



Mental health and stress: A latent class analysis of mental health continuum among young adults

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Mini-dissertation submitted in partial fulfilment of the requirements for the degree *Masters of Arts in Research Psychology* at the North-West University

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DECLARATION

I, Marco Ebersohn, declare that *Mental health and stress: a latent class analysis of the mental health continuum among young adults* is a current research study and is submitted in partial fulfilment of the requirements for the degree Master of Arts in Research Psychology at the North-West University, and was completed in accordance with the Copyright Act (Act No. 98 of 1978) of the Republic of South Africa. All literary and academic material and sources consulted during the writing and compilation of this research have been acknowledged and referenced according to the American Psychological Association's Publication Manual (6th edition). *Some exceptions may have been made depending on the requirements of the selected journal.* No single or comprehensive unit of the present research has been plagiarized from another author or institution, and it remains the intellectual property of the author.

I certify that the submission of the present research is exclusively for examination purposes at the North-West University, and that it has not been submitted for any other purpose to any third party.

Marco Ebersohn:



Date: 12/12/2018

SUMMARY

Mental health and stress: a latent class analysis of the mental health continuum among young adults in South Africa

Keywords: Positive mental health, stress, psychological distress, young adults, latent class analysis

Positive mental health refers to a complete state of flourishing, as well as being free of psychopathology. Positive mental health further entails emotional, psychological, and social well-being. Positive mental health is characterized by a continuum – from languishing at the bottom to flourishing at the top, with moderate mental health in the middle. This study explored the protective value of positive mental health against stress and psychological distress in young adults in South Africa. For example, flourishing was reported to reduce the risk of psychological distress in people with a history of childhood maltreatment.

Stress is defined as an unbalanced interaction between a person and his or her environment, where the person experiences the demand as threatening (event load), while they simultaneously feel that they do not have the resources to respond adequately to this demand (personal vulnerability). This combination of life demand and lack of resources is called stress overload. The debilitating effects of stress include cardiovascular disease and psychological distress, as indicated by anxiety, insomnia, depression, social dysfunction, and somatic symptoms.

A sample of 947 young adults from South Africa participated in the study (male = 55.6%; female = 44.4%, average age = 24). Young adults face challenges such as starting a career, studying at a tertiary institution, finding a partner and starting a family. The social context within which these young adults live, shapes their functioning. Countries of the global South, including South Africa, are plagued by violence, poverty, corruption, illness,

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and unemployment. This adds to the challenges that young adults face, and places this group at a higher risk of experiencing stress. Therefore, the aim of this study was to investigate the protective value of positive mental health against stress, by exploring how the person-centred latent classes of the mental health continuum predict individual differences in the experience of stress and psychological distress among young adults.

This study employed a quantitative survey design. The Mental Health Continuum Short Form, Stress Overload Scale and the General Health Questionnaire were administered to participants. Latent class analysis was used to identify unobserved groups based on individual responses to the 14 items of the mental health continuum. Analysis of variance (ANOVA) was then used to explore differences between the groups with regard to stress and psychological distress.

Four latent groups emerged from the data: *flourishing*, *languishing*, *socially disenfranchised* and *socially and emotionally frustrated*. The flourishing group had significantly lower scores for personal vulnerability and psychological distress (which manifests through anxiety, insomnia, depression, social dysfunction, and somatic symptoms) compared to the other groups. These results show that flourishing is a protective factor against stress and psychological distress in young adults. Thus, more attention should be devoted to the prevention of stress and psychological distress by improving the positive mental health of young adults.

PREFACE

According to Rule A 4.4.2.9 of the North-West University, this mini-dissertation adheres to the predetermined rules and regulations for utilizing the article model. Furthermore, the entire mini-dissertation adheres to the established guidelines provided by the American Psychological Association (APA: 6th edition), while Section 2 of the mini-dissertation adheres to the author guidelines of the identified journal to which the article will be submitted. With regard to the latter, the aim of this mini-dissertation is to submit the conceptualized article to *Current Psychology*, an accredited and peer-reviewed journal, with the potential to be published therein. As indicated in the table of contents, the entire mini-dissertation exhibits sequential page numbers – Section 1 starts on page 1, and this structure continues sequentially to the bibliography.

As the journal to which the author intends to submit the article is an American journal, and since this mini-dissertation follows the style conventions of the American Psychological Association, American English spelling should be followed, however, for this is a South African study, UK English conventions are followed throughout to ensure consistency and readability.

CTrans (the Centre for Translation and Professional Language Services) is a registered corporate member of the South African Translators' Institute (SATI), and makes use of the services of professional language practitioners to ensure that the quality of the language, and the layout of the document, adhere to the expectations of the North-West University. The researcher obtained ethical clearance for conducting a concept analysis (reference number NWU-00114-17-S1) from the Health Research Ethics Committee (HREC) of the Faculty of Health Sciences Ethics Office for Research, Training and Support of the North-West University. The data was purposively and systematically generated in order to fulfil the

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requirements for the degree Master of Arts in Research Psychology. Finally, the entire mini-dissertation was submitted to the Turnitin service in order to determine, establish and provide North-West University researchers with a report stating the similarities that were detected in the mini-dissertation when compared to international databases. It was determined that the document falls within the norms of acceptable similarities.

LETTER OF PERMISSION

Permission is hereby granted for the submission by the first author, Marco Ebersohn, of the following mini-dissertation / article for examination purposes towards the obtainment of a Master's degree in Research Psychology:

Mental health and stress: A latent class analysis of mental health continuum among young adults

The role of the co-authors was as follow: Dr W. de Klerk (NWU) acted as supervisor and project head of this research inquiry and assisted in the peer review of this mini-dissertation / article. Prof I. P. Khumalo (UFS) assisted with the conceptualization of this research study, as well as the latent class analysis.



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11 December 2018

To whom it may concern

This letter serves to confirm that the document entitled *Mental health and stress: a latent class analysis of the mental health continuum among young adults in South Africa* has been edited by the *Centre for Translation and Professional Language Services (CTrans)*, in accordance with the NWU/CTrans's guidelines for editing academic articles and dissertations. CTrans is a registered corporate member of the South African Translators' Institute (SATI) that makes use of qualified and experienced language practitioners to provide professional translation and language editing services.

CTrans hereby acknowledges that the document has undergone a proper and professional language edit (including the checking of spelling, grammar, register and punctuation). The onus rests on the client to work through the proposed changes after the edit and accept or reject these changes.

Yours sincerely

A handwritten signature in black ink, appearing to read 'W Barrow', written in a cursive style.

Wendy Barrow

CTrans Coordinator

STRUCTURE OF THE RESEARCH MINI-DISSERTATION

The present research is submitted in the form of a mini-dissertation as per the requirements for completion of the degree Master of Arts in Research Psychology at the North-West University. The structure of the mini-dissertation is as follows:

Section 1: Introduction and problem statement. In this section, the researcher introduces the study and provides a review of key concepts and an overview of relevant research within the field of positive mental health, stress, and psychological distress.

Section 2: Journal article. This section contains a manuscript for publication in accordance with the guidelines of the journal *Current Psychology*, a Springer journal.

Section 3: Critical reflection by the researcher. In this section, the researcher provides a critical reflection of his experiences while conducting the study. This entails what the researcher has learnt and what the study meant to the researcher.

SECTION 1: INTRODUCTION AND PROBLEM STATEMENT

Introduction

The study of positive mental health has received much attention from a diverse range of scholars, researchers, and policy makers in various fields (e.g. Joshanloo, Bobowik, & Basabe, 2016; Keyes & Simoes, 2012; Mahali et al., 2018). Mental health is a form of human capital through which societies competitively advance in their development (Keyes, 2013). Mental illness, by contrast, tends to disadvantage populations by adding to their disease burden, and reducing their optimal functioning (Keyes, 2013). Positive mental health refers to an individual's subjective evaluation of his or her well-being, and consists of the experience of positive affect, satisfaction with life, and an assessment that one functions well psychologically and socially (Keyes, 2002, 2005, 2007). Thus, dimensions of emotional, psychological, and social well-being constitute positive mental health (Keyes, 2002). They are assessed across a continuum, from flourishing on the upper end, to languishing on the bottom end, with moderate mental health in the middle (Keyes, 2002, 2005, 2006). This model of positive mental health is a holistic model of well-being, encompassing hedonic and eudaimonic well-being, as well as social aspects of well-being (Keyes, 2002).

The hedonic perspective emphasizes the experience of pleasure and comfort, life satisfaction, and avoiding pain (Diener, 2000), while eudaimonic perspectives are concerned with psychological functioning and an individual's ability to fulfil their full potential (Huta & Ryan, 2010; Huta & Waterman, 2014; Waterman, 1993). There has been much debate among theorists, with some in favor of the distinction between hedonia and eudaimonia, while others perceive such a distinction as redundant (Huta & Ryan, 2010; Kashdan, Biswas-Diener, & King, 2008; Waterman, 2008). The inclusion of both hedonic and eudaimonic perspectives in

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more holistic conceptual and operational models of well-being, has become the popular approach (Henderson & Knight, 2012; Wissing & Temane, 2008).

Various benefits are associated with the state of optimal functioning known as flourishing. People who meet the criteria for flourishing have been found to miss the fewest number of days from work, have better emotional health and fewer limitations in daily activities, as well as a lower risk of premature mortality (Keyes, 2002; Keyes & Simoes, 2012). Flourishing is also associated with lower prevalence of generalized anxiety, depression, and panic attacks (Keyes & Simoes, 2012), as well as a lower presence of mood and anxiety disorders (Schotanus-Dijkstra, Ten Have, Lamers, De Graaf, & Bohlmeijer, 2017). Keyes (2013) maintains that flourishing contributes to the global wealth of a nation, as it is a part of human capital. The present study investigates the protective value of positive mental health (i.e. flourishing) by first exploring the naturally manifested groups along the mental health continuum, and second, by investigating how the different groups experience stress and psychological distress. Therefore, this study approaches the issue of the burden of stress and psychological distress by exploring how the presence or absence of positive mental health determines the experience of stress and psychological distress among young adults in South Africa.

Stress can have debilitating effects for those who do not possess the internal and external resources to adapt to difficult situations or events (Schneiderman, Ironson, & Scott, 2005). It is associated with an increased susceptibility to a variety of lifestyle health problems and mental illnesses, such as eating disorders, sleep disturbances, anxiety, and depression (Slavich, 2016). Psychological distress is described as “a state of emotional suffering characterized by non-psychotic psychological disorders such as anxiety and depression, sometimes accompanied by somatic symptoms” (Drapeau, Marchand, & Beaulieu-Prévost, 2012, p. 105). Various debilitating outcomes could occur as a result of psychological distress,

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such as lower quality of life, an increased strain on mental health care, economic strain and even mortality (Nes, Roysamb, Kjennerud, Harris, & Tambs, 2007). However, various resources such as self-esteem, autonomy, and social support have been reported to act as protective factors against the negative outcomes associated with stress (Thoits, 2010).

