The evaluation of the General Psychological well-being and the Mental Health Continuum Models in an African context

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Thesis submitted for the degree Philosophiae Doctor in Psychology at the North-West University, Potchefstroom Campus

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Contents

Acknowledgements:

- Promoter: Prof. Q. M. Temane – A teacher and friend, for his guidance and mentoring. His knowledge of and passion for research has been a guiding light in my own journey.
- Co-Promoter: Prof. M. P. Wissing – a leader in the field of Fortology and the study of well-being, for her guidance.
- My family: Dad and mom, and brothers Tebogo and Thebe – for their belief in me, and their unconditional support and encouragement
- The Psychology Department and Institute for Psychotherapy and Counselling colleagues – for their continuous support and encouragement
- Friends: many, but Abe Metswamere in particular – for the various special roles they have played in supporting me throughout this journey
- Language editors: Mesdames C. and M. Tereblanche – for Afrikaans and English language editing
- Research consultant: Hendri Coetzeee – for the assistance with data collection
- Statistics Consulting Service – for assistance with data-capturing and analysis
- Mrs Louis Vos and her colleagues at the Ferdinand Postma library of the Potchefstroom campus.
- AUTHeR research unit – for research support
- Participants: Who opened doors for us to enter into their lives, world and reality – thank you for making a meaningful contribution
- NRF: National Research Foundation – for financial support
- NWU staff development fund – for financial support
- Adriaan Van der Walt and his family – for availing their beautiful holiday farm in the Vredefort dome where I could break away for the writing sessions
- God: Through Whom all this has happened – He has placed me at the right places at the right times and allowed me to take in the lessons and grow from the meaningful challenges.

"Life is indeed darkness save when there is urge,
And all urge is blind save when there is knowledge,
And all knowledge is vain save when there is work,
And all work is empty save when there is love;
And when you work with love you bind yourself to yourself,
and to one another, and to God."
(Gibran, 1990, p.33)

Summary

Although the debate regarding the nature and structure of psychological well-being is ongoing (see Compton, 2001; Forgeard, Jayawickreme, Kern & Seligman, 2011; Kashdan, Biswas-Diener & King, 2008; Keyes, 2002; Kopperud & Vitterso, 2008; Lent, 2004; Linley, Maltby, Wood, Osborne & Hurling, 2009; Ryan & Deci, 2001; Ryff & Singer, 1998; Wissing & Temane, 2008; Wissing & Van Eeden, 2002), there has been sufficient support for more holistic, complex and inclusive models to explain and measure psychological well-being. The intertwined experience of hedonic and eudaimonic well-being as well as overlapping intrapersonal and interpersonal well-being experience (Keyes, 2002; Wissing & Temane, 2008) is captured by some contemporary models. The General Psychological Well-being (GPW; Wissing & Temane, 2008; Wissing & Van Eeden, 2002) and the Mental Health Continuum (MHC; Keyes, 2002, 2005a, 2005b, 2007; Keyes et al., 2008) models are of particular interest in this study especially as they both represent the essence of holistic psychological well-being.

Previous research has seen the proliferation of multiple constructs and sub-constructs in the study of psychological well-being in the field of positive psychology. However, little is known about the manifestation and measurement of holistic psychological well-being particularly in an African context. The present thesis intended to explore the GPW and MHC models and their measures namely, the General Psychological Well-being Scale (GPWS) and the Mental Health Continuum Short Form (MHC-SF; Keyes, 2002, 2005a) in an African Setswana-speaking group. Through this effort, research issues pertaining to theoretical conceptualisation, measurement and socio-demographic interaction were explored.

The thesis comprises three sub-studies reported in three manuscripts. All data were collected in cross-sectional surveys. The scale development phase of the first sub-study utilised secondary data analyses, while primary data were collected and analysed by the researcher for the second and third sub-studies.

The aim of the first manuscript was to develop and validate a self-report instrument to measure general psychological well-being within an African context. This study took place over three phases and comprised data sets with a cumulative sample of 2760 participants. The phases were 1) scale development (n=2005), 2) pilot study (n=296), and 3) scale validation (n=459). The intention was that the scale should be shorter than the previous batteries of scales used in the initial identification of the General Psychological Well-being factor (GPW) by Wissing and Van Eeden (2002). The results yielded a reliable and valid 20 item scale. A

Cronbach alpha of .89 among this sample attests to its reliability. Construct and criterion-related validity were supported by confirmatory and exploratory factor analyses and inter-scale correlations. According to Noar (2003), the development of reliable and valid measures contributes to the advancement of quality research. It is envisaged that the GPWS will be of value in epidemiological and multi-disciplinary studies as well as in evaluation of the impact of interventions to enhance positive health (cf. Seligman, 2008).

The aim of the second study was to explore the influence of socio-demographic variables, namely gender, age, marital status, employment status, educational level and environmental setting on holistic psychological well-being in an African sample. Keyes and Waterman (2003) included these factors among the determinants of well-being and mental health. A community sample (n=459) consisting of male (n=141) and female (n=318) Setswana-speaking adults from rural (n=210) and urban (n=249) settings participated in the study. Findings indicate that whether a person lives in an urban or rural area has the most robust influence on their psychological well-being. Furthermore, psychological well-being was found to be positively influenced by being married, having a higher educational status and being employed. Gender and age did not have any differential influence on well-being. The insights gained from these findings could help enhance understanding of the various patterns in the manifestation of psychological well-being in a (South) African context. This will allow for better targeted interventions towards the enhancement of general psychological well-being in African communities. In this case, it is apparent that rural communities are in particular need of positive development intervention. According to Farid and Lazarus (2008) intervention efforts towards the improvement of lives need to be encouraged from the level of policy development. Government and business should take interest in people's levels of well-being in guiding policy decisions (Diener, Kesebir & Lucas, 2008).

The aim of the third study was to undertake a psychometric comparison of the General Psychological Well-being Scale (GPWS) and Mental Health Continuum Short-Form (MHC-SF) in an African context. The study comprised 459 Setswana-speaking participants. The study employed three main statistical approaches, namely, classical test theory (CTT) (cf. Clark & Watson, 1995; John & Benet-Martínez, 2000; Panounen & Ashton, 1998) structural equation modelling (SEM) (Byrne, 2001; Kline, 2011), and the Rasch model (De Bruin, 2004; Linacre, 2002, 2003; Rasch, 1960) of item response theory (IRT) in comparing the two scales. Firstly the theoretical basis of the scales and their development routes were explored. Secondly results from CTT (descriptive statistics, reliability, construct and criterion-related validity), SEM (measurement model fit indices) and IRT (item fit statistics,

difficulty parameters, and response scale thresholds) analyses are reported. The main finding is that the GPWS and the MHC-SF are comparable measures of holistic psychological well-being in an African context. Although the MHC-SF appeared to be marginally superior, no model and measure emerged as clearly better than the other.

The findings of the three sub-studies in this thesis contribute to the study of well-being and the field of positive psychology in at least three ways. Firstly, a new self-report instrument to measure general psychological well-being was developed and validated for use in an African context. Secondly, the study highlighted the significant influence of socio-demographic variables on individuals' psychological well-being. Thirdly, in psychometrically comparing two scales, the study not only employed CTT and SEM methods as has been previously done, but has also reported IRT's Rasch model's results. The thesis is a comprehensive quantitative evaluation of the two holistic psychological well-being models and their measures in an African context. Qualitative studies towards the further clarification and contextualisation of the understanding of well-being in an African context are suggested. This may serve to triangulate, contradict or pose further hypotheses regarding the findings of the present study.

Opsomming

Die aard en struktuur van psigologiese welstand word nog steeds ondersoek en aktief gedebatteer in die positiewe sielkunde (sien Compton, 2001; Forgeard, Jayawickreme, Kern & Seligman, 2011; Kashdan, Biswas-Diener & King, 2008; Keyes, 2002; Kopperud & Vitterso, 2008 ; Lent, 2004; Linley, Maltby, Wood, Osborne & Hurling, 2009; Ryan & besluite, 2001; Ryff & Singer, 1998; Wissing & Temane, 2008; Wissing & Van Eeden, 2002). Daar is egter nou reeds afdoende ondersteuning vir meer holistiese, komplekse en inklusiewe modelle ter verklaring van die aard van psigologiese welstand wat verder as onderbou gebruik kan word vir die evaluering van psigologiese gesondheid. Kontemporêre modelle ondervang die fasette van beide hedoniese en eudaimoniese welsyn, sowel as intrapersoonlike en interpersoonlike welsyn (Keyes, 2002; Wissing & Temane, 2008). Die General Psychological Well-being model (GPW/; Wissing & Temane, 2008; Wissing & Van Eeden, 2002) en die Mental Health Continuum model (MHC Keyes, 2002, 2005a, 2005b, 2007;. Keyes et al, 2008) is relevant vir doeleindes van hierdie studie aangesien albei as holistiese modelle gepostuleer word.

Vorige navorsing het aangedui dat daar talle konstrukte en sub-konstrukte oor die aard van psigologiese welstand in die veld van die positiewe sielkunde bestaan. Min is egter bekend oor die manifestasie en meting van holistiese psigologiese welstand, veral in 'n Afrika konteks. Die doel van hierdie proefskrif is om die GPW en die MHC modelle en hulle operationaliserings na te vors, met name die General Psychological Well-being Scale (GPWS) en die Mental Health Continuum Short-Form (MHC-SF; Keyes, 2002, 2005a) in 'n Suid-Afrikaanse Setswanasprekende groep. Sodoende is teoretiese aspekte, operasionaliserings, en die interaksie van die fenomena met sosio-demografiese aspekte ondersoek.

Die proefskrif is in artikel formaat gedoen, en bevindinge word in drie manuskripte gerapporteer. Alle data is versamel in deursnee-opnames. Die skaalontwikkelingsfase van die eerste sub-studie benut sekondêre data-ontleding, terwyl primêre data deur die navorser ingesamel en ontleed is vir die tweede en derde sub-studies.

Die doel van die eerste manuskrip was om 'n geldige self-rapporteerskaal vir die meet van algemene psigologiese welstand in 'n Afrika konteks te ontwikkel. Hierdie studie het oor drie fases verloop en het bestaan uit datastelle met 'n kumulatiewe steekproef van 2760 deelnemers. Die fases is 1) skaalontwikkeling (n = 2005), 2) loodsstudie (n = 296), en 3) skaalevaluering (n = 459). Die bedoeling was dat die skaal korter moet wees as die vorige

batterye van skale wat gebruik is in die aanvanklike identifisering van die General Psychological Well-being faktor (GPW) deur Wissing en Van Eeden (2002). Die resultate het 'n betroubare en geldige 20-item skaal opgelewer. 'n Cronbach alfa van .89 van hierdie steekproef getuig van die betroubaarheid van die skaal. Konstruk en kriteriumverwante geldigheid is ondersteun deur bevestigende en verkennende faktorontleding en interskaalkorrelasies. Volgens Noar (2003) dra die ontwikkeling van betroubare en geldige meetinstrumente by tot die bevordering van gehalte navorsing. Dit is in die vooruitsig gestel dat die GPWS van waarde sal wees in epidemiologiese en multi-dissiplinêre studies sowel as in die evaluering van die impak van intervensies met betrekking tot die bevordering van positiewe gesondheid (vgl. Seligman, 2008).

Die doel van die tweede studie was om die invloed van sosio-demografiese veranderlikes naamlik geslag, ouderdom, huwelikstatus, indiensnemingstatus, opvoedkundige vlak en omgewing te verken op holistiese psigologiese welstand in 'n Afrika steekproef. Keyes en Waterman (2003) sluit hierdie faktore onder die determinante van die welsyn en geestelike gesondheid in. 'n Gemeenskapsteekproef (n = 459) wat bestaan het uit manlike (n = 141) en vroulike (n = 318) Setswanasprekende volwassenes van landelike (n = 210) en stedelike (n = 249) agtergrond het aan die studie deelgeneem. Bevindinge dui daarop dat persone se woongebied (stedelike of landelike) die mees omvattende invloed op hulle psigologiese welstand het. Daar benewens is ook gevind dat sielkundige welstand positief beinvloed word deur huwelikstatus (om getroud te wees), 'n hoër opvoedkundige status en stand van indiensneming. Geslag en ouderdom het nie 'n as belangrike faktore vir algemene psigologiese welstand uitgewys nie. Die insigte verkry uit hierdie bevindinge kan help om begrip van die verskillende patrone te verbeter in die manifestasie van psigologiese welstand in 'n Suid-Afrikaanse konteks, veral met die fokus op Afrika groepe. Dit kan lei tot verbeterde intervensies vir die versterking van algemene psigologiese welstand in Afrika-gemeenskappe. In hierdie geval is dit duidelik dat veral landelike gemeenskappe ’n behoefte aan positiewe ontwikkelingsintervensie toon. Volgens Farid en Lazarus (2008) strewe intervensies na die verbetering van mense se lewens en moet van die vlak van beleidsontwikkeling aangemoedig word. Die regering en besighede moet belangstelling toon in mense se vlakke van welsyn en dit moet in beleidsbesluite weerspieël word (Diener, Kesebir & Lucas, 2008).

Die doel van die derde studie was om die General Psychological Well-being Scale (GPWS) en Mental Health Continuum Short-Form (MHC-SF) in 'n Afrika konteks op vergelykende wyse te ondersoek. Die studie het bestaan uit 459 Setswana-sprekende

deelnemers. Die studie het drie statistiese benaderings ingesluit, naamlik klassieke toetsteorie (CTT) (vgl. Clark & Watson, 1995; John & Benet-Martínez, 2000; Panounen & Ashton, 1998) strukturele vergelykende modellering (SEM) (Byrne, 2001; Kline, 2011), en die Rasch model (De Bruin, 2004; Linacre, 2002, 2003; Rasch, 1960) van item response teorie (IRT) in die vergelyking van die twee skale. Eerstens is die teoretiese basis van die skale en hulle ontwikkelingsroetes verken. Tweedens is resultate van CTT (beskrywende statistiek, betroubaarheid, te konstruering en kriteriumverwante geldigheid), SVM (meting van model-inpas indekse) en IRT (item korrelasie statistieke, probleem parameters, en die reaksie skaal drempels) ontleding gerapporteer. Die belangrikste bevinding is dat die GPWS en die MHC-SF vergelykbare meetings van holistiese psigologiese welstand in 'n Afrika konteks toon. Hoewel die MHC-SF ’n effens beter model blyk te wees, het geen model na vore gekom as duidelik beter as die ander nie.

Die bevindinge van die drie sub-studies in hierdie tesis dra by tot die kennisbasis en moontlike praktiese implementering daarvan op die gebied van die positiewe sielkunde op ten minste drie maniere. Eerstens is 'n nuwe self-rapporteringsinstrument vir evaluering van algemene psigologiese welstand ontwikkel gebaseer op ‘n teoretiese begronding en as betroubaar en geldig vir gebruik in 'n Afrika konteks bevind. Tweedens, het die studie die beduidende invloed van sosio-demografiese veranderlikes op individue se sielkundige welstand uitgelig, en dit kan implikasies vir modelle van psigologiese gesondheid inhou, m.n. ten opsigte van die verrekening van kontekstuele faktore. Derdens, as ’n psigometriese vergelyking van die twee skale gedoen word, het die studie nie net CTT en SEM metodes soos voorheen gebruik nie, maar het ook IRT se Rasch model se uitslae gerapporteer wat fyner nuanses uitlig. Die tesis is 'n omvattende kwantitatiewe evaluasie van die twee holistiese psigologiese welstandsmodelle en hulle operasionaliserings in 'n Afrika konteks. Verdere navorsing vanuit ‘n kwalitatiewe perspektief word aanbeveel om sodoende fyner nuanses van psigososiale welsyn in 'n Afrika konteks beter te kan verstaan en evalueer. Dit kan dien om die huidige bevindinge te ondersteun, beter toe te lig, en om leemtes in huidige kennis verder aan te vul en nuwe hipoteses te genereer.

Preface

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

The three manuscripts comprising this thesis have been submitted to the *Journal of Psychology in Africa* (JPA) (manuscripts 1 and 3), and *Social Indicators Research* (manuscript 2), with articles 1 and 2 successfully published in 2010 and 2011.

The referencing style and editorial approach for this thesis is in line with the prescriptions of the *Publication Manual* (6th edition) of the American Psychological Association (APA).

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

Attached, please find the letter signed by the co-authors authorizing the use of these articles for purposes of submission for a Ph.D. degree.

Solemn declaration

I, Itumeleng P. Khumalo, declare that the thesis (article format) hereby submitted by me, in compliance with the requirements for the Ph.D. in Psychology at the North-West University Potchefstroom Campus, is my own independent work. I have acknowledged all material and sources used in its preparation, whether they be books, articles, reports, lecture notes, or any other kind of document, electronic or personal communication. I also certify that this assignment/report has not previously been submitted for assessment at any other unit/university/faculty, and that I have not copied - in part or whole - or otherwise plagiarised the work of other students and/or persons.

Student:

.....

Itumeleng P. Khumalo

Letter of permission

Permission to submit the manuscripts for degree purposes

Permission is hereby granted by the co-authors that the following manuscripts may be submitted by

Itumeleng P. Khumalo for the purpose of obtaining a Ph.D. degree in Psychology:

1. Development and validation of the General Psychological Well-being Scale (GPWS) in an African context

2. Socio-demographic variables and levels of psychological well-being and mental health in an African context

3. Psychometric Comparison of the General Psychological Well-being Scale and the Mental Health Continuum Short-Form in an African context

The co-authors, Proff. Q. M. Temane and M. P. Wissing, acted as promoter and co-promoter.

.....	.....
Prof. Q. Michael Temane	Prof. Marié P. Wissing

Section 1: Introduction

Introduction

The scientific interest shown by the field of Psychology in the study of psychological well-being and optimal human functioning has exponentially increased in recent years (Lopez & Gallagher, 2009). Preceding the current seemingly contemporary Positive Psychology movement (cf. Seligman, 1998; Seligman & Csikzentmihalyi, 2000) a number of researchers, thinkers and theorists had already been pondering on the issues of psychological well-being (e.g. Frankl, 1964; Jahoda, 1958; Maslow, 1968). Rathunde (2001) reminds us that questions about what makes life fulfilling and meaningful were raised as early as the times of William James and John Dewey. In fact, the work of Carol Ryff (Ryff, 1989; Ryff & Singer, 2006) is strongly influenced by the earlier theoretical conceptualisations of optimal human functioning and well-being, particularly the work of Jahoda (1958). Therefore research effort in the exploring and measuring psychological well-being is not with ignorance or denial of this earlier work. In line with this, Strümpfer (2005) is of the view that this earlier work can still offer fresh and insightful perspectives to current research efforts. The current author therefore acknowledges "standing on the shoulders of giants" as Strümpfer (2005, p21) so humbly stated. Lopez and Gallagher (2009) and Seligman and Csikszentmihalyi (2000) also acknowledge the strong influence of *our predecessors* on the current paradigm and movement of Positive Psychology.

In recent years, Positive Psychology has come to be seen as an umbrella term referring to a scientific movement concerned with identifying actions that lead to well-being in all areas of life: positive individuals, thriving communities, flourishing children, satisfied workers, and public policy that promote strong civic engagement (Diener, 2009; Park & Peterson, 2007; Seligman & Csikszentmihalyi, 2000). So far at least two comprehensive volumes, namely the first and second editions of the *Handbook of Positive Psychology* have been edited by Lopez and Snyder (2002, 2009), and a special journal edition of the *Journal of Psychology in Africa* has been dedicated to the study of well-being in an African context (Eloff, 2008). Well-being broadly refers to optimal psychological experience and functioning (Deci & Ryan, 2008; Ryan & Deci, 2001). According to Christopher (1999) and Waterman, Schwartz and Conti (2008) it is an essential requirement of human existence and an ultimate goal of human functioning. In line with this, Keyes (2006) encourages the promotion and maintenance of genuine mental health, which is a notion strongly embedded in the WHO's

(1948) description of health as the presence of a holistic positive state of human capacities and functioning.

With the growth of work in the study of well-being, many critical voices have also emerged. Some have suggested that the field of positive psychology is in need of growth and maturity enhancing self-reflective attitude (e.g. Lazarus, 2003; Rathunde, 2001; Richardson & Guignon, 2008). In the second edition of the *Handbook of Positive Psychology*, Diener (2009) took the opportunity to respond in a unique display of frankness that demonstrated maturity and a self-reflective attitude among those working in Positive Psychology. He acknowledges some partial shortcomings of the field. The study of well-being has had a too exclusive focus on the individual person and neglected other structural organisations and systems of society. There is a perception that Positive Psychology has a narrow membership and is not open to diversity of input from other sciences and scholarly disciplines. In certain sectors applications in the form of interventions precede the establishment of the science. There has been criticism that positive psychology ignores past scholarship and declares itself as new. Concern has also been raised about the perceived ignorance of the negative aspects of life and the world.

Furthermore, Lazarus (2003) is of the view that Positive Psychology could easily pass by as any other fad in Psychology, with little significant impact and a short life span. Richardson and Guignon (2008) offer a further critical review of the study of psychological well-being by pointing out the following as problematic assumptions: individualism, hedonism, instrumentalism and scienticism. Individualism is problematic as it considers humans as self-defining and self-dependent. Not only does individualism exclude the collectivistic cultural orientation, but undermines the socio-contextual embeddedness of humans. Hedonism which assumes that a good life is represented by emotional satisfaction is lacking in its explanation of well-being. The two concepts, according to Richardson and Guignon (2008), have a cultural bias favouring western cultural orientation. Instrumentalism assumes that human behaviour consists of manipulative or instrumental efforts to have control over natural and social processes towards enhancing human welfare. Scienticism which usually has a secondary implication of removing concepts from their inherently contextual meaning, refers to the tendency to *objectively* observe and describe social and psychological realities in a neutral manner.

In proposing a thesis on the general psychological well-being and mental health continuum models and measures in an African context, the current author is aware and conscious of the points of criticism directed at and inherent in Positive Psychology as a field

and the study of well-being. In light of this, the thesis will also pay particular attention to issues of theoretical conceptualisation of well-being, hedonism and eudaimonia overlap, cultural embeddedness of positive human behaviour, individualism and collectivism dichotomy, and methodology and measurement. Recently the nature and structure of well-being has been a point of interest and central focus in positive psychology (Linley, Maltby, Wood, Osborne, & Hurling, 2009). There is a great diversity, complexity and lack of consensus regarding both theoretical framework and empirical measurement to optimally explain psychological well-being (Compton, 2001; Lent, 2004; Linley, et al., 2009; Ryan & Deci, 2001; Waterman, 2008; Wissing & Temane, 2008). As a result a sporadic proliferation of many constructs and different models in positive psychology are observed (Lopez & Gallagher, 2009; Waterman, 2008). The current study, which is firmly positioned in the positive psychology paradigm, seeks to explore holistic psychological well-being in an African context. This suggests at least two assumptions, namely that psychological well-being is a holistic concept consisting of overlapping hedonic and eudaimonic dimensions (Wissing & Van Eeden, 2002); and that the study and definition of well-being occur within a cultural context (Christopher, 1999). The author is therefore in favour of a culturally-embedded perspective to well-being rather than a culture-free universal approach. Constantine and Sue (2006), and Pedrotti et al. (2009) are of the view that well-being constructs can be viewed more accurately from within a cultural context.

Partly through the contribution of Martin Seligman (Seligman, 1998; Diener, 2009; Snyder & Lopez, 2002), whose efforts towards the establishment of the Positive Psychology movement have been a catalyst in the study of well-being, there has been a great interest in psychological well-being. Positive Psychology literature is full of evidence of many studies focusing on separate micro-level constructs, models and indices of well-being. Constructs reflecting aspects of well-being have included hope (Snyder, 2000), optimism (Scheier & Carver, 1985), self-efficacy (Bandura, 1992), satisfaction with life (Diener, Emmons, Larsen, & Griffin, 1985), spiritual well-being (Ellison, 1983; Emmons, 2003), flow (Csiksentmihalyi, 1990), subjective vitality (Ryan & Frederick, 1997), and others. Some more elaborate models have also been developed. They include Self Determination Theory (Ryan & Deci, 2000), Psychological Well-Being (Ryff, 1989), Subjective Well-Being (Diener, 1984; 2000), the Broaden-and-Build model (Fredrickson, 2000), Fortitude (Pretorius, 1998), Sense of Coherence (Antonovsky, 1987; 1993), and Resilience (Kumpfer, 1999) among others. Central to the current study are two models that consider psychological well-being as a holistic

concept, namely general psychological well-being (GPW; Wissing & Van Eeden, 2002) and the mental health continuum (MHC; Keyes, 2002).

Many of the other constructs and models have obeyed the tradition of categorising well-being into the hedonic and eudaimonic perspectives as distinct categories (Ryan & Deci, 2001; Linley et al., 2009). The possible overlap between the two perspectives is therefore often missed. Hedonic well-being is closely aligned with Subjective Well-Being (Diener, 1984, 2000; Pavot & Diener, 2008). Eudaimonic well-being on the other hand is exemplified by models such as Ryff's (1989) Psychological Well-Being, Self-Determination Theory of Ryan and Deci (2000) and Sense of Coherence (Antonovsky, 1987, 1993). Waterman and colleagues (Waterman, 2005; Waterman, 2008; Waterman, Schwartz, & Conti, 2008; Waterman et al., 2010) are acknowledged for their leading contribution in the study of eudaimonic well-being.

Nevertheless, Wissing and Temane (2008) view psychological well-being as an integrative, complex and holistic multi-faceted concept. In line with this, psychological well-being can be synthesised as an intertwined concept of hedonic enjoyment and eudaimonia that can be empirically measured. This complex conceptualisation is supported by various theoretical studies and empirical evidence (e.g. Adams, Bezner, Drabbs, Zambarano, & Steinhardt, 2000; Ellison & Smith, 1991; Hattie, Myers & Sweeney, 2004; Keyes, 2002; Lent, 2004; Wissing & Van Eeden, 2002). Approaches that view positive human functioning in a more holistic manner are in support of Adler's (1956; cited by Ellison & Smith, 1991) formulation that a person is a unified, self-consistent, goal-directed and purposeful entity, and reflecting the integrative thinking embedded in general systems theory, as well as the eclectic empirical approach. Referring to the integrative nature of healthy human personality with particular emphasis on spiritual well-being, Ellison and Smith (1991: 36) state that "well-being reflects the proper functioning of persons as integrated systems". In addition to this, a person as a whole also comprises of the socio-environmental context (Elliot & Snyder, 2005; Keyes, 1998; Temane & Wissing, 2006).

Contrary views and psychometric evidence indicating multiple factor solutions have also been presented. For example, Lent (2004) views psychological well-being as not homogeneous, nor meticulously and theoretically organised. Previous empirical studies have found that hedonic and eudaimonic well-being indices load on separate yet closely related factors (Keyes, Shmotki & Ryff, 2002). Compton (2001) also found factor analysis results supporting a two-factor model rather than one general factor.

Hedonic and eudaimonic well-being. The distinct categorisation of hedonism and eudaimonia has had a number of limitations and has been met with some criticism (e.g. Kashdan, Biswas-Diener & King, 2008; Waterman, Schwartz & Conti, 2008). Essentially, the two traditions of conceptualising well-being are based on two different views of human nature (Deci & Ryan, 2008). According to the hedonic perspective, well-being is equated with subjective experience of pleasure and being satisfied (Joshanloo & Ghaedi, 2009; Ryan & Deci, 2001). Waterman (2010) views hedonic experience of pleasure as being an end in itself without the consideration of the sources from which the pleasure is derived. This view is contrary to eudaimonia which is described by Waterman (2010) as a by-product of engaging in actions consistent with the development and expression of one's best potentials and the pursuit of intrinsic goals. The eudaimonic perspective holds that an individual has potential, content and meaning that are uncovered and expressed through meaningful engagement (Kopperud & Vitterso, 2008).

The hedonic dimension of well-being has been conceptualised and operationalised through subjective well-being (SWB; Diener, 1984, 2000). This is represented via positive affect balance (e.g. PANAS; Watson & Clark, 1988; AFM; Kammann & Flett, 1983) and cognitive satisfaction with life (e.g SWLS; Diener et al, 1985). Through different paths, Ryan and Deci (2001) and Ryff (1989) have demonstrated the essence of eudaimonia through their models of Self Determination Theory (SDT) and Psychological Well-Being (PWB). Recently Waterman et al. (2010) have reported a scale to measure eudaimonic well-being, and Delle Fave and colleagues (e.g. Delle Fave & Bassi, 2010; Delle Fave, Brdar, Freire, Vella-Brodrick, & Wissing, 2010) are exploring qualitative experiences of eudaimonia.

However the current author argues that no one perspective, hedonia *or* eudaimonia, can fully explain optimal human functioning and happiness without the other (cf. Strümpfer, 2006). In fact, Kashdan, Biswas-Diener & King (2008) are convinced that this dichotomous distinction has been costly to well-being research over the years. The distinction is not necessarily supported by qualitative evidence of people's life experiences. Well-being as a dynamic process is experienced as a synergy of both hedonic and eudaimonic well-being indices (Kashdan, et al., 2008). Such a dynamic interaction among various well-being indices in everyday life experiences is also captured in Fredrickson's (2000) Broaden and Build model. Fredrickson (2000) makes an argument that emotions are not isomorphic. Positive emotions follow from an assessment of personal meaning, therefore occurring with personally meaningful circumstances, and further broaden one's momentary thought-action

repertoire, and build physical, intellectual and social resources, while having a positive effect on interpersonal relations (Fredrickson, 2000).

