is also a means of earning income. A problem refers to an unwelcome or harmful matter needing to be dealt with and overcome or something that is difficult to achieve.	1. Key aspect of psychological well-being 2. Participants clearly identified work (study) contexts as an important stressor in their lives and said that they try in at least two ways to manage it, namely through making positive plans and through constructive coping strategies

Table 2 shows the frequency table indicating participants' perceptions of the cause–effect relationship between all nine themes. A total number of 2922 votes were cast for 72 possible inter-theme (affinity) relationships. Power reached a maximum value of 23.50 (column 6) at the 28th relationship pair, explaining 62.39% of the variance (column 5). The two highest frequencies were found for relationship pair 1→7, with 92 participants perceiving that Theme 1 (*stress*) causes Theme 7 (*loss of health and energy*), and relationship

pair 9→1, with 86 participants perceiving that Theme 9 (*work-related problems*) causes Theme 1 (*stress*).

Table 2 Frequency analysis of perceived cause-effect relationship between the nine themes

Cause– effect relation	F	CF	CPR	CPF	P
1→7	92	92	1.39	3.15	1.76
1←9	86	178	2.78	6.09	3.31
6→8	80	258	4.17	8.83	4.66
5→8	77	335	5.56	11.46	5.91
1→2	76	411	6.94	14.07	7.12
2→8	75	486	8.33	16.63	8.30
3←9	74	560	9.72	19.16	9.44
7←9	74	634	11.11	21.70	10.59
1→3	73	707	12.50	24.20	11.69
4→8	71	778	13.89	26.63	12.74
2→3	71	849	15.28	29.06	13.78
2→7	70	919	16.67	31.45	14.78
3←8	69	988	18.06	33.81	15.76
1→6	67	1055	19.45	36.11	16.66
3←7	67	1122	20.83	38.40	17.56
2→4	66	1188	22.22	40.66	18.43
1→8	64	1252	23.61	42.85	19.23
4→7	63	1315	25.00	45.00	20.00

Cause-effect relation	F	CF	CPR	CPF	P
5→6	63	1378	26.39	47.16	20.77
1←5	59	1437	27.78	49.18	21.40
1→4	55	1492	29.17	51.06	21.89
4←9	53	1545	30.56	52.87	22.32
3→4	52	1597	31.95	54.65	22.71
8←9	50	1647	33.34	56.37	23.03
2→6	48	1695	34.72	58.01	23.28
5→7	44	1739	36.11	59.51	23.40
6→7	42	1781	37.50	60.95	23.45
2←9	42	1823	38.89	62.39*	23.50*
1←8	37	1860	40.28	63.66	23.37
2←5	37	1897	41.67	64.92	23.25
7←8	37	1934	43.06	66.19	23.13
3←5	36	1970	44.45	67.42	22.97
5→9	35	2005	45.84	68.62	22.78
7→8	35	2040	47.23	69.82	22.59
2←6	35	2075	48.61	71.01	22.40
5←9	35	2110	50.00	72.21	22.21
2→9	35	2145	51.39	73.41	22.02
3→5	34	2179	52.78	74.57	21.79
6←9	32	2211	54.17	75.67	21.50
2→5	31	2242	55.56	76.73	21.17
3←4	30	2272	56.95	77.75	20.81

Cause- effect relation	F	CF	CPR	CPF	P
3→6	29	2301	58.34	78.75	20.41
4→6	29	2330	59.73	79.74	20.01
4→9	28	2358	61.12	80.70	19.58
8→9	28	2386	62.50	81.66	19.15
1←4	28	2414	63.89	82.61	18.72
6→9	28	2442	65.28	83.57	18.29
4→5	26	2468	66.67	84.46	17.79
1←3	25	2493	68.06	85.32	17.26
1→5	25	2518	69.45	86.17	16.72
2←3	24	2542	70.84	87.00	16.16
4←5	24	2566	72.23	87.82	15.59
4←6	24	2590	73.62	88.64	15.02
4←7	23	2613	75.01	89.43	14.42
3→7	22	2635	76.39	90.18	13.78
3→8	22	2657	77.78	90.93	13.15
4←8	21	2678	79.17	91.65	12.48
5←6	21	2699	80.56	92.37	11.81
2←4	21	2720	81.95	93.09	11.14
3→9	20	2740	83.34	93.77	10.43
7→9	19	2759	84.73	94.42	9.69
2←7	19	2778	86.12	95.07	8.95
2←8	19	2797	87.51	95.72	8.22
1←2	18	2815	88.90	96.34	7.44

Cause– effect relation	F	CF	CPR	CPF	P
5←7	18	2833	90.28	96.95	6.67
6←7	17	2850	91.67	97.54	5.86
1→9	16	2866	93.06	98.08	5.02
5←8	14	2880	94.45	98.56	4.11
3←6	14	2894	95.84	99.04	3.20
6←8	12	2906	97.23	99.45	2.22
1←6	12	2918	98.62	99.86	1.24
1←7	4	2922	100.00	100.00	0

Note – F = Frequency; CF = Cumulative Frequency; CPR = Cumulative Percent; CPF = Cumulative Percent frequency; P = Power

Table 3 shows the direction of perceived influence between themes. In the first row, for example, the first arrow shows that Theme 1 causes Theme 2 (the arrow points toward two and away from one). Upwards arrows represent the row driving the column and left arrows represent the column driving the row.

Table 3 The interrelationship diagram

	1	2	3	4	5	6	7	8	9	OUT	IN	Δ
1	0	↑	↑	↑	←	↑	↑	↑	←	6	2	4
2	←	0	↑	↑	0	↑	↑	↑	←	5	2	3
3	←	←	0	↑	0	0	←	←	←	1	5	-4
4	←	←	←	0	0	0	↑	↑	←	2	4	-2
5	↑	0	0	0	0	↑	↑	↑	0	4	0	4
6	←	←	0	0	←	0	↑	↑	0	2	3	-1
7	←	←	↑	←	←	←	0	0	←	1	6	-5
8	←	←	↑	←	←	←	0	0	←	1	6	-5
9	↑	↑	↑	↑	0	0	↑	↑	0	6	0	6

Figure 1 shows the final hypothetical model. Initially, both work-related problems and the avoidance of emotions and experiences lead to stress. The experience of stress then leads to a tendency to overreact, which in turn causes participants to struggle to describe their emotions and experiences. As a result, they experience more conflict in their relationships. This in turn causes them to struggle to focus, which then leads to negative self-judgement. Negative self-judgement has two possible consequences: First, it may contribute to more relational conflict (it therefore feeds back into the system), or secondly, it may create loss of health and energy. Loss of health and energy may in turn contribute to a struggle to focus, therefore also feeding back into the system. This feedback loop from relational conflict backs onto itself via struggle to focus, negative self-judgement and loss of health and energy and

this may continue indefinitely.

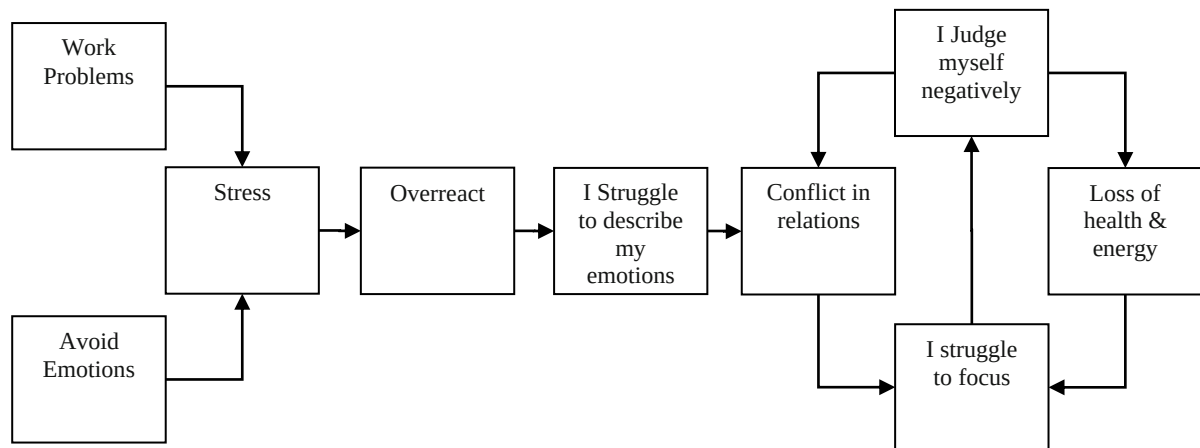


Figure 1 The hypothetical model

Discussion

Participants in the discussion group largely described their daily experience of stress in a negative way. Although a very small discussion group (n=9) primarily contributed towards identifying themes for the questionnaire, this should not go unnoticed. One implication is that this group of participants primarily reflected on their experience of distress (negative stress) as opposed to their experience of eustress (or positive stress), despite the fact that participants tend to over-report eustress due to the social desirability factor (compare Masood, Ahmed & Gutierrez-Osuna, 2012). If true, this may indicate a general low sense of well-being and mindfulness, and by implication, ‘good data’ on which to focus this research on how to intervene / address the deficits. However, it may also create a skewed picture in that we did not learn enough about their strengths in this regard, a factor that should be taken into consideration.

According to the hypothetic model, participants perceive their daily stress to be initiated by work-related problems and the avoidance of emotions. It is not surprising that work-related problems lead to stress in young adult females. Participants in the discussion

group identified work as an important stressor in their lives, and this group included students, teachers and corporate employees. This confirms previous research in this regard (Bobat et al., 2012; Kulik et al., 2016). The career landscape has changed dramatically over the last two decades due to major economic, technological, organizational, and particularly in South Africa, socio-political changes. Trying to achieve and maintain a healthy work-life balance is already stressful. However, unsatisfactory progress with gender transformation and equity in the South African workplace (Du Plessis & Barkhuizen, 2012; Hicks, 2012; Lewis-Enright, Crafford & Crous, 2009) probably adds yet another challenge.

