




Validation of the Short Warwick-Edinburgh Mental Well-being Scale in a South African adult group

S Smith

 **orcid.org 0000-0003-2923-6140**

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

Supervisor: Dr L Schutte
Co-Supervisor: Prof M Wissing
Assistant Supervisor: Ms A Cromhout

Graduation May 2018
Student number: 20027470

Acknowledgements

I would like to express my sincerest gratitude to the following people who contributed to the completion of this master's dissertation:

My supervisor, Dr. Lusilda Schutte. Without your unwavering support, motivation, guidance, and patience I would never have achieved this life goal. Thank you for your hard work and expertise throughout this journey.

My co-supervisor, Prof. Marié Wissing. Your gentle yet firm guidance, patience, and understanding meant so much in the times that "life happened". Your gracious manner and love of learning will always be an inspiration to me.

Assistant supervisor, Ms. Amanda Cromhout. Thank you for your valuable input and friendship during this process.

To the North-West University, thank you for providing me with the opportunity to further my studies and for the financial support in the form of postgraduate bursaries and staff discount.

This work is based on the research supported in part by the National Research Foundation (NRF) of South Africa (Grant numbers: 106050). Opinions, findings, conclusions and recommendations are those of the authors and the NRF accepts no liability whatsoever in this regard.

To my family, thank you for your ongoing support on all levels. A specific word of gratitude goes to my mother, Frances, for your prayers and interest in the progress of this project. And to my husband, Jonathan, thank you for believing in me.

Special mention goes to my dear friend and cheerleader, Dr. Stefanie Kühn.

My sincerest gratitude is expressed towards my Heavenly Father who made this opportunity a reality and who has blessed me so much throughout this journey. All honour and praise to You, Lord, for you have fulfilled your promises to me (Luke 1:45).

Summary

In the current exploration of the field of positive psychology, the construct of well-being and its different facets has increasingly become the focus of research. This has led to the development of various measuring instruments that measure aspects of well-being and that enhance the understanding of well-being and its correlates. One such measure that attempts to measure overall well-being is the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS; Stewart-Brown et al., 2009) which was developed from the Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007). After further analysis of the original 14-item WEMWBS by Stewart-Brown et al. (2009), the SWEMWBS was developed, containing only seven positively worded items which was found to be unidimensional and largely free of bias for gender (Stewart-Brown et al., 2009).

When considering the use of measuring instruments in different contexts it is important to take into consideration that a scale that was developed and found to be valid in one population does not necessarily perform well in other contexts. To ensure the accurate usage of measures within a proposed sample and to avoid bias and unreliable results, it is imperative that the measures should be validated for each population in which it is used.

The aim of the current research was to explore the psychometric properties of the English version of the Short Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS) in a multicultural South African adult group. In particular, the factorial validity, internal consistency reliability and the convergent and discriminant validity of the SWEMWBS were investigated. The data used was collected from 2011 to 2014 as part of the FORT3 project that used a mixed-methods cross-sectional survey design, and which was approved by the Ethics Committee of the North-West University, South Africa (ethics approval number: NWU 00002-07-A2). The participants were a nonprobability adult sample of 421 South African participants between the ages of 18 and 74.

The current research indicated that the 7-item SWEMWBS showed sufficient internal consistency reliability (Cronbach's alpha value of .80) and had a one-dimensional factor structure supported by both confirmatory factor analysis and exploratory factor analysis. Convergent and discriminant validity was confirmed as the scale scores showed positive correlations with scores on other well-being scales, specifically the Mental Health Continuum – Short Form (total score as well as subscales), the Satisfaction with Life Scale, the Meaning in Life Questionnaire – Presence subscale, and the Positive Affect and Negative Affect Schedule – Positive Affect subscale. Scores on the SWEMWBS also displayed negative correlations with scores on a scale measuring negative affect, that is the Positive Affect and Negative Affect Schedule – Negative Affect subscale, and a scale measuring depression, that is the Patient Health Questionnaire-9. A negligible correlation with scores on the Meaning in Life Questionnaire – Search subscale was indicated.

Overall, the scale displayed good psychometric properties within the current South African adult sample. The findings suggest that the SWEMWBS holds potential for use in future research and practice pertaining to mental well-being among South African adults.

Keywords: measurement, mental well-being, multicultural, positive psychology, psychometric properties, scale validation, South Africa.