Shaffer and Yates (2010) describe these internal resources or assets that counteract the negative outcomes of risk factors as protective factors. In essence, protective factors are positive traits that promote positive developmental outcomes in the face of adversity (Shaffer & Yates, 2010). Protective factors influence or alter an individual's response to risk factors that predispose these individuals to maladaptive outcomes (Afifi & MacMillan, 2011).

Young adults often face increased life challenges related to the substantial changes that occur in their lives, such as taking on new roles and responsibilities, starting a career, moving into their own residence, and finding a significant other (Bonovitz, 2017). Furthermore, socio-economic difficulties of a country with an emerging economy (such as South Africa) may add to the challenges encountered during this life stage. These problems include a high burden of disease, such as HIV and TB, high crime and violence rates, and high rates of poverty and unemployment (Peltzer et al., 2012; Scott-Sheldon et al., 2013). As outlined by Mahali et al. (2018), countries in the global South, including South Africa, are plagued by economic, social, and political challenges. Sub-Saharan Africa seems more susceptible to food insecurity, extreme poverty, very high rates of childhood and maternal mortality, and many people are forced to live in informal settlements.

Literature Overview

The purpose of this literature overview is to provide a comprehensive introduction of the main concepts and constructs, as well as discuss findings and theoretical positions from previous studies. This section will also situate the present study in the relevant context, describe the participants, and present the theoretical motivation for its methodological approach. The following concepts are presented and discussed: positive mental health and the dual-continua model (Keyes, 2002); stress and the stress-overload model (Amirkhan, 2012) psychological distress and psychopathology (Goldberg & Hillier, 1979), and structural equation modelling and latent class analysis (Nylund, Asparouhov, & Muthén, 2007; Rosato & Baer, 2012) as a methodological approach.

This study positions itself within the field of Positive Psychology, a field of study that was introduced to address the importance of positive traits and experiences, instead of focusing solely on the identification and treatment mental illness (Seligman & Csikszentmihalyi, 2000; Henderson & Knight, 2012). The emergence of positive psychology sparked widespread interest in well-being and its precipitating factors (Henderson & Knight, 2012). This led to the conceptualization and operationalization of two distinct perspectives on well-being, which have longstanding philosophical and humanistic psychological roots, namely hedonic and eudaimonic well-being (Henderson & Knight, 2012; Huta & Waterman, 2014; Ryan & Deci, 2001). As noted by Ryan and Deci (2001), these are two distinct, yet interrelated concepts, where well-being is derived from the experience of pleasure or happiness (hedonia), or from positive functioning and achieving one's true potential (eudaimonia).

Within the hedonic tradition, well-being is associated with positive affect or happiness derived from satisfying desire; therefore, emphasis is placed on experiencing pleasure,

comfort, and enjoyment (Diener, 2000; Diener & Ryan, 2009). Hedonic theorists believe that increasing pleasure and decreasing pain is the key to happiness (Henderson & Knight, 2012). Thus, within this tradition, a person was said to be well when he or she is satisfied with their life at present, and experiences positive emotions more often than negative emotions (Deci & Ryan, 2008).

Eudaimonic theorists argue that there is more to well-being than the subjective experience of pleasure, and emphasize the importance of self-actualization and achieving one's true potential, also referred to as the daimon (Ryan & Deci, 2001; Waterman, 2008, 2013). While the popularity of eudaimonia in well-being research has increased immensely within the last decade, researchers have not reached a consensus on what precisely eudaimonic well-being is, and how it can be operationalized (Kashdan, Biswas-Diener, & King, 2008; Huta & Waterman, 2014). Therefore, various constructs have been used to describe eudaimonia, for example meaning, personal growth, autonomy, purpose, self-acceptance, self-realization, mindfulness, authenticity, and value congruence (Henderson & Knight, 2012). Personal growth and meaning in life have been foregrounded as prime examples of eudaimonic well-being (Delle Fave et al., 2011). Other constructs emphasized in eudaimonic well-being research include competence, social coherence, hope, connectedness, and purpose (Henderson et al., 2012; Keyes, 2006; Ryff, 1989). While hedonic and eudaimonic well-being have been seen as two opposing traditions, a significant amount of research supports an overlap between the two, with regard to experiencing well-being and better functioning (Henderson et al., 2012; Keyes, 2002).

Positive Mental Health and the Two-continua Model

Positive mental health is defined as “a syndrome of symptoms of positive feelings and positive functioning in life” (Keyes, 2002, p. 208). With this definition, Keyes (2002) means

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that, similar to the way in which mental illness – especially depression – can be assessed by various symptoms, the presence of positive mental health (or the absence thereof) can also be assessed through self-reported symptoms of emotional, psychological, and social well-being (Keyes, 2002). Recently, Joshanloo et al. (2016) reported evidence in support of the tripartite model of well-being through the use of exploratory structural equation modelling. Their results supports the notion that well-being consists of three concepts, namely emotional, psychological, and social well-being.

Emotional well-being is derived from subjective well-being (Diener, 1984, 2000) and focuses on the experience of positive affect, the absence of negative affect, and feeling satisfied with one's life (Keyes, 2006). Psychological well-being, on the other hand, is concerned with psychological functioning and is derived from Ryff's (1989) conceptual model, and proposes that self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth are components of well-being (Keyes, 2006). A person is said to be functioning well if they have warm relations with others, demonstrates self-acceptance, and feel that they are able to adapt to their surroundings, that they are developing in life, that their life has meaning, and have a sense of self-determination (Keyes, 2002; Ryff, 1989). The final aspect of this threefold construct, social well-being, refers to an individual's social functioning and assessment of how society functions, and entails the following factors: social coherence, or feeling that society is comprehensible and meaningful; social integration, or an individual's acceptance of society; social actualization, or feeling that society possesses potential for the individual to grow; social contribution, or feeling that one contributes positively to society; and social acceptance, or feeling that one is accepted in their community (Keyes, 1998).

Furthermore, Keyes (2002) notes that mental health and mental illness are two distinct concepts, and that people free of mental illness might not necessarily be mentally healthy,

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whereas people with mental illness can still show indications of mental health. Various studies have shown empirical evidence for this dual-continua notion (e.g. Du Plooy, Lyons, & Kashima, 2018; Lamers, Westerhof, Bohlmeijer, Ten Klooster, & Keyes, 2011, Winzer, Lindblad, Sorjonen, & Lindberg, 2014). In addition, these studies also highlight the importance of promoting positive mental health. Lamers et al. (2011) consider mental health and mental illness as two separate, negatively related factors. A similar finding was made in a study conducted by Winzer et al. (2014), in which high scores for positive mental health were generally associated with low scores for negative mental health, and vice versa. In a study exploring both flourishing and psychological distress among migrants in Australia, Du Plooy et al. (2018) found that low levels of distress were not necessarily associated with flourishing, which indicates that being free of distress is not sufficient for a person to be mentally healthy.

Positive mental health should be seen as a continuum, with flourishing at the top end, moderate mental health in the middle, and languishing at the bottom end (Keyes, 2002, 2006). Flourishing represents the presence of positive mental health and consists of symptoms of emotional, psychological, and social well-being, whereas languishing refers to their absence (Keyes, 2006). To be languishing, a person must exhibit low levels of emotional, psychological, and social well-being (Keyes, 2002). Moderate mental health is used to describe individuals who fail to meet the criteria for either flourishing or languishing (Keyes, 2006). Various studies have demonstrated benefits associated with flourishing (e.g. Keyes, 2006; Keyes & Simoes, 2012; Sambasivam et al., 2016; Schotanus-Dijkstra et al., 2017).

Keyes (2006) reported that flourishing among adolescents is associated with a decreased prevalence for conduct problems such as skipping school, smoking, and alcohol and cannabis use, and an increase in psychosocial functioning. Flourishing individuals were

reported to have a lower prevalence of depression, generalized anxiety disorder, and panic attacks (Keyes & Simoes, 2012). Furthermore, flourishing individuals were more likely to take up healthy behaviours such as physical activity, and less likely to partake in unhealthy behaviours such as smoking (Keyes & Simoes, 2012). In a longitudinal study exploring the predictive value of flourishing for first-onset and recurring episodes of mental disorders, Schotanus-Dijkstra et al. (2017) found that flourishing reduces the risk of mood and anxiety disorders.

Flourishing also has potential protective value against chronic conditions, and contributes to better quality of life in older people (Keyes, 2005). Among school-going children, flourishing was shown to reduce the risk of mental illness and lessens the burden of dealing with difficult life situations (Singh & Junnarkar, 2015). It was also found to be associated with increased life satisfaction and better general functioning for outpatients with depressive and anxiety disorders (Seouw et al., 2016), as well as a decreased prevalence of severe psychological distress in people with a history of childhood maltreatment (Baiden, Tarshis, Antwi-Boasiako, & Den Dunnen, 2016). Moreover, positive mental health was reported to reduce the risk for suicide ideation associated with depression (Teismann et al., 2018). Thus, positive mental health is a viable protective resource against stress.

Stress and the Stress-overload Model

It is generally accepted that exposure to threats or demand from one's environment can predispose one to stress (Amirkhan, Landa, & Huff, 2018). While many stress theories have developed over the years, the biological stress theories (Selye, 1956) and psychological stress theories (Lazarus & Folkman, 1984) have laid the groundwork. With reference to biological stress theories, Selye (1956) describes stress as a process in which demands or stressors in life disturb homeostasis, which is then succeeded by physical changes in the

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person's body (such as an increase of adrenalin) in order to adapt to the change and restore homeostasis. This model of stress focuses on biological adaptations (or the body's physical reaction as a defence mechanism against stressors) and anything that threatens to disturb homeostasis (Cohen, Kessler, & Gordon, 1995). Thus, when an individual has an experience that threatens to disturb their homeostasis, his or her body will produce hormones such as adrenalin in order to enable the individual to deal with this perceived threat (Selye, 1956). Prolonged exposure to the threatening event without resolution results in physical distress (Selye, 1956).

From the psychological perspective, by contrast, stress is seen as an interaction between a person and the environment in which the person experiences a specific event as threatening and exceeding his or her ability and resources to successfully cope with it (Folkman, 2011; Lazarus & Folkman, 1984). This model of stress incorporates cognitive appraisal, which places the perception of the event as threatening at the centre of the psychological experience of stress (Lazarus & Folkman, 1984).