Following the notion that neither hedonia nor eudaimonia can optimally account for well-being, the two models GPW (Wissing & Van Eeden, 2002) and MHC (Keyes, 2002) are an optimal illustration of more holistic conception of psychological well-being. The recognised substantial overlap between the experience of hedonia and eudaimonia (cf. Joshanloo & Ghaedi, 2009; Ryan & Deci, 2001; Wissing & Temane, 2008) renders well-being a multifaceted construct. As a multifaceted construct psychological well-being manifests according to contextual characteristics (Forgeard et al., 2011; Wissing & Temane, 2008). In an integrated way high General Psychological Well-being reflects positive cognitive, affective, conative, interpersonal, social, spiritual experiences as well as the absence of mental and physical symptoms of distress (Wissing & Temane, 2008; Wissing & Van Eeden, 2002). Similarly, the high end of the mental health continuum, namely flourishing refers to high levels of emotional well-being, and positive functioning that includes psychological and social well-being (Keyes, 2002). Therefore, their comprehensive structures and constituting components denote an overlap between hedonic enjoyment and eudaimonia. They are both integrative models involving intrapersonal and interpersonal elements of psychological well-being across life domains. Strumpfer (2006) acknowledges the intertwined relationship and manifestation of the hedonic and eudaimonic well-being dimensions and that Keyes' Mental Health Continuum could be a well fitting model for this representation.

General Psychological Well-being model. From empirical evidence, Wissing and Van Eeden (2002) found that the general psychological well-being (GPW) construct to be multi-faceted and encompassing facets of self such as affect, cognition and behaviour, as well as domains of life, namely intra-, interpersonal and social as well as contextual aspects in various spheres of life such as intimate relationships, work and recreation. This factor which is described as robust by Wissing and Van Eeden (2002) is represented by an empirical overlap involving sense of coherence, satisfaction with life and positive affect balance. The GPW construct refers to a complex, multi-faceted and yet unidimensional factor made up of positive intrapersonal, interpersonal and spiritual elements of human functioning (Wissing & Temane, 2008; Wissing & Van Eeden, 2002). It therefore captures a holistic conceptualisation of psychological well-being. This construct resulted from an empirical exploration of the psychometric properties and manifestation of a number of well-being indicators with the aim of clarifying the nature of psychological well-being in an African context (Wissing & Van

Eeden, 2002). It was statistically derived from measures of various specific strengths and facets of psychological wellness (Wissing & Temane, 2008; Wissing & Van Eeden, 2002). Sense of coherence (Antonovsky, 1987; 1991), Positive affect balance (Kamman & Flett, 1979) and Satisfaction with life (Diener, et al., 1985) accounted for this factor.

Sense of coherence (SOC; Antonovsky, 1987; 1993) indicates the confidence that one's life and world are comprehensible, manageable and meaningful. Meaningfulness is the most central component of the SOC (Feldt & Rasku, 1998), an aspect of spirituality, and an integral component of well-being (Compton, 2000; Ellison, 1983; Emmons, 2003; Hattie, et al., 2004; Van Dierendonck, 2005; Wissing & Fourie, 2000). By comprehensibility and manageability, Antonovsky (1987) referred to the ability to experience the world as structured, predictable, and explicable, as well as having enough resources to meet demands that may be encountered in the course of living. Positive affect balance informs the overall level of well-being as the extent to which positive feelings predominate over negative feelings (Kammann & Flett, 1983). Positive emotions have been found to contribute to psychological resilience, positive health, and longevity (Fredrickson, 2000; Fredrickson & Losada, 2005). Closely related to positive affect is satisfaction with life which is described as the global cognitive judgmental evaluation of life as satisfying and fulfilling (Diener, Emmons, Larsen, & Griffin, 1985; Diener, Kesebir, & Lucas, 2008). Cumulatively, positive experiences of life facets of cognitive, affective, conative, interpersonal, social, spiritual, and absence of mental and physical symptoms of distress, at intrapersonal, interpersonal and spiritual levels of functioning are reflected by high general psychological well-being (Wissing & Van Eeden, 2002; Wissing & Temane, 2008).

Mental Health Continuum model. The mental health continuum (MHC; Keyes, 2002) represents the upper end of positive well-being and optimal human functioning as indicated by emotional, psychological and social well-being. The model considers positive mental health within the complete state model of health where mental health is constituted not only by the absence of psychopathology, but especially a state of flourishing on the upper end (Keyes, 2005a/b). It is also based on the conceptual and empirical overlap between hedonic and eudaimonic well-being indices. The MHC emanated from the theoretical conception of positive mental health as a complete positive state consisting of a set of positive symptoms of emotional, psychological and social well-being (Keyes, 2002). This reflects individuals' evaluation and perception of their affective state, psychological and social functioning.

Emotional well-being is characterised by the presence of positive affect, the absence of negative affect and level of satisfaction with life. Psychological well-being refers to

positive functioning as indicated by Ryff's (1989) six dimensions of Psychological Well-Being and reflecting optimal psychological adjustment. The six dimensions, as conceptualised and operationalised by Ryff (1989) following on the work of Jahoda (1958), are self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. Emotional and psychological well-being are however intrapersonal reflections of one's adjustment and do not represent a complete engagement in society and life. The third component which is social well-being is also necessary for mental health. The inclusion of social well-being in the MHC model stemmed from the work of Keyes (1998) in which he reported a five dimension social well being model, consisting of social integration, social acceptance, social contribution, social actualisation, and social coherence. Cumulatively, Mental Health Continuum consists of psychological, emotional and social well-being (Keyes, 2002) along a continuum ranging from complete to incomplete mental health where a complete state of mental health is called flourishing, and incomplete mental health is referred to as languishing.

Empirical measurement. Many models in psychology and in positive psychology find expression through self-report measures (see Ong & Van Dulmen, 2007; Lopez & Snyder, 2002). Self-report is the most common method of reporting psychological characteristics including psychological well-being and mental health (Haeffel & Howard, 2010; Kashdan, Biswas-Diner & King, 2008; Seligman, 2008). Operationalisation of constructs allows for the transition from theory to measurement (Hui & Triandis, 1985), and is thus an important process. Well-being is usually described as the outcome on a particular measure or set of measures, and thus reflecting contemporary research's emphasis on empirical study (Christopher, 1999). Haeffel and Howard (2010) take note of the prevalent tendency to refer to self-report as a major limitation and express disappointment at this unsubstantiated view. Researchers who claim this limitation, according to Haeffel and Howard (2010), hardly describe what these limitations are nor provide reasons why other measurement methods ought to be superior to self-report. In fact, "there is no better way to gauge someone's positive experiences, life satisfaction, self-determination, and meaning in life than to directly ask about them" (Kashdan, 2008: p.4).

Therefore, more research effort towards proper operationalisation of psychological variables through the development of new measures and the validation of existing ones is encouraged (Lopez & Snyder, 2003). In line with quantitative self-report measurement approach, good and psychometrically sound measuring instruments are necessary (Dawis, 1987; Haeffel & Howard, 2010). A well-developed theoretical conceptualisation of a

construct should always precede a psychometrically sound measuring instrument (Clark & Watson, 1995; Dawis, 1987). Thus, developing a reliable and valid scale begins with defining and formulating a theoretically sound construct (Anastasi, 1986). Psychometric properties indicating the reliability and validity of the scale as well as the characteristics of the scale within the context of the target population inform its ability to measure the intended construct in the specific context and population. Characteristics of the scale such as its correlation with other scales, correlation with important variables like age and socio-economic status, and differences in means and standard deviation across naturally occurring groups such as gender, geographical position and culture also need to be demonstrated (Comrey, 1988).

Clark and Watson (1995) and Paunonen and Ashton (1998) recommend the following psychometric properties for consideration, namely scale means, reliabilities, criterion-related validity, and factor structure. Reliability, as in the present thesis, is often reported using Cronbach's alpha (Streiner, 2003). This will give an indication of the degree to which similar results are produced when measurements are administered on different occasions and perhaps by different observers (Streiner, 2003). The validity of measures will be reported using factor analyses (confirmatory and exploratory) for construct validity, and inter-scale correlations for criterion-related validity. According to Dawis (1987) validity gives an indication of the "proportion of the scale variance that accurately represents the construct and of the proportion of criterion variance that is predicted by the scale" (p. 486). The present thesis utilises both exploratory and confirmatory factor analyses (see Henson & Roberts, 2006; Worthington & Whittaker, 2006) as dimension reduction techniques. In addition to these factor analysis procedures, structural equation modelling (SEM; Byrne, 2005; Kline, 2011) is used as a confirmatory technique. A further step is undertaken when Item-Response Theory is used to yield scale characteristics at the observed item response level (Karim, 2009), and could be used to assess the functioning of rating scale categorisations (Linacre, 2002).

In addition to the requirement that an instrument has to be reliable and valid (Clark & Watson, 1995), it is expected to be culturally competent in measuring the target construct (Hui & Triandis, 1985; Marsella & Leong, 1995). The importance of cultural influence on assessment cannot be overstated because culture influences the definition, evaluation and explanation of behaviour, as well as what individuals perceive to be a strength or a weakness (Flores & Obasi, 2003; Pedrotti, et al., 2009). Responses to psychometric measures are sensitive to socio-cultural context as culture also influences the manner in which individuals respond to scale content (Allik & McCrae, 2004; Shulruf & Dixon, 2007). The study of well-being has been criticised for its theories and measures being based on western and white

middle class value system (cf. Christopher, 1999; Flores & Obasi, 2003; Richardson & Guignon, 2008). This criticism has a number of conceptual and measurement implications. For example, western society is associated with individualism and hedonism (Richardson & Guignon, 2008). It is also thought that collectivistic cultural groups such as in Africa and Asia could be more homogeneous than the individualistic ones in the west (McCrae, 2002). There are also differences in the appropriate response formats for different cultural groups (Allik & McCrae, 2004). At the same time it is not all people in a particular culture that would have internalised the values and ethos of the specific culture (Allik & McCrae, 2004).

General psychological well-being (GPW; Wissing & Temane, 2008; Wissing & Van Eeden, 2002) was derived through an empirical route and has not yet been operationalised in the form of a self-report scale. The mental health continuum on the other hand is measured using the Mental Health Continuum Short-Form (MHC-SF; Keyes, 2002, 2005a, b, 2007, Keyes et al., 2008). The use of self-report measures forms an essential part of studying psychological well-being. Given this insight, one of the primary aims of the current study is to operationalise general psychological well-being through the development of a psychometrically sound measure. The development of the scale to measure general psychological well-being followed a combined etic-emic approach (cf. Hui & Triandis, 1985; John & Benet-Martinez, 2000). The cross-cultural adaptation of the MHC-SF (Keyes, et al., 2008) in an African context followed an imposed etic approach (cf. Ho & Cheung, 2007; Hui & Triandis, 1985; John & Benet-Martinez, 2000).

Socio-cultural context. Culture and context are powerful influences in characterising the experience of positive well-being and optimal human functioning (Constantine & Sue, 2006; Ryff & Singer, 1998). The current study purposely takes place within an African context partly because of a scarcity of positive health related research in non-western societies and particularly in Africa. Christopher's (1999) warning that concepts of psychological well-being may be shaped by western and individualistic moral visions emphasises the importance of placing research enquiries in proper context. Diener (2009) and Ryff and Singer (1998) share a similar concern about the study of well-being.

Traditionally, being African is associated with a collectivistic cultural orientation, and is characterised by social interdependence (Ryff & Singer, 1998; Wissing & Temane, 2008). Among Africans, the community is elevated over the self making the concept of person apart from the community non-existent (Ryff & Singer, 1998). On the other hand, individualism refers to the perception of one's existence as being metaphysically discrete and separate from other people, where the individual is the primary reality and society is merely a collection of

individuals (Christopher, 1999). Although the terms "individualism" and "collectivism" may be overgeneralised, and individualism also found outside western culture (Triandis, 1995), the current study acknowledges the African community as being relatively collectivistic (see Wissing & Temane, 2008). With this mentioned, it is also acknowledged that the lines between individualism and collectivism are blurring, and a degree of both can be found in any cultural context (Constantine & Sue, 2006).

In a multi-cultural South African sample, Wissing and Temane (2008) found variations in the manifestation of general psychological well-being, as represented by the sense of coherence, positive affect balance and satisfaction with life, across different cultural and contextual orientations. Although both the more collectivistic and more individualistic groups shared the intra-psychological well-being component, they differed in that the individualistic group embraced behavioural readiness, while the more collectivistic group embraced social satisfaction more. This is consistent with the finding of Kwan, Bond and Singelis (1997) that relationship harmony is a better predictor of life satisfaction in a collectivistic than an individualistic context.

Socio-demographic variables. In addition to the phenotypic inheritance of cultural orientation, African people living in different areas of South Africa are faced with various contextual and environmental circumstances that have an influence on their experience of well-being (Temane & Wissing, 2008). Temane and Wissing (2006) have for example conceptualised context in terms of the stratification by socio-economic differences pertaining to race, socio-economic indices and infrastructural resources. A large contrast in conditions of living was found between rural and urban settlements by Temane and Wissing (2006). Environmental factors and geographical location are known to influence human functioning (Allik & McCrae, 2004; Rasmussen, et al., 2002). Wissing and Van Eeden (2002) argued that socio-demographic variables such as age, gender, and cultural/ethnic context may be moderator variables to possibly influence the manifestation and experience of psychological well-being. Accordingly, they suggested that people do not only differ in levels at which they experience well-being, but also in their particular patterns of strengths and wellness as influenced by contextual factors. Keyes, Shmotkin and Ryff (2002) further hypothesized that variables of well-being are meaningfully structured by socio-demographic variables and personality characteristics. Findings based on empirical data in support of socio-demographic variables' influence on well-being have been reported.

Various mechanisms or explanatory routes have been suggested to account for the influence of socio-demographic variables on optimal human functioning. One of the possible

explanatory mechanisms is the social standing afforded to people according to their socio-demographic characteristics such as age and educational attainment. Further, well-being may be expected to be influenced by socio-demographic variables through the experience of traditional African social hierarchy that allows for rigid division of duty, responsibility and status according to particularly age and gender (Sokoya, Muthukrishna & Collings, 2005). The urban and rural divide is also a strong determinant in the well-being and mental health differential distribution mainly through the uneven distribution of resources and opportunities between the two socio-environmental contexts (Carter & May, 1999; Temane & Wissing, 2006; Vorster et al., 2000). Educational attainment also influences differential access to resources and opportunities and therefore affecting health and well-being (Keyes, et al., 2002).

Aims and manuscripts:

To achieve the aim of exploring the nature of the two models of well-being and their measures as well as present evidence for holistic interpretation of well-being in an African context, the present thesis comprises of three manuscripts. There will be written and presented in accordance with the guidelines for authors as given by the target journals. The first study (section 2, manuscript 1) aims to develop and validate a scale to measure general psychological well-being (GPW; Wissing & Van Eeden, 2002) in an African community sample. The envisaged scale is to be known as the General Psychological Well-being Scale (GPWS). The second study (section 3, manuscript 2) reports the role played by and the extent to which socio-demographic variables influence psychological well-being and mental health. The socio-demographic variables to be examined are age, gender, education level, employment status, rural-urban living, and marital status. The third study (section 4, manuscript 3) undertakes a psychometric comparison between the measures of GPW model (Wissing & Van Eeden, 2002; Wissing & Temane, 2008) and MHC model (Keyes, 2002, 2005a, b, 2007; Keyes, et al., 2008), namely the General Psychological Well-being Scale (GPWS) and Mental Health Continuum Short-Form (MHC-SF).

This process will examine how the two models and measures compare at an empirical level in explaining holistic psychological well-being in an African context. The three resultant manuscripts will offer findings, pose questions, and present recommendations for further study. The research activities and findings of the three studies in this thesis constitute a set of processes that help in further clarifying the nature and structure of holistic psychological well-being in an African context, and thus hopefully make a contribution to the field.

Contribution made by the study. Through the three studies in the thesis, a number of specific contributions to well-being studies are made. In the first place, a new scale to measure a relatively new construct developed in an African context will be developed and validated. The GPW (Wissing & Temane, 2008; Wissing & Van Eeden, 2002) has an established theoretical and empirical research background. Its operationalisation will be a good addition. Understanding how socio-demographic characteristics interact with general well-being and positive mental health will help in mapping the mental health epidemiology and inform better targeted interventions. Conceptual and psychometric exploration and comparison of the two measures and their measures also contribute to the scientific pursuit of the clarity of the nature and structure of well-being. The occurring of the current study in an African context is in itself a positive move towards contextual understanding of well-being constructs in previously neglected settings and groups.

Numerous researchers have expressed concern about the lack of consensus regarding the definition of health and/or operationalisation of well-being (Lent, 2004; Ryan & Deci, 2001). Understanding of well-being and mental health contributes to the promotion of optimal human functioning. According to Seligman (2008), being well is a desired state in itself, in addition to it being one of the best weapons against mental disorder. Well-being is among the most central notions in counselling (Christopher, 1999). In addition to informing goals and objectives for counselling-related intervention and serving as a guide for clinical work involving alleviation of stress and finding fulfilment, knowledge on well-being plays a role in theories of personality and development and provides baseline from which to assess psychopathology (Christopher, 1999). Seligman stated that mental health can prevent and relieve mental illness. For example well-being promoting interventions alleviate depression. In an effort in the right direction, a special edition of the *Journal of Psychology in Africa* (Elloff, 2008) was dedicated to the study of psychological well-being in Africa. It is such efforts that can help identify aspects of positive mental health that contribute towards new interventions and improvements in treatment processes (cf. Seligman, 2008).

Section 2: Article 1

Development and Initial Validation of a General Psychological Well-Being Scale (GPWS) in an African Context

Submitted to the

Journal of Psychology in Africa

Target journal and guidelines for authors

The first article has been submitted to the *Journal of Psychology in Africa* for publication and this manuscript and reference list has been styled according to this journal's specifications. The following is a copy of the guidelines for prospective authors set out by the journal.

Instructions to Authors

The *Journal of Psychology in Africa* includes original articles, review articles, book reviews, commentaries, special issues, case analyses, reports, special announcements, etc. Contributions should attempt a synthesis of local and universal methodologies and applications. Specifically, manuscripts should:

1) Combine quantitative and qualitative data, 2) Take a systematic qualitative or ethnographic approach, 3) Use an original and creative methodological approach, 4) Address an important but overlooked topic, and 5) Present new theoretical or conceptual ideas.

Also, all papers must show an awareness of the cultural context of the research questions asked, the measures used, and the results obtained. Finally the papers should be practical, based on local experience, and applicable to crucial development efforts in key areas of psychology.

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Manuscripts

Manuscripts should be submitted in English, French, Portuguese or Spanish. They should be typewritten and double-spaced, with wide margins, using one side of the page only. Manuscripts should be submitted to the Editor-in-Chief, *Journal of Psychology in Africa*, Professor Elias Mpofu, PhD., CRC, Associate Professor, Faculty of Health Sciences, University of Sydney, Cumberland Campus, East Street, PO Box 170 Lidcombe NSW 1825, Australia, email: e.mpofu@usyd.edu.au. We encourage authors to submit manuscripts via e-mail, in MS Word, but we also require two hard copies of any e-mail submission. Before submitting a manuscript, authors should peruse and consult a recent issue of the *Journal of Psychology in Africa* for general layout and style. Manuscripts should conform to the publication guidelines of the latest edition of the American Psychological Association (APA) publication manual of instructions for authors.

Manuscript format

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

Title: This should be brief, sufficiently informative for retrieval by automatic searching techniques and should contain important key-words (preferably <10 words).

Author(s) and Address(es) of author(s): The corresponding author must be indicated. The author's respective addresses where the work was done must be indicated. An e-mail address, telephone number and fax number for the corresponding author must be provided.

Abstract: Articles and abstracts must be in English. Submission of abstracts translated into French, Portuguese and/or Spanish is encouraged. For data-based contributions, the abstract should be structured as follows: *Objective*- the primary purpose of the paper, *Method*- data source, subjects, design, measurements, data analysis, *Results*- key findings, and *Conclusions*- implications, future

directions. For all other contributions (except editorials, letters and book reviews) the abstract must be a concise statement of the content of the paper. Abstracts must not exceed 120 words. It should summarize the information presented in the paper but should not include references.

Referencing: Referencing style should follow APA manual of instructions to authors.

References in text: References in running text should be quoted as follows: (Louw & Mkize, 2004), or (Louw, 2004), or Louw (2000, 2004a, 2004b), or (Louw & Mkize 2004), or (Mkize, 2003; Louw & Naidoo 2004). All surnames should be cited the first time the reference occurs, e.g. Louw, Mkize and Naidoo (2004) or (Louw, Mkize, & Naidoo 2004). Subsequent citations should use **et al.,** e.g. Louw et al. (2004) or (Louw et al. 2004). 'Unpublished observations' and 'personal communications' may be cited in the text, but not in the reference list. Manuscripts accepted but not yet published can be included as references followed by 'in press'. **Reference list:** Full references should be given at the end of the article in alphabetical order, using double spacing. References to journals should include the author's surnames and initials, the full title of the paper, the full name of the journal, the year of publication, the volume number, and inclusive page numbers. Titles of journals must not be abbreviated. References to books should include the authors' surnames and initials, the year of publication, the full title of the book, the place of publication, and the publisher's name. References should be cited as per examples below (please note the absence of punctuation):

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Sternberg, R.J. (2001, June). *Cultural approaches to intellectual and social competencies.* Paper presented at the Annual Convention of the American Psychological Society, Toronto, Canada.

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

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2.2. Manuscript

Running head: WELL-BEING SCALE

Development and Initial Validation of a General Psychological Well-Being Scale (GPWS) in an African Context

Abstract

This study aimed to develop and validate the General Psychological Well-being Scale (GPWS) in an African sample, based on the empirical overlap between hedonic and eudaimonic facets of well-being as found in previous research. The quantitative cross-sectional study was conducted in three phases: secondary data analysis (*n*=2005), pilot study (*n*=296) and main study (*n*=459). The pilot and main study included the GPWS as well as other psychological well-being measures for criterion-related validity. The pilot study yielded satisfactory psychometric properties. The main study yielded a high and reliable Cronbach alpha of .89 and good construct and criterion-related validity. The GPWS appears to be a unidimensional scale as indicated by CFA and a scree plot. The GPWS is an adequate measure for research use in a Setswana-speaking group, and should be further explored in other contexts.

Key words: Psychological well-being; General Psychological Well-being Scale; GPWS; scale development; psychometric properties; validity; reliability; African context

Development and Initial Validation of a General Psychological Well-Being Scale (GPWS) in an African Context

Psychological well-being is a complex phenomenon (Edward, Ngcobo, Edward & Pavalr, 2005; Lent, 2004; Ryan & Deci, 2001) encompassing many micro-level constructs and various models of which only some have been operationalised. Various models show a tendency to categorise and treat constructs in isolation to each other and may miss the possible overlap between them on an empirical level. The dichotomous categorisation of well-being into eudaimonic and hedonic perspectives has been the tradition (Ryan & Deci, 2000; 2001). Recently the conceptual and empirical overlap between the two has been acknowledged in the literature (Joshanloo & Ghaedi 2009; Kashdan, Biswas-Diener, & King, 2008; Keyes, 2002). As such there is a shift towards more holistic and complex approaches to explain and measure psychological well-being (Hattie, Myers, & Sweeney, 2004; Keyes, et al., 2008; Lent, 2004; Ryff & Singer, 2006; Seligman, 2008). In line with this development, holistic models such as the General Psychological Well-being factor (GPW; Wissing & Van Eeden, 2002) have emerged and should be operationalised. Besides some models that capture aspects of well-being having not been operationalised, there are even fewer measures of psychological well-being as a holistic and integrated concept. The GPWS provides a measure to make assessment of general psychological well-being possible.

General Psychological Well-being. The identification of the GPW construct emanated from an empirical overlap, identified by Wissing and Van Eeden (2002), involving sense of coherence as measured with Sense of Coherence Scale (SOC; Antonovsky, 1987; 1993), life satisfaction measured by the Satisfaction With Life Scale (SWLS; Diener, Emmons, Larson & Griffin, 1985), and positive affect balance measured by using the Affectometter-2 (AFM; Kammann & Flett, 1983). Sense of coherence (Antonovsky, 1987; 1993) indicates the confidence that one's life and world are comprehensible, manageable and meaningful. Satisfaction with life is described as the global cognitive judgmental evaluation of life as satisfying and fulfilling (Diener, Emmons, Larsen, & Griffin, 1985; Diener, Kesebir, & Lucas, 2008). Positive affect balance informs the overall level of well-being as the extent to which positive feelings predominate over negative feelings (Kammann & Flett, 1983). As such GPW is an integrative construct that includes facets from both the hedonic and eudaimonic perspectives and manifests at cognitive, affective, behavioural, social and spiritual levels of human functioning, in both more individualistic and collectivistic contexts – albeit with some differences in the two contexts (Wissing & Temane, 2008; Wissing & Van Eeden, 2002).

Furthermore, GPW also manifests at three levels which are conceptually related and empirically overlapping, namely spiritual well-being, intrapersonal well-being and interpersonal well-being (Wissing & Van Eeden, 2002). These three levels, through which the different overlapping constructs manifest, are conceptually intertwined in a balanced and fluid manner. As a dimension of well-being spirituality includes meaningfulness and purpose, connectedness to self, the environment or a higher power, and a belief in a unifying force (Ellison, 1983; Ellison & Smith, 1991; Emmons, 2003). Van Dierendonck (2005) and Carmody, Reed, Kristeller and Merriam (2008) agree that spirituality is central to what it means to be human. Personal, private, or intrapersonal well-being refers to the individual's positive experience of facets of affect, cognition and self-efficacy. This component would manifest in an individual being satisfied with life, experiencing more positive feelings over negative feelings, and holding a belief that he/she is capable of successful action to meet life's demands. Interpersonal relations and social context are essential components of GPW. Wissing and Temane (2008) found a social and contextual satisfaction component characterised by a strong association between social support and life satisfaction and autonomic positive expectations. The preservation and promotion of community is the ultimate life goal among Africans (Ryff and Singer, 1998).

General Psychological Well-being Scale (GPWS). The development of the GPWS in the current study followed an empirical approach (see Worthington & Whittaker, 2006) guided by previous empirical findings and conceptual proposition of the General Psychological Well-being construct by Wissing and Van Eeden (2002). The approach entailed statistical analyses to produce a scale that meets requirements for a reliable and valid measure (Clark & Watson, 1995; Noar, 2003). By way of secondary data analysis psychometric properties of the contributing scales, namely the Sense of Coherence, Satisfaction With Life Scale and Affectometer-2 were explored. Wissing and Van Eeden (2002) reported a single factor solution shared by AFM, SOC and SWLS as an explanation and empirical evidence for a GPW construct. Their finding served as a basis for the development of GPWS and CFA became the most suitable form of factor analysis (Henson & Roberts, 2006; Noar, 2003; Worthington & Whittaker, 2006) for item generation for the GPWS.

A number of considerations and guidelines for scale development are taken into account in this study. Broadly, they include conceptual construct definition and clarity, psychometric properties attesting to the reliability and validity of the scale, cultural and linguistic appropriateness of the scale content, and appropriateness of the sample in terms of size and its adequate representation of the target population (Brislin, 1990; Clark & Watson,

1995; Christopher, 1999; Dawis, 2000; John & Benet-Martínez, 2000; Noar, 2003; Panounen & Ashton, 1998; Van de Vijver & Leung, 1997; Worthington & Whittaker, 2006).

Socio-cultural context. The current study considers the cultural embeddedness and indigenous language of the target population and the possible collectivistic cultural orientation of an African Setswana-speaking community. Sokoya, Muthukrishna and Collings (2005) suggested that psychological well-being is socially and culturally constructed. Developing culture-free measures is misguided due to the potential variety in the interpretation of elements of well-being across cultures (Christopher, 1999). Thus, cultural contextual factors always have an influence on measurement of psychological well-being.

Similarly, GPW may take different manifestation patterns in different socio-cultural groups, particularly across the broad individualistic and collectivistic divide. Evidence from previous empirical studies reveals the relative prominence of a social satisfaction component among the more collectivistic group, and a behavioural readiness component in the more individualistic groups (Wissing & Temane, 2008). Noar (2003) warned that the intended factor structure of a model and its measure are not a given in the target culture until put under scrutiny through, for example, confirmatory factor analyses, and that the sample used should closely resemble the target population.

The aim of the study. The aim of the present study is therefore to develop and validate a self-report instrument to measure general psychological well-being within an African context. The scale is to be shorter than the previous batteries of scales used in the initial identification of the General Psychological Well-being factor (GPW) by Wissing and Van Eeden (2002). It can be of value in epidemiological and multi-disciplinary studies as well as in evaluation of the impact of interventions to enhance positive health (cf. Seligman, 2008). The development of reliable and valid measures contributes to the advancement of quality research (Noar, 2003).