It is interesting (and somewhat surprising) that the participants perceive their stress to be a result of avoiding emotions and experiences. One would expect that people are not generally aware of the fact that they avoid their emotions and experiences, and would therefore not know that it contributes to stress. To acknowledge emotions can be described as ‘the set of abilities, both verbal and non-verbal, that enable a person to generate, recognise, express, understand and evaluate their own and others’ emotions in order to guide thinking and action that successfully cope with environmental demands and pressures’ (Crede & Harms, 2010, p. 6). Emotions play an extremely important and adaptive role in providing individuals with feedback on their state of being within a specific context (Forgas, 2013; Teper, Siegel & Inzlicht, 2013) and information on how to deal with that specific situation. There is empirical evidence that regulation of feelings based on acceptance or learning to live with and accept the reality of an emotional event is functional in the case of negative affect (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Therefore, avoidance of emotions prevents access to one’s inner experiences of sense-making through emotions. In this sense, avoidance of emotions could imply not “knowing” and “not being able to make a change in one’s own behaviour” or in the context one finds oneself in and therefore explain why this is perceived as leading to stress. It may then be an important pro-active factor in stress-prevention.

Therefore, if a person is not able to engage with emotions appropriately, it may exacerbate challenging contexts, and like in this case, simultaneously contribute to the onset of stress.

Participants perceive their experience of stress as leading to a tendency to overreact, for example the inability to perceive feelings and emotions without reacting to them; getting lost in feelings and not being able to step back, pause and stay calm. People react differently to stressful situations. Overreacting may be a way of dealing with the frustration caused by stress because of its detrimental effects on mental concentration, problem solving and decision making, emotional functioning and people's well-being (Thompson, 2010). However, overreacting is most of the time not an effective way of dealing with stress. When emotions get out of control, the ability to accurately describe and understand them gets more difficult (Gratz & Gunderson, 2006; Linehan, 1993; Mennin, 2006).). Therefore, it is no surprise that overreaction leads participants in this study to struggle to describe their emotions and experiences.

As a result of the stress-overreact pathway, participants experience more conflict in their relationships. Interpersonal relationships have special significance during early adulthood, specifically in the development of critical tasks like academic achievement, identity, sexuality, future planning (Goldstein, Chesir-Teran, & McFaul, 2008). Lambert et al. (2010) propose that this is because (a) people have a basic need to belong; (b) social roles guide values, give purpose and create expectations for the future; and (c) interacting with others is central to the biological needs and strategies of human beings. Struggling to describe one's emotions implies that one goes into relationships with unsolved emotions and experiences that may influence the emotional engagement with others, which in turn increases the conflict potential. Furthermore, when experiencing unsolved, complex emotions, one finds it difficult to describe and understand, may challenge others' ability to access you on an emotional level. According to Lakey and Orehek (2011), people regulate

their affect, action and thought primarily through social interaction in a dynamic way that includes shifting strategies, or even interaction partners. In this regard, Dillow, Dunleavy, and Weber, (2009) and Finkenauer, Kerkhof, Righetti, and Branje, (2009) indicate that difficulties in expressing oneself in a romantic relationship is linked with lower perceptions of romantic closeness and poorer romantic well-being.

Relational conflict then leads to a struggle to focus attention in the present, perhaps because the person has now not only to deal with emotions they do not understand, but also with the reality of conflict in their relationships. They may therefore experience an inability to separate their emotions from facts related to the conflict. This could lead to an over-engagement with these issues that distract from being aware of the present. The implication of this may be low mindfulness and the inability to decouple their inner experiences (experiencing conflict towards others) from their awareness (Vago, 2013; Levin, et al., 2015).

As a result of all these accumulating emotions and often unnecessary interpersonal conflict, participants judge themselves in a negative way, for example, criticizing themselves for having irrational or inappropriate emotions, or telling themselves “they shouldn’t be feeling the way they do”. According to the model, negative self-judgement has two consequences. First, it may contribute to more relational conflict (it therefore feeds back into the system), and/or second, it may create loss of health and energy. Judging oneself negatively contributes to more relational conflict, perhaps because the participants not only have unresolved emotional issues (Cash & Whittingham, 2010) . This is because self-directed frustration and judgement may prevent openness, flexibility and radiation of positive energy. Furthermore, negative self-judgement may also lead to a loss of health and energy because although a certain level of stress may result in improved performance, there is consistent evidence that too much stress can adversely affect physical and mental health (Essays 2009, Schneiderman, Ironson, & Siegel, 2005).

In a way, it almost appears as if negative self-judgement acts as a crucial point in time where ineffective stress management feeds back into the system, either through further conflict in relationships or through deterioration in health and energy. This makes sense because, one level, negative self-judgement reflects the opposite of self-compassion, an emotionally positive self-attitude that, according to Neff (2003) and Neff, Rude and Kirkpatrick (2007), should protect against the negative consequences of self-judgement, isolation, and rumination, and even counter the tendencies towards narcissism, self-centeredness, and downward social comparison. Failure implies, as shown in the hypothesized model, a lack of constructive solutions. This feedback loop consisting of negative self-judgement, relational conflict, struggle to focus, and loss of health and energy may continue indefinitely.

Conclusion

The aim of this study was to determine the perceived cause–effect relationship between stress, mindfulness and wellbeing in a sample of young adult females; and to develop a hypothetical model based on this perceived relationship. This aim is important because it may inform future research on the development of MBSR interventions specifically for young adult females South Africans.

First, themes were identified through a two-tier process, including the identification of relevant topics from the literature, followed by a small group discussion with a group (n=9) of young adult female students. The participants largely described their daily experience of stress in a negative way, focusing on distress, lack of mindfulness and lack of psychological wellbeing. This should not be seen as a direct reflection of their current levels of psychological wellbeing, but perhaps more as a reflection of their frustration with those challenges they find difficult to face and of times when lower mindfulness prevents them from continuously experiencing or achieving acceptable levels of subjective well-being. The

themes were adjusted to fit participants' emphasis on the negative to better understand their experience of those situations where stress negatively affects their lives.

Second, a hypothesized model based on a larger group (n=103) of participants' perception of the cause–effect relationship between the nine themes, shows that stress is perceived to be initiated by both work-related problems and avoidance of emotions. Stress itself is then responded to by a series of behaviours reflecting how low mindfulness contributes to low psychological wellbeing on different levels, eventually feeding back into the cause–effect system. Negative self-judgement appears to be a critical turning point where frustration and lack of constructive possibilities leaves the individual no other option but to jeopardize her own psychological well-being.

Before any recommendations can be made, some limitations should be pointed out. First, the study did not examine participants' strengths, which may create a skewed perspective of the actual stress they experience. Second, it should be remembered that although a rigorous IQA process was followed to ensure trustworthiness as stipulated by Northcutt and McCoy (2004), the model should still be seen as hypothetical only. It is therefore recommended that the hypothesized model be further explored and confirmed in future research. In terms of mindfulness practice, the complex relationship between mindfulness, stress and psychological well-being should be kept in mind, specifically its unfolding nature as depicted in the model developed in this study. It may further be critically important to investigate if and how a focus on facilitating healthy observation and engagement with emotions, as opposed to its avoidance, could act as first line defence against developing distress in work-related contexts.

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Chapter 4

Article 3

The impact of a mindfulness-based stress reduction programme for young adult females

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Abstract

The aim of this study was to develop and evaluate the impact of a mindfulness-based stress reduction (MBSR) programme on the stress and mindfulness levels of a sample of young adult South African females. A multi-method pre-test post-test intervention design was followed to measure the impact of the programme on perceived stress with the Perceived Stress Scale (PSS) and to measure five aspects of mindfulness with qualitative reflections and the Five Facets Mindfulness Questionnaire (FFMQ). It was found that the programme had a visible positive effect on awareness and non-judgement, while it also significantly lowered participants' perceived stress on a practical level. The results are consistent with previous studies that have demonstrated the immediate benefits of MBSR for both mindfulness and stress. Although the findings are promising, a number of limitations restrict its generalizability.

Introduction

Research shows that young adult females often face developmental life challenges and as a result, there is a strong need to develop and evaluate stress intervention programmes for this specific population group. This article focuses on the development and evaluation of a mindfulness-based stress reduction programme aimed at addressing stress in young adult South African females.

Young adult females experience stress because developmentally they go through important transitional life events (Aldwin, 2011) like graduation, marriage, beginning a new job, and starting a family. Within this transitional developmental phase, they are often challenged by gender inequality and gender-role issues in the work place (Faulkner, 2011; Hartmann, 2010); work–life balance and time management demands (Bobat, Mshololo, & Reuben, 2012; Kulik, Shilo-Levin, & Liberman, 2016); difficult choices regarding motherhood (Tobias, Gerritsen, Kokaua, & Templeton, 2009; Mamabolo, Langa & Kiguwa, 2009); changes and inconveniences related to pregnancy (Peltzer, Shikwane, & Matseke, 2011); body image issues (Kotze & Nel, 2013; Smith-Jackson, Reel, & Thackeray, 2014) and gender-specific health issues (Harrison, Colvin, Kuo, Swartz & Lurie, 2015). Evidence exists that young adult South African females often do not have enough coping resources (Brown-Baatjies, Fouché, Watson, & Povey, 2006) and respond to these challenges in unhealthy ways (Fernandes, Papaikonomou, & Niewoudt, 2006; Lo Castro, & Schlebusch, 2006).

The interaction between individual and context is extremely important from a diathesis stress model or stage model of disease perspective (Cohen et al., 2016). It explains how appraisal of events or contexts as stressful (demands exceed resources) may trigger certain affective responses which in turn trigger biological vulnerability to distress, mental disorders or physical disease. One important implication of this transactional approach is that the individuals' cognitive mind-set/attitude towards self and context, and specifically how events

are interpreted, is central in understanding the experience of stress. Different cognitive approaches have been developed to understand, address and prevent distress and the subsequent development of mental and/or physical disease. Although there is evidence that these approaches are effective, there are questions regarding their long-term impact and their ability to facilitate pro-active resources in individuals (Hargrove, Quick, Nelson & Quick, 2011; Tetrick & Winslow, 2015).

Recently, there has been an increase in mindfulness approaches, for example Zen meditation, Mindfulness-Based Cognitive Therapy (MBCT) (Segal, Williams & Teasdale, 2002), Dialectical Behaviour Therapy (DBT) (Linehan, 1993) and Mindfulness-Based Stress Reduction (MBSR). Mindfulness refers to conscious, purposeful and non-judgemental attention in the present moment (Kabat-Zinn, 1994). Being mindful enhances the capacity to be curious, open and accepting (Bishop et al. 2004, Langer, 2005), non-discriminatory and flexible (Brown, Ryan & Cresswell, 2007) and compassionate (Whitesman & Mash, 2015). MBSR has been used since 1979 by Kabat-Zin as a method and developed into a standardized approach that integrates Buddhist mindfulness meditation with contemporary clinical psychology (Chiesa & Serretti, 2009). It consists of an intervention and homework sessions, usually over an eight-week period during which individuals are guided to achieve greater reflexive self-awareness and non-judgemental observation through discussions, meditation, and yoga exercises.