Whether biological or psychological, most stress theories rely on a combination of demands (or stressors) from one's environment, and inadequate resources to deal with these demands (Cohen et al., 1995). This combination is termed stress overload by Amirkhan (2012). Stress overload derives from the interaction of event load, which refers to the extent to which a person experiences challenges or stressors from their environment (i.e. perception of burden) and personal vulnerability, which refers to the strain experienced from these stressors (Amirkhan, 2012). Stress, and eventually ill health, is experienced when a high event load meets high personal vulnerability (Amirkhan, 2012). This means that a person experiences increasing threats from his or her environment, and does not have the necessary resources to deal with these challenges and threats, thus leaving him or her vulnerable and susceptible to negative outcomes (Amirkhan, 2012).

Much work has also been done on the identification of specific types of stress (Folkman, 2011). The types of stress most commonly referred to are traumas, life stress, chronic stress, and daily hassles (Folkman, 2011). However, as noted by Lazarus and Folkman (1984), what might be stressful for one person, might not be for another. Thus, an individual's perception of a specific event as threatening and exceeding his or her ability and resources to deal with the specific event, is at the core of understanding the experience of stress (Amirkhan, 2012). The detrimental effects of stress on physical and psychological health have been well documented (Seedat et al., 2009; Slavich, 2016).

In a sample of adolescents, Low et al. (2012) found that stressful events in daily living, such as school stress and romantic-relationship problems, were associated with an increased prevalence of mental-health problems such as anxiety and depression, as well as substance use disorders. Toussaint, Shields, Dorn, and Slavich (2016) found that chronic exposure to stress over a life period is detrimental to mental and physical health. Seedat et al. (2009) found a strong positive association between recent and early life-event stress, and anxiety and depressive disorders. In response to such problems, the present study concerns itself with the experience of stress and the negative outcomes of psychological distress.

Psychological Distress and Psychopathology

Psychological distress is broadly defined as an individual's emotional or psychological anguish, and usually encapsulates symptoms of psychiatric conditions such as anxiety, depression, and somatic symptoms (Drapeau et al., 2012). However, it remains a vague concept without clear consensus about its definition (Drapeau et al., 2012). Goldberg and Hillier (1979) define psychological distress as an individual's inability to function normally, as characterized by symptoms of psychiatric disorders such as anxiety, insomnia, depression, somatic symptoms, and social dysfunction. Horwitz (2007) describes

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psychological distress as the mental and physical outcomes resulting from an individual's inability to cope with stressors or stressful experiences, and the subsequent negative repercussions.

In a review of risk factors associated with psychological distress, Drapeau et al. (2012) identified stress and specific socio-demographic factors as risk factors that predispose individuals to experiencing psychological distress. Socio-demographic factors such as age, gender, and ethnicity were found to account significantly for differences in the prevalence of psychological distress in individuals (Drapeau et al., 2012). High levels of psychological distress were found among women and ethnic minority groups in the US, especially those experiencing discrimination (Drapeau et al., 2012). Exposure to stressful events, high work demand and insufficient supportive resources were also found to increase the risk of psychological distress (Drapeau et al., 2012). While there are age variations in the experience of psychological distress, it has generally been shown to gradually decrease with age (Drapeau et al., 2012). In a South African sample, Mthembu, Mabaso, Khan and Simbayi (2017) found a higher prevalence of psychological distress among women, older individuals, black people, and people reporting hazardous drinking habits. The inverse was true for the following groups: married people, employed individuals, and people living in rural, formal areas (Mthembu et al., 2017).

Drapeau et al. (2012) noted that both major life events and daily stressors tend to increase the risk of experiencing psychological distress. High levels of stress were also associated with an increased prevalence for psychological distress, operationalized as psychological symptoms and disturbances in normal functioning (Klainin-Yobas et al., 2014). Chronic stress was said to be a risk factor for developing debilitating conditions such as depression and even suicidal behaviour (Breton, Labelle, & Berthiaume, 2015). It was also linked to an increased prevalence for depressive and anxiety disorders (Khan & Khan, 2017).

Therefore, psychological distress can be seen as an utterly detrimental experience that results from a combination of factors such as environmental stressors, specific socio-demographic characteristics, and inadequate personal resources (Drapeau et al., 2012).

McLachlan and Gale (2018) found that psychological distress – characterized by symptoms of anxiety, depression, loss of confidence, and social dysfunction – significantly increases the risk for cardiovascular disease, arthritis, and chronic obstructive pulmonary disease. Even more alarming, psychological distress is associated with a higher risk of mortality (Russ et al., 2012). Jackson, Sudlow and Mishra (2018) also report a strong correlation between psychological distress and myocardial infarction and stroke in a sample of adults older than 45 years. Thus, psychological distress poses a significant threat for physical health if left untreated. Apart from the potential severe impact of psychological distress on physical health, Karunanithi, Sagar, Joy, and Vedaoundaram (2018) found that psychological distress also reduces quality of life and social functioning. In their sample of cancer patients, psychological distress was negatively correlated with quality of life and social functioning (Karunanithi et al., 2018). Finding protective resources to help people avoid the threats associated with stress and psychological distress could be of great value in preventing further physical and psychological risk.

Personal and Socio-environmental Factors that Protect against the Negative Effects of Stress on Psychological Functioning

A number of resources have been found to have a protective effect against the negative outcomes associated with stress (Slavich, 2016). In a review of stress research, Thoits (2010) reported that resources such as self-esteem, environmental mastery, and social support act as protective factors against stress. Social support and self-efficacy were found to reduce the effects of stress on pregnant women (Marca-Ghaemmaghami & Ehlert, 2015). In a

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sample of rescue workers who experience high levels of stress from their work, self-efficacy reduced the strain on quality of life resulting from prolonged exposure to stress (Prati, Pietrantonio, & Cicognani, 2010). The evidence from these empirical studies show that the effects of environmental demands can be reduced when people possess resources to deal with these demands.

Emotional and psychological well-being have a protective value against stress (Lyubomirsky, King, & Diener, 2005; Gloria & Steinhardt, 2013). In a review of the benefits of happiness, Lyubomirsky et al. (2005) report that happiness increases psychological and physical health and adaptive coping during stressful times. Positive affect has been found to be associated with resilience and increased adaptive coping (Gloria & Steinhardt, 2013). Satisfaction with life was reported to have a significant negative effect on stress, anxiety, and depression (Mahmoud, Staten, Hall, & Lennie, 2012). Both positive affect and satisfaction with life are core concepts of hedonic well-being (Diener, 2000; Henderson & Knight, 2012).

Furthermore, a sense mastery was found to be a significant moderator in the relationship between stress in the form of daily stressors and stressful life events, and poor mental health in people living with HIV (Gibson et al., 2011). Further, meaning in life seems to act as a buffer against the effects of post-traumatic stress on depression in a sample of war veterans in the US (Owens, Steger, & Herrera, 2009). These findings support the notion that, for stress and eventually ill health to occur, both environmental demands (event load) and a susceptibility to those demands due to inadequate resources (personal vulnerability), have to be present (Amirkhan, 2012). The resources highlighted above reduce the effects of stress by lowering an individual's susceptibility to the demands that he or she is facing. Furthermore, the findings provide evidence that elements of emotional, psychological, and social well-being also reduce personal vulnerability, which indicates that positive mental health could have a significant influence on stress.

Setting and Context of Participants

This study uses baseline data collected in the African-PREDICT study (Schutte, 2012), a longitudinal study that focused on identifying early markers or predictors of cardiovascular disease among South Africans (Schutte, 2012). This study focuses on one of the short-term objectives outlined in the African PREDICT study, namely to “assess, compare and describe young, normotensive and apparently healthy black and white individuals in terms of behavioural and biopsychosocial measures (tobacco, alcohol and dietary intake, 24-h sodium excretion, physical activity, body composition, personality and psychological well-being)” (Schutte, 2012, p. 4). A stratified sampling approach was applied to ensure that the sample is equally distributed in terms of sex (male and female), race (black and white) and socio-economic status (high, medium and low) (Schutte, 2012). The ideal age range was participants between the ages of 20 and 30 years. Data was collected at the HART clinic on the North-West University Potchefstroom Campus. In the present study, only the cases ($n = 947$) with complete psychological battery responses were included.

Early adulthood is a phase in the lifespan between the ages of 19 and 30 years, and is characterized by substantial developmental change and challenges (Bonovitz, 2017). While the nature of life challenges differs according to cultural orientation, early adulthood remains a time of substantial growth, during which individuals are likely to take on new roles and responsibilities (Seedat et al., 2016). These new roles and responsibilities differ according to cultural norms, however, they are generally believed to be the following (among others): moving away from home, finding a spouse and starting a family of one's own, finding a fulltime job to support one's family, or going to university or college to pursue further studies (Scales et al., 2016). This sudden shift in roles and responsibility makes young adults a relatively vulnerable group (Scales et al., 2016). Nes et al. (2007) note that this is a very

challenging time in which the prevalence of psychological distress such as depression and anxiety disorders is high.

Circumstances such as lower socio-economic status and unemployment are believed to increase the risk of experiencing negative outcomes, such as psychological distress, among young adults (Bonovitz, 2017). Young adults in South Africa face factors such as a high burden of disease, poverty, and unemployment – all of which increase the likelihood of experiencing high levels of stress and even psychological distress (Peltzer et al., 2012; Scott-Sheldon et al., 2013).

It is for this reason that the present study concerns itself with the exploration of how positive mental health differentiates the experience of stress and psychological distress during this demanding time in life. In order to do so, the study will make use of latent class analysis, a method used to identify naturally occurring heterogeneity in a sample (Rosato & Baer, 2012). In this way, groups within the sample can be identified based on individual scores for positive mental health. In short, the group's heterogeneity based on levels of positive mental health will be explored.

Latent Class Analysis as a Person-centred Methodological and Analytical Approach

Unlike variable-based statistical analysis, where there is an exclusive study of inter-variable relationships, or work with predetermined and imposed groups, this study uses latent class analysis (LCA) to identify subgroups (also known as classes) within the sample, and then compare these groups in relation to the dependent variables. LCA is a person-centred approach that enables researchers to assess individual differences relating to specific variables (Rosato & Baer, 2012; Vermunt & Magidson, 2002). The latent classes were identified according to individual similarities in response to categorical indicator variables that measure emotional, psychological, and social well-being. As a result, the study is unique,

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as person-centred latent classes will be used to represent the presence or absence of positive mental health, instead of a traditional variable-based approach.