Method

This study consisted of three phases: 1. Scale development, 2. Pilot study and 3. Scale validation. As some of the measures were used at more than one phase of the study, their detailed description is given once, and not repeated in the description of each phase.

Phase 1: Scale development

Design

The scale development phase employed quantitative secondary data analyses on previously collected data sets.

Data sets and participants

The scale development phase utilised three data sets contributing to a total number of 2005 participants. Data were collected in the following research projects at different times: (i) Profiles of Obese Women with the Insulin Resistance Syndrome (POWIRS; Schutte, Kruger, Wissing, Underhay, & Vorster, 2005), (ii) Transition and Health during Urbanisation of South Africa (THUSA; Vorster, et al., 2000; Wissing, et al., 1999) and (iii) Prospective Urban and Rural Epidemiological study – South Africa (PURE-SA; Kruger, 2005) and Understanding and promoting psychosocial health, resilience and strengths in an African context (FORT2; Wissing, 2005).

1. *POWIRS (Schutte, et al., 2005) (n=217).* The POWIRS sample was made up of 217 female participants from Potchefstroom an urban town in the North-West Province. The sample comprised of 102 Black African mainly Setswana-speaking, and 115 White mainly Afrikaans-speaking participants, with an age range between 18 and 60 years.
2. *THUSA (Vorster, et al., 2000; Wissing, et al., 1999) (n=738).* The THUSA project consisted of a stratified community sample of 738 participants from rural and urban areas in North-West Province. All of them were Setswana-speaking African male and female persons ranging in age from 15 to 65 years.
3. *PURE-FORT2 (Kruger, 2005; Wissing, 2005) (n=1050).* This sample comprised of 1050 male and female Setswana-speaking adult participants from rural and urban areas in the North-West Province. They were between the ages of 30 and 80 years.

Measuring instruments

The batteries completed in the THUSA, POWIRS and PURE-FORT2 research projects consisted of the Affectometer-2 (Kammann & Flett, 1983), Satisfaction with Life Scale (Diener, et al., 1985) and Sense of Coherence questionnaire (Antonovsky, 1987; 1993). Secondary data analyses were performed on these scales to test for Wissing and Van Eeden's (2002) empirical finding of a shared variance by the three scales.

Affectometer-2 (AFM; Kammann & Flett, 1983). The AFM is a 20-item self report scale with a two-factor structure measuring Negative Affect (NA) and Positive Affect (PA) from which Positive Affect Balance can be obtained. The AFM has a five-point frequency response format. The Positive affect balance reflects the extent to which good feelings predominate over negative feelings and indicate a level of well-being. Kammann and Flett (1983) reported a reliability index of .95 for the total scale as well as good criterion-related validity. Using the longer version of the AFM in an African context, Wissing and Van Eeden (2002) found a Cronbach alpha of .86 for PA, .90 for NA and .92 for Positive Affect Balance. The current study yielded a Cronbach alpha of .69 for PA and .70 for NA subscales (n=459).

Sense of Coherence scale (SOC; Antonovksy, 1987; 1993). The SOC is a 29-item unidimensional self-report scale with two anchoring phrases on a seven-point response scale. Sense of coherence is a global or generalised orientation that expresses one's pervasive, enduring and dynamic feeling of confidence with regard to one's internal and external world being comprehensible, manageable and meaningful (Antonovksy, 1987; 1993). Antonovsky (1993) reported internal reliability coefficients ranging between .82 and .93 in 26 studies across a variety of populations, cultures and languages. Wissing, et al. (1999) found favourable psychometric properties, and concluded that the scale was appropriate for use in an African context. Wissing and Van Eeden (2002) reported a Cronbach alpha of .85. The current study found a Cronbach alpha of .78 (n=459).

Satisfaction With Life Scale (SWLS; Diener, Emmons, Larson & Griffin, 1985). The SWLS is a self-report unidimensional five-item index, with a seven-point agreement response format, to measure the cognitive-judgemental component of subjective well-being. This refers to one's quality of life based on an intrinsically determined set of criteria and an overall evaluation of one's life. Diener and colleagues (1985) reported favourable psychometric properties, including a Cronbach alpha of .70 and good criterion-related validity. Pavot, Diener, Colvin & Sandvik (1991) found a Cronbach alpha of .83. In and African context, Wissing and Van Eeden (2002) reported a Cronbach alpha of .79. The reliability coefficient in the current study is .79 (n=459).

Procedure

Secondary data analyses were performed on the previously collected data sets. A cumulative set of items of the SOC, SWLS, and AFM was subjected to confirmatory factor analysis to test for the one factor solution as proposed by Wissing and Van Eeden (2002). Items to incorporate the social relatedness and spirituality components were added following a theoretical literature review process. The preliminary items were submitted for expert review through which item content, wording and clarity were optimised. The length and response format of the scale were determined and translation began. In line with guidelines by Brislin (1990) and Van de Vijver and Leung (1997), the translation process entailed that an English version of the GPWS was translated into Setswana then the Setswana version back-translated into English. The two English versions were compared for retention of meaning using a research committee approach as proposed by Van de Vijver and Leung (1997). The Setswana version was used in both the pilot study and the main study.

Data analysis

First-order confirmatory principal components factor analysis with direct oblimin was employed for item retention. This was performed on the cumulative set that consisted of items of AFM, SOC and SWLS across data sets (n=2005). CFA was a preferred factor analysis procedure as it provided a strong test for a theoretical model (cf. Noar, 2003), which in this case is the GPW factor as conceptualised by Wissing and Van Eeden (2002). One factor extraction specification was made and item retention was decided on the basis of factor loadings above .40 on the primary factor.

Phase 2: Pilot study

Design

The pilot study took the form of a quantitative one-shot cross-sectional survey.

Participants

Participants (n=296) in the pilot study were Setswana-speaking African male (n=104) and female (n=192) adults between the ages of 18 years and 80 years from Potchefstroom. They were all part of the PURE-FORT3 research project (Kruger, 2005; Wissing, 2008).

Measuring instruments

The scale battery used in the pilot study included the following scales: the newly constructed General Psychological Well-being Scale (GPWS), Satisfaction With Life Scale, Coping Self-Efficacy Scale (CSES; Chesney, et al., 2006), Mental Health Continuum Short Form (MHC-SF; Keyes, 2002; 2005), and Patient Health Questionnaire (PHQ-9; Kroeke, Spitzer & Williams, 2001). The MHC, CSES and PHQ were used for criterion-related validity. As indicated previously, the description of SWLS has already been given in phase 1.

General Psychological Well-being Scale (GPWS). The development of the GPWS resulted in a 20 item self-report scale measured on a seven-point Likert type scale. On this seven-point scale, with 4 being the middle point, participants indicate that they "strongly agree" to "strongly disagree". It was developed through an empirical process that consisted primarily of CFA, as guided by Wissing and Van Eeden's (2002) findings on general psychological well-being factor. The Setswana version was used in this sample.

Coping Self-Efficacy Scale (CSES; Chesney, Neilands, Chambers, Taylor, & Folkman, 2006). The Coping Self-Efficacy scale is a 26-item self-report scale designed to measure individuals' perceived confidence to cope with challenges and threats. It is measured on an 11-point Likert response scale with three anchor points. The scale consists of three subscales, namely, Problem focused coping, Stop unpleasant emotions and thoughts, and Get support from friends and family. In the original validity and reliability study, Chesney and colleagues (2006) found a Cronbach reliability coefficient of .95. The current study yielded an alpha of

.91 for the total scale, and .84 for Use problem-solving coping, .77 for Stop unpleasant emotions and thoughts, and .72 for Get support from friends and family subscales.

Mental Health Continuum Short Form (MHC-SF; Keyes, 2002; 2005; Keyes, et al., 2008). The MHC-SF is a 14-item scale designed to measure positive mental health on a continuum of categories of languishing, moderate mental health and flourishing. It consists of three subscales, namely Emotional well-being, Social well-being and Psychological well-being. It uses a response format of a 6-point frequency scale. The MHC-SF has been found to be reliable and valid in an African context. Keyes and colleagues (2008) reported a Cronbach alpha of .74 among a Setswana-speaking sample. The Cronbach alpha in the current study was .84 (n=459).

Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001). The PHQ is a 9-item self-report depression scale used to establish a diagnosis of unipolar depressive disorder as well as grade the severity of the depressive symptoms. Depression is defined and categorised as according to DSM criteria, and the scale is unidimensional to indicate the degree of the experience of unipolar depression. The scale is scored on a four-point frequency response format. Kroenke et al. (2001) found the scale to be reliable and reported a Cronbach alpha of .89 as well as satisfactory criterion-related and construct validity. Among Nigerian university students, Adewuya, Ola and Afolabi (2006) found a Cronbach alpha of .85. The current study yielded a Cronbach alpha of .81 (n=459).

Procedure

Community based participants were recruited as part of a multi-disciplinary data collection effort within the PURE-SA and FORT3 research projects. Participants completed paper-pencil batteries of scales with the assistance of trained fieldworkers. Data were analysed to determine the initial reliability and validity of the GPWS.

Data analysis

Descriptive statistics and Cronbach alpha reliability index to establish reliability, internal consistency and normality of data were computed. Correlations with other indices of well-being to determine criterion-related validity were performed. Confirmatory factor analysis was used to determine construct validity.

Phase 3: Main study

Design

The main study took the form of a quantitative one-shot cross-sectional survey.

Data sets and participants

The main study consisted of 459 participants, of whom 141 were male and 318 were female and most of them being between the ages of 30 and 40 years (n= 103). Participants (n=251) in the Potchefstroom area were randomly selected using the ESRI Arch-View software to identify houses for recruitment. Participants (n=208) from Ganyesa, a deep rural village, were selected by identifying every tenth house from any randomly selected point for recruitment.

Measuring instruments:

The main study battery consisted of the newly developed GPWS as well as other indices of well-being used for criterion-related validity. The Fortitude (FORQ; Pretorius, 1998), General Health Questionnaire (GHQ; Goldberg & Hillier, 1979); Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer & Williams, 2001), Coping Self-Efficacy Scale (CSES; Chesney, et al., 2006) and Mental Health Continuum – Short Form (MHC-SF; Keyes, 2002; 2005) were used for criterion-related validity as they have previously been found to be reliable and valid as measures of positive and negative well-being in an African context. As indicated previously, the descriptions for GPWS, PHQ, CSES and MHC-SF are given in phase 2, and their descriptions are not repeated here.

Fortitude Questionnaire (FORQ; Pretorius, 1998). The FORQ is a 20-item self-report questionnaire measuring fortitude. Fortitude refers to the strength to manage stress and stay well on the basis that one received social support from family members, friends and others (Pretorius, 1998). The questionnaire consists of three subscales, namely Support from family, Support from friends and Support from others. In the initial study among South African students, Pretorius (1998) reported a reliability index of .85, and favourable construct and criterion-related validity for the total scale. Khumalo, Wissing and Temane (2008) found a Cronbach alpha of .86 among mainly Setswana-speaking students. In the current study a Cronbach alpha of .87 (n=459) was found.

General Health Questionnaire (GHQ; Goldberg, Hiller, 1979). The GHQ is a 28-item scale that consists of four subscales measuring somatic symptoms, anxiety and insomnia, social dysfunction and depression, and is able to detect specific symptoms that are indicative of mental illness and psychological distress (Goldberg & Hillier, 1979; Werneke, Goldberg, Yalcin, & Ustun, 2000). In previous studies, Wissing and Van Eeden (2002) have found a Cronbach alpha of .91, and Keyes, et al. (2008) found .89 for the total scale among a Setswana-speaking sample. The current study yielded a reliability coefficient of .91 (n=459).

Procedure:

With the assistance of fieldworkers GPWS and other measures were completed. Data that emerged underwent statistical analyses.

Data analysis:

To explore the reliability and validity of GPWS, descriptive statistics and Cronbach alpha reliability coefficient, inter-item correlations, criterion-related validity, confirmatory factor analysis, exploratory factor analysis and the relationship of the scale to demographic variables were determined. Cronbach alpha coefficient and inter-item correlations were used to report reliability and internal consistency. Criterion-related validity was determined through correlating the GPWS with other indices of positive and negative well-being. To determine construct validity and the theoretically intended structure of GPWS, confirmatory factor analysis was performed with the specification for one factor. Exploratory factor analysis (Costello & Osborne, 2005) was used to explore the latent factor structure of the GPWS. An oblique rotation was used based on the theoretical assumption of a one factor solution and thus the interrelatedness among the items. In addition to the Kaizer 1 rule, a scree plot analysis was used for factor retention decisions (Hayton, Allen & Scarpello, 2004).

Ethical aspects:

The current study formed part of two large multi-disciplinary research projects, namely PURE-SA (Prospective Urban and Rural Epidemiological – South Africa project; Ethics number: 04M10) coordinated by A. Kruger and FORT3 (The prevalence of levels of psychosocial health: Dynamics and relationships with biomarkers of (ill) health in South African social context; Ethics number: NWU-00002-07-A2) coordinated by M. P. Wissing. With permission of the project leaders, data sets from research projects THUSA (Transition and Health during Urbanisation of South Africa; Ethics number: HHK 4M-95), FORT2 (Understanding and promoting psychosocial health, resilience and strengths in an African context; Ethics number: 05K10) and POWIRS (Profiles of Obese Women with the Insulin Resistance Syndrome; Ethics number: 03M03) were used for secondary data analyses. The measuring instruments used in secondary data analyses and contributing to the development of the GPWS are all available as open source. Where their items are used, due recognition and acknowledgement is given to the original authors. At different points of the study, the following ethical aspects were taken into account: training and supervision of fieldworkers, informed consent and confidentiality, and setting the parameters for the use of data. Setswana versions of the scales were used throughout the current study. The batteries were completed through individual structured interviews conducted by trained and bilingual fieldworkers under the supervision of the researcher.

Results:

Phase 1: Scale development.

Table 1 shows the Cronbach reliability indices of the three scales, namely AFM, SOC and SWLS and their Pearson inter-scale correlation indices for the cumulative sample of 2005 participants. The three scales demonstrated satisfactory reliabilities with Cronbach alphas above .70. A reliability index range of between .70 and .90 is considered acceptable (Clark & Watson, 1995; Streiner, 2003). All the Pearson inter-scale correlations were statistically significant and indicated adequate relationships between the scales as theoretically expected.

< Insert Table 1 approximately here >

Further exploration of the shared variance between the AFM, SOC and SWLS was performed using first-order confirmatory principal components factor analysis on the merged set of 54 items together. The one factor solution hypothesis of Wissing and Van Eeden (2002) on which the GPW notion is based, necessitated a pre-specified restriction of one factor. Confirmatory factor analysis became the preferred method for item selection and retention (Noar, 2003).

Eighteen items from the three scales with shared variance as depicted by a factor loading above .40 on the first and primary factor were retained and considered for inclusion in the initial item pool. This factor had an eigen-value of 6.70 and accounted for a 12.40% of the total variance explained. In the pool of 18 items with factor loadings above .40 the AFM contributed 10 items, 7 representing NA and 3 representing PA, while the SOC and SWLS contributed four items each. Two of the SOC items indicated meaningfulness, while comprehensibility and manageability were represented by one item each. To complete the GPWS, two more items were arrived at through a literature review exercise and a research committee consideration to include item content representative of social satisfaction and spirituality spheres of psychological well-being as postulated by Wissing and Van Eeden (2002).

Through this process, the GPWS was achieved and proposed as a measure of general psychological well-being in an African context. The GPWS is a 20-item scale with a seven point Likert response format. According to Clark and Watson (1995) and Comrey (1988) multiple choice item formats as opposed to dichotomous forced choice ones produce better scales. In agreement with Clark and Watson (1995) and Comrey (1988), a seven-point Likert agreement response format ranging from “Strongly Disagree” to “Strongly Agree” was used.

Phase 2: Pilot study.

The results of the GPWS pilot study among an African sample of 296 Setswana-speaking male (n=104) and female (n=192) adults with an average age of 47 years gave a preliminary indication of a psychometrically sound self-report scale. The descriptive statistics and item-

total correlations per item of the GPWS are reported in Table 2. The total scale obtained a Cronbach alpha of .86, and showed good item-total correlations.

< Insert Table 2 approximately here >

In the pilot study the GPWS demonstrated good criterion-related validity through correlations with other indices of positive and negative well-being as reported in Table 4. The GPWS was found to be positively associated with the Mental Health Continuum (MHC-SF; Keyes, 2002; 2007) and Coping Self-Efficacy Scale (CSES; Chesney, et al., 2006), while negatively associated with depression as measured using the Patient Health Questionnaire (PHQ-9; Kroenke, et al., 2001).

Psychometric properties, in the pilot study, indicating reliability, internal consistency, construct validity and criterion-related validity of the GPWS were found to be good. This renders the preliminary scale fit for further exploration of validity and reliability in an African context.

< Insert Table 3 approximately here >

Phase 3: Scale validation.

The main validation study yielded results indicating that the GPWS is a reliable and valid measure of General Psychological Well-being in an African context, with a Cronbach alpha of .89. The total sample obtained a mean score of 88.75 (SD=22.40) while a mean score of 87.74 (SD=22.14) was achieved by the female participants and the males attained a mean of 90.79 (SD=22.99). The mean difference between male and female scores is 3.05, with a t-test value of 1.35 ($df = 457$; $\rho = .32$). Table 4 reports the descriptive statistics and item-total correlations of the main study.

< Insert Table 4 approximately here >

Inter-scale Pearson coefficient correlations between the GPWS and other indicators of positive and negative well-being, namely Mental Health Continuum, Fortitude Questionnaire, Coping Self-Efficacy Scale, Patient Health Questionnaire and General Health Questionnaire were computed to establish criterion-related validity. These results are reported in Table 4 above. The GPWS correlated positively with indices of positive well-being, and negatively with indices of negative well-being, psychological distress and pathology.

Confirmatory factor analysis as reported in Table 5 supports the theoretical hypothesis of a single factor solution proposed by Wissing and colleagues (2002; 2004; 2008). It was evident from the scree plot (not printed) that there is one true factor (cf. Costello & Osborne, 2005). The results of the first-order principal components exploratory factor analysis with direct oblimin rotation are also reported in Table 6. Four significant factors, three being major

and one minor, emerged with eigen-values ranging from 6.32 to 1.02, and together accounted for 53.48% of the total variance explained.

< Insert Table 5 approximately here >

From the results it is clear that through an empirical psychometric process, the 20-item GPWS was developed and found to have sound psychometric characteristics in both the pilot study and main study. The properties of the scale and its intended use are discussed below.

General discussion

The aims of the current study were two-fold. In the first place the study aimed to develop a reliable and valid self-report scale to measure the GPW construct in an African context, and secondly to explore and report the psychometric properties of the new GPWS. The GPWS is based on and reflects the GPW construct as empirically identified and proposed by Wissing and Van Eeden (2002). In line with the initial finding of Wissing and Van Eeden (2002), the current study also found a shared variance between AFM, SOC and SWLS. This attests to the GPW construct capturing the holistic nature of psychological well-being as it embraces both hedonic and eudaimonic perspectives. The main finding is that the GPWS has satisfactory psychometric properties for use in an African context. This scale introduces an instrument through which general psychological well-being can be operationalised and measured. The GPWS is a 20-item self-report scale with a 7-point Likert response format whose purpose will be to measure and report the level of general psychological well-being.

The reliability estimates of GPWS and Internal consistency. The reliability indices obtained in both the pilot study and main study are a good indication of the reliability estimate of the GPWS. This finding indicates that its items are a good sample of the intended construct and do not tap on peripheral constructs (Clark & Watson, 1995; John & Benet-Martínez, 2000; Streiner, 2003). A Cronbach alpha index is an average of all the possible split-half computations and therefore represents the interrelatedness of the items (Streiner, 2003). The results gave an indication of a reliable measure of the GPW construct in an African sample.

Internal consistency, a concept related to reliability, has shown that items of GPWS are sufficiently interrelated and have satisfactory correlations with the total scale scores suggesting item content consistent with the theoretical basis of the GPW. A low internal consistency would render the scale too heterogeneous in content and lacking content saturation and theoretical cohesion among items (John & Benet-Martínez, 2000).

Factor structure: Confirmatory Factor Analysis and Exploratory Factor Analysis. Since measures of item interrelatedness are not indicators of scale dimensionality, Confirmatory factor analysis was used and it was established that the GPWS has a one-factor structure. The

scree plot also attests to this finding. CFA is a preferred method in scale development when there is an established theoretical background from which the scale is developed (Noar, 2003). Similar to the SOC (Antonovsky, 1993) where the multi-faceted nature of the construct and the facet-theoretical design of the measure do not lead to separate subscales or subscores, the GPWS is a unidimensional scale, yet with latent components attesting to the multi-faceted nature of the GPW. Therefore there is one true factor which is inclusive of positive affect balance, satisfaction with life, meaningfulness and social satisfaction and a sense of vitality as cumulative facets of the GPW.

Through an Exploratory Factor Analysis the latent components were observed. The EFA was used as it is by nature and design an exploratory tool, and as such not a test for hypotheses or theory (Costello & Osborne, 2005; Worthington & Whittaker, 2006). Through this process four latent factors emerged: three major factors and one minor factor, namely 1) positive affect and meaningful satisfaction, 2) negative affect and poor coping, 3) positive meaningful relatedness 4) vitality. In accordance with the guidelines of Costello and Osborne (2005), the following were taken into account when considering factors for extraction: inclusion of only items with loadings above .30, careful consideration of cross loading items and factors with fewer than three items. The first two latent factors attest to the fact that positive and negative affect form two separate factors representing positive affect and meaningful satisfaction and negative affect and poor coping. Positive well-being and negative well-being are observed as not being polar opposites (Huppert & Whittington, 2003; Keyes, 2002). According to Huppert and Wittington (2003: 117) "a valid measure of quality needs to incorporate positive as well as negative affect". The third latent factor represents a more eudaimonic component of psychological well-being that encompasses spirituality and positive interpersonal relations. The fourth latent factor is a minor one and reflects the presence and absence of vitality. Vitality allows for a sense of having energy, feeling alive and invigorated while the absence thereof may be reflected in feeling dead or drained (Ryan & Fredrick, 1997).

External validity (criterion-related validity). The GPWS had positive correlations with mental health, social support and coping and self-efficacy, as measured by the Mental Health Continuum (Keyes, 2002), Fortitude Questionnaire (Pretorius, 1998), and Coping Self-Efficacy Scale (Chesney, Neilands, Chambers, Taylor, & Folkman, 2006). Mental health consists of the subjective indicators of well-being and objective indicators of cognitive, emotional and social functioning (Keyes, 2002; Keyes & Waterman, 2003). The positive association with social support as received from friends, family and others is consistent with

the socio-collectivistic cultural orientation found in an African context. Wissing, Wissing and Temane (2004) reported that the traditional Black South African would regard the group as more central over the individual self, with life being meaningfully lived through identification with the community. Coping self-efficacy also showed a positive association with general psychological well-being.

Negative correlations were observed with depression and psychological and somatic ill-being as measured by the Patient Health Questionnaire (Kroenke, Spitzer, & Williams, 2001) and General Health Questionnaire (Goldberg & Hillier, 1979). This further confirms the validity of the GPWS as a measure of positive psychological well-being discriminant from indices of negative well-being. Using the GHQ (Goldberg & Hillier, 1979), Huppert and Wittington (2003) found that negative well-being was associated with lack of social support and an increase in symptoms of depression. Kroenke, Spitzer and Williams, (2001) found that increasing severity of depression symptoms is related to worsening functional status of individuals.

Limitations. Some limitations of the current study are acknowledged. Due to the use of a one shot cross-sectional survey, a test-retest method as a further determinant of reliability was not possible in the current study, and remains a consideration for the future. At this point, the scale does not distinguish categories that may give information pertaining to cut-off points and different levels of functioning. Such a property would be useful by allowing the instrument to reflect different degrees of general psychological well-being.

Conclusion and recommendations. The current study served to report the development and initial validation of the Setswana version of the GPWS. It therefore contributes a measure of general psychological well-being for further exploration. The development of GPWS is preceded by an established theoretical and empirical research background (see Wissing & Temane, 2008; Wissing & Van Eeden, 2002), and the scale demonstrated favourable psychometric properties in the current study (cf. Clark & Watson, 1995; Noar, 2003; Panounen & Ashton, 1998). It is recommended that future studies include samples from other language groups and regional areas. Since the current study did not include the indices of physical health as variables for criterion-related validity, it is recommended that indices of physical health be included in future studies. It is increasingly found that physiological correlates are valuable markers of health and are related to psychological well-being (Fredrickson & Losada, 2005; Keyes, 2005; Ryff & Singer, 1998; Seligman, 2008). The development of norms for different gender and age groups is recommended for future studies.

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Table 1 – Cronbach alpha reliability coefficients and Inter-scale correlations: AFM, SOC and SWLS for the combined data sets, N = 2005

	Cronbach alpha	AFM-PA	AFM-NA	SOC	SWLS
AFM-PA	.72	1			
AFM-NA	.77	-.21**	1		
SOC	.78	.23**	-.46**	1	
SWLS	.72	.45**	-.21**	.18**	1

Note: AFM = Affectometter; AFM-PA = Affectometter – Positive affect; AFM-NA = Affectometter – Negative affect; SOC = Sense of Coherence; SWLS = Satisfaction With Life Scale

** Correlation is significant at the 0.01 level (2-tailed).

Table 2: Descriptive statistics, Pearson item-total correlations per item of the GPWS among the pilot sample (N = 296)

Item	M	SD	Range		Skewness	Kurtosis	Item-Total Correl.
			Min	Max			
GPWS1	2.92	1.99	1	7	.74	-.80	.25**
GPWS 2	4.58	2.18	1	7	-.41	-1.35	.51**
GPWS 3	3.83	2.17	1	7	.17	-1.44	.45**
GPWS 4	4.11	2.14	1	7	-.07	-1.48	.69**
GPWS 5	3.32	2.03	1	7	.47	-1.12	.43**
GPWS 6	4.13	2.08	1	7	-.13	-1.38	.62**
GPWS 7	4.21	2.10	1	7	-.08	-1.38	.65**
GPWS 8	4.04	2.15	1	7	.04	-1.45	.62**
GPWS 9	3.79	2.13	1	7	.09	-1.40	.54**
GPWS10	3.58	2.10	1	7	.33	-1.34	.42**
GPWS 11	3.62	2.13	1	7	.38	-1.33	.48**
GPWS 12	4.18	2.22	1	7	-.19	-1.50	.64**
GPWS 13	4.07	2.11	1	7	-.03	-1.44	.56**
GPWS 14	4.73	1.83	1	7	-.57	-.69	.52**
GPWS 15	3.71	2.20	1	7	.28	-1.45	.51**
GPWS 16	3.31	2.15	1	7	.59	-1.08	.58**
GPWS 17	4.56	2.05	1	7	-.33	-1.24	.53**
GPWS 18	3.67	2.26	1	7	.23	-1.48	.52**
GPWS 19	5.56	1.62	1	7	-1.39	1.26	.36**
GPWS 20	6.01	1.51	1	7	-1.80	2.57	.37**
GPWS-T	81.94	21.18	35	132	-.01	-.61	–

Note: GPWS = General Psychological Well-being Scale

** Correlation is significant at the 0.01 level (2-tailed).

Table 3 – Criterion-related validity: Pearson coefficient Correlations between the GPWS and other indices of positive and negative psychological well-being in the pilot study (n=296) and main study (n=459)

	Pilot	Main study
Variable	GPWS	GPWS
MHC-T	.52**	.55**
MHC-EWB	.54	.59**
MHC-PWB	.34	.45**
MHC-SWB	.52	.32**
PHQ-MDD	-.27	-.45**
CSES-T	.41**	.40**
CSES-SFF	.28	.36**
CSES-PFC	.39	.34**
CSES-SUE	.41	.38**
GHQ	–	-.51**
FORQ	–	.56**

Note: ** Correlation is significant at the 0.01 level (2-tailed)

GHQ and FORQ were not included in the Pilot study battery

Table 4: Descriptive statistics and Pearson item-total correlation indices per item of the GPWS among the main study sample (N = 459)

Item	M	SD	Range		Skewness	Kurtosis	Item-Total Correl.
			Min	Max			
GPWS1	3.79	2.10	1	7	.17	-1.30	.54**
GPWS2	4.54	2.00	1	7	-.37	-1.16	.60**
GPWS3	4.55	2.10	1	7	-.21	-1.44	.61**
GPWS4	4.31	1.91	1	7	-.30	-1.02	.63**
GPWS5	4.41	1.96	1	7	-.18	-1.18	.62**
GPWS6	4.01	2.10	1	7	-.15	-1.34	.59**
GPWS7	4.83	2.11	1	7	-.49	-1.20	.62**
GPWS8	4.82	2.01	1	7	-.51	-1.06	.60**
GPWS9	4.04	1.95	1	7	-.17	-1.22	.59**
GPWS10	4.42	2.06	1	7	-.19	-1.34	.46**
GPWS11	4.47	2.14	1	7	-.23	-1.43	.55**
GPWS12	4.09	2.06	1	7	-.15	-1.33	.69**
GPWS13	4.65	2.14	1	7	-.36	-1.35	.53**
GPWS14	4.53	1.95	1	7	-.42	-1.00	.59**
GPWS15	4.71	2.12	1	7	-.40	-1.28	.47**
GPWS16	4.17	2.13	1	7	-.07	-1.43	.61**
GPWS17	4.75	2.04	1	7	-.62	-.91	.49**
GPWS18	3.32	2.05	1	7	.45	-1.11	.56**
GPWS19	5.12	1.73	1	7	-.83	-.30	.37**
GPWS20	5.48	1.79	1	7	-1.09	.07	.33**
GPWS-T	88.76	22.40	26	136	-.05	-.56	–

Note: GPWS = General Psychological Well-being Scale

** Correlation is significant at the 0.01 level (2-tailed).

Table 5: Principal components Confirmatory Factor Analysis and Exploratory Factor Analysis with direct oblimin rotation on items of GPWS in the main study sample (n=459)

	CFA		EFA				
Item	Factor loadings	Comm.	F1	F2	F3	F4	Comm.
GPWS1	.54	.29	.43	.48		-.61	.60
GPWS2	.62	.38	.66	.34	.42		.46
GPWS 3	.61	.37	.42	.60	.30		.52
GPWS 4	.67	.44	.80	.31			.65
GPWS 5	.65	.43	.82	.32			.68
GPWS 6	.60	.36	.76	.32			.63
GPWS 7	.62	.38	.34	.73	.38		.63
GPWS 8	.60	.36	.31	.71			.54
GPWS 9	.61	.38	.71	.32	.35		.48
GPWS10	.45	.21		.59			.38
GPWS11	.54	.29	.32	.70			.57
GPWS 12	.70	.49	.73	.38	.52		.61
GPWS 13	.51	.26		.68			.47
GPWS 14	.60	.36	.66	.37	.35		.47
GPWS 15	.44	.19		.66			.48
GPWS 16	.60	.37	.45	.71			.56
GPWS 17	.47	.22	.36	.38	.40	.55	.58
GPWS 18	.57	.32	.52	.31	.59		.48
GPWS 19	.35	.12			.71		.49
GPWS 20	.31	.09			.66		.43
Eigenvalue	6.61		6.61	2.04	1.22	1.04	
% variance Explained	33.05		33.05	10.20	6.09	5.20	

Note: GPWS = General Psychological Well-being Scale

Values less than 0.3 are not displayed.