Research shows MBSR to be effective in increasing mindfulness (Dobkin & Zhao, 2011; Nyklíček & Kuijpers, 2008; Vøllestad, Sivertsen, & Nielsen, 2011), reducing stress, anxiety, and depression (Chambers, Lo & Allen., 2008; Chiesa & Serretti, 2009; Creswell, Pacilio, Lindsay, & Brown, 2014; Hoge et al., 2013; Khoury, et al., 2015; Oman et al., 2008; Song & Lindquist, 2015) and in improving psychological well-being (Bao, Xue & Kong

2015; Christopher, Christopher, Dunnagan, & Schure, 2006; Newsome, Christopher, Dahlen, & Christopher, 2006).

MBSR therefore seems to be a relevant approach in addressing stress. As most research has been done in the USA and Europe, and there is a lack of research in South Africa, the generalizability of MBSR to other socio-economic and sociocultural contexts, specifically in Africa and Southern Africa, is not yet well established. In South Africa, it appears as if mindfulness is most often practised by independent psychologists and professionals within other health fields. There are, however, signs of increasing standardization: a 60-credit certificate training programme is for example being offered by the Faculty of Medicine and Health Sciences at Stellenbosch University in collaboration with the Institute for Mindfulness SA (IMSA) (Whitesman & Mash, 2015). IMSA is a non-profit organization that focuses on research and application of mindfulness approaches and on training people in this regard. The course offers participants experiential and theoretical exposure to mindfulness and mindfulness-based approaches with a view to professional application within their fields of expertise.

Regarding research data, only a few studies have been done in South Africa. Examples include Steyn, Steyn, Maree, and Panebianco-Warrens (2016) on the efficacy of a mindfulness training intervention on the psychological wellbeing of undergraduate music students, and Whitesman and Mash (2015) on the effect of a mindfulness programme on the perception of stress in a group of healthcare professionals. There is a general lack of data on mindfulness interventions specifically aimed at addressing stress due to transitional life events in young adult females. More specifically, there is a need to develop and evaluate mindfulness approaches directed at those challenges young adult females typically face. The need for more research in this regard is emphasized by the increasing importance of the role young adult female's play in South Africa.

The aim of this study was therefore to determine the impact of a MBSR programme on the stress and mindfulness of a group of young adult South African females. This was achieved by reaching the following objectives: (i) Developing a MBSR programme according to core MBSR characteristics and the challenges young adult South African females face; (ii) Exploring the subjective impact of the programme on participants' mindfulness, and finally, (iii) Determining if there is a statistically significant difference between pre- and post-test scores on participants' mindfulness and levels of stress.

Methodology

Research design

A multi-method intervention design (Morse, 2003) with two main phases was followed: First, an intervention was developed, followed by a pre-test post-test intervention with no control or comparison group. Both qualitative and quantitative methodologies were used, relatively complete on their own, and then used together, as suggested by Morse, to form a comprehensive whole.

Phase 1 – Programme development

Two sets of guidelines were followed to develop the intervention. The basic characteristics of an MBSR programme was used to create a framework, and key issues that emerged from two previous studies was integrated with the basic framework.

Guidelines based on the MBSR framework

From the outset it was decided that the programme, based on suggestions by Shapiro, Carlson, Astin, and Freedman, (2006) should (i) emphasize the cultivation of a different relationship with the stressors in one's life; and (ii) should invite participants to integrate the practice into their daily lives rather than perceiving it as just another item on their to-do lists. Further, while MBSR is offered in a group set-up, it is neither group therapy nor a support group, but rather a programme intended to draw upon the group's shared experiences to

facilitate the development of mindfulness in participants. Finally, MBSR is delivered in a structured yet flexible manner so that the instructor can respond to what is occurring in the class. Therefore, while there is leeway in how an MBSR programme is offered, at least three key elements are required, according to the MBSR Professional Training Curriculum Guide (Blacker et al. 2009) for it to be called MBSR, namely teaching modules, core meditation practices, and training exercises.

Teaching modules refer to those aspects of the programme where the facilitator demonstrates authenticity, authority, friendship and spiritual maturity (McCown et al., 2010). The focus is on teaching participants how a relationship can be mindful in the moment-to-moment experience through regular practice – the facilitator, for example, exemplifies a mindful acceptance of whatever participants share about their own interpersonal encounters, reactions to their own thoughts and feelings, or statements about themselves. At the same time, the instructor listens for relevant information that spontaneously arises out of participants' formal practices and daily lives, and then guides them to see how perceptions and automatic reactions affects their experiences, and ultimately, their health and well-being.

Core meditation refers to those meditation techniques that increase awareness of present-moment experiences, including thoughts, emotions, and bodily sensations, with a gentle and accepting attitude towards oneself (Bishop et al., 2004). During meditation, cognitive behavioural aspects are taught to allow participants to make a more accurate appraisal of stressors, enabling them to focus on completing tasks and overcoming procrastination and unhealthy coping strategies that they may have adopted (Wupperman, Neurman & Axelrod, 2008). In this study, meditation was primarily used as a tool for relaxation and was done by breathing, counting, focusing of awareness and a body scan by contracting and releasing different body muscles.

Training exercises helped participants to acquire mindful abilities, for example the ability to sustain attention to mental content that may provide a richer and more vital sense of life, and non-evaluative observation of mental content may gradually give rise to greater veridicality of perceptions and a greater sense of control (Chambers et al., 2008). Training exercises are often accompanied by Hatha yoga (a type of yoga applying breathing exercises to focus on different body postures), stretching exercises and listening to relaxation music.

Guidelines based on young adult females' perceived challenges

The literature reveals that young adult South African females are often challenged by stressors related to gender, work context, work-life balance, motherhood and gender-specific physical health concerns. These challenges were implemented in the programme, specifically to focus the facilitation of mindfulness on these specific contexts. The literature furthermore indicated three specific mechanisms of change, namely meta-awareness, decoupling and emotion differentiation. These mechanisms could promote the ability of young adult females to address daily stressors, to create a proactive coping mind set for long-term benefits like the prevention of distress and to instil a general sense of psychological well-being. Therefore, these mechanisms were integrated into the programme as well. Finally, based on the recommendations of Chapter 3, the programme was designed by keeping in mind that distress, in relation to low mindfulness, unfolds over time. Mindfulness facilitates healthy emotional engagement (ability to observe and describe emotions), which should act as first line defence against developing distress in challenging contexts. The final programme can be summarized as follows (see Table 1):

Table 1 Outline of the MBSR programme for young adult females

Date / time	Intervention / activity
Pre-intervention	Recruitment Consent Introduction: informal discussion on mindfulness and stress Pre-tests: FFMQ; PSS & Qualitative open-ended question
Week 1 (2 hrs) CONTACT	Icebreaker: Doreen Virtue oracle cards Teaching: How the stress mechanism works; work demands; coping strategies; new ways of thinking Training: Instead of fight, flight or freeze, use flow and let go. Proactive thoughts & planning Core meditation: 1 min breathing space; apply breath and say STOP S-Stop and take stock, T Take a breath, O-Open chest, P-Proceed. Apply Flow and Let go
Week 1 to 2 (2 hrs*) HOME	Complete: Informal practice log at home when in a stressful situation. Practice: 5 min meditation every day; Flow and Go in response to stress
Week 2 (2 hrs) CONTACT	Teaching: Discussing informal practice log in the group. Discuss what meditation is and what it is not. Training: Using pro-active ways to regulate emotions (observe, describe). Stop overreaction in stressful situations. Core meditation: Listening to compact disk Mark Williams and Danny Penman. App on cell Headspace. Coping mechanisms listening to music and guided meditation. Practising meditation in session. Training your mind.
Week 2 to 3 (2 hrs*) HOME	Complete: Informal practice log at home when in a stressful situation. Practice: 5 min meditation every day; focusing of awareness while meditating. Counting can also be used to focus the YAF while meditating. Stop: emotional regulation; What are the facts?
Week 4 (2 hrs) CONTACT	Teaching: Non-judgement. We discussed meditation and how they felt it was working for them. Time was a problem and only 5 min a day was suggested. Overwhelmed by their lists. Training: Motivational cards; Mind Lights for self-empowerment to focus on new thoughts. Changing mind-set practised with role-play. Core meditation: Letting go of negative thoughts; listening relaxation
Week 4 to 7	Complete: Informal practice log at home when in a stressful situation.

Date / time	Intervention / activity
(2 hrs*)	Practice: 5 min meditation every day; non-judgement with elastic band;
HOME	awareness, in the moment; mindful talking; listening relaxation
Post-intervention	Post-tests: (FFMQ; PSS & Qualitative open-ended question)

Excluding the pre- and post-intervention sessions, the programme consisted of 12 hours of mindfulness training and activities. Of these, six hours consisted of formal contact sessions, while six hours consisted of completing a logbook and practising mindfulness at home during the week between contact sessions.

Phase 2 – Evaluation of the programme

Participants and context

Participants were a non-probability sample of 20 young adult females between 20 and 30 years old. Twelve participants were full-time students (9 at NWU and 4 at Stellenbosch), while seven were employed full-time, four of whom are teachers at a secondary school in Johannesburg and three who work within a corporate environment in Johannesburg. Ten were English and ten were Afrikaans-speaking, and both language groups included participants from at least two ethnic groups. Only three of the participants were married, while the rest were equally divided between being single and in cohabitation. The reason for using a relatively small sample was threefold: (i) Existing literature (Chiesa & Seretti, 2009, Klatt, Buckworth & Malarkey, 2009; Mackenzie, Poulin, & Seidman-Carlson, 2006; Tang, Ma, & Wing et al., 2007, Zeiden, Johnson, Gordon, & Coolkasa, 2010) indicate that relatively small numbers of treatment participants per group allows for better integration of mindfulness skills into their daily lives due to more time for personal interaction during sessions. (ii) A smaller group allowed for more in-depth qualitative analysis of participants' experiences of stress before and after the intervention. (iii) The small group was statistically compensated for (see section on data analysis) while the in-depth qualitative data contributed to a better

understanding of participants' experiences. The small group was therefore a trade-off between having a larger group with less in-depth qualitative information, and having a smaller group with statistical limitations, but with more personalized attention during the intervention and more in-depth qualitative info.