LCA differs from other methods like cluster analysis, in that it is a model-based method for identifying latent groups or categories based on the relation among participants (Rosato & Baer, 2012). It is also thought to be superior to other clustering methods (e.g. Williams & Kibowski, 2016) in that it is a model-based method that is flexible, as complicated and simple distributional forms for observed variables can be used. It is also a probabilistic method, meaning that it takes into account the probability of a participant belonging to a specific class (Vermunt & Magidson, 2002).

The use of LCA in the present study means that the researcher followed a data-driven, person-centred process of exploring unobserved latent classes within the sample, based on individual responses to the 14 items of the Mental Health Continuum Short Form. This provided the researcher with an opportunity to observe how the nature of each class differentiates the experience of stress and psychological distress in this group of young adults. It further adds a methodological contribution to the study, given that latent class analysis has not been used to explore groups with regard to positive mental health. Theoretically, three groups or categories of positive mental health have a chance of emerging: flourishing, moderate mental health, and languishing (Keyes, 2002). Exploring the existence of these groups through latent class analysis may show different configurations and patterns deviating from theoretically expected ones.

Aim of the Study

This study aims to investigate the protective value of positive mental health against stress, by exploring how the person-centred latent classes of the mental health continuum

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predict individual differences in the experience of stress and psychological distress among young adults.

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SECTION 2: JOURNAL ARTICLE

Journal Guidelines

The *Journal of Current Psychology*, a Springer journal, was selected for the submission of the present manuscript. The following are guidelines to take note of for manuscript submission:

Title Page

The title page should include:

- The name(s) of the author(s).
- A concise and informative title.
- The affiliation(s) and address(es) of the author(s).
- The e-mail address, and telephone number(s) of the corresponding author.
- If available, the 16-digit ORCID of the author(s).

Abstract

Please provide an abstract of 150 to 250 words. The abstract should not contain any undefined abbreviations or unspecified references.

Keywords

Please provide four to six keywords which can be used for indexing purposes.

Text

Text Formatting

Manuscripts should be submitted in Word.

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- Use a normal, plain font (e.g., 10-point Times New Roman) for text.
- Use italics for emphasis.
- Use the automatic page numbering function to number the pages.
- Do not use field functions.
- Use tab stops or other commands for indents, not the space bar.
- Use the table function, not spreadsheets, to make tables.

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Please use no more than three levels of displayed headings.

Abbreviations

Abbreviations should be defined at first mention and used consistently thereafter.

Footnotes

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols.

Always use footnotes instead of endnotes.

Acknowledgments

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Acknowledgments of people, grants, funds, and so on should be placed in a separate section on the title page. The names of funding organizations should be written in full.

References

Citation

Cite references in the text by name and year in parentheses. Some examples:

- Negotiation research spans many disciplines (Thompson 1990).
- This result was later contradicted by Becker and Seligman (1996).
- This effect has been widely studied (Abbott 1991; Barakat et al. 1995; Kelso and Smith 1998; Medvec et al. 1999).

Reference List

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list. Reference list entries should be alphabetized by the last names of the first author of each work.

- Journal article

Harris, M., Karper, E., Stacks, G., Hoffman, D., DeNiro, R., Cruz, P., et al. (2001). Writing labs and the Hollywood connection. *Journal of Film Writing*, 44(3), 213–245.

- Article by DOI

Slifka, M. K., & Whitton, J. L. (2000) Clinical implications of dysregulated cytokine production. *Journal of Molecular Medicine*, <https://doi.org/10.1007/s001090000086>

- Book

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Calfee, R. C., & Valencia, R. R. (1991). *APA guide to preparing manuscripts for journal publication*. Washington, DC: American Psychological Association.

- Book chapter

O'Neil, J. M., & Egan, J. (1992). Men's and women's gender role journeys: Metaphor for healing, transition, and transformation. In B. R. Wainrib (Ed.), *Gender issues across the life cycle* (pp. 107–123). New York: Springer.

- Online document

Abou-Allaban, Y., Dell, M. L., Greenberg, W., Lomax, J., Peteet, J., Torres, M., & Cowell, V. (2006). Religious/spiritual commitments and psychiatric practice. Resource document. American Psychiatric Association.

http://www.psych.org/edu/other_res/lib_archives/archives/200604.pdf. Accessed 25 June 2007.

Journal names and book titles should be italicized.

Tables

- All tables are to be numbered using Arabic numerals.
- Tables should always be cited in text in consecutive numerical order.
- For each table, please supply a table caption (title) explaining the components of the table.
- Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.
- Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body.

Article Manuscript

MENTAL HEALTH AND STRESS: A LATENT CLASS ANALYSIS

Mental health and stress: A latent class analysis of the mental health continuum

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Abstract

Empirical research has shown positive mental health to be positively linked to better health and optimal functioning, and negatively associated with indices of suboptimal functioning such as depression and anxiety. The present study explores the protective function of positive mental health in the context of stress, by investigating how the person-centred latent classes of the mental health continuum account for individual differences in stress and psychological distress. A total of 947 participants (55.6% male; 44.4% female; average age = 24) from South Africa completed questionnaires on stress, psychological distress, and positive mental health. The data was analysed using latent class analysis in Mplus, and analysis of variance (ANOVA) in the Statistical Package for Social Sciences (SPSS). Four latent groups were identified, namely flourishing, (50.9%); hindered flourishing – socially disenfranchised, (35%); partial mental health socially – and emotionally frustrated (9.2%), and languishing (4.9%). The results show a significant difference between the groups for the outcome variables of personal vulnerability and psychological distress. The lowest prevalence of personal vulnerability and psychological distress was found among the flourishing group. Flourishing significantly reduces the risk of experiencing stress and psychological distress among young adults in South Africa. Therefore, more attention should be given to promoting positive mental health in young adults, in order to prevent them from experiencing stress and psychological distress. Future research should explore how, and to what extent, positive mental health serves as a buffer against the effects of stress and psychological distress.

Keywords: positive mental health, stress, psychological distress, young adults, latent class analysis

Introduction

The study of positive mental health has recently received a great deal of attention from both researchers and policy makers (Schönfeld et al. 2017). Positive mental health refers to an individual's subjective evaluation of his or her well-being (Keyes 2002) and constitutes human capital. For this reason, it contributes to the psychological wealth of nations (Keyes 2013; Oishi and Schimmack 2010). The mental health continuum (MHC) has been widely used as a multidimensional and integrated model of well-being (Jovanovic 2015; Joshanloo et al. 2016; Keyes and Simoes 2012). The MHC is a comprehensive model which encompasses hedonic and eudaimonic dimensions, as well as the private–personal and the social–public elements of well-being. The constituent components of the MHC are emotional well-being, psychological well-being, and social well-being (Keyes, 2002, 2005, 2007). Many correlational, variable-based studies have found well-being or positive mental health to be a protective factor for human health (e.g. Bhullar et al. 2014; Lee et al. 2018; Teh et al. 2015; Singh and Junnarkar 2015).

By conducting a latent profile analysis on students in Australia, Bhullar et al. (2014) found five groups based on profiles of psychological well-being, ranging from low psychological well-being (classes 1 and 2), to high psychological well-being (classes 4 and 5). The prevalence of depression was significantly lower for people in classes 4 and 5, compared to those in 1 and 2. Psychological functioning was significantly higher for members of class 4 and 5. These findings demonstrate the protective value of psychological well-being (Bhullar et al. 2014). In a longitudinal study that explored the influence of positive well-being on depression, Wood and Joseph (2010) found that individuals with lower levels of positive well-being were at a higher risk of experiencing depression. Singh and Junnarkar (2015) found positive mental health to be a protective factor against mental illness among school-going children who were experiencing difficult life situations. It was also positively

correlated to life satisfaction and general functioning in a sample of outpatients with depressive and anxiety disorders (Seouw et al. 2016), and it reduced the likelihood that adults with a history of childhood maltreatment would experience severe psychological distress (Baiden et al. 2016). Furthermore, Teh et al. (2015) found mental health to be a mediator in the significant negative relationship between perceived stress and perceived health. The present study explores the protective value of positive mental health against stress and outcomes such as psychological distress among young adults in South Africa.

Young adulthood is a time often characterized by substantial change, during which people take on new roles and responsibilities, start a career, and seek life partners (Bonovitz 2017). Socio-economic difficulties such as a high crime rate, violence, a high burden of disease, and unemployment and poverty (often experienced in a country with an emerging economy, such as South Africa) can add to the burden faced by the young adults of that country (Peltzer et al. 2012; Scott-Sheldon et al. 2013). Moreover, young adults in Sub-Saharan Africa are forced to deal with issues such as food insecurity, extreme poverty, higher rates of childhood and maternal mortality, and dire living conditions (Mahali et al. 2018). These factors leave these young adults vulnerable to experience stress and psychological distress.

Stress

When socio-environmental demands are too great and overwhelming, individuals tend to experience stress (Amirkhan 2012; Folkman 2011; Lazarus and Folkman 1984). Stress is a complex phenomenon with multiple theories across different domains (Cohen et al. 1995). Two of the most popular theories are the biological theory (Selye 1950) and the psychological theory (Lazarus and Folkman 1984). The biological theory is described by Selye (1950) as physical changes that occur in the body in reaction to a disturbance in

homeostasis caused by a stressful event. By contrast, the proponents of the psychological theory of stress, Lazarus and Folkman (1984), noticed that people react differently to different types of stressors, and they include cognitive appraisal in their description of stress. Within the psychological theory, stress is seen as an interaction between the person and the environment, in which the individual experiences a threatening event, and also feels that the event exceeds their ability and resources to successfully deal with the specific occurrence (Lazarus and Folkman 1984). A person experiences stress as a result of increasing life demands, while simultaneously being susceptible to those demands due to a lack of resources to cope with them (Amirkhan 2012). This combination of increasing life demands (event load) and an individual's susceptibility to those demands (personal vulnerability) is termed stress overload, and often leads to ill health (Amirkhan 2012).

Empirical research findings link stress to negative psychological and physical outcomes. For example, stress is associated with cardiovascular disease (Bomhof-Roordink et al. 2015) and an increased susceptibility to cancer and respiratory disease (Cohen et al. 2007). High levels of stress are also associated with an increased prevalence for psychological distress, operationalized as psychological symptoms and disturbances in normal functioning (Klainin-Yobas et al. 2014).

Positive Mental Health

Positive mental health entails the experience of positive affect, satisfaction with life, and an assessment that one functions well psychologically and socially (Keyes 2002). Three dimensions constitute positive mental health, namely emotional, psychological, and social well-being. These dimensions are assessed along a continuum, from flourishing (upper end) to languishing (lower end), with moderate mental health in the middle (Keyes 2002, 2006).

Individuals with moderate mental health are neither flourishing nor languishing (Keyes 2002, 2006).