Section 3: Article 2

Socio-demographic variables, general psychological well-being and the mental health continuum in an African context

Submitted to the

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REFERENCES

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- 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. 1993).

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  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, doi:10.1007/s001090000086
- Book

  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.

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TABLES

- All tables are to be numbered using Arabic numerals.
- Tables should always be cited in text in consecutive numerical order.
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Manuscript

Running head: SOCIO-DEMOGRAPHIC VARIABLES AND WELL-BEING IN AN AFRICAN CONTEXT

Abstract

Age, gender, marital status, education attainment, employment status, and environmental setting explain different amounts of variance in psychological well-being and mental health. Inconsistent findings are reported for the socio-demographic variables in psychological well-being depending amongst others on the definition and measurement of well-being, context and the nature of the population. The present study explored the association of socio-demographic variables in an African context using two models that conceptualise and measure well-being as a holistic integrated and complex construct, namely the General Psychological Well-being model (GPW) and the Mental Health Continuum model (MHC). The study was conducted among an African sample in the North West Province of South Africa. A sample of 459 male and female Setswana-speaking adults from rural and urban areas completed measures of general psychological well-being and the mental health continuum. Descriptive statistics, correlations, cross-tabulations and regression analyses were computed. Findings indicate that socio-demographic variables play a role in determining holistic psychological well-being in a South African Setswana-speaking community. Urban living, employment, education and being married were associated with higher psychological well-being. Rural or urban environmental setting, followed by employment status, accounted for the greatest variance in psychological well-being measures. Age and gender were not significantly associated with well-being. The findings suggest that the current state of African rural living is detrimental to well-being. Through employment being an index of socio-economic status, the unemployed experience poor well-being. Future research efforts to explore the mechanisms of these relationships, and context-relevant intervention programmes are recommended.

Key words: Psychological well-being; Mental health; Mental health continuum; Socio-demographic; African context

1. Introduction

Socio-demographic variables such as age, gender, socio-economic indicators and living conditions have shown to influence well-being and mental health (Diener & Ryan, 2009, Keyes & Waterman, 2003). These variables play a role in the experience of different levels of various facets of well-being (Hansson, Hilleras & Forsell, 2005; Keyes & Waterman, 2003; Roothman, Kirsten & Wissing, 2003; Temane & Wissing, 2008). Other studies have, however, found socio-demographic factors to account for only a small variance in well-being measures (e.g. Diener, Oishi & Lucas, 2003). However, questions such as whether profiles of positive functioning vary across the life course, whether men and women differ in basic dimensions of wellness, and whether well-being varies across cultures have been posed and partially attended to by some researchers (e.g. Myers & Diener, 1995; Ryff, 1995). Westaway (2006) argues that it is not in all cases that the conditions of living are congruently associated with personal and subjective experiences of well-being. The inconsistency in the findings regarding socio-demographic variables and well-being is possibly due to the way constructs are defined, the measuring instruments used, the study population, socio-economic conditions and socio-cultural context, as well as methods of analysis (Horley & Lavery, 1995; Talala, Huurre, Aro, Martelin, & Prättälä, 2008). The nature, structure and measurement of psychological well-being are therefore central to understanding positive human functioning (Linley, Maltby, Wood, Osborne, & Hurling, 2009; Waterman, 2008).

It would appear that the conceptualisation and operationalisation of well-being can influence the outcome of how socio-demographic variables predict psychological well-being. For example, it is known that culture influences how socio-demographic variables and life conditions interact with well-being (Christopher, 1999; Diener, 2000; Sokoya, Muthukrishna, & Collings, 2005). Psychological well-being has been traditionally categorised into and measured as either hedonic enjoyment or eudaimonia (Ryan & Deci, 2001; Waterman, 2008). Recently a debate has ensued about the nature, structure of and relationship between these two well-being perspectives (e.g. Kashdan, Biswas-Diener & King, 2008; Waterman, 2005, 2008; Waterman, Schwartz & Conti, 2006). Well-being has also been conceptualised as holistic and integrated being coherently inclusive of both eudaimonic and hedonic well-being perspectives (Keyes, 2002; Wissing & Van Eeden 2002). The development of measures to assess holistic psychological well-being is beginning to emerge (e.g. Keyes, et al., 2008; Khumalo, Temane & Wissing, 2010; Linely, et al., 2009).

The hedonic perspective has had a longer period in conceptual definition of terms as well as empirical measurement of constructs such as subjective well-being (Diener 1984, 2000;

Pavot & Diener, 2008). It is, however, still early days for conceptual and operational clarity of eudaimonic well-being (Waterman, 2008). The separate treatment of the two perspectives has led to previous studies on socio-demographic factors as predictors of well-being focusing on either hedonic well-being (Diener & Ryan, 2009; Horley & Lavery, 1995; Meyers & Diener, 1995; Pavot & Diener, 2008) or eudaimonic well-being (Keyes & Waterman, 2003; Ryff, 1995). More recently Keyes has used the Mental Health Continuum (MHC) to explore the interaction between socio-demographic variables and a more holistic concept of well-being that encompasses both eudaimonic and hedonic perspectives (Keyes, 2002; 2005b, 2007). Similarly and through an empirical process, Wissing and Van Eeden (2002) arrived at a holistic psychological well-being factor which they named the General Psychological Well-being (GPW). The GPW model represents an intertwined conception of eudaimonic and hedonic elements of psychological well-being (Wissing & Temane, 2008; Wissing & Van Eeden, 2002). The latter two models and their measuring instruments are used in the present study to conceptualise and measure holistic psychological well-being.

1.1.Age, gender and marital status

Gender, age (Bawah, Akweongo, Simmons, & Phillips, 1999) and marital status (Sokoya et al., 2005) often determine social roles, hierarchy structures and relations in African societies. In rural areas in particular, duties and activities of daily living such as farm work, marital roles, parenting roles and community roles are rigidly prescribed according to gender (Sokoya et al., 2005). The role of gender may be expected to influence the prevalence and experience of well-being. Different gender roles and socialisation of boys and girls give an expectation of gender differences in levels of well-being, particularly in traditional African communities. According to Sokoya et al. (2005) the feminisation of domestic roles in farm families allows men more time to relax and enjoy leisure activities while women have to juggle multiple household tasks. Other studies conducted in the western context arrive at various and different findings. More specifically, Ryff (1995) found that women rated themselves better on dimensions of positive relations with others and personal growth than men, and found no significant gender differences for the other four Psychological Well-Being dimensions. A study by Keyes (2002) reported findings that female gender was associated with poor mental health, and male gender with flourishing, but pure languishing was found to be equally prevalent among both males and females. Understanding of gender differences in psychological well-being may help efforts towards empowering both men and women towards achieving self-actualisation and optimal functioning albeit using different paths

(Roothman, et al., 2003). Findings by Vorster et al. (2000) indicate that African women in particular experience greater levels of psychological distress than men (Vorster, et al., 2000).

The association between age and well-being has also been reported in the literature. Among Western samples Keyes and Waterman (2003) found that well-being remains stable over time with a tendency to slightly increase with age. Myers and Diener (1995) maintain that well-being is not influenced by chronological age. Based on a multi-dimensional model of Psychological Well-Being, Ryff (1995) found that environmental mastery and autonomy increased with age, personal growth and purpose in life decreased with age, while positive relations with others and self-acceptance yielded no significant differences across a lifespan. Blanchflower and Oswald (2008) have presented evidence of a u-shaped or convex link between positive well-being and age. Horley and Lavery (1995) used cross-sectional and longitudinal studies to investigate the relationship between age and subjective well-being. The cross-sectional study found that age was a significant predictor of well-being as indicated by an increase in subjective well-being with age. Their longitudinal survey revealed that well-being levels actually began to rise at 40 years until 70 years of age. Horley and Lavery's (1995) findings contradict the notion that well-being is stable over time and suggest that other factors such as physical health status and conditions of living in addition to chronological age are important determinants of well-being. These findings are indicative of an inconclusive relationship between age and psychological well-being.

Marriage has a positive influence on mental health, well-being and happiness (Hansson, Forsell, Hochwälder, & Hilleras, 2008; Hinks & Gruen, 2005; Horley & Lavery, 1995; Talala, et al., 2008). Social ties such as marriage, religious involvement, and civic participation have a strong association with facets of psychological well-being through providing social integration and support (Keyes & Waterman, 2003). Having quality ties with others is a core feature of a life well-lived and is an essential feature of what it means to be fully human (Ryff & Singer, 2000; Delle Fave, Brdar, Freire, Vella-Brodrick, & Wissing, 2010). In a Swedish longitudinal study, Hansson et al. (2008) found that people who had entered marriage/cohabitation relationships went on to experience increased well-being, while those who had terminated such relationships experienced increased distress (Hansson, et al., 2008; Hansson, et al., 2005). In a literature review study, Coombs (1991) found that most empirical research was in support of the "protection/support" hypothesis of marriage and personal well-being. According to this hypothesis and empirical findings the interpersonal closeness and companionship found in marriage render married people happier than all the other unmarried groups (Coombs, 1991). In developing countries marriage is also

used as a means of survival and protection for babies and small children (Hinks & Gruen, 2005).

1.2.Socio-economic indices: education and employment

Education level and employment status are regarded as adequate markers of socio-economic status that determine financial means that influence lifestyle choices and decisions (Duchin & Hubacek, 2003; Vorster, et al., 2000). Talala et al. (2008) suggest that social inequalities seen in mental health and well-being variations are associated with socio-economic differences, as indicated by the less educated, the unemployed and low income groups presenting with more symptoms of negative psychological well-being. Due to stressful conditions associated with poverty and lack of resources to cope, the poor experience low levels of psychological well-being (Amato & Zuo, 1992). Education on the other hand is positively associated with positive mental health or flourishing (Keyes, 2002). Due to structural problems inherent in the use of income to examine the relationship between socioeconomic status and well-being, income was excluded from the analyses. According to Higgs (2007: 334) "self-report income data in South Africa is notoriously unreliable". Higgs (2007) also reports that happiness and quality of life measures usually flatten out at monthly incomes of R3000 for health, R6500 for happiness and R11500 for overall quality of life. Furthermore, income needed to survive depends on other related factors such as where one lives, size of family, possessions and other monetary assets (Higgs, 2007).

Employment is a major contributor to the overall functioning of individuals and of society in both developed and developing countries (Hinks & Gruen, 2005; Powdthavee, 2007). In addition to providing an income, employment is also a source of social relationships, identity in society and individual self-esteem (Winkelmann & Winkelmann, 1998). Inversely, unemployment is associated with ill-being, dissatisfaction and social cost (Fryer & Fagan, 2003; Lucas, Clark, Georgellis, & Diener, 2004; Winkelmann & Winkelmann, 1998). Winkelmann and Winkelmann (1998) found that the relationship between unemployment and psychological distress is not influenced by the duration of unemployment. It has, however, been reported by Lucus et al. (2004) that unemployment is such a powerful determinant of human well-being that it is capable of altering the life satisfaction set-point and thus lead to long-term decline in life-satisfaction. Furthermore, unemployment interrupts daily living by taking away the employment-imposed time structure (Fryer & Fagan, 2003). For Africans in rural areas, employment can interrupt family units and marriages due to the migrant labour system that forces husbands to live away from their wives and families (Amoateng, 2007).

1.3.Urban and rural environmental setting

In China, Wen and Wang (2009) found that a deep socio-economic and cultural divide exists between the urban and rural settings and residence. Exploring whether urban or rural residence had implication on the well-being of the poor, Amato and Zuo (1992) found that the urban poor reported higher levels of well-being than those in the rural areas. According to Allik and McCrae (2004, p.13) "where one lives reveals what one is like". The environmental setting plays a major role in what one becomes partly through determining the quality of education available, possible opportunities for formal employment, and quality of lifestyle (Kalule-Sabiti, Makiwane, & Amoateng, 2007). Thus, human settlement is intertwined with socio-economic factors that permit the living conditions and is related to differences in subjective well-being. Diener, Suh, Smith and Shao (1995) found that people who live in conditions of poverty experience lower levels of happiness. In seeking a better life, many South Africans are leaving rural areas for urban areas (Vorster et al., 2000). The subsequent rapid urbanisation in South Africa has become a burden on municipal investments in infrastructure and services resulting in informal settlements (Westaway, 2006). Nevertheless, Vorster and colleagues (2000) found an increase in the degree of psychological well-being with urbanisation. Urbanisation is associated with other related lifestyle changes, namely moving away from kinship obligations, less social control, more self-determination (Kalule-Sabiti et al., 2007) and improved socio-economic circumstances (Vorster et al., 2000). As compared to women in rural areas, those in urban areas are more likely to be exposed to better quality education as well as formal employment (Kalule-Sabiti et al., 2007). Rural areas in South Africa are characterised by poverty and underdevelopment related to the experience of psychological distress and ill health by rural residents (Carter & May, 1999; Vorster et al., 2000).

1.4.Psychological well-being

Psychological well-being in the present study is conceptualised as a holistic, complex, multi-faceted and integrated concept encompassing various facets of well-being. Thus, it refers to more than the mere subjective experience of happiness or affective states and encompasses positive functioning states that include successful accomplishing of social challenges and tasks (cf. Keyes & Waterman, 2003). Empirical evidence to indicate the existence of an overlap between eudaimonic and hedonic well-being (Deci & Ryan, 2008; Joshanloo & Ghaedi, 2009; Keyes, 2002; Ryan & Deci, 2001; Wissing & Van Eeden, 2002) informs this integrative conceptualisation. The two main models that capture the holistic concept of well-

being are the Mental Health Continuum model (Keyes, 2002, 2005a, 2005b) and General Psychological Well-being model (Wissing & Van Eeden, 2002).

1.4.1. The Mental Health Continuum model (MHC; Keyes, 2002, 2005a, 2005b, 2007) According to Keyes (2002) positive mental health is represented by three intertwined facets on the upper end of a mental health continuum, namely emotional well-being, psychological well-being and social well-being. Along this continuum, a complete state of mental health is referred to as flourishing while the incomplete end is called languishing. Flourishing individuals would have high levels of personal well-being, emotional vitality and positive feelings towards themselves and positive psychological and social functioning. Languishing individuals would experience a life of emptiness, stagnation and feelings of being hollow (Keyes, 2002). Individuals who are neither flourishing nor languishing are said to be moderately mentally healthy. In a study among an African sample, Keyes et al. (2008) found that 12.2% of the people were languishing, 67.8% moderately mentally healthy and 20% were flourishing. These results were similar to those reported for a US study by Keyes (2005a).

1.4.2. General Psychological Well-being (GPW; Wissing & Van Eeden, 2002) Wissing and Van Eeden (2002) proposed that psychological well-being is a multi-faceted concept with overlapping hedonic and eudaimonic well-being dimensions in support of holistic conceptualisation of well-being. Their General Psychological Well-being model was identified by means of an empirical process that showed an overlap between scores on the Affectometer 2 (Kammann & Flett, 1983, the Sense of Coherence Scale (Antonovsky, 1987, 1993, and Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffen, 1985). Thus the GPW model includes both hedonic and eudaimonic components. A General Psychological Well-being Scale (GPWS) was developed by Khumalo et al. (2010). General psychological well-being is described by Wissing and Temane (2008) as an emergent property of a variety of specific psychological strengths, an ingredient of resilience, and a general protective factor allowing individuals to cope with unfamiliar and/or extreme psychosocial challenges.

1.5.Context of the study

The present study was undertaken among African Setswana-speaking people of the North West Province of South Africa. Without suggesting this to be a homogenous group, it has been described as a relatively more collectivistic group by Temane and Wissing (2008). Researchers have argued that well-being varies across socio-cultural contexts (Chirstopher, 1999; Constantine & Sue, 2006; Ryff & Singer, 1998; Temane & Wissing, 2008) as cultural factors influence health and psychological well-being (Sokoya et al., 2005). Diener et al.

(1995) argue that the experience of subjective well-being is influenced by cultural norms that dictate how people feel and express their emotions, as well as to what they attribute their levels of happiness. The level of subjective well-being may be influenced by the desirability of the expression of positive emotions and satisfaction, humility, expectation to conform and/or devalue individual expression over the collective similarity, which are found in some non-Western cultures (Diener et al, 1995).

1.6.Aim of the study

The aim of the present study is to explore the influence of socio-demographic variables, namely gender, age, employment status, environmental setting, education level and marital status on holistic psychological well-being in an African sample.

1.7.Possible contribution of the study

Referring to a study among an adult Swedish population, Hansson and colleagues (2005) suggested that high prevalence of mental health problems necessitates research into factors that could help improve well-being. In South Africa, Williams et al. (2008) report that rates of emotional distress and psychopathology are high and are associated with characteristics of the South African population. Higgs (2007) indicated that quality of life is especially low in urban areas. Insight generated by the current study will help enhance understanding of the various manifestation patterns of psychological well-being in a (South) African context. This will allow for better targeted interventions towards the enhancement of general psychological well-being in African communities. The promotion of well-being is of particular importance in the developing and emerging countries and economies (Farid & Lazarus, 2008), where intervention efforts towards the improvement of lives from the level of policy development are needed. In addition to economic measures, government and business should take interest in people's levels of well-being in guiding policy decisions (Diener, Kesebir & Lucas, 2008). The understanding of how various characteristics in people and socio-contextual environments influence their well-being can inform intervention efforts towards the improvement of lives.

2. Method

2.1.Design

The study took the form of a quantitative cross-sectional survey design. Using a field study approach (cf. Visser, Krosnick, & Lavrakas, 2000) data was collected with the aid of fieldworkers at a single time. Paper-pencil batteries of questionnaires were completed through structured interview format. The sample was drawn from a specified population.

2.2.Participants and setting

The present study was conducted among a randomly selected sample consisting of 459 Setswana-speaking community members. The participants were male (n= 141) and female (n= 318) from Potchefstroom (n= 249) and Ganyesa (n=210) in the North West Province of South Africa. Potchefstroom is an urban settlement with an adjacent township called Ikageng where the participants have their residential homes. Potchefstroom is described by Temane and Wissing (2006) as well-resourced because of its being a university town, expertise from the university and rapid access to a national route to other metropolitan areas. Recreational, industrial, farming and mining activities in Potchefstroom and/or surrounding areas are mentioned by Temane and Wissing (2006) as potential opportunities for employment. It is thus in a better advantaged position in comparison to Ganyesa, a deep rural village near a semi-rural town of Vryburg which is characterised by commercial and non-commercial agricultural activity. Descriptive epidemiology of psychological well-being by socio-demographic variables is given in Table 1 for general psychological well-being and in Table 2 for mental health continuum.

< Insert Table 1 approximately here >

< Insert Table 2 approximately here >

The sample was made up of urban (53%) and rural participants (47%), with female participants accounting for 69% of the sample as opposed to 31% male participants. Most of the participants were aged between 31 and 60, with the largest category (21%) in this group being those aged between 31 and 40 years. People aged between 18 and 30 years formed 32% of the sample while people above 60 years accounted for 13% of the sample. Most participants were single (64%) and 22% still married while the divorced and widowed made up 14% of the sample. As far as education was concerned, 50% had a secondary school level education while 11% had not been to school at all. Only 8% of the participants had a tertiary level education, while 29% had a primary school education. Only 16% of the participants had employment while 82% were unemployed

2.3.Measuring instruments

2.3.1 Mental Health Continuum Short Form (MHC-SF; Keyes, 2002, 2005b)

The MHC-SF is a 14-item scale designed to measure mental health along a continuum of categories of languishing, moderate mental health and flourishing. It consists of three subscales, namely Emotional well-being, Social well-being and Psychological well-being. It uses a response format of a 6-point frequency scale. Keyes et al. (2008) report criteria for flourishing, languishing and moderate mental health. Flourishing is characterised by high levels on at least one hedonic well-being measure and six measures of positive functioning.

Languishing on the other hand is indicated by low levels on at least one hedonic well-being measure and at least six measures of positive functioning. Moderate mental health is reported by a result that does not fit criteria for flourishing nor languishing. The MHC-SF has been found to be reliable in an African context. Keyes et al. (2008) reported a Cronbach alpha of .74 in a Setswana-speaking sample. The Cronbach alpha in the current study was .84 (n=459).

2.3.2 General Psychological Well-being Scale (GPWS; Khumalo et al., 2010)

The GPWS is a 20-item self-report measure of general psychological well-being (GPW) as conceptualised by Wissing and Van Eeden (2002). General psychological well-being is a unidimensional construct encompassing positive affect and meaningful satisfaction, negative affect and poor coping, positive meaningful relatedness, and a sense of vitality (Khumalo et al, 2010). The construct is based on an empirical shared variance among indices of hedonic and eudaimonic well-being, namely positive affect, satisfaction with life and sense of coherence (Wissing & Van Eeden, 2002). The scale is intended to be used as a unidimensional measure. General psychological well-being as measured using the GPWS was divided into three categories by using cut-off points for the 33,1/3th percentile and the 66,1/3th percentile thus indicating high, medium and low levels of general psychological well-being. The GPWS was developed and validated in an African context (Khumalo et al., 2010). In the present study it obtained a Cronbach alpha of .89 demonstrating good reliability in this sample.

2.3.3 Socio-Demographic Information questionnaire

The first author developed an instrument to collect information about the socio-demographic variables of the sample that participated in the study. For each participant, the following variables were determined: gender, age, environmental setting, education, employment, and marital status. All variables were measured as categorical. Gender (male or female), environmental setting (urban or rural), and employment (employed or unemployed) were on a dichotomous ordinal scale. Age was categorised into seven groups (18-25; 26-30; 31-40; 41-50; 51-60; 61-70; 71 and above). Marital status was presented by four categories, namely single, married, widowed or divorced. Four education level categories were indicated by whether one did not obtain any formal education at all, have primary level, secondary level or tertiary level education.

2.4 Procedure

2.4.1 Data gathering

Random selection of participants for recruitment was conducted by using ESRI Arch-View software for the Potchefstroom area and through the identification of every tenth house from random points for Ganyesa. There was a limitation for satellite detection for the rural area. Trained field workers recruited 249 participants from Ikageng in Potchefstroom and 210 participants from Ganyesa. Participants were visited by field-workers in their homes where batteries of questionnaires were completed. After agreeing to participate, participants signed informed consent letters and the questionnaires were completed through structured interviews. Statistical analyses were performed using SPSS-16 to determine the relationships between socio-demographic variables and well-being.

2.4.2 Data analysis:

Cronbach alpha reliability coefficients, and descriptive statistics indicating central tendency and dispersion such as the mean, standard deviation, range, kurtoses and skewness, were computed for both measures. Clark and Watson (1995) recommend a Cronbach alpha as low as .60 to be adequate. Generally a range of between .70 and .90 is considered acceptable (Streiner, 2003). A Cronbach alpha above .90 is indicative of unnecessary duplication of content across items and therefore redundancy (John & Benet-Martínez, 2000; Streiner, 2003). Cross-tabulations indicating the association between categories of independent and dependent variables by frequencies were computed. To determine the statistical significance of the relationship between the dependent and independent variables in contingency tables Pearson Chi-square tests were computed and their effect sizes reported using phi coefficients (Ellis & Steyn, 2003). The means of the two dependent variables were compared across the different categories of independent variables using t-test scores and F-ratios in a one-way ANOVA; and their statistical significance and effect sizes (eta square) were reported.

Regression analyses were used to report the degree to which socio-demographic variables explain variance in, and influence the dependent variables as measured by the MHC-SF and the GPWS. Before regression analyses, inter-scale correlations between measures, and collinearity diagnostics, namely tolerance and Variance Inflation Factors (VIF), were performed to investigate possible multi-collinearity. Tolerance is indicated by 1/VIF (Leech, Barrett & Morgan, 2008). A tolerance value below F when $F=1-R^2$ and a correlation coefficient above .90 are indicative of multicollinearity (Field, 2005; Leech, et al., 2008; Pallant, 2007). Multi-collinearity is problematic in that it shows that two or more variables contain similar information (Leech et al., 2008).

The coefficient of determination (R^2) is reported as a measure of the size of the variance explained in the dependent variable accounted for by the independent variable (cf. Field, 2005; Gravetter & Wallnau, 2007; Venter & Maxwell, 2000). In addition to the levels of statistical significance, effect sizes are reported as indices of practical significance and strength of the relationship between the independent and dependent variables (Ellis & Steyn, 2003). Unlike the statistical significance values, effect size is independent of sample size. The effect for the regression will be based on f^2 which is based on the formula $R^2/1\text{-}R^2$ (Cohen, 1988, 1990; Steyn, 1999). Regression coefficients (Beta) as the best line drawn between two variables was computed to report the expected change in the dependent variable associated with a unit change in the independent variable while controlling for the other independent variables (Field, 2005; Venter & Maxwell, 2000).

3 Results

3.1. Descriptive statistics and reliability indices

Descriptive statistics and reliability indices for GPWS and MHC-SF are displayed in Table 3. Both the GPWS and MHC-SF were found to be reliable in this sample, achieving reliability coefficients of .89 and .84 respectively. Their mean scores have appropriately narrow standard deviations indicating narrow dispersion in responses. The distribution curves of the GPWS and MHC-SF scales and their subscales are characterised by negative kurtosis and skewness values, indicating that both scales have relatively platykurtic curves leaning to the right. All the values are within the range of -1 to 0, indicating a moderate deviation from the normal distribution curve (cf. Morgan, Leech, Gloeckner & Barrett, 2007).

< Insert Table 3 approximately here >

3.2. Contingency tables

Contingency tables, also known as cross-tabulations for the GPWS and MHC-SF are displayed in Tables 4 and 5. Cross-tabulations report the association between variables in the form of categorical data. The differences in the dependent variables (GPWS and MHC-SF) between the categories of socio-demographic variables are reported using the Chi-square coefficient whose effect size is indicated by the phi coefficient.

< Insert Table 4 approximately here >

The association between environmental setting and psychological well-being is characterised by chi-square tests of X^2 (2) = 63.93, p=.00; phi=.37 for GPWS and X^2 (2) = 24.76, p=.00; phi=.23 for MHC-SF, indicating statistically significant associations but with a medium (GPWS) and small (MHC-SF) effect sizes. The association with gender is characterised by X^2 (2)=4.63, p=.10; phi=1.00 for GPWS and X^2 (2)=1.47, p=.48; phi=.06 for MHC-SF were

found. The reported Chi-square tests for age are X^2 (12)=27.40, p=.01; phi=.25 for GPWS and X^2 (12)=12.20, p=.43; phi=.16 for MHC-SF. The marital status associations are indicated by X^2 (6)=9.26, p=.16; phi=.14 for GPWS and X^2 (6)=11.47, p=.08; phi=.16 for MHC-SF. The Chi-square values of Education are X^2 (6) =25.89, p=.00; phi=.24 for GPWS and X^2 (6)=9.28, p=.16; phi=.14 for MHC-SF. Finally, the association between employment and well-being is characterised by X^2 (2)=17.02, p=.00; phi=.19 for GPWS and X^2 (2)= 5.35, p=.07; phi=.11 for MHC-SF.