Recruitment, process and ethical issues

Permission for the study was obtained from the Health Research Ethics Committee (HREC) of the NWU (approved, approval number NWU 00103-11-S1), the principal of the school, and the HR departments of the two companies. The researcher recruited participants by approaching young adult females via their lecturers or through contacts in the different contexts. Participants who indicated their interest completed a consent form that clearly stipulated confidentiality and privacy issues and their right to withdraw from the study at any stage without providing any reason for doing so.

After consent had been provided, participants were invited to a pre-intervention session during which theoretical information about mindfulness and stress was provided, the measuring instruments completed and a time was arranged for the first MBSR session. Sessions were two hours long and were conducted in a lecture room for three consecutive weeks on a Thursday from 14h00-16h00. The same information and time frame was given to the different groups. Contact sessions with participants took place in small, private lecture halls or boardrooms where access was restricted to ensure privacy. The same venue was used for the same group of participants each time. The programme was presented by the main researcher, a registered educational psychologist with the HPCSA. She also completed a mindfulness course ('silent retreat') at a Buddhist temple and reflected on her experience during frequent consultations with her promoter.

Data collection

The Five Facet Mindfulness Questionnaire (FFMQ)

The FFMQ (Baer, Smith, Hopkins, Krietemeyer & Toney, 2006) is the most comprehensive and most frequently used measure of mindfulness (Baer et al., 2006; Van Dam, Earlywine, & Danoff-Burg, 2009). A particular strength of the FFMQ is that it is based on a factor analysis of items from the five most widely used mindfulness questionnaires, namely the Freiburg Mindfulness Inventory (Buchheld, Grossman, & Walach, 2001), the Mindful Attention Awareness Scale (Brown & Ryan, 2003), the Mindfulness Questionnaire (Chadwick, Hember, Mead, Lilley, & Dagnan, 2005), the Kentucky Inventory of Mindfulness Skills (Baer et al., 2004), and the Cognitive and Affective Mindfulness Scale (Feldman, Hayes, Kumar, & Greeson, 2004). Accordingly, the FFMQ measures five component skills: observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience. It consists of 39 items using a 5-point Likert scale ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*). The five facets can be combined to yield a total score, which reflects a global measure of mindfulness. Accumulating data suggest that the five-factor structure of the FFMQ is robust for various types of samples and consistent evidence has underscored its construct validity (see Baer et al., 2006; Baer et al., 2008).

Perceived Stress Scale (PSS)

Perceived stress was measured using the Perceived Stress Scale (PSS-10) (Cohen & Williamson, 1988). The PSS-10 measures the extent to which life situations are regarded as stressful, in other words unpredictable, uncontrollable and overwhelming. It is a 10-item self-report instrument in which respondents have to indicate how often they have felt or thought a particular way over the past month using a Likert-type scale with scores ranging from 0 (lower perceived stress) to 40 (higher perceived stress). The scale is widely used (e.g. Dobkin

& Zhao, 2011; Nyklíček & Kuijpers, 2008; Pbert et al., 2012) including in South Africa (e.g. Hamad, Fernald, Karlan, & Zinman, 2008). The PSS-10 is reported to have good test-retest reliability ($r > .70$) (Lee, 2012) and internal consistency (Cronbach's $\alpha = .72$ to $.89$) (Cohen & Williamson, 1988; Hamad et al., 2008; Roberti, Harrington, & Storch, 2006).

Qualitative self-reflection

Directed content analysis (DCA) (Hsieh & Shannon, 2005) was used to analyse qualitative data. Therefore, a non-structured, open-ended one-page self-reflection was collected from participants. They were asked to answer the following question in writing: *How do you currently experience stress in your life? What are your thoughts and emotions related to your experience of stress, and what do you do about it?* The questions were structured in this way in the hope that participants would be able to provide rich data on their inner experiences regarding stress, and in doing so, would provide data that would reflect the five facets of mindfulness according to the FFMQ.

Data analysis

Quantitative data analysis

Data were captured and analysed by the North-West University's Statistical Consultation Services at the Potchefstroom Campus using SAS (SAS Institute Inc., 2005). Frequency tables were drawn to describe the socio-demographic variables of the study population. Cronbach alpha reliability coefficients were computed for each measuring instrument's subtest. Confirmatory factor analyses were done to confirm construct validity of subtests. To determine whether a factor analysis may be appropriate, Kaiser's measure of sample adequacy (MSA), which gives an indication of the inter-correlations among variables, were computed (Tabachnick & Fidell, 2001) for each confirmatory factor. The guidelines of Hair, Andersen, Tatham and Black (1998) were used to assure that the MSAs were appropriate. Since no random sampling was done, the interpretation of comparisons between

group means were done according to Cohen's effect sizes, d (Cohen, 1988). Effect sizes indicate practical significance, in other words the extent to which a difference is large enough to have an effect in practice (Steyn, 2009).

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 interpreting the phi-coefficient are as follows: $\Phi = |0.1|$ (small effect); $\Phi = |0.3|$ (medium effect, noticeable with the naked eye) and $\Phi \geq |0.5|$ (large effect or practically significant) (Cohen, 1988).

Qualitative data analysis

Qualitative data were analysed by using DCA, also known as deductive category application (Hsieh & Shannon, 2005). DCA is valuable when a researcher wants to validate or conceptually extend a current theory. In this case, the five mindfulness factors as measured by the FFMQ were identified as initial coding categories. Participants' written reflections on their experience of stress, their thoughts, emotions and what they do, were then coded according to the five mindfulness factors.

Results

Quantitative results

In this section, the reliability indices and the statistical differences between the participants' inner state before and after the programme are presented and discussed. Table 1 shows the Cronbach alpha reliability coefficients for each variable pre-intervention.

Table 2 Reliability indices (pre-intervention only)

Variable	N	Cronbach alpha
Pre-intervention		
Observe	20	0.79
Describe	20	0.92
Awareness	20	0.68
Non-judge	20	0.83
Non-react	20	0.68
Perceived Stress	20	0.83

According to Table 1, all the subscales of the FFMQ and the PSS were reliable with Cronbach alpha coefficients above 0.6 within this sample intervention (SAS Institute Inc., 2005).

Table 3 Differences between pre- and post-intervention

Variable	N	Difference in means pre- and post-test	Paired t-test p-value (when random sampling is assumed)	Wilcoxon p-value	Cohens' d-value
Observe	20	-2.35	0.04*	0.03*	0.40
Describe	20	0.3	0.4	0.48	0.05
Awareness	20	-2.50	0.02*	0.04*	0.60#
Non-judge	20	-3.97	0.0001**	0.0001**	0.70#
Non-react	20	-0.85	0.16	0.17	0.22
Perceived Stress	20	4.91	0.0002**	0.0003**	0.80##

* statistical significant at 0.05

** statistical significant at 0.01

medium effect in practice

large effect in practice

According to Table 2, participants' scores for awareness and non-judge improved with medium effect, while their scores on perceived stress lowered with large effect, which is practically significant. This implies that the MBSR programme had a visible positive effect on their mindfulness regarding awareness and non-judge, while it significantly lowered their perceived stress at a practical level. No other differences were noted.

Qualitative results

Themes and subthemes (presented in Table 1) are differentiated based on the pre- and post-intervention experiences of participants according to the five mindfulness factors.

Table 4 Mindfulness themes pre- and post-intervention

Mindfulness factors	Pre-intervention themes	Post-intervention themes
Observe	- observed self as being overwhelmed, hurried and even lost - observed self as feeling anxious	- observed self as being overwhelmed and hurried - observed efforts in trying to distance themselves from stressful situations
Describe	- described their emotions in terms of pressure to perform, expectations from others, feeling alone and helpless - described their emotions in terms of dependency feelings, the need for social support and the need to communicate with friends, family and God - described feelings of frustration and anxiety	- emotional reactions to stress often described in less condemning ways - described their inner worlds in more varied and flexible ways - described their emotions in terms of efforts to externalize their stress
Acting with awareness	- focused on a problem by being aware of how to solve it - focused attention on or getting engaged in something pleasurable, like a hobby - focused away from the	- awareness of addressing the stressor by using techniques they've learned during the intervention - more aware of possible benefits of negative affect

Mindfulness factors	Pre-intervention themes	Post-intervention themes
	problem or stressor, most often through avoidance or procrastination	• aware of aspects related to spirituality and meaning
Non-judge	• participants often judged problems or stressors as negative • judged themselves in a negative way	• judgement is still present, but appears to be less emphasized • less general and more specific • appear to start reflecting while making judgements
Non-reactivity	• to react to stress in a positive, motivating way • efforts in trying not to overreact • signs of overreaction on different levels	• to made use of different effortful strategies not to overreact • overreaction is still evident, yet less physical

Observe

According to Table 1, before the intervention, participants observed feelings of being overwhelmed, hurried and even lost. One participant, for example, said: “I feel overwhelmed and useless”, while another said: “my mind races”; and “...feel as if I’m always in a hurry”. There is also strong evidence of feeling anxious: “I can’t sit still with my feet”; to such an extent that medication is needed: “I take calming medication”.

It is interesting to note that participants also observed feelings of being overwhelmed and hurried after the intervention. One participant said she “feels rushed like there is not

enough time...” However, in contrast to pre-intervention, there is a clear tendency from participants to try to distance themselves from stressful situations. This they observe in different ways, firstly by doing less: “trying to do less work”; and secondly by isolating themselves from others: “*Ek isoleer myself en raak maklik geirriteerd*” [“I isolate myself and easily become irritated”]. It therefore seems as if they try to be more objective about stressful situations.

Describe

Before the intervention participants described their emotions in terms of pressure to perform, expectations from others, feeling alone and helpless. One participant said “I feel like I am never going to become anything in life.” Another participant said: “I feel inferior because of the time needed or what is expected of me”, while a third indicated that “I mostly feel helpless and hopeless”. It is interesting that participants also described their emotions in terms of dependency feelings, the need for social support and the need to communicate with friends, family and God. They were also able to strongly express their feelings of frustration and anxiety: “I feel like I am in a race, I showed up late at the starting line”; while others described this as “I feel irritated”, and “I feel like a failure”. There was almost a question of “Am I Ok?” Although it is clear that they were able to describe their emotions, the labels they used reflect negativity, frustration and failure.