Various benefits are associated with flourishing. For example, flourishing is associated with fewer days off work, better emotional health, and fewer limitations in daily activities (Keyes 2002), as well as a lower risk of premature mortality (Keyes and Simoes 2012). Flourishing is also associated with lower prevalence of generalized anxiety, depression, and panic attacks (Keyes and Simoes 2012). Moreover, Schotanus-Dijkstra et al. (2017) found that flourishing reduces the risk of mood and anxiety disorders.

Psychological Distress

According to Goldberg and Hillier (1979), psychological distress refers to a person's state of psychological functioning, and is characterized by symptoms of anxiety, insomnia, depression, somatic symptoms, and social dysfunction. While the term psychological distress is generally used to describe an individual's emotional or psychological anguish, it remains a complex concept (Drapeau et al. 2012). For example, Horwits (2007) describes psychological distress as the negative outcomes or repercussions associated with stress. Furthermore, it is believed that these symptoms are temporary and only occur if an individual does not possess the resources to cope with stressors (Horwits, 2007).

In a study that explored the determinants of psychological health, operationalized as symptoms of anxiety, insomnia, depression, social dysfunction, and somatic symptoms, Heizomi and Nadrian (2018) found that stress has a significant negative influence on psychological health. The study investigated the effect of self-efficacy, life satisfaction, happiness, hopelessness, and stress on psychological health (Heizomi and Nadrian 2018). From their findings, Heizomi and Nadrian (2018) reported that stress showed the greatest negative influence on psychological health.

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Resources such as high self-esteem, social support, and environmental mastery have been found to reduce the risk of negative physical and psychological outcomes which result from stress (Thoits 2010). For example, self-efficacy and personal mastery were reported to significantly reduce the outcome of depressive symptoms associated with caregiving stress (Mausbach et al. 2012). Optimism and self-efficacy were also reported to have protective value against the negative effects associated with stress (Denovan and Mcaskill 2017). Further, spirituality and psychological well-being reportedly reduce the risk of pregnancy-related stress in pregnant women (Dolatian et al. 2017).

The negative impact of stress on health can be reduced by the experience of psychological well-being (Kruse and Sweeny 2018). According to Kruse and Sweeny (2018), psychological well-being improves health by shaping stress appraisal and coping resources. Well-being promotes challenge appraisal rather than threat appraisal, resulting in the perception of stressors not as threats, but as challenges to be approached (Kruse and Sweeny 2018). This can have a positive impact on the biological mechanisms that deal with stress, because it promotes healthy cardiovascular functioning. Conversely, viewing something as a threat can be detrimental to cardiovascular health (Kruse and Sweeny 2018). On a behavioural level, perceiving a stressor as a challenge will lead to increased self-regulation, thus an individual will be more inclined to respond with beneficial behaviours such as exercise or eating healthy, rather than detrimental coping behaviours such as alcohol abuse (Kruse and Sweeny 2018). Kruse and Sweeny (2018) further contend that well-being enhances coping resources such as perceived social support, self-efficacy and self-esteem, and this enhancement of coping mechanisms indicates that positive mental health may have protective value against stress.

Aim of the Present Study

The present study aims to explore the protective value of positive mental health against stress and distress among young adults in South Africa, by first, distinguishing latent classes along the mental health continuum. Second, the study investigates how the emergent latent classes determine individual differences in personal vulnerability to stress and self-reported psychological distress.

The researcher hypothesized that there would be three groups emerging from a latent class analysis of the sample. This expectation is based on Keyes (2006)' theoretical framework of the mental health continuum (MHC), which includes flourishing, languishing, and moderate mental health. The researcher further hypothesized that lower prevalence of personal vulnerability and self-reported ill health (psychological distress) would be found in the flourishing group (presence of mental health), compared to the other groups. These hypotheses were informed by the expectation that higher levels of positive mental health (i.e. flourishing) serve as a protective factor against personal vulnerability and self-reported psychological distress.

Method

Design

The present study employs a quantitative, cross-sectional survey design. Quantitative research is a deductive process where theoretical models expressing relationships between variables are tested in the data (Creswell 2014). Cross-sectional designs refer to studies where the participants are only assessed once (Kumar 2011). The data was analysed by using structural equation modelling and latent class analysis (LCA) in Mplus (Muthén and Muthén, 1998–2017). LCA is a person-centred approach that allows the researcher to identify latent groups of participants based on their responses (Williams and Kibowski 2016). The use of

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this analysis method allowed a data-driven, person-centred approach for exploring the influence of positive mental health on stress and psychological distress, instead of a variable-centred approach.

Participants and Setting

The present study forms part of a larger study, namely the African Prospective Study on the Early Detection and Identification of Hypertension and Cardiovascular Disease (African-PREDICT). The larger study focused on early detection of hypertension, thus only apparently healthy individuals were recruited. A stratified sampling method was used to obtain an equally distributed sample according to race (black and white), sex (male and female) and socio-economic status (high, medium and low). A total of 947 young adults between the ages of 20 and 30 years living in Potchefstroom in the North-West Province of South Africa completed the psychological questionnaires, with a mean age of 24. As only apparently healthy individuals were included in the study, individuals who had not been previously diagnosed with chronic illness, and who were not using any medication for chronic illnesses, who were HIV negative, and who had healthy blood pressure scores were included in the study. Pregnant and breastfeeding women were excluded.

Measuring Instruments

The following measuring instruments were employed: the Mental Health Continuum Short Form (MHC-SF) developed by Keyes (2006), the Stress Overload Scale (SOS) developed by Amirkhan (2012), and the General Health Questionnaire (GHQ-28) developed by Goldberg and Hillier (1979).

The Mental Health Continuum Short Form (MHC-SF). The MHC-SF is a 14-item self-report questionnaire that measures positive mental health on a continuum, from languishing (low scores) to flourishing (high scores) (Keyes, 2006). In order to be considered flourishing, a person must experience one of the three indicators of emotional well-being, and six of the eleven indicators of positive functioning every day or almost every day (Keyes, 2006). To be considered languishing, a person must report that they never experience at least one of the indicators of emotional well-being, and six or more indicators of positive functioning, or that they have only experienced them once or twice (Keyes, 2006). The measure consists of three subscales, namely emotional well-being (EWB, three items; e.g. “In the past month, how often have you felt happy?”), social well-being (SWB, five items; e.g. “In the past month, how often have you felt that our society is becoming a better place for people?”), and psychological well-being (PWB; six items; e.g. “In the past month, how often have you felt that you have experiences that challenge you to grow and become a better person?”). The scale was found to be reliable within a South African sample, with a Cronbach’s alpha coefficient of 0.74 for the scale total (Keyes et al. 2008). The MHC-SF showed good criterion validity; the subscales EWB ($r = .45$) and PWB ($r = .41$) had significant positive correlations with positive affect among a Setswana-speaking sample in South Africa (Keyes et al. 2008). PWB was also positively associated with self-efficacy ($r = .41$) (Keyes et al. 2008). In addition, the subscales EWB ($r = .39$) and SWB ($r = .31$) were significantly correlated with satisfaction with life (Keyes et al. 2008).

The Stress Overload Scale (SOS). The SOS is a theoretically derived self-report measure of stress, based on the interaction between the magnitude of daily stressors and personal vulnerability (Amirkhan 2012). It consists of 30 items divided into two subscales, namely event load and personal vulnerability. Six items are distractor items. Event load (12 items; e.g. “In the past week, have you felt strained?”) refers to the experience that life

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demands are increasing, and personal vulnerability (12 items; e.g. “In the past week, have you felt inadequate?”) refers to one’s susceptibility to increasing life demands (Amirkhan 2012). Participants are asked to report experiences of event load and personal vulnerability over the last week on a 5-point Likert scale (Amirkhan 2012). Cronbach’s alpha coefficients of 0.96 were reported for the SOS total, 0.94 for event load, and 0.94 for personal vulnerability (Amirkhan 2012). The SOS total ($r = .17, p < .01$) and the subscale event load ($r = .16, p < .01$) were found to correlate significantly with a life-events measure of stress (Amirkhan 2012). The total SOS ($r = .42, p < .0001$), the subscale event load ($r = .38, p < .0001$), and personal vulnerability ($r = .36, p < .0001$) were also found to correlate significantly with daily hassles on the Perceived Stress Scale (Amirkhan 2012). Based on the aforementioned evidence, the SOS can be considered a good predictor of psychiatric disorders (Amirkhan 2012).

The General Health Questionnaire (GHQ-28). The 28 items of the GHQ-28 measure the presence and degree of psychological dysfunction, and have four subscales: somatic symptoms (seven items; e.g. “Felt that you are ill?”), anxiety and insomnia (seven items; e.g. “Been feeling edgy or bad tempered?”), social dysfunction (seven items; e.g. “Been able to enjoy your normal day-to-day activities?”), and depression (seven items; e.g. “Felt that life isn’t worth living?”) (Goldberg and Hillier 1979). Symptoms of psychological distress are measured on a Likert scale of one to four. A Cronbach’s alpha coefficient of 0.86 was found by Khumalo et al. (2008) in a sample of South African students. The scale was also reported to be reliable in a Setswana-speaking sample in South Africa, with a Cronbach’s alpha coefficient of 0.89 for the total scale, 0.74 for somatic symptoms, 0.75 for depression, and 0.74 for anxiety and insomnia (Keyes et al. 2008). A low Cronbach’s Alpha coefficient of 0.55 was reported for social dysfunction in the same sample (Keyes et al. 2008).

Ethical Considerations

Ethical approval for the purposes of conducting the present study was obtained from the Health Research Ethics Committee (HREC) of the North-West University (NWU-00114-17-S1), South Africa. Written permission to use the psychological questionnaire data collected for the African-PREDICT Study (NWU-00001-12-A1) was obtained from the principal investigator (Prof A. E. Schutte). Participants completed psychological questionnaires and underwent physiological measurements in a controlled laboratory setting. Their information was treated with confidentiality in order to protect the privacy of participants. Questionnaires were administered by trained fieldworkers. Counselling was provided for participants who felt the need to talk to someone after completing the questionnaires.

Statistical Analysis

The present study followed a data-driven, person-centred process to explore latent classes of positive mental health. Latent class analysis (LCA) was used to identify latent classes or groups in the data based on the responses to the MHC-SF. LCA was used to explore the existence of latent classes, with the probability that three groups may emerge: languishing, moderate mental health, and flourishing; or any other configuration along the mental health continuum in this sample. LCA is a model-based method for identifying latent groups based on the relation among participants, and is thought to be superior and more flexible than other clustering methods of analysis (Marsh et al. 2009). It is probabilistic in nature, meaning that it takes into account the probability of a participant belonging to a specific class (Vermunt and Magidson 2002).