< Insert Table 5 approximately here >

3.3. Regression analyses

To examine for the presence of multi-collinearity before regression analyses Spearman inter-variable correlations and collinearity diagnostics are reported in Table 6. Since multi-collinearity is indicated when the independent variables are highly correlated as shown by a correlation coefficient of .90 and higher (Pallant, 2007), and tolerance values below F, none of the socio-demographic variables in this sample show collinearity problems.

< Insert Table 6 approximately here >

The six socio-demographic variables together accounted for 21.7% of the variance explained in the GPWS, and 11.2% in the MHC-SF. The predictor variables with a significant determining power on the GPWS were education, environmental setting, employment, and marital status, all having ρ-values below .05 (cf. Morgan et al., 2007). For the MHC-SF, education and environmental setting obtained ρ-values below .05. In comparison with other variables, environmental setting (rural or urban residence) was the strongest determinant of GPW with a regression coefficient (Beta) of -.368, and MHC with a regression coefficient of -.272. In both measures of psychological well-being, age and gender's influence was not statistically significant.

< Insert Table 7 approximately here >

3.3.1. Age.

Mean scores ranging between 83.98 (41-50 years) and 96.66 (71 years and above), with an F-ratio of F(6)=1.63, ρ=.137; f^2=.02 for GPWS were found. The mean scores of the MHC-SF ranged between 46.76 (61-70 years) and 41.67 (41-50 years) with F(6) = 1.16, ρ=.33; f^2=.02. Although the mean differences were not statistically significant, the scores showed that younger and older individuals obtained higher scores than the middle aged on the GPWS, and a slight increase with age could be observed on the MHC-SF. The Spearman's correlation coefficients of -.016 with GPWS and .081 with MHC-SF were found. Standardised regression coefficients (Beta) of -.003 with GPWS (ρ=.944) and .078 with MHC-SF (ρ=.095)

were found, indicating less steep gradients between age and the two psychological well-being indices. Both relationships were characterised by p-values above .05, rendering the finding statistically insignificant. Age accounted for 2% of variance explained in GPW and 4% in MHC. Except for a slight increase in Mental Health with age and a U-shaped trend with GPW, it was found that psychological well-being was equally distributed and showed no significant difference across age.

3.3.2. Gender

Men obtained higher means in both GPWS and MHC-SF (90.79 for GPWS; 44.73 for MHC-SF) than women (87.74 for GPWS; 42.83 for MHC-SF). The differences in the mean scores are characterised by t-test scores of $t(457)=1.35$, $\rho = .179$; $f^2=.00$ for GPWS; and $t(455)=1.474$, $\rho=.14$; $f^2=.01$ for MHC-SF. These differences were statistically insignificant. According to the MHC-SF, 51% of the men were flourishing and 5% languishing as opposed to 47% flourishing and 8% languishing women. Gender obtained a beta coefficient of -.06 with GPWS ($\rho=.18$) and of -.07 with MHC-SF ($\rho=.14$). With adjusted R^2 values indicating that gender accounted for 2% of the variance explained in GPWS and 3% in MHC-SF, as well as p-values above .05, the association between gender and positive mental health and general psychological well-being was not significant. These results were indicative of a lack of conclusive difference in the levels of well-being between men and women.

3.3.3. Marital status

According to mean scores of both the GPWS and MHC-SF the married people experienced higher levels of both general psychological well-being and positive mental health than the single individuals who had never been married. The proportional variance in the means is indicated by F-ratios of $F(3)=2.21$, $\rho=.09$; $f^2=.01$ for GPWS and $F(3)=2.26$, $p=.08$; $f^2=.02$ for MHC-SF. Single individuals obtained a mean of 86.79 as compared to a mean of 90.39 of the married on the GPWS. The MHC-SF scores showed that single people scored a mean of 42.30 and the married 44.77. The regression line between marital status and GPWS was characterised by a beta coefficient of .12 and between marital status and MHC-SF a beta coefficient of .12. Furthermore, marital status accounted for 12% of the variance in GPWS and 13% in MHC-SF. Of the total sample, 9% were widowed while 5% were divorced. Both these groups reported adequate levels of psychological well-being, higher than the single people and lower than the married ones.

< Insert Table 8 approximately here >

3.3.4. Employment status

The employed individuals scored higher means in both GPWS (99.36), with t(453)=4.57, ρ=.00; and MHC-SF (46.87) with t(451)=2.53, ρ=.01, than the unemployed (GPWS = 86.56; MHC-SF = 42.77). The association between GPWS and employment status was characterised by a Spearman's correlation coefficient of -.211 and beta value of -.210 (ρ=.00), and adjusted R^2 of .042 (i.e. 42% of variance explained). The MHC-SF had r_s of -.133 and beta of -.118 (ρ=.01) and an adjusted R^2 of .012 representing 12% of variance explained by employment status. These results showed a statistically significant positive association between employment and holistic psychological well-being. Thirty-six percent of the unemployed were in the lower third of GPWS while only 18% of the employed are represented in this category. Fifty-three percent of the employed were in the high third of GPWS and 60% were flourishing. Only 2.7% of the employed were languishing in comparison with the 7.8% of the unemployed.

3.3.6. Education

Education was positively correlated with psychological well-being, as both GPWS (r_s=.20) and MHC-SF (r_s=.11) scores consistently increased with increasing levels of education. People with some tertiary level education (96.76 for GPWS;47.28 for MHC-SF) obtained the highest mean scores and those without any formal education (76.31 for GPWS; 39.57 for MHC-SF) scored the lowest. The proportional variance in the means was indicated by F-ratios of F(3)=8.09, p=.00; f^2=.05 for GPWS and F(3)=2.34, p=.04; f^2=.02 for MHC-SF. These results were both statistically and practically significant. Linear regression lines (Beta of .21 for GPWS, ρ=.00; Beta of .12 for MHC-SF, ρ=.01) were indicative of a statistically significant progressive increase in holistic psychological well-being with increasing level of education. According to adjusted R^2 coefficients education accounted for 42% and 13% of variability explained in GPWS and MHC-SF. Of those with a tertiary level education, 53% were flourishing and 0% was languishing, while 11.5% of those with zero education were languishing. Fifteen percent of those without an education were in the top third of GPWS as compared to 53% of those with a tertiary level education. Education appeared to be a significant determinant of holistic psychological well-being.

< Insert Table 9 approximately here >

3.3.6. Environmental setting

Statistically significant linear regression lines of adjusted beta coefficients of -.411 for GPWS (ρ = .000) and -.411 for MHC-SF (ρ = .000) emerged indicating that in this sample, environmental setting had an influence on psychological well-being. Environmental setting accounted for 17% in GPWS and 10% in MHC of the variance explained. Those living in the

rural areas obtained lower mean scores (GPWS = 78.68; MHC-SF = 43.47) than those in urban areas (GPWS = 97.17; MHC-SF = 47.16). When comparing the mean scores, $t(455) = 9.612$, $\rho = .00$ for GPWS and $t(453) = 7.172$, $\rho = .00$ for MHC-SF were found. Furthermore, 57% of urban residents were flourishing as compared to 37% of rural dwellers. Twelve percent of the rural residents were languishing while only 3.2% in the urban area were found to be languishing.

4 Discussion

This study explored the influence of socio-demographic variables on holistic psychological well-being in an African context, as measured with the General Psychological Well-being Scale (GPWS) and the Mental Health Continuum Short-Form (MHC-SF). The influence of age, gender, marital status, employment status, education level, and environmental setting on holistic psychological well-being was explored among 459 rural and urban Setswana-speaking participants. Findings are similar for the two well-being measures, which supports the validity thereof. Results showed that socio-demographic variables play a role in determining holistic psychological well-being in the sample. The six variables together accounted for 11.2 % of the variance in the MHC-SF and 21.7 % in the GPWS. Gender and age were found not to differentially influence holistic well-being as measured by the two scales. Living in a rural or urban setting, level of education, marital status and employment status significantly influenced well-being. Urban or rural residence was the most robust determinant of holistic psychological well-being. Urban residents experience higher levels of well-being than their rural counterparts. Education, employment and being married were also found to be beneficial in contributing towards psychological well-being. On the other hand, living in a rural area, lower education, unemployment, and being single were found to have a detrimental effect on psychological well-being.

4.1. Age, gender and marital status

Consistent with Myers and Diener's (1995) assertion that "knowing someone's age gives no clue to the person's average sense of well-being" (p.11), the present study found no significant difference in psychological well-being with regard to the different age groups. When Ryff (1995) investigated the possibility of differences in psychological well-being in different age groups, a diverse pattern of significant age differences was found, but without a specific trend. This lack of a definite age pattern as well as statistically insignificant differences in the manifestation of well-being across a life-span can be attributed to a number of factors including personality dispositions and shared unchanging life conditions (Horley & Havery, 1995). Personality is known to stabilise across a life-span and explains a large

variance in well-being indices (Bauer & McAdams, 2004; Diener et al., 2003; Hansson et al., 2008). A study investigating the mediating role of personality in the dynamics of context and psychological well-being by Temane and Wissing (2008) concluded that personality and context were in fact intertwined and would influence each other. The inconclusive findings of the present study could also be ascribed to its cross-sectional nature. Horley and Havery (1995) demonstrated the advantage inherent in the longitudinal study of age and well-being as this can show the consistency of the results for the respondents over time.

Contrary to commonly held notions, the present study found no significant gender differences in the manifestation and experience of general psychological well-being. Previous studies reported that social circumstances favoured the promotion of well-being of men over women (e.g. Sokoya et al., 2005). Socialisation of women in Africa has resulted in women having to conform to self-sacrificing, non-assertive, passive patterns of behaviour (Sokoya, et al., 2005). Even in the changing of traditional gender roles Sokoya and colleagues (2005) observed that women, particularly mothers, tend to take on additional responsibilities resulting in their being overburdened and men relieved of some responsibility. However, contrary to views of western feminists, rural African wives generally do not perceive their husbands' roles in decision making as oppressive, and perceive families and motherhood as the fulfilment of womanhood rather than oppression (Sokoya, et al., 2005). The similarity in the experience of general psychological well-being partly reflect that the socially disadvantaged position held by women as compared to men may be historical, and that men experience similar levels of psychological well-being as women. This can be ascribed to shared conditions of living and the flexibility of previously rigid traditional gender roles.

The present study found that married people reported higher levels of positive mental health and general psychological well-being than both the never married and the divorced and widowed. This is consistent with results reported in other cross-sectional design studies involving self-report measures of psychological well-being (e.g. Diener & Ryan, 2009; Myer & Diener, 1995). Gove, Hughes and Style (1983) found that the married have by far the best mental health compared to the other three marital statuses. These findings suggest that marriage is beneficial to individuals' psychological well-being. Diener, Gohm, Suh and Oishi (2000) proposed that marriage was a source of social and emotional support and in that way contributed to increased subjective well-being. Diener et al. (2000) further observed that married people experienced more positive emotions and fewer negative emotions than the divorced or separated. Contrary to expectation and previous findings the divorced and widowed in the present study reported greater psychological well-being than the single

individuals who have never been married. Lucas, Clark, Georgellis and Diener (2003) found that widows and widowers experienced less satisfaction after the loss of their partner than before. Following a loss there usually is an initial strong negative reaction which is followed by a relatively slow adaptation, however, still below the baseline (Lucas et al., 2003). Some explanation for the present study's finding can be taken from Diener and colleagues' (2000) social support hypothesis, through which social support from extended family, particularly in more collectivistic communities, helps cushion the negative effect of divorce or separation.

4.2 Employment status and education level

Employment and education are markers of socio-economic status (Duchin & Hubacek, 2003) and they provide psychosocial factors important for mental health (Fryer & Fagan, 2003). The present study found the level of education and employment status to be significantly associated with positive psychological well-being and mental health. Being employed was associated with flourishing and higher general psychological well-being, while unemployment was associated with languishing. Unemployment has previously been found to be one of the few external variables that can cause changes to individuals' life satisfaction on a long-term basis and even contradict the set-point theory of life satisfaction (Lucas et al., 2004). Talala et al. (2008) found that unemployment affects psychological well-being through its association with low self-esteem, social isolation and low income.

The present study found psychological well-being to increase with increasing levels of education. Generally the well-educated have better health than the poorly educated (Ross & Wu, 1996). Using the cumulative advantage perspective Ross and Wu (1996) argued that educational attainment is an inclusive indicator of socio-economic status as it structures both occupation and income. Individuals with some tertiary education reported the highest well-being levels and those without any formal education reported the lowest. Resources such as household income, and psychosocial resources such as social support and sense of control are associated with educational attainment (Ross & Wu, 1996), and contribute to the experience of well-being.

4.3 Environmental setting: urban and rural

The present study observed significant differences in the manifestation and experience of psychological well-being along the urban-rural divide. In fact, environmental setting was the most robust determinant of psychological well-being of the six socio-demographic variables. In a Japanese study, Tsuno and Yamazaki (2007) argue that the psychological benefits inherent in urban living can be attributed to the mediating effect of greater economic status, social support and self-efficacy as compared to rural living. In the present study, living in a

rural area was associated with poor general psychological well-being and languishing. This finding concurs with Allik and McCrae's (2004) assertion that where a person lives determines what they are like. One's environmental context determines the quality of education, formal employment opportunities, and quality of lifestyle (Kalule-Sabiti et al., 2007). Clearly the resources and opportunities for lifestyle choice are vastly different between urban and rural contexts in South Africa (Higgs, 2007; Temane & Wissing, 2006).

Urbanisation comes with an improvement in socio-economic status, while rural living is associated with poverty and underdevelopment (Cater & May, 1999; Vorster et al., 2000). In South Africa this has led to rapid urbanisation as many African people moved to the cities in the hope for a better life (Vorster et al., 2000). Urban areas are known to be well-resourced allowing ample opportunity for residents to attain a better life through employment, education, health care services and improved socio-economic status, and even better nutritional status (Vorster et al., 2000; Vorster, Venter, Wissing, & Margetts, 2005). With urbanisation there has also come the mushrooming of informal settlements making it difficult for government to deliver basic human habitation services and resulting in urban poverty (Vorster et al., 2000; Westaway, 2006). The present study still found that urban residents reported doing better in all the well-being indices and dimensions. This could also be attributed to the difference in nutritional intake and status between urban and rural areas in the North West Province as reported by Vorster et al. (2005). According to Vorster et al. (2005), although micronutritional status among participants is still low in both settings, the urban residents are better off than their rural counterparts. The following reasons are cited for this trend, namely harsh climate, lack of water, and poor soil in rural areas; and affordability in urban areas (Vorster et al, 2005).

4.4 Limitations

The following limitations of this study need to be taken into consideration. The cross-sectional design of the present study is not the most adequate way of reporting age patterns of well-being as it can be better studied by using a longitudinal design (Horley & Havery, 1995). The current study did not take into account the quality of marriages but rather marital status only. Personality dispositions known to influence the experience of well-being together with contextual factors (Temane & Wissing, 2008) were not measured in the current study. The study has only been conducted in one South African province and with one population group, therefore findings cannot be generalised.

4.5 Conclusion and recommendations

Human characteristics and living conditions influence general psychological well-being and positive mental health. Holistic well-being, measured by using the General Psychological Well-being Scale (GPWS; Khumalo et al., 2010) and the Mental Health Continuum Short-Form (MHC-SF; Keyes, 2002; Keyes et al., 2008), was found to be influenced by a number of contextual elements in people's lives and environment. The study found that psychological well-being was positively influenced by urban living, employment, marriage, and educational attainment. Living in a rural area, being unemployed, being unmarried, and having a lower education level were associated with lower psychological well-being. Possible mechanisms for the association between socio-demographic variables and holistic psychological well-being in African samples need further exploration.

Gaining psychological well-being has multiple benefits in all areas of human functioning. It has been found to be a buffer against psychological and physical pathology, and to increase longevity (Keyes, 2005b; Seligman, 2008). Inversely, functioning below complete mental health contributes to increased impairment and disability (Keyes, 2007). Keyes (2005a) found that flourishing individuals functioned better than all the rest in meeting work-related obligations, and attained the highest levels of psychosocial functioning. Flourishing is associated with lower levels of perceived helplessness, higher functional goals, higher self-reported resilience and higher levels of intimacy (Keyes, 2005a). Complete mental health and psychological well-being play a protective role against chronic physical illnesses (Keyes, 2005b; Ryff & Singer, 1998). Adequate psychological well-being in families allows members to enjoy good health, good interpersonal relations and contributes to individual, family and societal development (Sokoya et al., 2005).

These findings have implications for future research and intervention efforts for the enhancement of quality of life of the affected groups. Programmes aimed at the development of African rural communities as well as alternative empowerment methods for the unemployed (cf. Fryer & Fagan, 2003) are recommended. Public policy development in the direction of a greater interest and investment in rural development and consideration of psychological well-being and quality of life as indices of population health is encouraged.

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Table 1: Description of the urban and rural samples and levels of general psychological well-being as measured using the GPWS

Independent variable	Total sample N = 459			Urban sample N = 251			Rural sample N = 208		
	N	Mean GPWS	SD	N	Mean GPWS	SD	N	Mean GPWS	SD
Context									
Urban	251	97.17	21.15		.	.	.	.	.
Rural	208	78.68	19.64		.	.	.	.	.
Gender									
Male	141	90.79	22.99	89	95.79	21.68	52	82.22	22.83
Female	320	87.74	22.14	159	98.05	20.90	156	77.50	18.38
Age									
18 – 25	72	90.77	20.08	36	98.69	19.09	35	82.96	18.26
26 – 30	76	91.23	19.70	36	98.13	16.24	40	85.02	20.63
30 – 40	103	86.88	21.01	44	94.39	22.85	57	81.51	17.62
41 – 50	88	83.98	22.78	51	93.36	21.66	36	70.70	17.18
51 – 60	58	86.99	29.41	37	99.66	27.18	20	63.97	17.91
61 – 70	41	91.48	18.89	25	96.97	14.10	16	82.91	22.46
71 - +	21	96.66	26.48	17	103.87	23.90	4	66.00	8.83
Marital status									
Single	297	86.79	21.08	144	94.29	19.91	149	79.76	19.77
Married	101	90.39	23.81	62	98.54	22.79	39	77.44	19.45
Divorced	21	95.05	25.76	14	107.31	21.22	7	70.51	13.52
Widowed	42	93.79	25.12	28	103.32	21.64	13	74.40	21.53
Education									
None	52	76.31	20.45	15	95.312	19.81	37	68.61	15.11
Primary	135	87.10	24.52	86	94.08	23.46	49	74.83	21.51
Secondary	233	90.79	21.02	123	98.67	20.18	108	82.16	18.38
Tertiary	36	96.76	19.19	21	100.84	18.57	14	91.91	19.62
Employment									
Employed	73	99.36	20.37	54	104.22	18.38	20	87.73	20.90
Unemployed	382	86.56	22.21	194	95.31	21.45	186	77.60	19.27

Note: GPWS = General Psychological Well-being Scale

Table 2: Description of the urban and rural samples and levels of positive mental health as measured using the MHC-SF

Independent variable	Total sample N = 459			Urban N = 251			Rural N = 208		
	N	Mean MHC-SF	SD	N	Mean MHC-SF	SD	N	Mean MHC-SF	SD
Context									
Urban	251	47.16	11.31	.	.	.	.	.	.
Rural	208	43.47	12.70	.	.	.	.	.	.
Gender									
Male	141	44.73	13.01	89	47.09	11.67	52	40.69	14.27
Female	320	42.83	12.60	159	47.23	11.17	154	38.46	12.37
Age									
18 – 25	72	43.21	12.09	36	45.24	11.87	35	41.44	12.20
26 – 30	76	41.87	11.62	36	45.52	9.57	40	38.59	12.41
30 – 40	103	43.39	12.43	44	47.23	10.69	56	40.85	12.66
41 – 50	88	41.67	13.94	51	46.30	12.09	36	35.10	13.91
51 – 60	58	44.36	13.20	37	48.68	10.90	19	35.53	13.43
61 – 70	41	46.76	12.69	25	49.41	12.78	16	42.61	11.76
71 - +	21	46.28	13.49	17	49.12	12.22	4	34.21	13.30
Marital status									
Single	297	42.30	12.53	114	45.69	11.17	148	39.23	12.88
Married	101	44.77	12.60	62	48.75	11.47	39	38.44	11.81
Divorced	21	46.33	14.71	14	54.07	10.13	7	30.86	8.93
Widowed	42	46.37	12.93	28	47.54	11.18	12	43.15	16.85
Education									
None	52	39.57	14.70	15	50.39	13.32	37	35.19	12.99
Primary	135	42.99	13.29	86	46.70	11.72	48	36.37	13.47
Secondary	235	43.81	11.99	123	46.72	10.90	107	40.64	12.20
Tertiary	36	47.28	11.10	21	48.92	10.56	14	45.91	11.67
Employment									
Employed	74	46.87	12.93	52	48.98	12.31	20	42.13	13.39
Unemployed	383	42.77	12.65	194	46.68	11.09	184	38.74	12.86

Note: MHC-SF = Mental Health Continuum Short Form

Table 3: Descriptive statistics and reliability indices of the GPWS and MHC-SF for the total sample (N = 459)

Variable	M	SD	Range		Skewness	Kurtosis	Cronbach alpha
			Min	Max			
GPWS-t	88.76	22.40	26.00	136.00	-.05	-.56	.89
MHC-SF	43.48	12.73	2.00	69.00	-.33	-.49	.84
MHC PWB	22.11	5.93	0.00	30.00	-.04	-.19	.78
MHC EWB	9.47	4.10	0.00	15.00	-.54	-.68	.79
MHC SWB	11.89	5.93	0.00	25.00	-.68	-.84	.68

Note: GPWS = General Psychological Well-being Scale; MHC-SF = Mental Health Continuum Short Form, PWB = Psychological Well-being; EWB = Emotional Well-being, SWB = Social Well-being

Table 4: Cross tabulations – categories of positive mental health as measured with the MHC-SF, by socio-demographic variables:

Variable	Categories of Mental health			Total
	F (%)	M (%)	L (%)	
Context				
Urban	145 (57.8)	98 (39.0)	8 (3.2)	251
Rural	77 (37.0)	108 (51.9)	23 (12.5)	208
Gender				
Male	72 (51.0)	62 (44.0)	7 (4.5)	141
Female	151 (47.2)	144 (45.0)	25 (7.8)	320
Age				
18 – 25	30 (41.7)	38 (52.8)	4 (5.6)	72
26 – 30	36 (47.4)	35 (46.1)	5 (6.6)	76
30 – 40	49 (47.6)	46 (44.7)	8 (7.8)	103
41 – 50	36 (40.9)	43 (48.9)	9 (10.2)	88
51 – 60	32 (55.2)	21 (36.2)	5 (8.6)	58
61 – 70	26 (63.4)	14 (34.1)	1 (2.4)	41
71 - +	11 (52.4)	10 (47.6)	0 (0.0)	21
Marital status				
Single	127 (42.8)	148 (49.8)	22 (7.4)	297
Married	55 (54.5)	40 (39.6)	6 (5.9)	101
Divorced	13 (61.9)	7 (33.3)	1 (4.8)	21
Widowed	27 (64.3)	12 (23.6)	3 (7.1)	42
Education				
None	20 (36.5)	26 (50.0)	6 (11.5)	52
Primary level	72 (53.3)	51 (37.8)	12 (8.9)	135
Secondary level	110 (46.8)	111 (47.2)	14 (5.9)	235
Tertiary level	19 (52.8)	17 (47.2)	0 (0.0)	36
Employment				
Employed	44 (59.5)	28 (37.8)	2 (2.7)	74
Unemployed	178 (46.5)	175 (45.7)	30 (7.8)	383

Note: MHC-SF = Mental Health Continuum Short Form; F= Flourishing; M= Moderate mental health;.L= Languishing.

Table 5: Cross tabulations – categories of general psychological well-being as measured by the GPWS, by socio-demographic variables:

Variable	Categories of General Psychological well-being			Total
	High (%)	Medium (%)	Low (%)	
Context				
Urban	121 (48.6)	79 (31.73)	49 (19.68)	249
Rural	34 (16.35)	73 (35.10)	101 (48.56)	208
Gender				
Male	56 (39.71)	38 (26.95)	47 (33.33)	141
Female	99 (31.13)	115 (36.16)	104 (32.70)	318
Age				
18 – 25	23 (31.94)	29 (40.28)	20 (27.78)	72
26 – 30	29 (38.16)	33 (43.42)	14 (18.42)	76
30 – 40	29 (28.43)	38 (37.25)	35 (34.31)	102
41 – 50	23 (26.44)	27 (31.03)	37 (42.53)	87
51 – 60	23 (39.66)	8 (13.79)	27 (46.55)	58
61 – 70	17 (41.46)	13 (31.70)	11 (26.83)	41
71 - +	9 (42.86)	5 (23.81)	7 (33.3)	21
Marital status				
Single	85 (28.81)	109 (36.95)	101 (34.24)	295
Married	41 (40.59)	29 (28.71)	31 (30.69)	101
Divorced	9 (42.86)	5 (23.81)	7 (33.3)	21
Widowed	19 (45.24)	11 (26.19)	12 (28.57)	42
Education				
None	8 (15.38)	14 (26.92)	30 (57.69)	52
Primary level	43 (31.85)	43 (31.85)	49 (36.30)	135
Secondary level	83 (35.62)	87 (37.34)	63 (27.04)	233
Tertiary level	19 (52.8)	8 (22.2)	9 (25.0)	36
Employment				
Employed	39 (53.4)	21 (28.8)	13 (17.8)	73
Unemployed	113 (29.6)	133 (34.8)	136 (35.6)	382

Note: GPWS = General Psychological Well-being Scale

Table 6: Spearman Inter-variable correlations and multi-collinearity diagnostics (tolerance and VIF) for GPWS and MHC-SF

Variable	Age	Gender	Marital status	Edu.	Employ-ment	Environ. setting	GPWS		MHC-SF	
							Tol.	VIF	Tol.	VIF
Age	1						.57	1.76	.56	1.77
Gender	.07	1					.95	1.06	.95	1.05
Marital status	.56**	.09*	1				.93	1.08	.93	1.08
Education	-.49**	-.04	-.20**	1			.67	1.48	.67	1.50
Employment	.06	.17**	-.13**	-.13**	1		.80	1.25	.80	1.25
Environmental setting	-.14**	.12*	-.13**	-.06	.17**	1	.92	1.09	.92	1.09

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Note: GPWS = General Psychological Well-being Scale; MHC-SF = Mental Health Continuum Short Form

Table 7: Linear regression analysis for GPWS and socio-demographic variables:

Variable	Coefficients of correlation and regression						
	r / r_s	R^2	Adjusted R^2	B	Beta	F	Sig. (ρ)
Age	.00 / -.02	.00	.00	-.04	.00	.01	.94
Gender	-.05 / -.05	.00	.00	-3.05	-.06	1.81	.18
Environmental setting	-.41** / -.42*	.17	.17	-18.49	-.41	92.40	.00
Employment	-.22 / -.21	.04	.04	-12.80	-.21	20.87	.00
Marital status	.12* / .12*	.01	.01	2.73	.12	6.07	.01
Education	.21** / .20**	.05	.04	6.10	.22	22.28	.00

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Note: GPWS = General Psychological Well-being Scale

Table 8: Linear regression analysis for MHC-SF and socio-demographic variables:

Variable	Coefficients of correlation and regression						
	r / r_s	R^2	Adjusted R^2	B	Beta	F	Sig. (ρ)
Age	.08 / .08	.01	.00	.59	.08	2.80	.09
Gender	-.06 / -.07	.01	.00	-1.90	-.07	2.17	.14
Environmental setting	-.32** / -.31**	.10	.10	-8.14	-.41	92.40	.00
Employment	-.13** / -.13**	.01	.01	-4.10	-.12	6.39	.01
Marital status	.10* / .12**	.01	.01	1.57	.12	6.16	.01
Education	.13** / .11*	.02	.01	2.03	.13	7.40	.01

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Note: MHC-SF = Mental Health Continuum Short Form

Table 9: Multiple regression analysis for GPWS (dependent) and MHC-SF (dependent) with socio-demographic variables (independent):

	GPWS			MHC-SF		
Variable	B	Beta	Sig. (ρ)	B	Beta	Sig. (ρ)
Age	-.24	-.02	.76	.59	.08	.20
Gender	.57	.01	.79	-.68	-.03	.59
Marital status	2.47	.10	.05	.67	.05	.38
Education	5.09	.18	.00	2.31	.15	.01
Employment	-7.99	-.13	.00	-2.26	-.07	.16
Environmental setting	-16.43	-.37	.00	-6.88	-.27	.00

GPWS model summary: $R^2 = .23$; adjusted $R^2 = .22$; $F = 21.60$; $\rho = .000$

MHC-SF model summary: $R^2 = .12$; adjusted $R^2 = .11$; $F = 10.33$; $\rho = .000$

Note: GPWS = General Psychological Well-being Scale; MHC-SF = Mental Health Continuum Short Form

Section 4: Article 3

Psychometric Comparison of the General Psychological Well-being Scale and the Mental Health Continuum Short-Form in an African context

Submitted to the

Journal of Psychology in Africa

Target journal and guidelines for authors

The first article has been submitted to the *Journal of Psychology in Africa* for publication and this manuscript and reference list has been styled according to this journal's specifications. The following is a copy of the guidelines for prospective authors set out by the journal.