After the intervention there were also emotional reactions to stress, but often described in less condemning ways, for example “I remind myself that it is temporary and not so bad”; and “I start to feel calm and continue with whatever has stressed me out”. Participants also appear to be describing their inner worlds in more varied and flexible ways, for example “I find some peace in a good way without overeating myself”; and “I have to think what is causing me to make irrational choices”. They also described their emotions in terms of efforts

to externalize their stress, for example, leaving it to God: “I pray about my situation to get relieve and believe that I will get help through it”.

Awareness

Awareness, or being in the moment, emerged in three ways during pre-intervention. Firstly, participants focused on a problem by being aware of how to solve it, for example “I think how I can overcome this”. A second way in which awareness emerged was by focusing attention on or getting engaged in something pleasurable, like a hobby, for example: “I love to DIY which is really stress-relieving”. The third way was by focusing away from the problem or stressor, most often through avoidance or procrastination, for example: “I postpone academic responsibilities due to anxiety”; and “I struggle to focus my attention”. On a more emotional level, their awareness was often self-focused in a negative way, for example, “I cry when I am alone”, “I get very quiet, I cry or sleep and nothing gets done”.

After the intervention there was, just like before the intervention, some effort of conscious awareness and a decision to do something about the stressor – however, in this case it was clear that the participants often tried to use the techniques they’ve learned during the intervention, for example “Using calming techniques to feel calm and rational again”; “I use breathing techniques when I stress”; and “I have learnt that music helps to embrace and cope with stress and dance and sing along”. Although participants were also more aware of negative emotions, a difference was noted in that there was a tendency to be more aware of possible benefits. One participant for example said: “I will cry to relieve my stress to feel better”. Interestingly, participants were more aware of aspects related to spirituality and meaning, for example “I start revising scriptures and pray and calm down by knowing God is with me”; and “I stress less because life is short and precious”.

Non-judgement

Before the intervention participants often judged problems or stressors as negative, for example “I cannot work through it”; “Think how difficult it is for me” and “Everything is going wrong”. They also tended to judge themselves in a negative way: “I would judge my feelings and interpret them”; “I feel disappointed in myself when I am unable to control situations” and “*Ek dink niks wat ek doen is goed genoeg om my probleem op te los nie*” [“I think that nothing is good enough to solve the problem”]. Another said, “I am an disappointment”.

After the intervention negative judgement is still present, but it appeared to be less emphasized, and perhaps more specific and less general, for example “*Ek beoordeel myself dat ek veronderstel was om daarmee klaar te wees*” [“I judge myself that I should have been finished with it”]. They also appear to start reflecting while making judgements: “how can I do this and I cannot cope...”; and “In the past I used to feel like a failure compared to my parents”.

Non-reactivity

Interestingly, there was a relatively strong tendency even before the programme to react to stress in a positive, motivating way. One participant said that “Stress is my motivator”, and “If I am not highly stressed I cannot motivate myself”, while another indicated that “I try to react in a way that I can let it all go and move on”. Furthermore, there were some efforts in trying not to overreact, for example “push my symptoms and emotions to the back of my mind”; “I try to let go, but it is difficult”; and “I try not to think about stress itself, but rather fixing the thing”. There were, however, signs of overreaction on different levels, for example: “I overreact”, “I cannot control myself around food”; “I over eat”; “*Ek rook*” [“I smoke”]; “*Ek baklei meestal met mense om my, veral die naaste aan my*” [“I mostly fight with people around me, especially those closest to me”], and “Usually just react emotionally”.

After the intervention participants seemed to make use of different effortful strategies not to overreact, for example “I put thoughts of overwhelming out at that moment”, “I think more before I react”; “I think I should stay calm and be rational” and “make coffee and stand back”. Despite this, overreaction was still evident: “Others frustrate me if they don’t understand”; “I tend to overthink and make things worse than they really are” and “I sometimes cry and that sends me over the edge”. It does appear, however, that there were fewer physical overreactions, as only one participant made reference to overeating.

Discussion

Results showed that the quantitative data were reliable and therefore useable. The MBSR programme had a visibly positive effect on two aspects of participants’ mindfulness, namely awareness and non-judgement, while it also significantly lowered their perceived stress on a practical level. The results are consistent with previous studies that have demonstrated the immediate benefits of MBSR in increasing mindfulness (Carmody, Baer, Lykins, & Olendzki, 2009; Dobkin & Zhao, 2011; Nyklíček & Kuijpers, 2008; Vøllestad et al., 2011) and decreasing perceived stress (Carmody et al., 2009; Carmody & Baer, 2008; Dobkin, 2008; Dobkin & Zhao, 2011; Khoury, et al., 2015; Nyklíček & Kuijpers, 2008; Pbert et al., 2012; Song & Lindquist, 2015).

Awareness, or more correctly, “acting with awareness” on the FFMQ, the ability to intentionally pay attention to present moment reality, is extremely important in enhancing acceptance, curiosity, and non-evaluative observation (Bishop et al., 2004; Germer, 2005; Hayes & Shenk, 2004). Looking at differences between participants’ subjective reflection on awareness before and after the programme, it is noticeable that although there were no clear differences regarding levels of awareness, it appears as if the content of awareness changed from being primarily aware of the negative aspects in difficult situations to being aware of negative aspects together with the ability to start noticing potential benefits and opportunities

in difficult situations. Participants became more aware of difficulties in relation to spirituality and meaning. These subjective reflections of awareness help us to understand better why and how awareness emerged as a key factor in this research. Awareness, and more specifically, meta-awareness is described by Vago (2013) as one of the key mechanisms of change in mindfulness. This may have been a key factor in the current MBSR programme as well, and if this change is by any means enduring, it could contribute to an improvement in people's ability to be in the present moment, specifically in young adult South African females. Subsequently, as suggested by Skinner and Beers (2016), they can be more 'choiceful' within challenging work-, gender-, or health-related situations.

Non-judging refers to, among other things, the ability to experience reality as it is rather than to react to it or habitually or automatically process it through discriminative or categorical filters (Brown, Ryan & Cresswell, 2007). Comparing the subjective reflections from the qualitative data, differences are not as pronounced. However, it does appear as if participants, even though negative judgements are still present, seem to be more focused on smaller more specific aspects, less generalized. These thoughts are also accompanied by more critical self-reflection. This may be an indication that a process of decoupling has been facilitated, and that disengagement from self-focused thinking is therefore easier to achieve as suggested by Vago (2013).

It is, however, important to be reminded that changes in both awareness and non-judgement were only significant with medium effect. Although these changes are noteworthy, they cannot be assumed to be indicative of an essential change in mindfulness. It is also important to note that although the qualitative data indicated important subjective differences in mindfulness related to emotional functioning (observe, describe and non-react), none of the differences in these variables were statistically significant on the FFMQ. The programme therefore did not bring about any noteworthy changes in emotional differentiation or

regulation. Reasons for this are not clear – perhaps these aspects were underrepresented in the programme and could be reconsidered when fine-tuning the programme.

The programme did, however, significantly lower participants' perceived stress at a practical level. Firstly, apart from supporting previous research on the effectiveness of MBSR on stress as indicated earlier, it may imply that even small to moderate changes in mindfulness may have a significant impact on perceived stress. It could also imply that only changes in awareness and judgement are essential influences on stress. However, this would be surprising, as the emotional aspects of mindfulness are perhaps perceived as more closely related to subjective stress experiences. One could speculate further that the programme, even if only through awareness and non-judgement, brought about in participants a new perspective on and understanding of their daily stressors, for example those related to quick-paced, difficult transitional life changes and work-life demands (Bobat et al., 2012; Kulik et al., 2016) and that this new perspective and understanding facilitated changes in at least the cognitive aspects of participants' stress experience. Whether this change is enduring, may, however, be dependent on a change in all mindfulness aspects, especially as the ability to mindfully manage one's emotions is perceived to be critical in long-term psychological well-being.

Conclusion, limitations and recommendations

The aim of this study was to develop and evaluate the impact of an MBSR programme on the stress and mindfulness levels of a group of young adult South African females. A multi-method intervention design was followed to develop a MBSR programme based on characteristics of an MBSR programme, guidelines from the literature and typical challenges faced by young adult South African females, and then to evaluate its impact on 20 participants. It was found that the programme had a visible positive effect on awareness and non-judgement, while it also significantly lowered participants' perceived stress at a practical

level. The results are consistent with previous studies that have demonstrated the immediate benefits of MBSR for both mindfulness and stress.

Although the results of this study are promising, especially regarding its significant impact on participants' stress level, interpretation should be done carefully for a number of reasons: First, changes in both awareness and non-judgement were only significant with medium effect, and although noteworthy, cannot be assumed indicative of an essential change in mindfulness. Second, the programme did not bring about any significant changes in emotional differentiation or regulation. Third, for practical reasons a small sample was used, and even though non-parametric statistical analyses and Cohen's d-value were used to contextualize the significance of the results, generalization to any population in this regard may be premature. Finally, as no control group was used, other factors not accounted for could also have contributed to observable changes in the data.

Therefore, the following recommendations are made: More research is needed to build upon ways to improve young adult females' mindfulness and stress management abilities. The MBSR programme developed for this study should furthermore be refined specifically to address emotional differentiation and regulation. Finally, more comparison studies, MBSR versus other stress management approaches, should be done before any clinical recommendations can be made.

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Chapter 5

Conclusions, implications and recommendations

Introduction

This chapter offers a conclusion on the extent to which the aims have been addressed and the appropriate way forward regarding research and clinical practice.

The aim of the study was to explore the nature of stress and mindfulness in young adult females, and to develop and evaluate an MBSR programme based on the perceptions, experiences and needs of young adult South African females. Based on this, the central theoretical argument was that

Young adult South African females face a number of challenges that may jeopardize their wellbeing if appropriate and pro-active steps are not taken to facilitate their psychological strengths. MBSR may provide mechanisms of change that facilitate strengths that other approaches are not able to provide. Developing an MBSR programme specifically for young adult South African females based on core MBSR principles and perceptions of stress and mindfulness in their daily lives, should therefore improve their mindfulness and decrease their perceived stress levels.