The following model fit indexes were used to identify the best solution: $LR\chi^2$ (Likelihood Ratio Chi-Square), BIC (Bayesian Information Criterion), SSABIC (Sample Size Adjusted BIC), AIC (Akaike Information Criterion), CAIC (Consistent AIC), LMR-LRT

(Lo-Mendell-Rubin Adjusted Likelihood Ratio Test), and BLTR (Bootstrapped Likelihood Ratio Test). For good fit, BIC, SSABIC, AIC and CAIC are expected to be lower, while the $LR\chi^2$ should be lower and not significant, but the LMR-LRT must be statistically significant. (Nylund et al. 2007). According to Nylund et al. (2007) the best fit indexes to use for the purposes of exploring the best solution are the Lo-Mendel-Rubin Adjusted Log Likelihood Ratio (Lo et al. 2001) and the BIC Descriptive Fit Index (Schwarz 1978). A one-way analysis of variance (ANOVA) was then conducted to explore differences between the latent classes with regard to the following dependent variables: event load, personal vulnerability, anxiety and insomnia, social dysfunction, depression, and somatic symptoms. Significant group differences were interpreted on the basis of significant *F*-ratios (i.e. probability values below 0.05), and practical significance was shown using the Eta-squared test. Post-hoc analyses were used to show intergroup differences.

Results

Measurement Models of SOS and GHQ

Based on Confirmatory Factor Analysis (CFA), the theoretically intended two-factor model of the Stress Overload Scale, which consists of event load and personal vulnerability, fitted the data better than the unidimensional one. This two-factor model showed a clear distinction between the two independent dimensions (CFI = .911; TLI = .902; RMSEA = .090, $p < .000$; 90%CI: [.089 .096]).

Again, CFA was used to test the measurement model of the General Health Questionnaire (GHQ). The theoretically intended GHQ four-factor model, which consists of anxiety and insomnia, depression, somatic symptoms, and social dysfunction, fitted the data best. This four-factor model showed a clear distinction between the four symptom groups of

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psychological distress. (CFI = .930; TLI = .923; RMSEA = .064, $p < .000$; 90% CI: [.061, .067]).

Table 1: Measurement Models of the Stress Overload Scale and General Health Questionnaire, with Indicator Variables as Categorical (n= = 947)

Model	χ^2	df	p	RMSEA, p	[90% CI]	CFI	TLI	WRMR
SOS (one factor)	2080	230	<.000	.092, <.000	[.089 .096]	.906	.897	2.109
SOS (two factors)	1982	229	<.000	.090, <.000	[.086 .094]	.911	.902	2.051
GHQ (one factor)	4421	350	<.000	.111, <.000	[.108 .114]	.787	.769	3.203
GHQ (four factors)	1681	344	<.000	.064, <.000	[.061 .067]	.930	.923	1.844

χ^2 = Chi-square; *df* = degrees of freedom; *p* = probability estimate; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; AIC= Akaike Information Criterion; BIC = Bayesian Information Criterion; WRMR (for categorical variables) = Weighted Root Mean Square Residual; MHC-SF = Mental Health Continuum Short Form; SOS = Stress Overload Scale; GHQ = General Health Questionnaire.

Item-level Descriptive Statistics for the Mental Health Continuum

Item-level descriptive statistics for the mental health continuum for the whole sample are reported in Table 2. Skewness and kurtosis values show all the item scores to be within normal distribution. Skewness scores ranged between -1.235 and +0.158 (for the items MHC11: “During the past month, how often did you feel that you had warm and trusting relationships with others?” and MHC6: “During the past month, how often did you feel that our society is a good place or is becoming a good place for all people?”). Kurtosis scores ranged between -0.977 and +1.804 for the items MHC5: “during the past month how often did you feel that you belonged to a community like a social group or your neighborhood?” and MHC1: “During the past month how often did you feel happy?” Out of the possible mean score range of between 0 and 5, MHC8 (“During the past month, how often did you feel that the way our society works makes sense to you?”) scored the lowest with a mean of 2.21.

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MHC2 (“During the past month how often did you feel interested in life?”) obtained the highest mean score of 4.00.

Table 2: Item-level Descriptive Statistics of the MHC-items for the Whole Sample ($n = 947$)

Variable	Mean	Variance	Skewness	Kurtosis	Range		Percentiles				Median
					Min	Max	20%	60%	40%	80%	
MHC 1	3.92	0.81	-1.083	1.804	0.00	5.00	3.0	4.0	4.0	5.0	4.00
MHC 2	4.00	1.05	-1.107	1.094	0.00	5.00	3.0	4.0	4.0	5.0	4.00
MHC 3	3.54	1.37	-0.788	0.352	0.00	5.00	3.0	4.0	4.0	5.0	4.00
MHC 4	2.84	2.33	-0.304	-0.933	0.00	5.00	1.0	3.0	3.0	3.0	4.00
MHC 5	3.11	2.77	-0.517	-0.977	0.00	5.00	1.0	3.0	4.0	4.0	5.00
MHC 6	2.28	2.61	0.158	-0.118	0.00	5.00	1.0	2.0	2.0	3.0	4.00
MHC 7	2.99	1.57	-0.439	-0.473	0.00	5.00	2.0	3.0	3.0	3.0	4.00
MHC 8	2.21	2.25	0.127	-0.975	0.00	5.00	1.0	2.0	2.0	3.0	4.00
MHC 9	3.89	1.20	-1.072	0.939	0.00	5.00	3.0	4.0	4.0	4.0	5.00
MHC 10	3.93	1.12	-1.103	1.204	0.00	5.00	3.0	4.0	4.0	4.0	5.00
MHC 11	3.94	1.30	-1.235	1.332	0.00	5.00	3.0	4.0	4.0	4.0	5.00
MHC 12	3.99	1.24	-1.203	1.136	0.00	5.00	3.0	4.0	4.0	4.0	5.00
MHC 13	3.73	1.39	-0.877	0.230	0.00	5.00	3.0	4.0	4.0	4.0	5.00
MHC 14	3.85	1.46	-1.044	0.575	0.00	5.00	3.0	4.0	4.0	5.0	5.00

Best Fitting Latent Class Solution for the Mental Health Continuum

Fit indices (shown in Table 3) show support for a four-latent-class solution, (LMR-LRT = 0.044; AIC = 39453; BIC = 39575; Entropy = 0.89). The five-class solution was a poorer one and thus rejected. The diagonal classification probabilities, ranging between .908 and .953 (shown in Table 4) give a good indication of class membership.

Table 3: latent Class Solution Model Fit Indices using the 14-item MHC-SF as Continuous Variables (n = 947)

Model	Log likelihood	AIC	BIC	SSA BIC	Entropy	LMR-LRT ρ	VLM-LRT ρ	Percentage				
								Class 1	Class 2	Class 3	Class 4	Class 5
1 class	-21507	43070	43206	43117	.	.	.	100
2 classes	-20185	40457	40666	40530	.880	<.000	<.000	31.2	68.8	.	.	.
3 classes	-19851	39818	40100	39915	.860	.5589	.5608	9.7	37.7	52.5	.	.
4 classes	-19653	39453	39807	39575	.886	.0439	.0446	9.2	35.0	50.9	4.9	.
5 classes	-19492	39161	39588	39308	.873	.4548	.4576	9.2	27.5	5.5	13.9	43.9

AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; SSABIC = Sample Size Adjusted BIC; LMR-LRT = Lo-Mendell-Rubin Likelihood Ratio Test; VLM-LRT = Vuong-Lo-Mendell-Rubin Likelihood Ratio Test.

Table 4: Classification Probabilities of the most likely Latent Class Membership (column) by Latent Class (row)

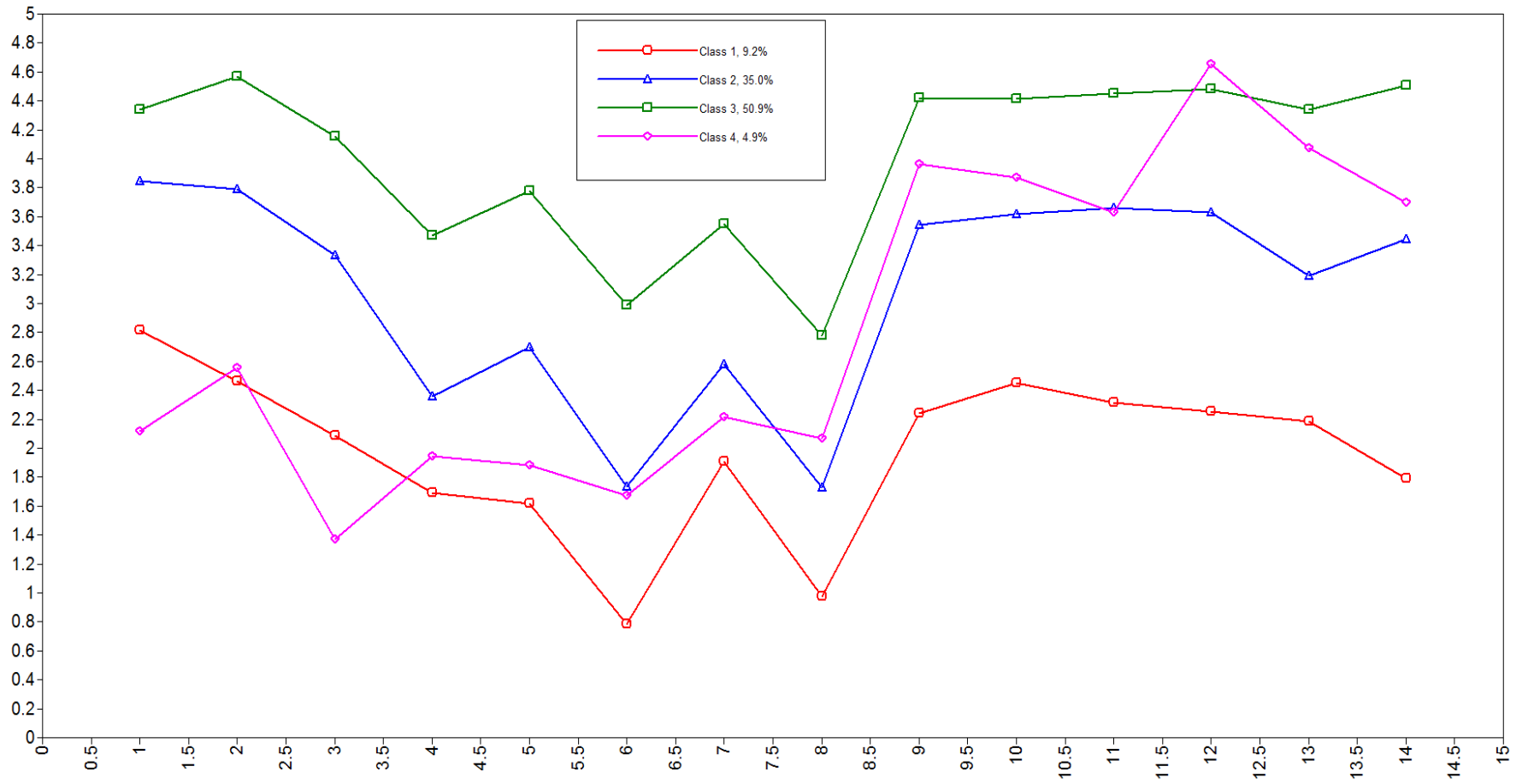
	Class 1 (9.2%)	Class 2 (35.0%)	Class 3 (50.9%)	Class 4 (4.9%)
Class 1	.943	.051	.000	.005
Class 2	.008	.916	.067	.009
Class 3	.000	.046	.953	.001
Class 4	.014	.071	.007	.908