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Manuscript

Running head: GPWS and MHC-SF in an African context

Abstract

The General Psychological Well-being Scale (GPWS) and the Mental Health Continuum Short-Form (MHC-SF) as holistic measures of well-being were compared in a Setswana-speaking sample who completed a battery with the two scales and other indices of well-being. Psychometric properties were explored using classical test theory (CTT), structural equation modelling (SEM; measurement model) and item response theory (IRT; Rasch 1-parameter model). It was found that both the GPWS and MHC-SF are satisfactory measures of holistic psychological well-being in an African community, as shown specifically by CTT analyses. The measurement model fit indices did not support the hypothesised unidimensional GPWS factor structure. The IRT analyses, however, indicated good results for both scales. Further research to explore the factor structure and dimensionality of the GPWS, and qualitative research in support of item content and contextual meaning of well-being constructs are recommended.

Key words: Psychological well-being; Mental Health; African context; Measurement; Comparison

Abstract word count: 138

Psychometric Comparison of the General Psychological Well-being Scale and the Mental Health Continuum Short-Form in an African context

Psychological well-being is defined and operationalised in the form of various constructs, models and measures (Diener, 2009; Lopez & Gallagher, 2009). The issue of the nature and structure of well-being is increasingly becoming one of great interest and central focus in positive psychology (Kashdan, Biswas-Diener & King, 2008; Linley, Maltby, Wood, Osborne & Hurlung, 2009). The General Psychological Well-being (GPW; Wissing & Van Eeden, 2002) and Mental Health Continuum (MHC; Keyes, 2002) models are two contemporary conceptualisations that consider well-being from a holistic perspective. The two models recognise the overlap between the eudaimonic and hedonic dimensions at both conceptual and psychometric levels as previously identified by several researchers (e.g. Deci & Ryan, 2008; Keyes, 2002, 2007; Wissing & Temane, 2008; Wissing & Van Eeden, 2002). Thus, both models are based on the theoretical and empirical position that psychological well-being is integrated, complex, holistic and multi-faceted in nature. Keyes and colleagues (Keyes, 2002, Keyes et al., 2008) and Wissing and colleagues (Wissing & Temane, 2008; Wissing & Van Eeden, 2002; Wissing, Wissing & Temane, 2004) have demonstrated research efforts towards empirically measuring holistic psychological well-being, particularly in an African context.

Self-report measures are most commonly used as a method of assessing well-being (Diener & Ryan, 2009; Haeffel & Howard, 2010). Both the General Psychological Well-being and Mental Health Continuum models are measured by using self-report scales. Keyes's (2002) Mental Health Continuum (MHC) is measured by using a 14-item self-report Mental Health Continuum Short-Form (MHC-SF) scale. Wissing and Van Eeden's (2002) General Psychological Well-being factor (GPW) is measured by using the 20-item self-report General Psychological Well-being Scale (GPWS; Khumalo, Temane & Wissing, 2010). According to Lucas (2007) the ability to measure constructs validly depends on the psychometric properties of the measure. Previous empirical studies (Keyes et al., 2008; Khumalo et al., 2010) have independently examined psychometric properties and empirical manifestation of GPWS and MHC-SF in an African context.

The development and validation routes of the two scales were, however, different. The MHC-SF was developed in a Western context via a theoretically guided route, and subsequently applied and adopted for an African context through a cross-cultural imposed etic approach (see Berry, 1980; John & Benet-Martínez, 2000; Keyes, et al, 2008). On the other hand, the GPWS was developed and validated in an African context following a

combined emic-etic approach (cf. John & Benet-Martínez, 2000). Keyes et al. (2008) using the MHC-SF among an African group, and found favourable and encouraging psychometric properties, and mental health level estimates similar to those found in previous studies in a Western context. The MHC-SF demonstrated acceptable internal consistency, satisfactory Cronbach alpha coefficients, and good criterion-related validity (see Keyes, et al., 2008). The GPWS (Khumalo et al., 2010) was developed in an African context by following an empirical path of identifying the construct, and has demonstrated favourable psychometric characteristics with a high Cronbach alpha reliability index, good criterion-related validity and a factor structure supporting the initial findings and recommendations of Wissing and Van Eeden (2002).

Cultural context. The different development paths for arriving at a reliable and valid scale are important when considering the comparisons of models and measures. An *etic* approach is limited in its ability to examine culture-specific aspects of the measured construct, and as such may presumably miss the local understanding of the target construct or its applicability. The *emic* approach, on the other hand, is not optimal for cross-cultural comparisons as it tends to be culture-specific (John & Benet-Martínez, 2000). Cultural context plays a major role in the operationalisation, manifestation and measurement of strengths in diverse groups, thus its consideration is important in psychology in general and psychological well-being in particular (Christopher, 1999; Pedrotti, Edwards & Lopez, 2009). As Constantine and Sue (2006) and Pedrotti et al. (2009) point out well-being constructs may look very different in different contexts. The understanding of cultural context is central to the comparison of the two measures in the present study. An African socio-cultural context is an under-explored area in well-being studies (Ryff & Singer, 1998). It is generally accepted that an African socio-cultural orientation is mainly characterised by collectivism and interdependence (Mbiti, 1991). Allik and McCrae (2004) and Wissing and Temane (2008) have empirically demonstrated the different manifestations of personality and psychological well-being patterns across different groups in South Africa.

Mental Health Continuum (MHC; Keyes, 2002, 2005a, 2005b; Keyes et al., 2008)

MHC: Theoretical conceptualisation. The MHC emanated from the conceptualisation of mental health as a complete positive state consisting of a set of positive symptoms of emotional, psychological and social well-being (Keyes, 2002). This reflects the evaluation and perception of one's affective state, psychological and social functioning. Emotional well-being is characterised by the presence of positive affect, the absence of negative affect and level of satisfaction with life, while psychological well-being refers to positive functioning as

indicated by Ryff's (1989) six dimensions of well-being and reflects optimal psychological adjustment. Emotional and psychological well-being are intrapersonal reflections of one's adjustment and do not represent a complete engagement in society and life. Thus, the third component, which is social well-being, is necessary for mental health. Social well-being represents one's appraisal of his/her circumstances and functioning in society stemming from people being embedded in social structures and communities (Keyes, 1998). Therefore, the Mental Health Continuum consists of three components, namely psychological well-being, emotional well-being and social well-being (Keyes, 2002).

Furthermore, the mental health continuum consists of complete and incomplete mental health where a complete state of mental health is called flourishing, and incomplete mental health is referred to as languishing. This is in line with the position that mental health and mental illness are not opposite poles of a single continuum, but rather two distinct yet negatively correlated factors (Keyes, 2002; 2007; Ryff & Keyes, 1995). Flourishing is characterised by high levels of personal well-being, emotional vitality and positive feelings towards oneself and positive psychological and social functioning. Languishing represents lower levels of well-being and is characterised by a life of emptiness and stagnation, and can possibly co-occur with symptoms of depression (Keyes, 2002). Individuals who are neither flourishing nor languishing are said to be moderately mentally healthy. Mental health is operationalised as an emergent condition with a set of characteristics at specific levels, for a specific duration, co-existing with positive general psychosocial adaptation.

Mental Health Continuum Short-Form (MHC-SF; Keyes,2002, 2005b): Definition and scale description. The development of the Mental Health Continuum measure was a largely theory guided process, and the scale was subsequently subjected to empirical research processes. As mentioned, the theoretical conceptual roots of the MHC are traced back to Ryff's (1989) Psychological Well-Being (PWB) model, Keyes's (1998) Social Well-being concept and an Emotional well-being concept similar to Diener's (1984, 2000) conception of subjective well-being. Each dimension of the constituting components is represented by an item in the MHC-SF. Positive psychological functioning is characterised by six dimensions, namely self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (Ryff, 1989). The Emotional Well-Being component is made up of the presence of positive affect and high level of satisfaction with life or avowed happiness (Keyes, 2005). Social Well-Being (Keyes, 1998) dimensions, namely social integration, social acceptance, social contribution, social actualisation, and social coherence form part of the MHC. Therefore, the MHC-SF can give an indication of the levels of

emotional, psychological and social well-being as described by subscales, as well as the degree of mental health along the continuum from incomplete (languishing) to complete (flourishing) mental health.

MHC: Samples: The MHC-SF was initially developed and validated in an American sample, and has been successfully applied in two different surveys, the MacArthur Foundation's Midlife in the United States (MIDUS; Keyes, Shmotkin & Ryff, 2002) survey and the "Understanding and promoting psychosocial health, resilience, and strengths in an African context – Prospective Urban and Rural Epidemiological study (PURE-FORT2 and 3; Kruger, 2005; Wissing, 2005). The MIDUS survey was an initiative of the MacArthur Foundation's Research Network on Successful Midlife Development. It was conducted among a national probability sample of 3032 participants drawn with a random digital dialling procedure. The sample consisted of adult male and female English-speaking adults in 48 states between the ages of 25 and 74 years. Collection of the MIDUS data began in January 1995 and lasted for 13 months. In another study, a sample of 1284 American youth aged between 12 and 18 responded to a measure of mental health using 3 EWB items, 4 PWB items and 5 SWB items (Keyes, 2006).

The MHC-SF was successfully applied in a sample of 1050 black South Africans from rural and urban settings of the North West Province (Keyes et al., 2008) via an imposed etic cross-cultural adaptation in the FORT-PURE research project (Wissing, 2005). The cross-sectional random sample consisted of mainly Setswana-speaking male and female adults between the ages of 30 and 80 years. The survey within which the data were collected formed part of two multi-disciplinary research projects to explore the health transition in chronic diseases of lifestyle as well as the psychosocial health, resilience and strengths in an African context.

General Psychological Well-being (GPW; Wissing & Temane, 2008; Wissing & Van Eeden, 2002)

Theoretical conceptualisation. The General Psychological Well-being construct refers to a complex multi-faceted and yet unidimensional factor made up of facets of self and domains of life capturing a holistic conceptualisation of well-being (Wissing & Temane, 2008; Wissing & Van Eeden, 2002). The construct resulted from an exploration of the psychometric properties and manifestation of a number of well-being indicators with the aim of clarifying the nature of psychological well-being in an African context (Wissing & Van Eeden, 2002). It was therefore statistically derived from measures of various specific strengths and facets of psychological wellness (Wissing & Temane, 2008; Wissing & Van Eeden, 2002). Indices of

both hedonic and eudaimonic well-being, namely, Sense of coherence (Antonovsky, 1987; 1993), Positive affect balance (Kamman & Flett, 1979) and Satisfaction with life (Diener et al., 1985) accounted for general psychological well-being. High general psychological well-being reflects positive cognitive, affective, conative, interpersonal, social, spiritual experiences as well as the absence of mental and physical symptoms of distress (Wissing & Van Eeden, 2002; Wissing & Temane, 2008). The importance of spirituality especially among African people is illustrated in literature (eg. Mbiti, 1990, 1991; Temane & Wissing, 2006b). Item content representing this spirituality was therefore included in the scale. This is also in line with Emmons' (2003) and Ellison and Smith's (1991) conception of spiritual well-being that encompasses both horizontal and vertical spiritual relatedness components.

As such GPW is a basic ingredient of resilience and a general protective factor that may help in adapting to and coping with novel, unfamiliar or extreme psychological challenges (Wissing & Temane, 2008). Therefore GPW may be required to enhance the ability to manage complex, challenging and sometimes traumatic situations in a growth enhancing and flourishing manner in both intra- and interpersonal life experiences (Wissing & Temane, 2008). Sub-components of General psychological well-being exist in different patterns across different socio-cultural contexts (Wissing & Temane, 2008). For example, among the more collectivistic group in South African multi-cultural sample, a close association between social support and satisfaction with life was found. In a more individualistic group, behavioural readiness characterised by goal-directedness and self-efficacy beliefs was found (Wissing & Temane, 2008).

General Psychological Well-being Scale (GPWS, Khumalo et al, 2010): Definition and scale description: The GPWS is an unidimensional self-report measure of general psychological well-being. It was developed through an empirical process guided by the findings of Wissing and Van Eeden (2002) that positive affect, satisfaction with life and sense of coherence have a shared variance. The GPWS is based on the found empirical overlap between hedonic and eudaimonic dimensions of well-being (cf. Deci & Ryan, 2008). A high score on the GPWS reflects meaningfulness, satisfaction, and happiness, with a sense of vitality, meaningful relations with others, and an ability to cope well with life challenges (Khumalo et al., 2010).

GPWS: Samples. The GPWS was initially developed in an African mainly Setswana-speaking sample of community members in a rural and urban setting in South Africa (Khumalo et al., 2010), and thus may be considered an emic instrument for this context. The conception of the GPWS took place in a multi-phased sampling process involving a cumulative sample of 2760 participants. The three phases were scale development (n=2005),

pilot study (n=296) and main application study (n=459). The scale development sample of 2005 participants was collected from three different research projects over a period of time. These were the Profiles of Obese Women with the Insulin Resistance Syndrome (POWIRS; Schutte, Kruger, Wissing, Underhay, & Vorster, 2005; n=217), Transition and Health during Urbanisation of South Africa (THUSA; Vorster, et al., 2000; Wissing, et al., 1999; n=738), and the Prospective Urban and Rural Epidemiological study – Understanding and promoting psychosocial health, resilience and strengths in an African context (PURE-FORT-2; Kruger, 2005; Wissing, 2005; n=1050). The pilot and validation studies were conducted among a cumulative sample of 755 participants. All participants were African male and female adults who primarily spoke Setswana.

Viewed from a psychometric perspective, classical test theory and structural equation modelling based psychometric methods were used in at least two previous studies involving GPWS (see Khumalo et al., 2010) and MHC-SF (see Keyes et al., 2008). However, analyses from IRT-based methods were not included in this earlier work. The main criticism against CTT-based psychometric methods is that through CTT the model is expressed at scale score level and assumes that measurement precision is constant across the measured trait range (Karim, 2009; Zicker, 1998). Another limitation of CTT approaches is that they are unable to estimate person ability and item difficulty separately (Hays, Morales & Reise, 2000). On the other hand, IRT allows for the examination of scale characteristics at the observed item response level (Karim, 2009), and can be used to assess the functioning of rating scale categorisations (Linacre, 2002). IRT can therefore add value in understanding the applicability of items in this specific context, especially as one scale had a semi-emic approach in development.

The aim of the study. The present study aimed to compare the General Psychological Well-being Scale (GPWS) and Mental Health Continuum Short-Form (MHC-SF) in an African context. The study therefore undertook a psychometric comparison of two measures of holistic psychological well-being.

Method

Design. The present study took the form of a quantitative cross-sectional survey design.

Participants. Participants were randomly selected from two settings in the North West Province in South Africa, one urban (Potchefstroom; n=258) and the other rural (Ganyesa; n= 209). The total sample consisted of 459 adult participants. They were 141 men and 318 women, with an age range between 18 and 80 years. All participants were Setswana speaking

and came from a socio-cultural background of a relatively collectivistic nature in line with African cultural orientation (cf. Mbiti, 1991; Ryff & Singer, 1998).

Measuring instruments. The scale battery consisted of the two scales for comparison, namely, the General Psychological Well-being Scale (GPWS; Khumalo, Temane & Wissing, 2010) and the Mental Health Continuum Short Form (MHC-SF; Keyes, 2002, 2005), and other indices of psychological well-being. The other scales included in the battery were Fortitude Questionnaire (FORQ; Pretorius, 1998), Coping Self-Efficacy Scale (CSES; Chesney, Neilands, Chambers, Taylor, & Folkman, 2006), Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001), and General Health Questionnaire (GHQ; Goldberg & Hiller, 1979).

General Psychological Well-being Scale (GPWS, Khumalo et al, 2010): The GPWS is a 20-item unidimensional scale to measure general psychological well-being on a seven-point agreement response scale. In its development and validation study (Khumalo et al., 2010) favourable psychometric properties were found. The scale was reported to be reliable in an African Setswana-speaking sample, attaining a Cronbach alpha of .89. The scale's items were sufficiently interrelated in support of the intended unidimensional structure. The one factor structure was also supported by confirmatory factor analysis. Criterion-related validity was demonstrated by theoretically expected inter-scale correlations with other indices of positive and negative well-being.

Mental Health Continuum Short-Form (MHC-SF; Keyes, 2002, 2005b):

The MHC-SF is a 14-item scale designed to measure mental health along a continuum of categories of languishing, moderate mental health and flourishing. It consists of three subscales, namely Emotional well-being, Social well-being and Psychological well-being. It uses a response format of a 6-point frequency scale. The MHC-SF has been found to be reliable in an African context. Keyes et al. (2008) reported a Cronbach alpha of .74 in a Setswana-speaking sample.

Fortitude Questionnaire (FORQ; Pretorius, 1998). The FORQ is a 20-item questionnaire measuring fortitude. Fortitude refers to the strength to manage stress and stay well on the basis that one received social support from family members, friends and others (Pretorius, 1998). In the initial study among South African students, Pretorius (1998) reported a reliability index of .85 for the total scale. Khumalo, Wissing and Temane (2008) found a Cronbach alpha of .86 among mainly Setswana-speaking students. In the present study a Cronbach alpha of .87 (n=459) was yielded by the results.

Coping Self-Efficacy Scale (CSES; Chesney, Neilands, Chambers, Taylor, & Folkman, 2006). The Coping Self-Efficacy scale is a 26 item scale designed to measure individuals' perceived confidence to cope with challenges and threats. It is measured on an 11-point response scale with three anchor points, namely "cannot do at all" at 0, "moderately certain can do" at 5 and "certain can do" at 10. For each of the items, the scale asks to what extent participants are able to perform certain behaviors when things are not going well for them or when they have problems. In the original validity and reliability study, Chesney et al. (2006) found a reliability index of .95. The present study yielded a Cronbach alpha of .91 (n=459).

Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001). The PHQ is a 9-item self-report depression scale used to establish a diagnosis of unipolar depressive disorder as well as grade the severity of the depressive symptoms. Kroenke et al. (2001) found the scale to be reliable and reported a Cronbach alpha of .89 as well as satisfactory criterion-related and construct validity. Among Nigerian university students, Adewuya, Ola and Afolabi (2006) found a Chronbach alpha of .85. The present study yielded a Cronbach alpha of .81 (n=459).

General Health Questionnaire (GHQ; Goldberg & Hiller, 1979). The GHQ is a 28-item scale that consists of four subscales measuring somatic symptoms, anxiety and insomnia, social dysfunction and depression, and is suitable for detecting specific symptoms that are indicative of mental illness and psychological distress (Goldberg & Hillier, 1979; Werneke, Goldberg, Yalcin, & Ustun, 2000). In previous studies, Wissing and Van Eeden (2002) have found a Cronbach alpha of .91, and Keyes, et al. (2008) found .89 for the total scale in a Setswana-speaking sample. The present study yielded a reliability coefficient of .91 (n=459).

Procedure.

The current study was undertaken as part of two research projects, namely the PURE-SA (*Prospective Urban and Rural Epidemiological study – South Africa)* coordinated by Kruger (2005), and the FORT-3 (*Understanding and promoting psychosocial health, resilience, and strengths in an African context)* coordinated by Wissing (2008). The urban Potchefstroom participants were randomly selected and recruited through the use of the ESRI Arch-View software programme, and were visited in their houses for data collection. In the rural Ganyesa, houses were identified and visited by selecting every tenth house from a random point in each neighbourhood. Trained fieldworkers visited the houses and assisted participants to complete paper-pencil batteries by way of structured interviews. These interviews took place after comprehensive explanation of the nature of the study and the

participant's involvement so as to allow for informed consent and voluntary participation. Participants signed an informed consent letter prior to participation. The completed responses were captured as data and analysed by using statistical software (SPSS; AMOS; Winstep).

Ethical aspects.

The two research projects within which the current study was conducted were granted ethical permission by the North-West University Ethics committee. The FORT-3 (Wissing, 2008) was awarded the Ethics number: NWU-00002-07-A2, and PURE-SA (Kruger, 2005) was awarded the number 04M10. Data were collected by trained fieldworkers capable of speaking and understanding both English and Setswana, under the supervision of the first author. Confidentiality was maintained during data collection and due ethical conduct was maintained at all stages. The use of the collected data is restricted to the specified purpose only.

Data analysis.

The psychometric comparison of the GPWS and MHC-SF was executed by subjecting the two scales to the same analysis procedures. The data analysis strategy comprised three main statistical approaches, namely, classical test theory (CTT), structural equation modelling (SEM) (Byrne, 2001), and the Rasch model (De Bruin, 2004; Linacre, 2002, 2003; Rasch, 1960) of item response theory (IRT).

Classical test theory. At the level of classical test theory, the following measurement properties for the two scales were computed and compared: reliability indices, descriptive statistics, and construct and criterion-related validity (cf. Clark & Watson, 1995; John & Benet-Martinez, 2000; Panounen & Ashton, 1998; Zickar, 1998). Using CTT approach Panounen and Ashton (1998) have suggested that a psychometrically sound measuring instrument, particularly for cross-cultural study, must have adequate means and variances, reliabilities, factor structures and correlations with other indices.

Structural equation modelling (SEM). As a model testing statistical procedure, SEM was used to test the underlying theoretical constructs (measurement model) for GPWS and MHC-SF. Thus, the measurement models that report the relationship between latent variables and their indicator variables were explored.

Measurement models. The theoretically guided models together with plausible alternative models were identified and presented. For the mental health continuum, Keyes et al. (2008) recommend a three-factor structure for MHC-SF. In line with theoretical conceptions based on empirical findings of Wissing (see Wissing & Temane, 2008; Wissing

& Van Eeden, 2002), Khumalo et al. (2010) presented the GPWS as a unidimensional scale. Thus all the 20 items of the scale were first order indicator variables for the latent variable GPW. Models of one-factor and two-factor structures were used as alternatives for the MHC-SF. Two, three and four factor solutions were used as alternatives for GPWS. Fit indices were computed to report overall fit of the models (c.f. Byrne, 2001; Clara, Cox, Enns, Murray & Torgrudc, 2003).

Model fit indices. The fit indices (see Byrne, 2001; Hu & Bentler, 1999) reported are: Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Chi square (X^2), Chi square/degrees of freedom ratio (X^2/df), Tucker-Lewis Index (TLI), Normed fit index (NFI), Incremental Fit Index (IFI), Browne-Cudeck Criterion (BCC) and Akaike Information Criterion (AIC). The comparative fit index (CFI; Bentler, 1990) compares the hypothesised model to the independent model, and values above .90 indicate good fit. RMSEA assesses the amount of misfit and should preferably be a value less than .05 for an acceptable fit (Byrne, 2001; Forster et al., 2006). A chi square(X^2) compares the obtained covariance structure with the predicted structure, and a non-significant value is indicative of a good fit (Forster et al., 2006). The Tucker-Lewis Index (TLI) and non-normed fit index (NNFI) are incremental fit indices, they compare a common baseline model with the specified model, and it is supposed to be close to one for good model fit (Byrne, 2001; Forster et al., 2006; Hu & Bentler, 1999). Browne-Cudeck Criterion (BCC) compares the hypothesised model with alternative ones and reflects the extent to which parameter estimates from the original sample will cross-validate in future samples. BCC's smaller values are preferable (Byrne, 2001).

Item response theory (IRT). The IRT approach (cf. Dawis, 1987, 2000; De Bruin, 2004) employed in the current study was the Rasch model (Linacre, 2002, 2003; Rasch, 1960), also known as the 1-parameter logistic model. It was used to examine the functioning of each item of the two scales by computing difficulty estimates (Rasch calibrations), fit indices (infit and outfit mean square values) and thresholds of rating scale categorisations for each item. The Winsteps programme (Linacre, 2003) was used for analysis. In preparing the scales for Rasch analysis, the scores of the negatively phrased items were reversed. Generally, IRT gives an indication of item response function (IRF) through three parameters, namely discrimination parameter (*a*), difficulty parameter (*b*), and the pseudo-guessing parameter (*c*). As such IRF is a non-linear regression of the probability of affirming or endorsing an item on a latent trait, which represents the characteristic measured by the scale items (Zickar, 1998). However, the current study employs the Rasch model, that reports on the item difficulty parameter (Cella &

Chang, 2000) while maintaining discrimination levels constant. A couple of advantages of the Rasch model are noted. It requires a smaller number of cases than the 2- and 3-parameter models, it maintains the discrimination parameter near the average item discrimination estimate as it would be in a 2-parameter model (Cella & Chang, 2000), and provides a framework for the evaluation of the functioning of rating scale categorisation (Linacre, 2002).

Rasch model. The Rasch model works on a testable specification of unidimensionality (Cella & Chang, 2000), and reports individual ability and item difficulty, but does not report a discrimination parameter. Through the Rasch model (De Bruin, 2004; Linacre, 2002; Rasch, 1960; Van der Walt & Steyn, 2007), the present study reported item fit statistics, namely INFIT mean square and OUTFIT mean square values, difficulty calibrations and their standard errors, item score correlations, and response range thresholds. The infit mean square value has an expected value of 1.0, when it is above 1.0 it indicates greater variation and when below 1.0 indicates less variation. Values above 1.3 are regarded as indicating significant misfit, while significant overfit is indicated by values less than .75 (see Van der Walt & Steyn, 2007). The outfit mean square is determined by dividing the chi-square by the number of participants (N). An outfit mean square below 1.0 indicates that an item overfits the model while a value above 1.0 shows less than desirable fit. A range between 0.7 and 1.4 demonstrates adequate fit (see De Bruin, 2004; Linacre, 2002). This would indicate that the items are measuring the same latent trait.

Difficulty calibrations and their standard errors were computed. According to Hays, Morales and Reise (2000) most trait score and difficulty estimates range between -2 and 2. While referring to the difficulty parameter, Zickar (1998, p.105) states that "items with large positive b parameters will be endorsed only by respondents with large positive θs, whereas items with large negative b parameters will be endorsed by everyone except people with the most extreme θs". θ refers to the measured latent trait or construct. The b parameter which represents the difficulty of the item refers to the probability of endorsement or scoring high on an item (Hays et al., 2000).

IRT renders important information about participants' pattern of responding to items by computing thresholds at each rating scale category (Cella & Chang, 2000; Linacre, 2002). Cella and Chang (2000) are of the view that a rating scale is an extension of the item content itself. In the current study, the thresholds are expected to increase monotonically since the rating scales for both measures form a progression (see Hahn, Cella, Bode & Hanrahan, 2010; Linacre, 2002). "The analyst's expectation is that the probability of observing each category is greatest where that category is modelled to occur on the latent

variable, but there is always some possibility of observing any category at any point on the continuum" (Linacre, 2002, p. 4).

Results

Classical Test Theory.

Descriptive statistics. Descriptive statistics for GPWS and MHC-SF are displayed in Tables 1 and 2. Means, standard deviations, range, kurtosis and skewness, and item-total correlations give an indication of normative scores and distribution patterns of the data, the extent to which the scale and item scores are reproducible, as well as internal consistency (John & Benet-Martínez, 2000).

< Table 1 approximately here >

< Table 2 approximately here >

The mean scores for both the GPWS and MHC-SF items were found to be within reasonable range as indicated by narrow standard deviation values (cf. Field, 2005). The mean scores of the scales and sub-scales: MHC-EWB (9.47, SD=4.10), PWB (22.11, SD=5.93) and SWB (11.89, SD=5.93), MHC-SF (43.48, SD=12.73) and GPWS (88.85, SD=22.39) were also within a reasonable range.

The MHC-SF items have a negative kurtosis ranging between -1.60 and -.16, except for MHC-SF9, MHC-SF10 and MHC-SF14, which have positive kurtoses. Only MHC-SF4 is positively skewed, the rest of the items are negatively skewed and range between -1.70 to -.03. GPWS items have negative kurtoses, except for GPWS20 which has a positive value, and their kurtosis values range between -1.43 and .07. Except for GPWS1 and GPWS18, all other items are negatively skewed. Normal distribution is 0 for both kurtosis and skewness (Field, 2005; Pallant, 2007).

All MHC-SF items have item-total correlation coefficients above .35. Except for MHC-SF item 4 (r=.39), the rest of the correlations are between .51 and .65. Item 20 of the GPWS yielded an item-total correlation coefficient of .33, while the rest of the items scored between .37 and .69.

Interscale correlations and reliability indices. The scales' reliability results are displayed in Table 3. Attaining Cronbach alpha coefficients between .65 and .91, the scales and sub-scales proved reliable among this sample (cf. Clark & Watson, 1995; Nunnally, 1978; Streiner, 2003). More specifically GPWS scored .89 and the MHC sub-scales ranged between .68 and .79. The general rule of thumb is that an index above .70 is indicative of a reliable measure (Nunnally, 1978). Clark and Watson (1995) have however, argued for acceptable reliability as being indicated by a Cronbach alpha as low as .60. Too high alphas may also be

problematic, as those larger than .90 may simply imply item redundancy (John & Benet-Martinéz, 2000).