The findings and conclusion of each article are first interpreted in the larger context of the study. Limitations are then evaluated, where after the overall conclusion and recommendations follow.

Chapter 2 / Article 1

The aim of Article 1 was to explore national and international research on stress and mindfulness in young adult females, specifically to gain a better understanding of stress-related challenges that young adult females in general, and particularly in SA, face, and to

explain how mechanisms of change in mindfulness approaches could benefit young adult South African females regarding their daily stressors.

Challenges young adult South African females face

Article 1 worked towards a better understanding of the stress-related challenges that young adult South African females face, especially those in the growing middle and higher socio-economic groups. First, it seems as if their challenges reflect universal tendencies where young women increasingly enter the workforce (South African Department of Labour, 2013) and experience stress due to work–life balance and time management (Bobat, Mshololo, & Reuben, 2012; Kulik, Shilo-Levin, & Liberman, 2016), as well as having to adjust to biological challenges like pregnancy, body image issues and gender-specific health issues within the context of a demanding career or studies (Cohen et al., 2016; Kotze & Nel 2013; Peltzer, Shikwane, & Matseke, 2011). Second, as South Africa may be typified as a society in transition, it seems that although young adult females are accepted in previously male dominated sectors of society, they are sometimes still challenged by scepticism regarding their abilities in comparison to men (Bobbitt-Zeher, 2011; Cha, 2013; Faulkner, 2011).

MBSR change mechanisms

MBSR could benefit young adult South African females with respect to their daily stressors due to specific and unique mechanisms of change. This should be seen in the context of young adult females who often respond to challenges with distress (Fernandes et al., 2006; Lo Castro, & Schlebusch, 2006), and the fact that other stress management approaches often tend to be ameliorative, while preventive and promotive aspects are neglected (Hargrove, et al., 2011; Tetrick & Winslow, 2015). MBSR programmes are effective not only in decreasing stress, but also in facilitating resourceful and proactive coping abilities through three change mechanisms.

The first mechanism, *meta-awareness* (Vago, 2013), should benefit young adult females by (i) preventing distorted self-views based on gender discrimination and work-related gender challenges and ultimately promoting a more accurate self-view; (ii) facilitating the ability to better maintain a work-life balance through improvement of being in the present moment and being able to act more congruently regarding intentions and goals; and (iii) preventing unhealthy impulses and choices regarding their physical health, based on Skinner and Beers' (2016) assertion that mindfulness may allow people to be more 'choiceful'. It was further argued that the second mechanism, *decoupling* (Hayes et al., 2012; Vago, 2013) could benefit young adult females by (i) preventing engagement in unhealthy behaviours like overeating, smoking or problematic alcohol use when experiencing stress, frustration or sadness; (ii) improving their ability to respond in emotionally congruent ways to gender and relationship-related conflict by detaching themselves from their thoughts and emotions, without filtering it through memory or cognitive filters (Levin et al., 2015). Finally, it was argued that a third mechanism, *emotion differentiation* (Levin et al., 2015) could benefit young adult females by (i) facilitating the ability to interpret the available information from inner emotional experience more accurately; and (ii) reducing emotional reactivity and avoidance behaviours related to social support, health, decision making, motherhood and work (Baer et al., 2006; Forgas, 2013).

These mechanisms should in the long run provide a secure basis for the development of proactive coping and psychological well-being. The article provides a strong theoretical motivation for why MBSR should be considered as a way of improving mindfulness and stress management in young adult females. The article recommended that researchers empirically explore the subjective challenges and needs that young adult females experience from their own viewpoint, with the long-term goal of developing and evaluating the impact of such a programme.

Chapter 3 / Article 2

This article built on Article 1 by introducing empirical data on young adult females' perception of stress, mindfulness and wellbeing in their daily lives. The aims were to (i) determine the perceived cause-effect relationship between stress, mindfulness and wellbeing in a sample of young adult South African females; and (ii) to develop a hypothetical model based on this perceived relationship.

The perceived cause-effect relationship between stress, mindfulness and wellbeing

Themes were identified by integrating concepts identified from the literature as salient with participants' subjective experience related to stress, mindfulness and wellbeing in their daily lives. Based on this, nine themes (1 stress theme, 5 mindfulness themes, and 3 wellbeing themes) were identified for inclusion in the IQA questionnaire used for developing the hypothetical model. Participants typified their daily stress experiences primarily in a negative way by using terms like *stress*, *anxiety*, *tension*, *worry* and *nervousness*. Since participants perceived the meaning of these concepts as similar, only *Stress* was included as a theme. Mindfulness themes were strongly related to the five mindfulness factors of the FFMQ, but expressed in a negative and more personal way. It was therefore decided to include *Overreact to situations*, *Struggle to focus*, *Judge myself in a negative way*, *Avoid my emotions and experience*, and *Struggle to describe my emotions and experiences* as themes. Participants' reference to wellbeing in relation to stress was also expressed in negative terms, as the final themes clearly illustrate: *Loss of health and energy*, *Relational conflict* and *Work-related problems*. The article argued that participants' negative emphasis on stress, mindfulness and wellbeing should not necessarily be seen as an accurate indication of their current status, but rather as a reflection of their frustration with those challenges they find difficult to face, specifically when lower mindfulness prevents them from continuously experiencing or achieving acceptable levels of subjective well-being.

A frequency analysis of participants' perceived relationship between themes found that power reached a maximum value at the 28th of 72 possible relationship pairs, explaining 62.39% of variance in the data. The two highest frequencies were found for relationship pair 1→7, indicating that stress causes loss of health and energy, and relationship pair 9→1, indicating that work-related problems cause stress.

A hypothetical model of the perceived relationship between stress, mindfulness and wellbeing

A hypothetical model was developed from the frequency analysis, based on the guidelines of Northcutt and McCoy (2004). Experiencing stress due to work-related challenges confirms previous research, both in terms of general job demands (Bobat, Mshololo, & Reuben, 2012; Kulik, Shilo-Levin, & Liberman, 2016) and in terms of gender issues in the South African workplace (Du Plessis & Barkhuizen, 2012; Hicks, 2012; Lewis-Enright, Crafford & Crous, 2009). The fact that participants also perceived their stress as the result of avoidance of emotions was explained by referring to research by Forgas (2013), Teper, Siegel and Inzlicht (2013), showing the importance and function of emotion. Participants' avoidance of emotions most likely prevents access to their inner experiences of sense-making. They would subsequently find it difficult to adapt or change their own behaviour within challenging contexts and are therefore more prone to stress. Overreacting to stress may be a way of dealing with the frustration caused by stress, but at the same time it prevents them from accurately describing and understanding their own emotions. Overreaction is then perceived by participants to cause interpersonal conflict, most likely because it prevents relational partners from easily accessing one another on an emotional level and prevents romantic closeness and well-being (Dillow, Dunleavy, & Weber, 2009; Finkenauer, Kerkhof, Righetti, & Branje, 2009). It is not surprising that relational conflict is perceived to be followed by difficulty to focus attention. Just like someone cannot focus on

what they're doing when experiencing stress, participants possibly find it difficult to decouple their emotions (frustration, stress, relational conflict) from their awareness (Vago, 2013; Levin, et al., 2015) As a result, participants tend to judge themselves in a negative way. Negative self-judgement appears to be a pivotal/critical point in the process as it causes either further conflict in relationships or deterioration in health and energy. Negative self-judgement contributes to more relational conflict, perhaps because the frustration and anger of having unresolved emotional issues are directed to others (Cash & Whittingham, 2010). It also leads to loss of health and energy because too much stress adversely affects physical and mental health (Essays 2009, Schneiderman, Ironson, & Siegel, 2005).

In summary, the model implies that participants in this study experience their work as challenging, but by avoiding their emotions in expressing their work-related frustrations, they are not able to benefit from the sense-making aspects of emotion, therefore contributing to (negative) stress. They then tend to overreact to stress, which prevents them from accurately describing and understanding their own emotions. This makes emotional access and closeness difficult, causing conflict in their relationships, and causing them to struggle to focus on what they are doing. In reaction to this, they tend to judge themselves negatively, feeding back into the process (system) of stress by either contributing to more relational conflict or loss of health and energy and further enhancing difficulty to focus.

Chapter 4 / Article 3

The aim of this article was to determine the impact of an MBSR programme on the stress and mindfulness of a group of young adult South African females. This was achieved by developing an MBSR programme based on the outcomes of Articles 1 and 2 to explore the subjective impact of the programme and to determine the impact of the programme on participants' post-test scores on mindfulness and stress.

Developing a, MBSR programme for young adult South African females

The core principles of an MBSR programme was used as a framework to develop the programme and to integrate key issues that emerged from Articles 1 and 2. Based on suggestions by Shapiro, Carlson, Astin, and Freedman, (2006) the point of departure was that the programme should (i) emphasize the cultivation of a different relationship with the stressors in one's life; and (ii) should invite participants to integrate the practice into their daily lives. In addition, the three key elements of MBSR, namely teaching modules, core meditation practices, and training exercises (Blacker et al., 2009) were included as core activities.

Challenges faced by young adult South African females as indicated in Article 1 and Article 2 were then integrated with the core activities, specifically by focusing on the facilitation of mindfulness in relation to participants' perceived challenges regarding work, gender and health. The three mechanisms of change, namely meta-awareness, decoupling and emotion differentiation were also included in the programme. Finally, based on Article 3, the programme was designed by keeping in mind that distress unfolds over time, and to facilitate healthy emotional engagement (ability to observe and describe emotions) to act as a first line of defence against developing distress in challenging contexts. The final programme consisted of 12 hours of mindfulness training and activities, including six hours of formal contact sessions and six hours of mindfulness exercises at home between contact sessions.