The Mental Health Continuum Latent Class Solution

A schematic presentation of the typology of the four classes is displayed in Figure 1. Class 1 ($n = 88$; 9.2%) was called *languishing*. This group was found to have the lowest levels of positive mental health, as indicated by low scores on all 14 indicators. The item-level mean scores for this class range between 0.55 (item 6) and 4.18 (item 1). Class 2 ($n = 331$; 35.0%) was named the *socially disenfranchised group*. On a personal/private level, this group scores highly on all three indicators of subjective/emotional well-being, and all six indicators of psychological well-being. Although they have high scores on three of the five indices of social well-being, they did not endorse social actualization (item 6) and social coherence strongly (item 8), as indicated by scores of 1.22 and 1.27 respectively.

Class 3 ($n = 482$; 50.9%) was called *flourishing*, and had high scores for all 14 items, ranging from 2.03 (item 8) and 6.16 (item 2). Class 4 ($n = 46$; 4.9%) was called the *socially and emotionally frustrated group*. The only indicators that this group endorsed strongly, were the six items that pertain to psychological well-being. However, none of the three items that pertain to subjective/emotional well-being, nor the five that deal with social well-being, received strong endorsement. Even though these individuals exhibit eudaimonic well-being (such as personal growth, autonomy, and meaning), they do not endorse hedonic well-being (happiness and life satisfaction), nor all the aspects of social well-being.

Figure 1: The Four-class Solution



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Table 5: Mean Scores of the MHC-items for the Four Latent Classes

Variable	Observed/indicator variable mean scores per class			
	Class 1 mean (SE)	Class 2 mean (SE)	Class 3 mean (SE)	Class 4 mean (SE)
MHC 1	4.177 (0.258)	5.700 (0.238)	6.429 (0.273)	3.139 (0.704)
MHC 2	3.325 (0.224)	5.112 (0.233)	6.162 (0.267)	3.448 (0.613)
MHC 3	2.519 (0.203)	4.028 (0.251)	5.017 (0.247)	1.658 (0.348)
MHC 4	1.232 (0.119)	1.720 (0.089)	2.529 (0.104)	1.416 (0.259)
MHC 5	1.019 (0.119)	1.816 (0.110)	2.547 (0.110)	1.270 (0.298)
MHC 6	0.551 (0.095)	1.217 (0.067)	2.095 (0.095)	1.174 (0.219)
MHC 7	1.727 (0.113)	2.337 (0.105)	3.213 (0.117)	2.006 (0.270)
MHC 8	0.715 (0.080)	1.266 (0.072)	2.032 (0.087)	1.514 (0.314)
MHC 9	2.516 (0.184)	4.051 (0.176)	5.051 (0.191)	4.528 (0.370)
MHC 10	2.795 (0.210)	4.123 (0.171)	5.031 (0.180)	4.413 (0.257)
MHC 11	2.441 (0.186)	3.864 (0.169)	4.696 (0.202)	3.831 (0.553)
MHC 12	2.560 (0.210)	4.115 (0.187)	5.081 (0.224)	5.281 (0.239)
MHC 13	2.333 (0.163)	3.410 (0.146)	4.633 (0.187)	4.348 (0.328)
MHC 14	2.013 (0.161)	3.868 (0.177)	5.059 (0.223)	4.154 (0.663)

Comparison of Psychological Distress across the Latent Classes

A one-way analysis of variance (ANOVA) was used to compare event load, personal vulnerability, anxiety and insomnia, social dysfunction, depression, and somatic symptoms across the latent classes. The mean scores of these variables per class are reported in Table 6.

Event load. A significant difference was found between the latent classes for event load, as expressed by the following statistics: $F(3,88) = 22.978, p < .000, \eta^2 = 0.072$. Post-hoc tests using Tukey Honest Significant Difference test (Tukey HSD) showed statistically significant differences between the flourishing group (class 3; 27.17, $SD = 8.88$) and all the others, with class 3's score being consistently lower than the other three classes (class 1 = 34.68, $SD = 8.40$; class 2 = 30.86, $SD = 8.84$; class 4 = 32.46, $SD = 10.40$). The *languishing* group (class 1) reported the highest experience of event load, which was also significantly higher than that of class 2 (*socially disenfranchised group*).

Personal vulnerability. A significant difference was found between the latent classes for personal vulnerability, where $F(3,87) = 55.812, p < 0.00, \eta^2 = 0.16$. Post-hoc tests using Tukey HSD showed statistically significant differences between the flourishing group (class 3; 23.78, $SD = 9.03$) and the others, with a consistently lower score (class 1 = 36.50, $SD = 9.18$; class 2 = 28.79, $SD = 9.10$; class 4 = 32.38, $SD = 10.66$). The *languishing group* (class 1) reported the highest experience of personal vulnerability, which was also significantly higher than that reported by class 2 (*socially disenfranchised group*).

Somatic symptoms. A significant difference was found between the latent classes for somatic symptoms, as expressed by $F(3,39) = 19.50, p < 0.00, \eta^2 = 0.060$. Post-hoc tests using Tukey HSD showed significant differences between the *flourishing group* (class 3; 11.05, $SD = 3.26$) and all the others, as class 3 had a lower score (class 1 = 13.69, $SD = 4.16$; class 2 = 11.99, $SD = 3.44$; class 4 = 13.56, $SD = 3.56$). The *languishing group* (class 1)

reported the highest experience of somatic symptoms, which was also significantly higher than that of class 2 (*socially disenfranchised group*).

Anxiety and insomnia. A significant difference was found between the latent classes for anxiety and insomnia: $F(3.93) = 44.812, p = 0.00, \eta^2 = 0.13$. Post-hoc tests using Tukey HSD showed statistically significant differences between the *flourishing group* (class 3; 10.52, $SD = 3.69$) and the others, with its score being consistently lower (class 1 = 15.64, $SD = 4.74$; class 2 = 12.11, $SD = 4.23$; class 4 = 13.93, $SD = 5.50$). The *languishing group* (class 1) reported the highest experience of anxiety and insomnia, which was also significantly higher than that of class 2 (*socially disenfranchised group*).

Social dysfunction. A significant difference was found between the latent classes for social dysfunction, where $F(3.93) = 40.128, p = 0.00$, and $\eta^2 = 0.11$. Post-hoc tests using Tukey HSD showed statistically significant differences between the *flourishing group* (class 3; 12.63, $SD = 2.98$) and the others, with its score being consistently lower (class 1 = 16.13, $SD = 3.03$; class 2 = 13.91, $SD = 2.71$; class 4 = 14.07, $SD = 3.15$). The *languishing group* (class 1) reported the highest experience of social dysfunction, which was also significantly higher than that of class 2 (*the socially disenfranchised group*).

Depression. A significant difference was found between the latent classes for depression, as indicated by the following: $F(3.93) = 56.108, p = 0.00, \eta^2 = 0.15$. Post-hoc tests using Tukey HSD showed statistically significant differences between the *flourishing group* (class 3; 8.66, $SD = 2.96$) and the others, with its score being consistently lower (class 1 = 13.36, $SD = 5.46$; class 2 = 9.43, $SD = 3.32$; class 4 = 12.63, $SD = 4.72$). The *languishing group* (class 1) reported the highest experience of depression, which was also significantly higher than that of class 2 (*socially disenfranchised group*). Higher levels of social depression were reported among the *socially and emotionally frustrated group* (class 4), compared to the *socially disenfranchised group* (class 2).

Table 6: Differences in Mean Scores of the Composite Scores of the Latent Constructs Compared across the Four Latent Classes using ANOVA

Variable	Class 1 Mean (SD)	Class 2 Mean (SD)	Class 3 Mean (SD)	Class 4 Mean (SD)	Total Mean (SD)
Event load	34.68 (8.404)	30.86 (8.842)	27.17 (8.881)	32.65 (10.406)	29.40 (9.232)
Personal vulnerability	36.50 (9.18)	28.79 (9.10)	23.78 (9.03)	32.38 (10.66)	
Somatic symptoms	13.69 (4.16)	11.99 (3.44)	11.05 (3.26)	13.56 (3.56)	
Anxiety and insomnia	15.64 (4.74)	12.11 (4.23)	10.52 (3.69)	13.93 (5.50)	
Social dysfunction	16.13 (3.03)	13.91 (2.71)	8.66 (2.96)	12.63 (4.72)	
Severe depression	13.36 (5.46)	9.43 (3.32)	8.66 (2.96)	12.63 (4.72)	

Discussion

The aim of the study was to explore how the person-centred latent classes of the mental health continuum predicted individual differences in the experience of stress and psychological distress among young adults in South Africa. The general finding was that the presence of positive mental health (flourishing) reduces the risk of harbouring personal vulnerability to stress and the experience of psychological distress in this group of young adults from South Africa. This finding provides empirical support for flourishing as a protective factor against stress and psychological distress. In addition, the present study also contributed to positive mental health theory by identifying four distinct groups from individual responses on the 14 items of the MHC-SF by using LCA.