Interscale correlations' direction and strength form a basis for criterion-related validity and are reported in Table 3. Most of the scales and sub-scales prove to have good criterion-related validity. The GPWS in particular attained Pearson correlation coefficients above .30 with all other indices of positive and negative well-being. The GPWS and MHC-SF subscales, which are all indices of positive well-being are appropriately associated with the other indices. Negative well-being measures, namely PHQ-9 and GHQ subscales are negatively associated with GPWS and MHC-SF subscales, while the positive indices correlated positively. However, the MHC-PWB and MHC-SWB correlation coefficients with negative measures are not impressive as they range between -.34 and -.12.

< Table 3 approximately here >

Confirmatory Factor Analysis. CFA of GPWS yielded one factor with an eigen-value of 6.61 and explaining 33.05% of the variance emerged. All items had factor loadings equal and above .30 on this single factor. Thus the theoretically proposed solution for General Psychological Well-being (Wissing & Van Eeden, 2002) is confirmed for the GPWS in this sample. This result is evidence of construct validity (cf. Worthington & Whittaker, 2006) of the GPWS in this sample.

The proposed factor structure for the MHC-SF consists of three subscales that are related (Keyes, 2002, 2005a, 2005b). Each subscale was subjected to confirmatory factor analysis. The three items constituting the EWB factor attained an eigen-value of 2.11 and explained 70.46% of the variance in the subscale, while the 5 items for SWB have an eigenvalue of 2.24 and explained 44.73% in the SWB subscale, and the PWB items have an eigenvalue of 2.83 and explained 47.30% of the variance in that subscale. These results of a CFA are favourably comparable to the three sub-scales structure proposed by Keyes (2002) and found in a previous study in an African sample (Keyes, et al., 2008).

Structural equation modelling: Measurement model.

Factor structure and model fit. A number of fit indices were computed to examine the model fit of GPWS and MHC-SF. The measurement models, which were based on confirmatory factor analyses, were determined. They yield the relations between latent variables and their indicator variables (Oishi, 2007), as reported in tables 4 and 5. The findings indicate inconsistencies regarding the structures of the GPWS and MHC-SF, but more so for the GPWS. The GPWS's intended factor solution is unidimensional (Khumalo et al., 2010; Wissing & Temane, 2008). It was therefore this solution with which the 2-, 3- and 4-factor

solutions were compared. The results are displayed in Table 4. Fit indices such as IFI, TLI, CFI and RMSEA support a four-factor solution as having the best fit of the four proposed models, as opposed to the unidimensional model that proved to be a poor fitting model.

< Table 4 approximately here >

The three-factor solution of the MHC-SF is consistently shown to be the superior model. This is the theoretically intended factor structure (see Keyes, 2002, 2005a, 2005b). Similar results were found in a previous study in an African sample (Keyes et al. 2008).

< Table 5 approximately here >

Item response theory.

Results of the Rasch 1-parameter model fitted on the items of the GPWS are displayed in Table 6. Infit mean square values for the GPWS items range between .79 (GPWS4) and 1.17 (GPWS1), while the outfit mean square values range between .78 (GPWS4) and 1.23 (GPWS1). The fit statistics for all the GPWS items are therefore within the recommended range of between .70 and 1.4, thus indicating adequate fit (cf. De Bruin, 2004; Linacre, 2002). This means that all the items are in accordance with the fitted Rasch model. It can therefore be said that the items in GPWS meet the requirements of the model and thus measure a common unitary trait, namely General Psychological Well-being.

The response pattern to the categories of the rating scale shows an increase along the continuum as indication of the manifestation of the trait. Thus, the items form a meaningful hierarchy in terms of the probability of the respondents' endorsement of the items (cf. Linacre, 2002). Difficulty estimates for GPWS items range between -0.44 (GPWS20) and 0.22 (GPWS7 and GPWS8). Therefore, all items' difficulty estimates are within the -1 and 1 range.

< Table 6 approximately here >

The MHC-SF is proposed as a scale consisting of three subscales, measuring emotional psychological and social well-being. Each subscale was treated as a unidimensional component, and its items examined as contributing to the specific latent trait. Results of the Rasch model fitted on the items of the MHC-SF in their separate subscales are displayed in Table 7. The Infit mean square values for MHC-EWB range between .94(item 3) and 1.05 (item 1), while the Outfit mean square values range between .87 (item 3) and .99 (item 1). The Infit mean square values for MHC-SWB range between .79 (item 6) and 1.26 (item 5), while the Outfit mean square values range between .77 (item 6) and 1.19 (item 5). The Infit mean square values for MHC-PWB range between .92 (item 12) and 1.16 (item 9), while the Outfit mean square values range between .85 (item 12) and 1.21 (item 9). Since the fit

statistics for all the MHC-SF subscales are within the recommended range of between .70 and 1.4, it can be concluded that they meet the requirements of the model and thus measure the intended traits, namely emotional well-being, psychological well-being and social well-being, albeit determined on the basis of items between 3 and 6.

The response pattern of the rating scale categories for the MHC-EWB items shows a consistent increase along the continuum as indication of the manifestation of emotional well-being. The same is found for the items of MHC-SWB items. Thus, for the two subscales, the items form a meaningful hierarchy in terms of the probability of item endorsement. Most of the item rating scale category response patterns for the PWB subscale increase monotonically as expected, except for MHC-SF item 9. Difficulty estimates for the MHC-SF range between -0,59 (MHC-SF9) and 0.27 (MHC-SF1). Therefore, all items' difficulty estimates for the three subscales are within the -1 and 1 range.

< Table 7 approximately here >

Discussion

The aim of the present study was to undertake a psychometric comparison of the measures of General Psychological Well-Being construct and Mental Health Continuum model. The GPWS and MHC-SF were examined for psychometric properties using CTT, SEM and IRT approaches among an African sample. The constructs' conceptual composition and development trajectory of the scales were explored as reported in the literature. The main finding of the present study is that the GPWS and MHC-SF are psychometrically comparable. The scales' measurement distribution, reliability, validity, factor structure, item difficulty and response rating scale functioning are supported by statistical procedures in CTT, SEM and IRT.

The GPWS was developed via a combined etic-emic approach (Khumalo et al., 2010), while the MHC-SF was cross-culturally adapted via an imposed etic approach (Keyes et al., 2008). Both scales had been translated into Setswana using the front-and-back translation guidelines (cf. Brislin, 1990; Van de Vijver & Leung, 1997). The identification of the GPW construct took place through an empirical process (Wissing & Van Eeden, 2002) while the MHC model was identified through a theoretically guided process (Keyes, 2002, 2005a, 2005b). The theoretical composition of the two constructs and their operationalisations differ. The mental health continuum and its measure reflect the emotional, psychological and social well-being of a respondent along a continuum from languishing to flourishing (Keyes, 2002). This conceptual composition was conceived from various models, namely emotional well-being comprising positive affect and life satisfaction; psychological well-being (PWB; Ryff,

1989); and social well-being (Keyes, 1998). The GPW and its measure on the other hand give an indication of a more complex multi-faceted yet fluid conception of facets of hedonic and eudaimonic dimensions and manifests at cognitive, affective, behavioural, social and spiritual levels of human functioning (Wissing & Temane, 2008). The GPW composition was informed by an empirical overlap among various constructs, namely positive affect balance (Kammann & Flett, 1983), sense of coherence (Antonovsky, 1987, 1993) and life satisfaction (Diener et al, 1985), and included a spirituality facet.

In the present study both scales, as total scores and the subscales of the MHC-SF, were found to be reliable. They obtained satisfactory Cronbach alpha indices and good internal consistency. This is an indication of the scales being consistent measures of their constructs and that their scores will be reproducible among a similar group (cf. John & Benet-Martínez, 2000; Streiner, 2003). Good reliability also implies that the scale items are sufficiently interrelated to accurately measure the intended constructs without tapping on peripheral ones (Streiner, 2003). The mean values and their standard deviations indicate comparative manifestation of the traits of psychological well-being as measured by both instruments in this sample. Both scales demonstrated good criterion-related validity by yielding appropriate correlations with related indices of positive and negative well-being. Criterion-related validity supports definitional distinction or discrimination in terms of what the two measured constructs are and what they are not.

The theoretical conceptualisation frameworks that guide operationalisation of the two constructs postulate that the GPWS is a unidimensional measure and that the MHC-SF is tri-dimensional (see Keyes, 2002; Keyes et al., 2008; Khumalo et al., 2010; Wissing & Van Eeden, 2002). Although CFA could reproduce the theoretically intended factor structures for both scales, SEM analysis supported the factor structure of the MHC-SF, but not of the GPWS. However, SEM is in fact a confirmatory or hypothesis-testing approach that allows the proposed theoretical model to be statistically tested to determine the extent to which the model is consistent with the data (Byrne, 2001). The GPWS model that was consistent with the present data was the four-factor solution. This is, however, consistent with a previous study's exploratory factor analysis findings (Khumalo et al., 2010) that supported a four-factor structure. In their interpretations, Khumalo et al. (2010) named the latent factors of the GPWS as follows: 1) positive affect and meaningful satisfaction, 2) negative affect and poor coping, 3) Positive meaningful relatedness, and 4) Vitality. It was, however, in the same paper that Khumalo et al. (2010) recommended the scale as unidimensional. This, they based

on the CFA findings. The present findings clearly call for a further exploration of GPWS factor structure.

Nevertheless, Wissing and Temane (2008) have proposed that psychological well-being could have a hierarchical organisation with the GPW as the apex and consisting of multiple components that combine in complex ways, the combinations of which may manifest differently in various cultural contexts. Clark and Watson (1995) acknowledge that psychological constructs can be ordered hierarchically at different levels of abstraction. As a third level higher-order construct the GPW may consist second order intra-, interpersonal, and contextual components that in turn consist of specific cognitive, conative, affective, spiritual, social and behavioural components (see Wissing & Temane, 2008; Wissing, Wissing & Temane, 2004). Thus, higher general psychological well-being can be a general protective factor in challenging life experiences and situations. Further conceptual clarity of the general psychological well-being construct is called for.

GPWS items demonstrated adequate fit as determined by infit and outfit mean square values in the fitted Rasch model. Therefore they measure a unitary trait called general psychological well-being. In line with Keyes' (2002) specification of subscales for the MHC-SF and the assumption of unidimensionality inherent in the Rasch model analyses were performed within the subscales indicative of EWB, PWB and SWB. In each case, all items demonstrated adequate fit according to the fitted Rasch model, and therefore proving each subscale to be a satisfactory measure of a unitary trait. Difficulty estimates for all GPWS items and all MHC-SF items were within acceptable range. According to Hays et al. (2000) most difficulty estimates fall between -2 and 2.

An often neglected, yet important, aspect of any questionnaire or measuring instrument is its response or rating scale. A rating scale is in fact an extension of the item content (Cella & Chang, 2000; Clark & Watson, 1995) and it captures the degree to which a respondent is in terms of the measured attribute (Linacre, 2002). Using the Rasch model the functioning of response scales of the GPWS, which is a seven-point agreement scale, and MHC-SF, which is a six-point frequency scale, was determined through the examination of rating categories' thresholds. According to Linacre (2002, p. 4) "the analyst's expectation is that the probability of observing each category is greatest where that category is modelled to occur on the latent variable, but there is always some possibility of observing any category at any point on the continuum". In both GPWS and MHC-SF the response scale is supposed to show a clear progression along the continuum with the increasing manifestation of the measured trait. This is indeed the case with items of the GPWS and most of the MHC-SF,

except one, namely MHC-SF9: "*That you liked most parts of your personality*". Regarding personality, Temane and Wissing (2008) concluded that personality and context are intertwined and subsequently influence well-being. However, it is clear that the item content in MHC-SF9 taps on personality in one's evaluation of well-being and perhaps not as a component of positive mental health as it might have been intended.

Considering the findings of the present study in summary, the two scales have a reasonable degree of comparability as measures of holistic psychological well-being in an African context. They are both reliable. They both achieved good criterion-related validity. Construct validity of the MHC-SF was supported by CFA, SEM and Rasch model fit indices. The GPWS as a unidimensional scale was not supported by fit indices in SEM, instead the data fitted a four-factor solution better. The probability of endorsement of items as indicated by difficulty parameters was shown to be within desired range for the items of both scales. Response rating scales function well for most of the items in both scales, with most increasing monotonically as would be expected for the measured traits.

Limitations.

The following limitations in the study are acknowledged. The present study did not include an empirical measuring instrument to report the assumed collectivistic cultural orientation of the sample. The use of the 1-parameter model of Rasch (1960; Linacre, 2002, 2003) did not allow for the examination of the discrimination parameter as a measurement outcome. The mono-cultural, narrow and restricted nature of an adult Setswana-speaking sample was also a limitation. Lack of qualitative exploration to support quantitative measurement and outcome is a concern (cf. Camfield, Crivello & Woodhead, 2009). The exclusion of indigenous knowledge exploration is a limitation as Mkhize (2004) had for example pointed out that the active creation of psychosocial and other forms of knowledge had always been occurring in African communities.

Conclusions and recommendations

The understanding of well-being constructs relies on their proper operationalisation (Lucas, 2007). According to Clark and Watson (1995) and John and Benet-Martínez (2000) a scale must capture as accurately as possible the theoretical meaning inherent in the measured construct, and its explicit specification should allow for the scale to be evaluated, (dis)confirmed and improved. The present study presents sufficient triangulated psychometric evidence to suggest that the General Psychological Well-being Scale and Mental Health Continuum Short-Form are satisfactory measures of holistic psychological well-being in an African context. Although the two measures are comparable at a psychometric level, the

MHC-SF appeared to be marginally superior. Further exploration, improvement and refinement of the GWPS are recommended.

Based on the findings, two specific recommendations regarding the GPWS are made. Firstly, a careful study of the factor structure of the scale is needed. Secondly, the possibility of decreasing the rating scale categories of the GPWS from seven to five (see Linacre, 2002) should be investigated. Linacre (2002) reminds us of Rensis Likert's (1932) preference for a five category agreement scale. A large number of response rating categories have a potential to be confusing and irritating to participants (Linacre, 2002). Furthermore, it is recommended that future studies should employ qualitative methods for the improvement of measurement and item content, especially for determining the culturally-embedded meaning making of the measured constructs (cf. Camfield et al., 2009; Pedrotti, Edwards & Lopez, 2009). According to Mkhize (2004) the meaning formation process is always embedded in a cultural context. Van Schalkwyk's (2010) study is a good example of how qualitative findings can meaningfully support quantitative explorations. From the present findings it appears that contextual understanding and translatability of the concept of personality may be sought. Beyond psychometric investigations of measures, future studies could explore conceptual equivalence of constructs within and across cultural contexts (cf. Pedrotti et al., 2009).

The present study did not have as its aim or intention to inform or guide decisions regarding the choice of scale between either GPWS or MHC-SF. The two scales have multiple similarities as well as some important differences. Continued use of the two scales as indices of general psychological well-being and positive mental health is encouraged. It is also important to note that the GPWS is a new scale and is undergoing further refinement. Findings that both scales perform well psychometrically, ironically also indicate that the nature, structure and dynamics of psychological well-being are not yet optimally understood. In the present study, one model and measure is not clearly better than the other. To explore this, future real life outcomes over time need to be included as criterion variables.

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Table 1: Descriptive statistics of the General Psychological Well-being Scale (GPWS) at item level

Item	Mean	SD	Range		Kurtosis	Skewness	Item-total correlation	Cronbach alpha if item is deleted
			Min.	Max.				
GPWS1	3.79	2.10	1	7	-1.30	.16	.54	.89
GPWS2	4.54	2.00	1	7	-1.14	-.38	.60	.88
GPWS3	4.55	2.10	1	7	-1.43	-.22	.61	.88
GPWS4	4.31	1.91	1	7	-1.02	-.31	.63	.88
GPWS5	4.41	1.96	1	7	-1.18	-.19	.62	.88
GPWS6	4.01	2.10	1	7	-1.34	-.16	.59	.88
GPWS7	4.83	2.11	1	7	-1.20	-.49	.62	.88
GPWS8	4.82	2.01	1	7	-1.06	-.51	.60	.88
GPWS9	4.04	1.95	1	7	-1.21	-.18	.59	.88
GPWS10	4.42	2.06	1	7	-1.35	-.19	.48	.89
GPWS11	4.47	2.14	1	7	-1.43	-.23	.55	.89
GPWS12	4.09	2.06	1	7	-1.33	-.15	.69	.88
GPWS13	4.65	2.14	1	7	-1.35	-.37	.53	.89
GPWS14	4.53	1.95	1	7	-.98	-.44	.59	.88
GPWS15	4.71	2.12	1	7	-1.27	-.41	.47	.89
GPWS16	4.17	2.13	1	7	-1.43	-.08	.61	.88
GPWS17	4.75	2.04	1	7	-.91	-.62	.49	.89
GPWS18	3.32	2.05	1	7	-1.12	.44	.56	.89
GPWS19	5.12	1.73	1	7	-.31	-.83	.37	.89
GPWS20	5.48	1.79	1	7	.07	-1.09	.33	.89
GPWS-T	88.85	22.39	26	136	-.56	-.05	.	.

Table 2: Descriptive statistics of Mental Health Continuum – Short Form (MHC-SF) at item level

Item	Mean	SD	Range		Kurtosis	Skewness	Item-total correlation	Cronbach alpha if item is deleted
			Min.	Max.				
MHC-SF1	2.97	1.67	0	5	-1.12	-.41	.54	.83
MHC-SF2	3.37	1.56	0	5	-.54	-.76	.59	.83
MHC-SF3	3.13	1.64	0	5	-.81	-.62	.60	.82
MHC-SF4	1.44	1.80	0	5	-.75	.87	.39	.84
MHC-SF5	2.53	1.96	0	5	-1.60	-.03	.59	.83
MHC-SF6	2.78	1.77	0	5	-1.29	-.27	.65	.82
MHC-SF7	2.60	1.69	0	5	-1.21	-.21	.52	.83
MHC-SF8	2.55	1.76	0	5	-1.36	-.15	.56	.83
MHC-SF9	4.18	1.20	0	5	2.30	-1.70	.54	.83
MHC-SF10	3.77	1.45	0	5	.32	-1.16	.59	.82
MHC-SF11	3.51	1.50	0	5	-.24	-.90	.51	.83
MHC-SF12	3.63	1.43	0	5	-.16	-.93	.59	.82
MHC-SF13	3.57	1.47	0	5	-.35	-.85	.65	.82
MHC-SF14	3.45	1.58	0	5	.53	-.80	.56	.83
MHC-SF_EWB	9.47	4.10	0	15	-.68	-.54	.	.
MHC-SF_SWB	11.89	5.93	0	25	-.84	-.04	.	.
MHC-SF_PWB	22.11	5.93	0	30	-.19	-.68	.	.
MHC-SF_T	43.48	12.73	2	69	-.49	-.33	.	.

Table 3: Interscale correlations and reliability indices

Variable	Cronbach alpha	GPWS	MHC-EWB	MHC-PWB	MHC-SWB	FORQ	CSES	PHQ-9	GHQ-SS	GHQ-AS	GHQ-SD	GHQ-DS
GPWS	.89	1										
MHC-EWB	.79	.59	1									
MHC-PWB	.78	.45	.44	1								
MHC-SWB	.68	.32	.33	.52	1							
FORQ	.87	.56	.46	.41	.27	1						
CSES	.91	.40	.39	.35	.32	.51	1					
PHQ-9	.82	-.60	-.41	-.34	-.23	-.38	-.35	1				
GHQ-SS	.79	-.44	-.34	-.28	-.17	-.26	-.36	.60	1			
GHQ-AS	.81	-.46	-.35	-.27	-.16	-.28	-.41	.63	.72	1		
GHQ-SD	.65	-.33	-.24	-.27	-.12*	-.21	-.24	.48	.50	.53	1	
GHQ-DS	.78	-.46	-.31	-.25	-.16	-.33	-.34	.58	.55	.63	.47	1

** Correlation is significant at the 0.01 level (2-tailed) = all others

* Correlation is significant at the 0.05 level (2-tailed) = only SWB – GHQ-SD

Note: GPWS = General Psychological Well-being Scale; MHC-EWB = Mental Health Continuum – Emotional well-being; MHC-PWB = Mental Health Continuum – Psychological well-being; MHC-SWB = Mental Health Continuum – Social well-being; FORQ = Fortitude Questionnaire; CSES = Coping Self-Efficacy Scale; PHQ-9 = Patient Health Questionnaire; GHQ-SS = General Health Questionnaire – Somatic symptoms; GHQ-AS = General Health Questionnaire – Anxiety and insomnia; GHQ-SD = General Health Questionnaire – Social dysfunction; GHQ-DS General Health Questionnaire – Depression symptoms

Table 4: Goodness of fit estimates for GPWS

Latent model	X^2	*df*	BCC	NFI	IFI	TLI	CFI	RMSEA	AIC	X^2 / *df*
			Smaller	*>.90*	*>.90*	*>.90*	*>.90*	*<.05*	*Smaller*	
One factor	861.22	170	986.96	.71	.75	.68	.75	.09	981.22	5.07
Two factor	426.09	169	553.92	.85	.91	.88	.91	.06	548.09	2.52
Three factor	330.14	149	455.59	.88	.93	.91	.93	.05	450.14	2.22
Four factor	331.01	164	469.32	.89	.94	.92	.94	.05	463.01	2.02

Note: X^2 = Chi square; *df* = degrees of freedom; BCC = Browne-Cudeck Criterion; NFI = Normed fit index; IFI = Incremental fit index; TLI = Tucker-Lewis Index; CFI = Comparative fit index; REMSEA = Root Mean Square of approximation; AIC = Akaike's Information Criterion; X^2 / *df* = Chi square degrees of freedom ratio.

Table 5: Goodness of fit estimates for MHC-SF

Latent model	X^2	*df*	BCC	NFI	IFI	TLI	CFI	RMSEA	AIC	X^2 / *df*
			Smaller	*>.90*	>.90	*>.90*	*>.90*	*<.05*	Smaller	
One factor	554.61	77	641.45	.69	.73	.62	.72	.12	638.61	7.20
Two factor	322.37	76	411.27	.82	.85	.80	.86	.08	408.37	4.24
Three factor	229.78	74	322.82	.88	.91	.89	.91	.07	319.78	3.11

Note: X^2 = Chi square; *df* = degrees of freedom; BCC Browne-Cudeck Criterion= ; NFI = Normed fit index; IFI = Incremental fit index; TLI = Tucker-Lewis Index; CFI = Comparative fit index; REMSEA = Root Mean Square of approximation; AIC = Akaike's information criterion; X^2 / *df* = Chi square degrees of freedom ratio.

Table 6: General Psychological Well-being Scale (GPWS) item statistics in Rasch 1-parameter model

Item	Measure	Error	Infit MNSQ	Outfit MNSQ	Item-score correlation	Thresholds						
						1	2	3	4	5	6	7
GPWS1	-.05	.02	1.17	1.23	.13	-.06	-.08	-.06	-.07	-.05	.00	.00
GPWS2	-.14	.02	.97	1.03	.32	-.14	-.10	-.10	-.09	-.02	.00	.05
GPWS3	.15	.02	1.12	1.14	.21	-.06	-.09	-.05	-.06	-.03	.04	.04
GPWS4	-.08	.02	.79	.78	.40	-.18	-.11	-.10	-.06	-.02	.04	.08
GPWS5	-.03	.02	.82	.83	.40	-.16	-.13	-.08	-.08	.01	.02	.09
GPWS6	.00	.02	.97	.99	.31	-.12	-.09	-.08	-.06	-.02	.01	.10
GPWS7	.22	.02	1.12	1.12	.30	-.08	-.08	-.10	-.06	.00	.00	.16
GPWS8	.22	.03	1.03	1.03	.27	-.07	-.09	-.09	-.06	.03	.01	.13
GPWS9	-.01	.02	.83	.83	.38	-.16	-.10	-.06	-.07	-.01	.04	.10
GPWS10	.11	.02	.99	.98	.31	-.10	-.11	-.07	-.07	.05	.04	.05
GPWS11	.13	.02	1.07	1.07	.31	-.09	-.09	-.11	-.05	.02	.05	.05
GPWS12	-.02	.02	.91	.92	.40	-.17	-.11	-.05	-.07	.00	.03	.08
GPWS13	.18	.02	1.08	1.05	.34	-.10	-.08	-.09	-.05	.00	.07	.08
GPWS14	-.14	.02	.91	.91	.34	-.17	-.09	-.09	-.08	-.03	.00	.06
GPWS15	.19	.02	1.06	1.05	.34	-.09	-.09	-.08	-.06	-.04	.06	.15
GPWS16	.05	.02	1.07	1.07	.29	-.10	-.08	-.08	-.07	-.05	.03	.08
GPWS17	-.20	.03	1.13	1.14	.24	-.14	-.07	-.12	-.04	-.05	-.01	.02
GPWS18	.18	.02	1.00	.98	.33	-.11	-.08	-.04	-.07	.00	.11	.08
GPWS19	-.31	.03	.87	.87	.33	-.20	-.13	-.11	-.12	-.05	.01	.02
GPWS20	-.44	.03	1.11	1.10	.35	-.18	-.21	-.14	-.09	-.04	-.04	.02

Table 7: Mental Health Continuum Short Form (MHC-EWB, MHC-SWB, MHC-PWB): item statistics in Rasch 1-parameter model

Emotional well-being (MHC-EWB)										
Item	Measure	Error	Infit MSQ	Outfit MNSQ	Item-score correlation	Thresholds				
						1	2	3	4	5
MHC-SF1	.27	.07	1.05	.99	.82	-1.47	-.71	.01	1.25	3.12
MHC-SF2	-.31	.07	.98	.94	.79	-1.98	-1.13	-.32	1.02	2.63
MHC-SF3	.04	.07	.94	.87	.80	-1.71	-.83	.08	1.14	2.95
Social well-being (MHC-SWB)										
Item	Measure	Error	Infit MNSQ	Outfit MSQ	Item-score correlation	1	2	3	4	5
MHC-SF4	.26	.07	1.15	1.06	.68	-.76	-.52	.10	.83	1.36
MHC-SF5	-.14	.06	1.26	1.19	.70	-.95	-.77	-.20	.45	1.38
MHC-SF6	-.12	.05	.79	.77	.76	-1.20	-.69	-.12	.49	1.64
MHC-SF7	-.02	.05	.94	.94	.71	-1.17	-.58	-.04	.46	1.80
MHC-SF8	.02	.05	.98	.99	.69	-1.04	-.57	.01	.57	1.69
Psychological well-being (MHC-PWB)										
Item	Measure	Error	Infit MSQ	Outfit MNSQ	Item-score correlation	1	2	3	4	5
MHC-SF9	-.59	.06	1.16	1.21	.55	-.37	-.74	-.21	.76	1.73
MHC-F10	-.10	.06	1.01	.97	.64	-.38	-.36	-.03	.82	2.10
MHC-F11	.16	.05	.93	.99	.69	-.51	-.10	.19	.95	2.40
MHC-SF12	.12	.05	.92	.85	.69	-.44	-.26	.14	.94	2.33
MHC-SF13	.23	.05	1.03	1.03	.67	-.35	-.01	.22	1.07	2.31
MHC-SF14	.19	.05	1.04	1.02	.68	-.25	-.19	.28	.85	2.35

Section 5: Summary, conclusions, implications and recommendations.

Progress in the scientific field of Positive Psychology and the study of well-being has been made in recent years. The recent scientific pursuit and the philosophical thinkings of its predecessors are acknowledged, and they inform the work of the present thesis. It is observed however that despite these advances, research outside of the Western context has been lacking (Delle Fave & Bassi, 2009). The study of well-being in African contexts has been a neglected area. Park and Peterson (2007, p. 294) made a call that "(s)amples of research participants from different cultures should be studied, the equivalence of measures should be demonstrated, and constructs of concern should not just be exported (from Western cultures to elsewhere) but also imported (from elsewhere to Western culture)". Similarly, Wissing and Van Eeden (2002, p. 32) declared that "conceptual comparison and empirical evaluation of models of (psychological) well-being are clearly called for." In light of this background, the present thesis sheds light and poses further questions regarding the understanding and measurement of holistic psychological well-being in an African context. Three central points of focus, namely holistic psychological well-being, socio-demographic and contextual factors, and quantitative method and measurement were explored. Two models of holistic psychological well-being, namely General Psychological Well-being (GPW; Wissing & Temane, 2008; Wissing & Van Eeden, 2002) and Mental Health Continuum (MHC; Keyes, 2002, 2005a, 2005b, 2007; Keyes et al., 2008), and their measures were evaluated.

The general aim of the thesis was to explore the nature, prevalence, dynamics and measurement of general psychological well-being and positive mental health in an African context. This was achieved through a quantitative exploration of the GPW and MHC, and their measures, namely General Psychological Well-being Scale (GPWS; Khumalo, Temane & Wissing, 2010) and Mental Health Continuum Short Form (Keyes, 2002, 2005a, 2007; Keyes et al., 2008) among a Setswana-speaking sample. The thesis also focused on issues of theoretical conceptualisation regarding the hedonism and eudaimonia overlap that culminates in holistic psychological well-being, cultural embeddedness of positive human behaviour, individualism and collectivism cultural dichotomy, and methodology and measurement aspects. The main finding indicated that the GPW and MHC models and their measures were comparable in providing a conceptual framework and operationalisation of the multi-faceted holistic psychological well-being in an African community. Therefore, the two models indicated a conceptual realisation of psychological well-being as a holistic, complex, and multi-faceted construct as well as the psychometric comparability of their scales to meaningfully measure it in an African context. Further questions regarding the contextual

understanding of the studied populations and the emic understanding and meaning attached to being well also arose.