Determining the impact of the programme

All FFMQ and PSS subscales were reliable with acceptable Cronbach alpha coefficients. the MBSR programme had a visible positive effect on participants' *awareness* and *non-judgement*, while it significantly lowered their *perceived stress* at a practical level. Results confirmed previous studies regarding benefits of MBSR in increasing mindfulness (Carmody, Baer, Lykins, & Olendzki, 2009; Dobkin & Zhao, 2011; Nyklíček & Kuijpers,

2008; Vøllestad et al., 2011) and decreasing perceived stress (Carmody et al., 2009; Carmody & Baer, 2008; Dobkin, 2008; Dobkin & Zhao, 2011; Khoury, et al., 2015; Nyklíček & Kuijpers, 2008; Pbert et al., 2012; Song & Lindquist, 2015). Participants' subjective experience of awareness showed that although there were no clear differences regarding levels of awareness, changes were noted in *what* they were aware of, that is, from being primarily aware of negative aspects in difficult situations to also being aware of potential benefits, opportunities, spirituality and meaning in difficult situations. This result was explained from the viewpoint that the programme was perhaps effective in specifically facilitating meta-awareness, one of the key change mechanisms in MBSR (Vago, 2013). Furthermore, changes in participants' subjective experience of judgement showed that although negative judgements were still present after the programme, they seem to be more focused on smaller, specific aspects of their lives, accompanied by more critical self-reflection, as opposed to the tendency before the programme to have more generalized, non-critical judgements regarding life. The programme was therefore specifically effective in facilitating a process of decoupling and the ability to disengage from their self-focused, negative judgements (Vago, 2013).

As expected, and in support of previous research, the programme significantly lowered participants' perceived stress at a practical level. When the position is taken that this change is brought about by improved mindfulness, some implications should be considered. First, it may imply that moderate changes in mindfulness as reflected by changes in awareness and judgement in this study may be enough to have a significant impact on perceived stress. Second, although this could imply that changes specifically in awareness and judgement are essential to improve stress, this is probably not the case as those components of mindfulness related to emotion (observe, describe and non-react) are more often directly associated with subjective stress experiences. Therefore, if the programme did not specifically facilitate

emotional mindfulness in participants, it did at least facilitate a new cognitive perspective on and understanding of their daily stressors through awareness and non-judgement. The longevity of these changes may, however, be dependent on a change in all mindfulness aspects, especially as the ability to mindfully manage one's emotions is perceived to be critical in long-term psychological well-being.

Limitations

Before offering a conclusion, it is important to reflect on potential limitations of the study. Article 1 was important in that it provided a point of departure for the current researchers, but also future researchers, to develop an MBSR programme specifically with young adult South African females in mind. However, it should be taken into account that this article did not generate empirical data, nor did it follow a systematic review of the literature. As such, the article should not be read as a scientific deduction about mindfulness or stress. The article is, however, important and valuable if read from the understanding that the aim was not to present scientific evidence, but rather to provide a theoretical point of departure for future research. In that sense, it succeeded in exploring and explaining how change mechanisms could hypothetically contribute to facilitating resources in young adult females to specifically approach and address daily challenges in their lives.

Potential limitations of Article 2 include the fact that it did not probe participants' strengths, perhaps due to the way in which the IQA process/questioning was facilitated. A skewed perspective of their actual stress experiences may therefore have been created, showing their weaknesses only. Second, it should be remembered that although a rigorous IQA process was followed as stipulated by Northcutt and McCoy (2004), the model should still be seen as hypothetical. The possible limitation here is not the model itself, but interpreting the model as scientific evidence. The value of this model lies in providing us with a unique explanation of how participants subjectively perceive their experience of stress,

mindfulness and wellbeing as it unfolds over time. It also provides new questions for future research. Although the results of Article 3 are promising, it was not possible to use a larger sample or a control group in this phase of the study due to practical constraints. Even though non-parametric statistics and Cohen's d-value were used to contextualize the significance of findings, generalizations should be carefully considered. There is also a theoretical possibility that other factors not accounted for could also have contributed to some of the observable changes in the data. Finally, the impact of the intervention was only evaluated one month after completion of the programme. It is therefore not clear to what extent changes would endure.

Contribution of the study

Despite the possible limitations, the study makes some important and unique contributions. It provides a theoretical point of departure for positively reconsidering the value of MBRS approaches to effectively prevent distress and facilitate stress resources in young adult females. More specifically, it provides a framework for understanding *how* and *why* MBSR change mechanisms could facilitate resources that young adult females would benefit from in managing daily challenges and stressors. The hypothetical IQA model further provides us with a unique explanation of how participants subjectively perceive the unfolding of stress in their lives as a dynamic interaction between stressors, the stress response, lack of mindfulness and poor wellbeing outcomes. This model clearly shows the important role mindfulness plays in the process and what effect low mindfulness may have on relationships and health. It helped the researchers in developing and fine-tuning the MBSR programme, in which they emphasized, for example, those aspects of mindfulness that would prevent avoidance of emotions during early stages of stress. The programme was effective for stress, and two components of mindfulness, namely awareness and non-judgement. Even though a

small sample was used during the intervention phase, the study contributes in confirming previous research on the effectiveness of MBSR and its value in a South African context.

Overall conclusion

Stress is a complex and dynamic human response to challenges perceived to exceed personal resources. This study has shown that young adult South African females in the middle and higher socio-economic groups face challenges that reflect universal tendencies of women in a transitional phase of their lives. Previous research has shown that they often find it difficult to cope with these challenges and as a result experience distress that may impact negatively on their wellbeing. As typical stress management approaches are often perceived to be ameliorative, while neglecting preventive and promotive aspects, this study provided a strong argument for using an MBSR approach as it has been shown to be effective not only in decreasing stress, but also in facilitating resourceful and proactive coping abilities through three change mechanisms.

A model was then developed as a first step in developing an MBSR programme appropriate for the target group by gauging a small group of young adult females' perception of stress, mindfulness and wellbeing in their daily lives. The model clearly shows how mindfulness influences stress, relationships and health in a dynamic, unfolding process. The themes and processes that emerged from the model were integrated with some core principles of MBSR to develop a programme appropriate for young adult South African females. The impact of the programme was then evaluated with a multi-method pre-test–post-test design. Findings show that the programme was effective for stress and two components of mindfulness, namely awareness and non-judgement, confirming previous research on the effectiveness of MBSR. Participants subjectively experienced a change in *what* they are aware of. After the intervention, they were better able to be aware of potential benefits, opportunities, spirituality and meaning in difficult situations. They also subjectively

experienced change in their ability to be more self-reflective regarding self-judgement. Some limitations should be kept in mind, most notably the fact that the IQA model did not elicit participants' strengths, and furthermore, the fact that a relatively small sample with no control group and no longitudinal testing was used to evaluate the programme.

It can therefore be concluded that (i) an MBSR programme for young adult South African females was successfully developed and motivated from the literature and based on core MBSR principles and subjective experiences of stress, mindfulness and wellbeing; (ii) stress unfolds over time and is influenced by perceived mindfulness; (iii) the programme proved to be effective in the short term regarding this group of participants' stress, awareness and judgement; and (iii) even though there are some limitations, the study made a valuable contribution to the available knowledge about young adult females' experience of stress, mindfulness and wellbeing.

Recommendations

The study explored a number of new avenues for further research. Based on the findings, but also taking into account the possible limitations of the study, the following recommendations are made:

Firstly, it is strongly recommended that researchers confirm and validate the hypothetical IQA model in this study. More specifically, the model could be tested for its robustness within different contexts, for instance with young adult females in other contexts, or even with other gender, age or socio-economic groups. It may further be critically important to investigate if and how a focus on facilitating healthy observation and engagement with emotions, as opposed to avoidance thereof, could act as first line defence against developing distress in work-related contexts. In addition, the MBSR programme developed for this study should be refined to enhance its effect on the other aspects of mindfulness besides awareness and non-judgement. In addition, more comparative studies

should be done, specifically comparing MBSR with other stress management approaches, before any clinical recommendations can be made. Future research should also determine the role more specific stressors play within each of the broader domains like workplace, gender and health issues identified in this study. This could promote the development of MBSR approaches aimed at facilitating specific micro-abilities related to specific challenges. A final research recommendation is to allow for random sampling, control group(s) and longitudinal evaluation. Although full experimental designs are often difficult to execute, it is regarded as the real test for evaluating the effectiveness of an intervention.

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Annexures

Appendix A: Biographical Questionnaire

It would be much appreciated if you could take some time to complete this questionnaire. All information given will be treated as strictly confidential.

Please answer the questions below by placing an X in the appropriate box.

1. Gender: M ☐ F ☐
2. Age
3. Home Language
 - a. English ☐
 - b. Afrikaans ☐
 - c. IsiZulu ☐
 - d. Sesotho ☐
 - e. Other ☐ Please Specify _____
4. Academic Qualifications:
 - a. Grade 10 ☐
 - b. Grade 11 ☐
 - c. Matric ☐
 - d. Diploma ☐
 - e. Degree ☐
 - f. Post Grad ☐
 - g. Other ☐ Please Specify _____
5. Marital Status:
 - a. Married ☐
 - b. Single ☐
 - c. Divorced ☐
 - d. Cohabitable ☐
6. Culture/Race
 - a. White ☐
 - b. Black ☐
 - c. Other ☐ Please Specify _____

7. Current work position

- a. Studying ☐
- b. Temp Employee ☐
- c. Permanent Employee ☐

8. Sector

- a. Professional ☐
- b. Student ☐
- c. Educational ☐

Appendix B: IQA Questionnaire

Choose the one statement in each of the following that best reflects your everyday experience

The themes:

1 – Stress

2 – I overreact to situations

3 – I struggle to focus on what I do

4 – I judge myself in a negative way

5 – Avoidance of my emotions and experiences

6 – I struggle to describe my emotions and experiences

7 – Loss of health and energy

8 – Conflict in my relationships

9 – Work-related problems

1. According to my experience:

Stress causes that I overreact to situations	
When I overreact to situations it causes Stress	
Stress and overreaction to situations have no influence on each other	



Choose one
only in each
case!!!