The participants' responses to the Mental Health Continuum Short Form yielded four distinct latent classes. They were given names that best represented their profiles. The first class was termed languishing (9.2%), the second was termed the socially disenfranchised group (35.0%); class three was termed flourishing (50.9%) and the fourth and final class was termed socially and emotionally frustrated (4.9%). It is interesting to observe that most of the participants report to be flourishing in their lives. These are individuals who report high levels of emotional, psychological, and social well-being. They therefore score highly on all personal/private and public/social aspects of hedonic and eudaimonic indicators of well-being. Keyes (2006) describes the criteria for flourishing as reporting to experience one of the three items for emotional well-being, and six of the items assessing positive functioning, every day or almost every day. The languishing group consisted of individuals with low levels of emotional, psychological and social well-being, similar to the languishing category outlined by Keyes (2006). Keyes (2006) puts forth the criteria for languishing as reporting to never (or only once or twice) experience at least one of the indicators of emotional well-being, and six or more indicators of positive functioning. These individuals scored low on all

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private and public aspects of hedonic and eudaimonic well-being. Class 2 (hindered flourishing – socially disenfranchised) consists of participants who have high personal hedonic and eudaimonic well-being, but have a poor appraisal of public life, indicated particularly by social actualization (“Society is becoming better.”) and social coherence (“The way society works makes sense.”). This group feels that they belong to and significantly contribute to society, while at the same time feeling that society is not improving, and the way society works does not make sense to them. However, their poor appraisal of the future and current functioning of their society has not hindered their personal (hedonic and eudaimonic) well-being. The two-dimensional nature of social well-being is evident within this group, where there is a distinction between person–society interaction, and personal appraisal of society. The unidimensional nature of social well-being was pointed out previously (Cicognani et al. 2008; Pratti and Albaesi 2016). Class 4 (socially and emotionally frustrated) consists of individuals who show a high level of personal, eudaimonic well-being (PWB indices), but report lower levels of subjective well-being. This is a group that demonstrates unhappiness as individuals, and at the same time do not appraise public life to function well. Yet, they continue to maintain high levels of psychological well-being, indicated by autonomy, personal growth, and environmental mastery, purpose in life, self-acceptance, and personal relations with others. This is an interesting group of people, whose eudaimonic well-being (personal/private, and even individualistic) is not accompanied by the hedonic experience of pleasure. While this is possible, previous studies such as those conducted by Nave et al. (2008), Huta and Ryan (2010) and Disabato et al. (2016) have found a positive correlation between eudaimonic and hedonic well-being. It was therefore expected that eudaimonic orientation/disposition would also be accompanied by enjoyment.

The four-class LCA typology identified in the present study makes a significant contribution to the body of knowledge surrounding positive mental health due to its deviation

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from the accepted three categories on the mental health continuum as outlined by Keyes (2002). The four distinct classes indicate the way in which people view themselves on hedonic/eudaimonic and private/public levels, and influence their life experiences with regard to stress and psychological distress. Keyes (2002) places the three categories on a continuum, with flourishing at the top end, languishing at the bottom end, and moderate mental health in the middle. If the four classes in the present study are placed on a continuum, flourishing will be at the top end, socially disenfranchised at the upper middle, emotionally and socially frustrated at the lower middle, and languishing at the bottom end.

In addition to having the four latent classes of the mental health continuum, this study yielded empirical evidence of the superiority of flourishing as a protective factor against vulnerability to stress and susceptibility to psychological distress. Belonging to the flourishing latent class was associated with lower risk for experiencing stress and psychological distress. The lower levels of event load found among the flourishing group suggest they are less prone to experience their life load as being taxing. By contrast, the languishing group reported the highest experience of event load, which suggests that life load has a more taxing influence on these individuals. This could possibly be explained by the difference between the ways in which flourishing and languishing individuals appraise stressful events. According to Kruse and Sweeny (2018), well-being promotes challenge appraisal from stressful events, and as a result, potentially stressful events are not perceived as threatening.

Further, personal vulnerability was lower among individuals in the flourishing group, which indicates that these individuals are less prone to experience their life loads as exceeding their resources or ability to effectively manage it. Kruse and Sweeny (2018) found that well-being enhances resources such as coping, self-esteem, and perceived social support. In this regard, the highest levels of personal vulnerability were found among members of the

languishing group, which suggests that these individuals are more prone to experience a lack of resources to cope with their life loads. The combination of low event load and low personal vulnerability found among members of the flourishing group, suggests that these individuals are less prone to experience stress overload, whereas the high event load and high personal vulnerability suggest that languishing individuals are more susceptible to experience stress overload.

Flourishing individuals are also less likely to experience psychological distress, whereas individuals in the languishing group and the socially and emotionally frustrated group were found to be more susceptible to experience psychological distress. The highest experiences of depression, anxiety and insomnia, social dysfunction, and somatic symptoms were reported in the languishing group. This is in accordance with previous studies, such as that conducted by Keyes and Simoes (2012), who reported that flourishing individuals in their study had a lower prevalence of depression, generalized anxiety disorder, and panic attacks. Flourishing was also found to reduce the risk of first-onset and recurring episodes of mental disorders (Schotanus-Dijkstra et al. 2017). In a study that compared levels of positive mental health in individuals with mental illnesses such as schizophrenia, depressive and anxiety disorders to that of the general population, Sambasivam et al. (2016) found a significant difference, with the outpatient group reporting lower scores on these positive mental health domains, compared to the general population.

The study also provides empirical evidence for the superiority of the combination of hedonic and eudaimonic well-being. As noted by Henderson et al. (2012), individuals who exhibit both hedonic and eudaimonic well-being, function better. This was also the case in the present study, with both the flourishing and socially disenfranchised groups reporting lower levels of stress and psychological distress compared to the languishing and partial mental health – socially and emotionally frustrated groups. Even though the partial mental health –

socially and emotionally frustrated group had similar levels of event load and social dysfunction compared to the socially disenfranchised group, individuals in the partial mental health – socially and emotionally frustrated group had significantly higher scores for personal vulnerability, depression, anxiety and insomnia, and somatic symptoms. These findings indicate the value of exhibiting both hedonic and eudaimonic well-being on a public or private level, as opposed to exhibiting only eudaimonic well-being.

Implications and Future Directions

The most important finding from this study is that flourishing acts as a protective factor against vulnerability to stress and psychological distress. Thus, interventions aimed at preventing stress and psychological distress in young adults should focus on promoting flourishing in these individuals. Another important finding is the superior functioning found among the groups that exhibit both hedonic and eudaimonic well-being, compared to the groups that exhibit only eudaimonic well-being, or neither kind of well-being. These findings provide empirical evidence for the importance of assessing both hedonic and eudaimonic well-being, as opposed to only focusing on one or the other.

The present study further makes a theoretical contribution to the study of positive mental health, with the four-class LCA typology that it identified. From this LCA typology, it is evident that the way in which people view themselves at the hedonic/eudaimonic and private/public levels, significantly influences their life experiences with regard to stress and psychological distress. Future studies on positive mental health could also use LCA as a superior grouping method. As a final recommendation, future studies could also focus on exploring the buffering effects of positive mental health on stress and psychological distress.

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SECTION 3: CRITICAL SELF-REFLECTION

This mini-dissertation was completed as part of the requirements for the degree Master of Arts in Research Psychology. The researcher is passionate and intrigued by the research and believes that the results are of value to young adults. The researcher is also very grateful for the opportunity to have worked under the helpful guidance of his supervisors, Dr Werner de Klerk (North-West University) and Prof Tumi Khumalo (University of the Free State), and to have worked under the larger study, the African-PREDICT study.

The question explored was whether positive mental health reduces the risk of detrimental outcomes, such as psychological distress as a result of stress, among young adults in South Africa. It was fascinating, yet very alarming, to learn how these demands can affect an individual's physical and psychological well-being when coupled with a lack of resources to manage these demands. It can even lead to physical illnesses (such as cardiovascular disease) or psychological disturbances (such as depression or anxiety). Fortunately, various internal and external resources can considerably reduce an individual's susceptibility to stress and prevent the detrimental effects associated with stress.

This is exactly what we sought to address in this study, by exploring the protective value of positive mental health against stress. The many benefits of positive mental health, such as reducing anxiety, depression, the risk of suicide, and even all-cause mortality, made the researcher want to explore the benefit thereof against stress. Furthermore, what positive mental health can do for people who face difficult situations in life, such as reducing the risk of mental illness for people with a history of childhood maltreatment, made the idea of positive mental

health as a protective factor against stress seem plausible. Once the research question was established, a lot of thought and consideration went into the design and methods.

A quantitative survey design was selected based on the exploratory nature of the research question. Further, latent class analysis was selected. Latent class analysis (LCA) is a person centred approach, which seemed fitting, given the individual appraisal aspect of stress. LCA is used to identify unobserved groups within a sample, based on their individual responses to items of a questionnaire. We expected to find three groups, flourishing, languishing and moderate mental health, as theoretically outlined in the mental health continuum. However, four distinct groups were identified, as opposed to the expected three. One of the groups met the criteria for flourishing, one for languishing. One of the groups consisted of people with both hedonic and eudaimonic well-being on a personal level. However these individuals seemed to exhibit only some aspects of social well-being such as belonging to a community and contributing to society, but they did not feel that society is becoming better. The last group consisted of people who have high levels of eudaimonic well-being, but are not doing well socially or emotionally at all. This made it possible to assess the influence of hedonic/eudaimonic well-being on a personal and public level, on individual experiences of stress and psychological distress. We expected that the flourishing group will have a lower risk of experiencing stress and psychological distress.

Our hypothesis was supported and that positive mental health is a potential protective factor against stress and psychological distress. Another interesting finding is that the group of people with hedonic and eudaimonic well-being and only some aspects of social well-being have a lower risk of experiencing stress and psychological distress, compared to the languishing group and the group of people who have only eudaimonic well-being on a personal level. Thus the study proves that it is very important to assess and address both hedonic and eudaimonic well-

being. The methodological contribution made by the LCA typology is another significant finding, and one which the researcher is especially intrigued by. It would be fascinating to see the typologies discovered in other studies using LCA on the items of the mental health continuum. It would also be valuable for future studies to explore the mechanisms through which positive mental health influence the experience of stress and psychological distress.

After conducting this study, I can comfortably say that preventing is far better than treating illness or distress. And that is exactly what we sought to address in this study by exploring the protective value of positive mental health against stress. I was truly amazed by the benefits of positive mental health. It is still astonishing to think that positive mental health reduces anxiety, depression, risk for suicide and even all-cause mortality. And I was even more surprised to see what positive mental health can do for people who face difficult situations in life. To think that positive mental health can reduce the risk of mental illness for people with a history of childhood maltreatment is amazing. This also led me to believe that positive mental health could hold protective value against stress and outcomes such as psychological distress. I was really excited to explore this possibility.

In conclusion, this was a great journey with difficult times and times where I felt ecstatic. I gained a tremendous amount of knowledge and experience during this process and am grateful to have gone through this experience and to have learnt from experts in the field such as my supervisors. I know I have a long way to go to become the researcher I want to be, but in terms of critical thinking, quantitative methodology and good old hard work, I think I have made tremendous strides during this process. I now look forward to what the future holds for me with all the knowledge and experience I gained, et I remain humble, knowing that it is just the tip of the iceberg.

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