In the first instance the thesis concerned itself with issues of theoretical conceptualisation of well-being focusing on its conceptual nature and structure. An argument was made for the overlap between hedonic and eudaimonic well-being perspectives. Compton (2001), Forgeard, Jayawickreme, Kern, & Seligman (2011), Kashdan, Biswas-Diener and King (2008), Keyes (2002), Kopperud and Vitterso (2008), Lent (2004), Linley, Maltby, Wood, Osborne and Hurling (2009), Ryan and Deci (2001), Wissing and Temene (2008), Wissing and Van Eeden (2002), have all examined and gave insightful views and reviews regarding the nature and structure of psychological well-being. The lack of consensus regarding the conceptualisation and operationalisation of psychological well-being points to its abstract complexity. An interesting shift in recent literature is however noticed in that there is a greater recognition of the psychological well-being construct as a holistic multi-faceted one at a higher order level encompassing hedonic and eudaimonic dimensions, unlike the many micro-constructs that have populated the field along the distinct categories of hedonia and eudaimonia.

When considering socio-cultural context, the study of well-being can be viewed from a "culture-free" (etic/universal) and/or "culturally-embedded" (emic) perspective (Pedrotti, Edwards & Lopez, 2009). The present author held a "culturally embedded" view and believed that the unique manifestation of well-being variables depended on cultural norms and context (cf. Constantine & Sue, 2006; Pedrotti et al., 2009). The socio-cultural embeddedness of the participants in the present study and their context was therefore kept in mind throughout the process of the thesis. Various literature (e.g. Allik & McCrae, 2004; Christopher, 1999; Constantine & Sue, 2006; Ryff & Singer, 1998; Sokoya Muthukrishna & Collings, 2005; Wissing & Temane, 2008) attest to the important influence of socio-cultural orientation on personality and the experience of psychological well-being. More specifically, differences between Black and White groups in South Africa have emerged (see Allik & McCrae, 204; Wissing & Temane, 2008). The socio-cultural orientation of African people is often described as being characterised by collectivism and interdependence where an individual identifies primarily with a group or community before self-consideration (Mbiti, 1991; Ryff & Singer, 1998).

In addition to the possibly culturally embedded phenotypic predisposition from one generation to the next (Ryff & Singer, 2000), socio-demographic and environmental variables also have an influence on psychological well-being (Temane and Wissing, 2006a). Socio-

demographic variables such as gender, age and marital status often determine one's social status especially in an African context (Bawah, Akweongo, Simmons, & Phillips, 1999; Sokoya, Muthukrishna, & Collings 2005). As such these variables would be expected to influence psychological well-being. Educational level, employment status (Duchin & Hubacek, 2003; Vorster et al., 2000) and environmental setting (Vorster, 2000) as adequate markers of socioeconomic status would also influence one's well-being. Previous research has found that urban residents tend to do better than their rural counterparts (e.g. Tsuno & Yamazaki, 2007; Vorster et al., 2000).

The present thesis had a special focus on issues of quantitative measurement, especially of self-report nature. The first manuscript reported the development and initial validation of the measuring instrument for the general psychological well-being construct. The scale was named the General Psychological Well-being Scale (GPWS). Through an empirical route, the 20 itemed GPWS was developed while following a combined etic-emic approach (cf. John & Benet-Martínez, 2000). The Setswana version of the scale was found to be reliable (Cronbach alpha of .89) and valid (construct and criterion-related validity) among a sample of 459 Setswana speaking adults. The second manuscript explored the influence of socio-demographic variables, namely age, gender, marital status, educational attainment, employment status and environmental setting on general psychological well-being and positive mental health. Living in an urban area, being married, having a higher level of education and being employed were found to be promotional to individual's psychological well-being. Gender and age did not explain significant variance in both GPW and MHC. The third manuscript undertook a psychometric comparison of the GPWS and MHC-SF using classical test theory (descriptive statistics, reliability, construct and criterion-related validity), structural equation modelling (measurement model: fit indices) and item response theory (item fit statistics, difficulty parameters, and response range thresholds) statistical analyses. The findings indicated that the two are comparable measures of holistic psychological well-being in an African context. With a fair share of criticism self-report measures remain the most popular way of enquiring about people's psychological well-being (Haeffel & Howard, 2010; Kashdan, Biswas-Diener & King, 2008).

The main findings from the three manuscripts are presented.

Main conclusions: Section 2 / Article 1: Development and initial validation of the General Psychological Well-being Scale (GPWS) in an African context

The optimal operationalisation of constructs is important in the study of human behavior and psychological well-being. According to Lucas (2007) the ability to measure a construct validly depends on the psychometric properties of its measure. The broader and further validation of existing measures as well as the development of new ones will always be an important subject in Psychology. The first manuscript of this thesis reported the development and initial validation of the Setswana version of the GPWS which is a measure of General Psychological Well-being (GPW) construct of Wissing (see Wissing & Temane, 2008; Wissing & Van Eeden, 2002). The development of GPWS is preceded by an established theoretical and empirical research background (see Wissing & Temane, 2008; Wissing & Van Eeden, 2002), and the scale demonstrated favorable psychometric properties (cf. Clark & Watson, 1995; John & Benet-Martínez, 2000; Noar, 2003; Panounen & Ashton, 1998) as illustrated in the first manuscript.

The conception of psychological well-being as being holistic and complex in nature informed the development of the General Psychological Well-being Scale and its validation. The discovery of an empirical overlap and shared variance between Affectometter (AFM; Kammann & Flett, 1983), Sense of Coherence questionnaire (SOC; Antonovsky, 1987, 1993), and Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, Griffin, 1985) lead to the identification of the GPW construct by Wissing and Van Eeden (2002). This construct is an epitome of holistic psychological well-being since it allows for the infused and fluid experience and measurement of hedonic and eudaimonic well-being. Wissing and Temane (2008) postulated that GPW is an integrative construct that includes facets from both the hedonic and eudaimonic perspectives and manifests at cognitive, affective, behavioural, social and spiritual levels of human functioning, in both more individualistic and collectivistic contexts – albeit with some differences in the two contexts.

Favourable psychometric properties of the GPWS were found. The 20-item scale that emanated from a shared variance between AFM, SOC and SWLS was pilot-tested among a sample of 296 adults and validated among 459 adults. The scale had been successfully translated (cf. Brislin, 1990; Van de Vijver & Leung, 1997) into Setswana and data was collected in Setswana, which is the participants' home language. The following psychometric properties attest to the reliability and validity of the GPWS. The scale obtained a Cronbach alpha reliability index of .89. A mean score of 88.75 (sd=22.40) with a range of between 35 and 132 was obtained. The means scores between men and women were comparable, with no significant difference between the two. Inter-scale correlations between the GPWS and other indices of positive and negative well-being indicated good criterion-related validity.

Confirmatory factor analysis supported the single factor solution envisaged by Wissing and Van Eeden (2002) in their conceptualization of the GPW construct. However, the EFA yielded a four-factor structure consisting of three major factors and one minor factor.

From the exploratory analysis results, some meaningful interpretation was achieved. The following latent factors are proposed to be the intertwined components of general psychological well-being, namely 1) positive affect and meaningful satisfaction, 2) negative affect and poor coping, 3) Positive meaningful relatedness and 4) Vitality. These components have important implications regarding how we think about well-being as an integrated holistic entity. The first two factors attest to the fact that positive and negative affect form two separate factors (cf. Diener, 2000). Positive well-being and negative well-being are observed as not being polar opposites (Huppert & Whittington, 2003; Keyes, 2002). According to Huppert and Wittington (2003: p. 117) "a valid measure of quality needs to incorporate positive as well as negative affect". The third factor represents a more eudaimonic component of psychological well-being that encompasses spirituality and positive interpersonal relations. The fourth factor which is a minor one has two items and reflects the presence and absence of vitality. At a conceptual level the findings and proposal for an integrated general psychological well-being model (Wissing & Temane, 2008) are in line with WHO's (1948) definition and description of mental health. The availability of a scale to measure it is an important addition to well-being studies.

Main conclusions: Section 3 / Article 2: Socio-demographic variables, general psychological well-being and mental health continuum in an African context

Holistic well-being, measured by using the General Psychological Well-being Scale (GPWS; Khumalo et al., 2010) and the Mental Health Continuum Short-Form (MHC-SF; Keyes, 2002; Keyes et al., 2008), was found to be influenced by a number of personal and contextual factors in people's lives and environment. Where people live has an influence on their general and psychological functioning (Allik & McCrae, 2004; Vorster et al., 2000), as people's living context facilitates their exposure to other factors that explain some of the variance in their psychological well-being. For example, in Japan Tsuno and Yamazaki (2007) found that urban living's inherent greater economic status, social support and self-efficacy placed urban residents at an advantage over the rural ones. In an African context the contrast between urban and rural residents' well-being is explained by different variables as various researchers have noticed. Vorster, Venter, Wissing & Margetts (2005) ascribe better nutrition in urban areas as a contributing factor. Higgs (2007) found that urban areas offer

opportunities for better quality of education, formal employment and greater life-style choice. According to Vorster et al. (2005) rural areas are characterised by underdevelopment and poverty. It is therefore not surprising that the present study found that urban/rural living was the most robust determinant of psychological well-being. Urban residents reported doing better in all psychological well-being indices than the rural residents.

In addition to environmental setting of the participants, the influence of other socio-demographic variables, namely age, gender, marital status, employment, and educational attainment on psychological well-being were explored. Being unemployed, being unmarried, and having a lower education level were associated with lower psychological well-being. Gender and age did not have any specific determining influence on well-being.

Gender. The mean scores of positive mental health and general psychological well-being were not found to be significantly different between men and women in this sample. Gender explained only 2% and 3% of the variance in GPWS and MHC-SF respectively. Therefore no conclusive difference was found. It would have otherwise been expected that well-being levels would be different between the two genders because of the differences in the allocation of duties, roles and activities of daily living as well as the different socialisation of boys and girls. However the result in the present study can be explained by the shared conditions of living that both genders are exposed to, as well as a growing flexibility in previously rigid traditional gender roles.

Age. Various empirical studies have reported inconsistent findings about the association between age and psychological well-being. Findings including well-being remaining stable with a slight increase along age (Keyes & Waterman, 2003), age having no influence at all (Meyrs & Diener, 1995), and a u-shaped or convex relationship between well-being and age (Blanchflower & Oswald, 2008) have been reported. The present study did not yield a definite age pattern nor statistically significant differences in the manifestation of well-being across a life-span. Factors such as personality, which stabilises in adulthood, could account for this finding (cf. Bauer & McAdams, 2004; Diener et al., 2003; Hansson et al., 2008). It is however noted that a longitudinal design would have been better suited to explore differences across age (Horley & Lavery, 1995).

Marital status. Consistent with previous studies (e.g. Diener & Ryan, 2009; Gove, Hughes & Style, 1983; Myer & Diener, 1995), the present study found that married people reported higher levels psychological well-being than the never married, divorced and widowed. Marital status explained 12% and 13% of the variance in GPWS and MHC-SF respectively, and the mean scores of the married ones were significantly higher than the other three

categories. Diener et al. (2000) argued that marriage is a source of social and emotional support and in that way positively contributes to subjective well-being. The shortcoming of the present study is that the quality of the marital relationships was not explored.
Employment status and Educational attainment. Employment and education are adequate markers of socioeconomic status (Duchin & Hubacek, 2003). Socioeconomic differences account for the social inequalities observed in mental health and well-being variations (Talala et al., 2008). Both education and employment were found to be positively associated with general psychological well-being and mental health in the present study.

Main conclusion: Section 4 / Article 3: A psychometric comparison of the General Psychological Well-being Scale (GPWS) and the Mental Health Continuum Short-Form (MHC-SF) in an African context

The psychometric comparison between the GPWS and MHC-SF was undertaken to explore the similarities and differences in the properties of the two scales. The undertaking was in line with the encouragement for the explicit specification of measures which allows for their evaluation, (dis)confirmation and improvement (cf. John & Benet-Martinez, 2000). The measures being compared in the study are operationalisations of two models that conceptualise psychological well-being as being integrated, complex, holistic and multi-faceted in nature. Previous empirical studies (Keyes et al., 2008; Khumalo et al., 2010) have independently examined psychometric properties and empirical manifestation of GPWS and MHC-SF in an African context. The present study specifically offered two new developments. Firstly, the two scales were compared in the same empirical study. Secondly, the empirical comparison employed item response theory in addition to the traditionally used classical test theory and structural equation modelling.

The two scales were developed and validated via two different routes. The MHC-SF was developed via a theoretically guided route in a Western context and then applied and adopted through a cross-cultural imposed etic approach in an African context. On the other hand, the GPWS which was developed via an empirical route was validated in an African context following a combined emic-etic approach. In the psychometric comparison study, a sample of 459 Setswana-speaking adults completed a battery consisting of the two scales and other indices of well-being. Results from CTT (descriptive statistics, reliability, construct and criterion-related validity), SEM (measurement model fit indices) and IRT (item fit statistics, difficulty parameters, and response scale thresholds) analyses show both the GPWS and the

MHC-SF to be satisfactory measures of holistic psychological well-being in an African community sample.

Classic test theory and Structural equation modelling. Reliability, descriptive statistics, and construct and criterion-related validity were computed for the two scales and compared. This was in line with Panounen and Ashton's (1998) suggestion for psychometrically sound measuring instruments. Descriptive statistics showed both scales to have normative scores and distribution patterns in this sample. Internal consistency as determined by item-total correlations also proved to be satisfactory for both scales. Both GPWS and MHC-SF were reliable in this samples as indicated by Cronbach alpha indices of .89 for GPWS and a range of between .68 and .79 for the MHC-SF subscales. Interscale correlations gave an indication of good criterion-related validity for most of the indices. CFA yielded a factor structure supporting the theoretically intended factor solution for the MHC-SF, which was subsequently supported by fit indices in SEM. The proposed one factor solution for GPWS was supported by CFA, but proved to have poor fit in SEM. In fact, a four factor solution had the best fit.

Item response theory. The Rasch 1-parameter model was used, and the following were computed for comparison, namely difficulty calibrations and their standard errors, infit and outfit mean square values, item-score correlations and response range thresholds. The infit and outfit mean square values for both scales were within the desired range of between 0.75 and 1.3 for infit, and 0.7 and 1.4 for outfit values. All items in both scales yielded difficulty estimates within the -1 and 1 range. Difficulty estimates give an indication of the probability of the item being endorsed based on the measured trait θ level of the respondent. Generally, the response pattern to the rating scale categories increases with increasing manifestation of the trait as designed and expected. The response range thresholds have shown this trend for most of the items except for one item in the MHC-SF.

It can be concluded that the two scales have a reasonable degree of comparability as measures of holistic psychological well-being in an African context. Sufficient triangulated psychometric evidence to arrive at this finding is presented in the study. However, the findings that both scales perform well psychometrically, ironically also indicate that the nature, structure and dynamics of psychological well-being are not yet optimally understood. In the present study, one model and measure is not clearly better than the other.

Implications of the findings

The findings of this quantitative study with a seemingly broad scope find a coherent home in the theoretical contextualisation of what Positive Psychology is and what it strives to achieve. Gabel and Haidt (2005) defined positive psychology as "the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups and institutions" (p. 104). Without denying the distressing, unpleasant and negative aspects of human living, Positive Psychology seeks to bring a balance to how psycho-social experience is viewed (Gable & Haidt, 2005). Keyes (2006) pointed out the irony in the unconsequential talk of Mental *Health* yet effort is focused on mental *illness*. Keyes (2006) strongly argued against investing resources and effort on illness reduction with the false assumption that through this, mental health will be gained. In response to Keyes' (2006) poignant question "When will we stop saying one thing and doing another?" the present study's effort towards understanding well-being in an African context has been a genuine effort in the direction of valuing positive mental health and psychological well-being.

Historically, the study of well-being has distinguished between hedonic and eudaimonic well-being dimensions (see Ryan & Deci, 2001), and often studied these as two distinct conceptual entities separately (e.g. Diener, 2000, Diener & Ryan, 2009); Waterman et al, 2010). Kashdan et al. (2008) argue that this conceptual distinction has been costly to the study of well-being. As found in the present study, more complex models like the GPW (Wissing & Temane, 2008; Wissing & Van Eeden, 2002) and MHC (Keyes, 2002, 2005a, 2005b; 2007) capture the holistic essence of psychological well-being through recognising the hedonic and eudaimonic overlap at various levels of functioning.

The present thesis sheds light on the study and understanding of the nature and structure of psychological well-being, its measurement as a holistic concept, the conditions that contribute to the promotion and maintenance of well-being in an African socio-cultural context. Consistently, the following four implications arise from the study, namely 1) exploration of the nature and structure of holistic psychological well-being; 2) measurement: development and validation of a psychological well-being scale, and a psychometric comparison between two measures; 3) exploration of the influence of socio-demographic variables and conditions on psychological well-being; 4) consideration of the manifestation of holistic psychological well-being in an African context. Finally, the findings and their implications rest on the empirical evidence of the favourable functioning and comparability the MHC and GPW models and their measures in the African context.

The nature and structure of holistic psychological well-being. The study has highlighted the conceptualisation and operationalisation of holistic psychological well-being. The feasibility of conceptually meaningful holistic psychological well-being models and their psychometrically sound measurements is found to be possible in an African context. The findings of the thesis attest to the coexistence of eudaimonic and hedonic well-being as overlapping dimensions at intra-, interpersonal and contextual levels, consisting of cognitive, conative, affective, spiritual, social and behavioural components (cf. Wissing & Temane, 2008). In the mental health continuum model, Keyes (2002) demonstrated the conceptual and empirical coherence of emotional, psychological and social well-being.

Measurement and psychometric comparison. A new self-report scale to measure the General Psychological Well-being construct (Wissing & Temane, 2008; Wissing & Van Eeden, 2002) was developed, and found to be reliable and valid in the Setswana-speaking adult group. Self-report measures remain popular as the best way to enquire about the functioning of an individual is to ask them (Haeffel & Howard, 2010; Kashdan, Biswas-Diner & King, 2008). The conceptual and psychometric comparability of the MHC and GPW and their measures may imply that the nature, structure and dynamics of holisitc psychological well-being in this context are not yet optimally understood. It emerged in the present thesis that no one model and measure is clearly better than the other.

Socio-demographic variables and holistic psychological well-being. Findings indicate that socio-demographic variables play a role in determining holistic psychological well-being in a South African Setswana-speaking community. Since socio-demographic variables explain some variance in well-being, their exclusion will lead to incorrect conclusion. Considering these findings, well-being promotion intervention programs will need to be better targeted for specific sectors of society. Of particular significance in this regard are the major differences in well-being levels between people living in urban areas and those living in rural areas. Thus the socio-demographic variables that account for the different levels of psychological well-being could be inherent in the socio-environmental contexts within which people live.

Holistic psychological well-being in an African context. As people from diverse backgrounds are interacting more frequently and nations becoming diverse, cross-cultural psychology and multiculturalism studies are deemed important and necessary (Pedrotti, Edwards & Lopez, 2009). This trend has been demonstrated by the number of recent studies and academic commentary on conceptual equivalence and comparison of psychological constructs within and across cultural contexts (e.g. Park, Peterson & Seligman, 2007; Steed,

2002). Recently Wissing et al. (2010) validated Setswana versions of three well-being scales. Other studies of note include Keyes' et al. (2008) validation of the MHC-SF among Setswana speaking sample in South Africa. The SWLS has been translated into multiple languages including French, Dutch, Czech and Spanish (Atienza, Balaguer & García-Merita, 2003) as well as Setswana. The work of the present thesis contributes to this movement of scientific pursuit towards understanding and appropriately measuring well-being, particularly in an African context.

Integration

The general findings of the study indicate that on a holistic level, dimensions of hedonic and eudaimonic well-being find expression in a fluid integrated manner with manifest variations according to socio-demographic and contextual variables. As empirically found, the hedonic well-being and eudaimonic well-being dimensions are not independent. In line with the hedonic-eudaimonic overlap finding, the current author agrees with McDowell's (2010) assertion that "[a]t its core, well-being refers to contentment, satisfaction or happiness derived from optimal functioning" (p.70). High general psychological well-being reflects positive cognitive, affective, conative, interpersonal, social, spiritual experiences as well as the absence of mental and physical symptoms of distress (Wissing & Temane, 2008; Wissing & Van Eeden, 2002). Similarly, the high end of the mental health continuum, namely flourishing refers to high levels of emotional well-being, and positive functioning that includes psychological and social well-being (Keyes, 2002).

The translation or operationalisation of the GPW into an adequate measuring instrument was achieved. The exploration of its psychometric properties and their comparison with those of the MHC-SF gave initial empirical evidence for the measurement of holisitic psychological well-being in an African context. Regardless of the significant differences in their composition and how they were derived, the two models and their measures proved to be adequate measures of holisitic psychological well-being. In similar ways in both models, socio-demographic variables accounted for reasonable variance in psychological well-being.

Concluding remarks. Gaining psychological well-being has multiple benefits in all areas of human functioning. It has been found to be a buffer against psychological and physical pathology, and to increase longevity (Keyes, 2005b; Seligman, 2008). Inversely, functioning below complete mental health contributes to increased impairment and disability (Keyes, 2007). Keyes (2005a) found that flourishing individuals functioned better than all the rest in

meeting work-related obligations, and attained the highest levels of psychosocial functioning. Flourishing is associated with lower levels of perceived helplessness, higher functional goals, higher self-reported resilience and higher levels of intimacy (Keyes, 2005a). Complete mental health and psychological well-being play a protective role against chronic physical illnesses (Keyes, 2005b; Ryff & Singer, 1998). Adequate psychological well-being in families allows members to enjoy good health, good interpersonal relations and contributes to individual, family and societal development (Sokoya et al., 2005).

These findings have implications for future research and intervention efforts for the enhancement of quality of life of the affected groups. Programmes aimed at the development of African rural communities as well as alternative empowerment methods for the unemployed (cf. Fryer & Fagan, 2003) are recommended. Public policy development in the direction of a greater interest and investment in rural development and consideration of psychological well-being and quality of life as indices of population health is encouraged. In light of the original three pillars of well-being studies, namely positive subjective experience, positive individual characteristics and positive institutions and communities (cf. Seligman, 2002), Gable and Haidt (2005) notice the progress made regarding the first two, but not with the third one. Therefore, interventions towards the promotion of well-being at group, institutional and community levels, including the influence of public policy are encouraged. Research efforts towards assessing for and ensuring the effectiveness of such programs are also encouraged.

Limitations of the study. The three studies constituting the thesis were not without limitations. In summary, the following are considered limiting aspects, namely the cross-sectional nature of the study, lack of cut-off points for the GPWS, an exclusively quantitative study, a mono-cultural context, no empirical measure of the nature of the cultural context, and the exclusion of indigenous knowledge. The use of a cross-sectional survey disallowed for a test-retest method as a further determinant of reliability. The cross-sectional design is also not the most adequate way of reporting age patterns of well-being as it can be better studied by using a longitudinal design (Horley & Havery, 1995). The GPWS does not yet have cut-off points to report different levels of its manifestation at different levels of functioning. The MHC-SF (Keyes et al., 2008) has such cut-off points through which the Languishing, Moderate mental health, and Flourishing categorizations can be made.

The study was exclusively quantitative in nature and highly relied on self-report quantitative measures. The lack of qualitative exploration to support quantitative measurement and outcome is a concern (cf. Camfield, Crivello & Woodhead, 2009). A

related limitation is the exclusion of indigenous knowledge exploration. Mkhize (2004) had for example pointed out that the active creation of psychosocial and other forms of knowledge had always been occurring in African communities. The qualitative exploration of the target population's understanding and formulation would have further aided the study in its emic contextualisation of psychological well-being. The study was conducted among an African Setswana speaking community sample in one South African province. Although cross-cultural comparison was not the aim, the sample selection did not allow for it. This focused sampling limits possibilities of generalisation of the findings. In addition, an empirical measuring method to report the assumed collectivistic cultural orientation of the sample was not included.

Furthermore, the study did not take into account the quality of marriages but rather marital status only. Personality dispositions known to influence the experience of well-being together with contextual factors (Temane & Wissing, 2008) were also not measured in the current study. The use of the 1-parameter model of Rasch (1960; Linacre, 2002, 2003) which only yields the difficulty paprameters did not allow for the examination of the discrimination parameter as a measurement outcome, as other IRT methods would have been able to do.

Recommendations. A few recommendations for future research and intervention are made. Firstly, it is recommended that future studies that explore the conceptualisation and measurement of psychological well-being can benefit from mixed method designs for triangulation of findings (see Hanson, Creswell, Plano Clark, Petska & Creswell, 2005; Tashakkori & Creswell, 2007; Teddie & Tashakkori, 2009). This means that the researcher would collect and analyse data, integrate the findings, and draw inferences using both quantitative and qualitative methods, allowing for integration in the interpretation and application of the findings (Tashakkori & Creswell, 2007). Secondly, more research to explore the understanding of holistic psychological well-being and related constructs from an emic perspective is needed. This cannot be achieved through quantitative approaches alone, therefore the qualitative approach in a mixed methods design (cf. Tashakkori & Creswell, 2007) would add great value. qualitative methods would help with the improvement of measurement and item content and determining the culturally-embedded meaning making of the measured constructs (cf. Camfield et al., 2009; Pedrotti, Edwards & Lopez, 2009).

From the findings of the third manuscript it is clear that further study and refinement of the GPWS is needed. The findings indicate that the theoretically intended factor solution of a unidimensional GPWS was not supported by SEM fit indices although the single factor with an eigenvalue of 6.61 and explaining 33.05% of the variance had emerged from a CFA.

Further consideration of item inclusion and content of the GPWS is needed towards refining the scale (see Comrey, 1988). The response rating scale, which according to Cella and Chang (2000) is an extension of item content may need to be revised. The possibility of decreasing the rating scale categories of the GPWS from seven to five (see Linacre, 2002) should also be investigated. Too long response rating scales have the potential of irritating the respondents and therefore contributing to inaccurate responding (Linacre, 2002). Both the MHC-SF (Keyes, 2002; Keyes et al., 2008) and GPWS (Khumalo et al., 2010) are relatively short in length. This renders them ideal for use in large epidemiological research studies.

Cross-cultural exploration for comparisons of both psychometric properties and prevalence of well-being levels particularly using the GPWS is recommended. In addition to comparing measures within and across cultures, conceptual equivalence which refers to the consistency of definitions of the studied variables in different cultures (Pedrotti et al., 2009) needs to be investigated. The study of positive mental health and general psychological well-being among other more specific groups such as students, adolescents, employed groups in organisations such as the police, is recommended. The application of these models and their measures in other language groups and regions in South Africa will contribute towards the establishment of norms. The question of the psychometric propoerties of the GPWS among the South African White population and the more Westernized samples remains a question. In line with the observations of Allik and McCrae (2004), Wissing and Temane (2008) have found a cultural orientation divide between the Afrikaans and English speaking White groups and the traditional Black groups in South Africa.

The present study did not investigate the possible mechanisms explaining the influence of socio-demographic variables on holistic psychological well-being. This next step in research is recommended for an African context. Knowledge of holistic models of psychological well-being informs implications for the practice of Psychology. Lent (2004) for example views Counselling Psychology as a mental health specialty that focuses on strengths and positive potentials. Lent (2004) however raised the issue of a disconnect between research and practice as a concern. In response to this and in line with the argument by Snyder and Elliot (2005), it is recommended that Clinical and Counselling Psychology consider the presentation of well-being in both assessment and treatment. Snyder and Elliot (2005) argue that focus by clinical psychologists on both weaknesses and strengths will alter the pathology model towards a balanced approach.

Contribution of the study. The first contribution that the present thesis makes is a new scale, the GPWS. Previous studies have used long batteries of scales to capture the multi-

faceted complexity inherent in the spectrum of components that make up psychological well-being as conceptualised by both Keyes (2002) and Wissing and Van Eeden (2002). As mentioned by both researchers, their models emanated from a fusion of previous conceptual models and measures. Secondly, the present study went beyond the traditional CTT and SEM approaches in evaluating the psychometric functioning of well-being scales. Item response theory was used to compare the GPWS and MHC-SF's item functioning. Thirdly, the study helped in highlighting the various ways in which socio-demographic variables influence psychological well-being. Through this knowledge, better targeted well-being promotion intervention programs can be implemented. For example it has emerged that the rural community, the unemployed, the unmarried and the less educated experience lower levels of psychological well-being. Lastly, it is the hope of the author that the present thesis could make even a small contribution towards the understanding and clarification of the conceptualisation and measurement of psychological well-being in an African context.

In closing. Although I perceive the present study as only the beginning of greater work to come, it has been a fulfilling and enriching experience. Throughout the study I have not only stood on shoulders of giants (cf. Strümpfer, 2005), but I have had the privilege of being carried by one in particular. Being entrusted with the responsibility to explore the operationalisation of Wissing's GPW construct has been a privilege. Through this humble beginning and continued work by other colleagues in the field, her seminal work (with Temane, Van Eeden, and others) can be projected into the future for scientific pursuit and enhancement of psychological well-being.

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