2. According to my experience:

Stress causes me to struggle to focus on what I do	
When I struggle to focus on what I do it causes Stress	
Stress and struggle to focus on what I do have no influence on each other	

3. According to my experience:

Stress causes that I judge myself in a negative way	
When I judge myself in a negative way it causes Stress	
Stress and judging myself in a negative way have no influence on each other	

4. According to my experience:

Stress causes avoidance of my emotions and experiences	
Avoidance of my emotions and experiences causes Stress	
Stress and avoidance of my emotions and experiences have no influence on each other	

5. According to my experience:

Stress causes that I struggle to describe my emotions and experiences	
When I struggle to describe my emotions and experiences it causes Stress	

Stress and struggle to describe my emotions and experiences have no influence on each other	
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6. According to my experience:

Stress causes loss of health and energy	
Loss of health and energy causes Stress	
Stress and loss of health and energy have no influence on each other	

7. According to my experience:

Stress causes conflict in my relationships	
Conflict in my relationships causes Stress	
Stress and conflict in my relationships have no influence on each other	

8. According to my experience:

Stress causes work-related problems	
Work-related problems causes Stress	
Stress and work-related problems have no influence on each other	

9. According to my experience:

When I overreact to situations it causes me to struggle to focus on what I do	
When I struggle to focus on what I do it causes me to overreact to situations	
Overreaction to situations and struggle to focus on what I do have no influence on each other	

10. According to my experience:

When I overreact to situations it causes me to judge myself in a negative way	
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When I judge myself in a negative way it causes me to overreact to situations	
Overreacting to situations and judging myself in a negative way have no influence on each other	

11. According to my experience:

When I overreact to situations it causes avoidance of my emotions and experiences	
Avoidance of my emotions and experiences causes me to overreact to situations	
Overreacting to situations and avoidance of my emotions and experiences have no influence on each other	

12. According to my experience:

When I overreact to situations it causes me to struggle to describe my emotions and experiences	
When I struggle to describe my emotions and experiences it causes me to overreact to situations	
Overreacting to situations and struggle to describe my emotions and experiences have no influence on each other	

13. According to my experience:

When I overreact to situations it causes loss of health and energy	
Loss of health and energy causes me to overreact to situations	
Overreacting to situations and loss of health and energy have no influence on each other	

14. According to my experience:

When I overreact to situations it causes conflict in my relationships	
Conflict in my relationships causes me to overreact to situations	
Overreacting to situations and conflict in my relationships	

have no influence on each other	
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15. According to my experience:

When I overreact to situations it causes work-related problems	
Work-related problems causes me to overreact to situations	
Overreacting to situations and work-related problems have no influence on each other	

16. According to my experience:

When I struggle to focus on what I do it causes me to judge myself in a negative way	
When I judge myself in a negative way it causes me to struggle to focus on what I do	
Struggling to focus on what I do and judging myself in a negative way have no influence on each other	

17. According to my experience:

When I struggle to focus on what I do it causes avoidance of my emotions and experiences	
Avoidance of my emotions and experiences causes me to struggle to focus on what I do	
Struggling to focus on what I do and avoidance of my emotions and experiences have no influence on each other	

18. According to my experience:

When I struggle to focus on what I do it causes me to struggle to describe my emotions and experiences	
When I struggle to describe my emotions and experiences it causes me to struggle to focus on what I do	
Struggling to focus on what I do and struggling to describe my emotions and experiences have no influence on each other	

19. According to my experience:

When I struggle to focus on what I do it causes loss of health and energy	
Loss of health and energy causes me to struggle to focus on what I do	
Struggling to focus on what I do and loss of health and energy have no influence on each other	

20. According to my experience:

When I struggle to focus on what I do it causes conflict in my relationships	
Conflict in my relationships causes me to struggle to focus on what I do	
Struggling to focus on what I do and conflict in my relationships have no influence on each other	

21. According to my experience:

When I struggle to focus on what I do it causes work-related problems	
Work-related problems causes me to struggle to focus on what I do	
Struggling to focus on what I do and work-related problems have no influence on each other	

22. According to my experience:

When I judge myself in a negative way it causes avoidance of my emotions and experiences	
Avoidance of my emotions and experiences causes me to judge myself in a negative way	
Judging myself in a negative way and avoidance of my emotions and experiences have no influence on each other	

23. According to my experience:

When I judge myself in a negative way it causes me to	
---	--

struggle to describe my emotions and experiences	
When I struggle to describe my emotions and experiences it causes me to judge myself in a negative way	
Judging myself in a negative way and struggling to describe my emotions and experiences have no influence on each other	

24. According to my experience:

When I judge myself in a negative way it causes loss of health and energy	
Loss of health and energy causes me to judge myself in a negative way	
Judging myself in a negative way and loss of health and energy have no influence on each other	

25. According to my experience:

When I judge myself in a negative way it causes conflict in my relationships	
Conflict in my relationships causes me to judge myself in a negative way	
Judging myself in a negative way and conflict in my relationships have no influence on each other	

26. According to my experience:

When I judge myself in a negative way it causes work-related problems	
Work-related problems causes me to judge myself in a negative way	
Judging myself in a negative way and work-related problems have no influence on each other	

27. According to my experience:

Avoidance of my emotions and experiences causes me to struggle to describe my emotions and experiences	
When I struggle to describe my emotions and experiences it	

causes avoidance of my emotions and experiences	
Avoidance of my emotions and experiences and struggling to describe my emotions and experiences have no influence on each other	

28. According to my experience:

Avoidance of my emotions and experiences causes loss of health and energy	
Loss of health and energy causes avoidance of my emotions and experiences	
Avoidance of my emotions and experiences and loss of health and energy have no influence on each other	

29. According to my experience:

Avoidance of my emotions and experiences causes conflict in my relationships	
Conflict in my relationships causes avoidance of my emotions and experiences	
Avoidance of my emotions and experiences and conflict in my relationships have no influence on each other	

30. According to my experience:

Avoidance of my emotions and experiences causes work-related problems	
Work-related problems causes avoidance of my emotions and experiences	
Avoidance of my emotions and experiences and work-related problems have no influence on each other	

31. According to my experience:

When I struggle to describe my emotions and experiences it causes loss of health and energy	
Loss of health and energy causes me to struggle to describe my emotions and experiences	

Struggling to describe my emotions and experiences and loss of health and energy have no influence on each other	
--	--

32. According to my experience:

When I struggle to describe my emotions and experiences it causes conflict in my relationships	
Conflict in my relationships causes me to struggle to describe my emotions and experiences	
Struggling to describe my emotions and experiences and conflict in my relationships have no influence on each other	

33. According to my experience:

When I struggle to describe my emotions and experiences it causes work-related problems	
Work-related problems causes me to struggle to describe my emotions and experiences	
Struggling to describe my emotions and experiences and work-related problems have no influence on each other	

34. According to my experience:

Loss of health and energy causes conflict in my relationships	
Conflict in my relationships causes loss of health and energy	
Loss of health and energy and conflict in my relationships have no influence on each other	

35. According to my experience:

Loss of health and energy causes work-related problems	
Work-related problems causes loss of health and energy	
Loss of health and energy and work-related problems have no influence on each other	

36. According to my experience:

Conflict in my relationships causes work-related problems	
Work-related problems causes conflict in my relationships	
Conflict in my relationships and work-related problems have no influence on each other	

Appendix C: Consent form



CONSENT TO BE A RESEARCH PARTICIPANT

I am Helene Swiegers, a PhD student from the North-West University (South Africa) working on a study that explores the relationship between stress and mindfulness in young adult females (aged 20 tot 30), with the eventual aim to develop and evaluate a mindfulness-based stress reduction program. The study has been approved by the Health Research Ethics Committee of the Faculty of Health Sciences of the NWU (Approval nr 00103-11-S1). I would like to invite you to participate in phase three of my study. Please read the following carefully so that you can make an informed decision regarding possible participation.

PURPOSE OF THE STUDY

The purpose of this phase of the study is to evaluate a mindfulness-based-stress reduction program (MBSR) for South African young adult females.

PROCEDURE

If you agree to be in this study you will be expected to participate in a 3 week program that will consist of 1 to 2 hours per week and complete worksheets in your own time.

ELIGIBILITY

You are eligible to take part if you are:

- Female
- Aged 20 to 30 years
- Either a student or employed full-time
- Married or single

CONFIDENTIALITY

None of the participants' names or those of their employers will be divulged. All data will be kept securely on a password protected computer by the researcher.

RISKS/DISCOMFORTS

The study should pose no foreseeable risk to you. Participation in this study is voluntary and you are free to withdraw from the study at any point without explanation or personal consequences.

BENEFITS

Participants will receive an e-mailed copy of all publications resulting from the data gathered. Furthermore, participants will get a more in-depth picture of their own individual stress and mindfulness strategies. The data will be used to evaluate a mindfulness-based stress reduction program (MBSR) for young adult females specifically for the South-African population.

COSTS

There will be no cost to you as a result of your participation in this study.

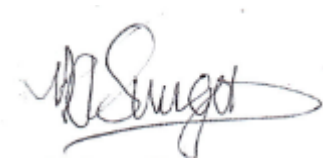
PAYMENT

You will receive no payment for participation.

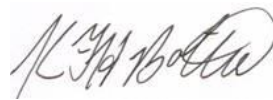
QUESTIONS

You are welcome to contact me, Helene Swiegers at 011-678 2874 or 0835298630 or professor Karel Botha (promoter) at 018-299 1726 or 073 0660 176 if you have any further questions concerning your consent.

Regards



Helene Swiegers



Karel Botha

CONSENT FORM

PARTICIPATION IN THIS RESEARCH IS VOLUNTARY.

You are free to decline to be in this study, or to withdraw at any point even after you have signed the form to give consent without any consequences.

Should you be willing to participate you are requested to sign below:

I _____ hereby voluntarily consent to participate in the above mentioned study. I am not coerced in any way to participate and I understand that I can withdraw at any time should I feel uncomfortable during the study. I also understand that my name will not be disclosed to anybody who is not part of the study and that the information will be kept confidential and not linked to my name at any stage. I also understand what I might benefit from participation as well as what might be the possible risks and should I need further discussions someone will be available.

Date

Signature of the participant

Date

Signature of the person obtaining

consenAppendix D: Declaration of Language Editing



Director: CME Terblanche - BA (Pol Sc), BA Hons (Eng), MA (Eng), TEFL
22 Strydom Street Tel 082 921 3083
Bailie Park, 2531 cumlaudelanguage@gmail.com

DECLARATION OF LANGUAGE EDITING

I, Christina Maria Etrechia Terblanche, hereby declare that I edited the
research study titled:

**The development and evaluation of a mindfulness-based stress
reduction programme for young adult females**

for Helene Swiegers for the purpose of submission as a thesis for
examination. Changes were suggested and implementation was left to the
discretion of the author.

Regards,

CME Terblanche

Cum Laude Language Practitioners (CC)

SATI accr nr: 1001066

Registered with PEG