Table of contents

Acknowledgements.....	ii
Summary.....	iii
Preface.....	viii
Letter of permission.....	ix
 Section 1.....	 1
Background orientation.....	1
1.1. Approved protocol for this study.....	2
References.....	25
1.2. Approved HREC application.....	31
 Section 2.....	 73
Manuscript for evaluation.....	73
2.1. Manuscript in article format.....	73
2.2. Guidelines to authors for the <i>South African Journal of Psychology</i>	73
Manuscript: Validation of the Short Warwick-Edinburgh Mental Well-being Scale in a South African adult group.....	81
Abstract.....	82
Introduction.....	83
Different views on well-being.....	83
Measurement of well-being.....	86
The Warwick-Edinburgh Mental Well-being Scale (WEMWBS).....	86
The Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS).....	88

Measurement in different cultural contexts	89
The present study	91
Method	92
Design and participants	92
Measuring instruments	92
Procedure and ethical considerations	96
Data analysis	97
Results	102
Stage 1: Descriptive statistics of individual items	102
Stage 2A: Confirmatory factor analysis (CFA)	103
Stage 2B: Exploratory factor analysis (EFA)	103
Stage 3: Reliability analysis	104
Stage 4: Convergent and discriminant validity	104
Discussion	105
Implications for practice in South Africa	107
Limitations and recommendations	108
Conclusion	109
Acknowledgement	109
References	110
Section 3	125
Conclusion and reflection	125
Conclusion	125
Critical reflection on the relevance of scale validation in the South African context	126
Advantages of brief measures	127

Personal reflection	127
References	130

Tables

Table 1	Descriptive statistics of individual items of the SWEMWBS	120
Table 2	Cronbach's alpha and summary of the fit indices for the confirmatory factor analysis (CFA) of the SWEMWBS.....	121
Table 3	Item-level results from the reliability analysis, confirmatory factor analysis and exploratory factor analysis of the SWEMWBS	122
Table 4	Pearson's correlation coefficients between items of the SWEMWBS	123
Table 5	Pearson's correlation coefficients between the SWEMWBS and other measures of well-being.....	124

Preface

This mini-dissertation is submitted in article format as indicated in the 2017 General Academic Rules (A4.1.1.1.4 and A4.4.2.9) of the North-West University. It is submitted in partial fulfilment of the requirements for the Master of Arts degree in Positive Psychology, where the dissertation accounts for 60 of the total 180 course credits. The manuscript in article style meets the requirements of the specific journal that was selected for submission, the *South African Journal of Psychology*. Some exceptions are made for the purpose of the mini-dissertation, for example the length of the manuscript where the manuscript is currently longer than prescribed by the intended journal. The manuscript will be shortened before submission to the journal. For the purposes of this mini-dissertation, the page numbering of the mini-dissertation as a whole is consecutive. However, for journal submission purposes, the manuscript will be numbered starting from page 1.

The body of this mini-dissertation consists of three sections. Section 1 reflects the first stage of the research and the preparation for the main phase and manuscript (research proposal and ethics application form as approved by the relevant bodies). Section 2 contains the research report for examination in article format, and Section 3 highlights the conclusions and recommendations of the study and provides a reflection on the research process.

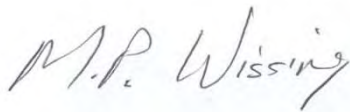
Letter of permission

Permission is hereby granted by the co-authors that this manuscript may be submitted by the first author for the purposes of a mini-dissertation.

The first author contributed to theme development, did the major part of the literature review, contributed to the interpretation of the data analyses, and did the major work for the discussion. She drafted the manuscript and incorporated suggestions from the co-authors into the manuscript. She took responsibility for the technical and language editing of the manuscript.

A handwritten signature in black ink, appearing to be 'L. Schutte', enclosed within a circular scribble.

Dr. L. Schutte (Supervisor)

A handwritten signature in black ink, appearing to be 'M. P. Wissing'.

Prof. M. P. Wissing (Co-supervisor)

A handwritten signature in black ink, appearing to be 'A. Cromhout'.

Ms. A. Cromhout (Assistant supervisor)

Section 1

Background orientation

This section reflects the first phase of the research process leading up to the manuscript as the main research report that will be presented in Section 2.

A literature exploration was conducted and a research proposal was developed that was approved firstly by a subject research group and secondly by the Scientific Committee of the Africa Unit for Transdisciplinary Health Research (AUTHeR). Once the proposal was approved by AUTHeR's Scientific Committee, ethical approval of the study was obtained from the Health Research Ethics Committee (HREC) of the North-West University, South Africa. Apart from some minor technical editing, the final documentation in this regard is included in this chapter, as it was approved by the relevant committees. The addenda to the HREC application are not included in this chapter.

Needless to say, there is an overlap between the research proposal and ethics application, as well as with parts of the manuscript in Section 2 since it is all based on the same research project in different phases. The manuscript in Section 2 is the final research report.

1.1 Approved protocol for this study



Cover Page for Research Proposal		
School	Africa Unit for Trans-disciplinary Health Research (AUTHeR)	
Discipline	Positive Psychology	
Student		
Surname	Smith	
Name/initials	Salome	
Cell phone number	072 449 4423	
Skype address		
Degree	Master of Arts in Positive Psychology	
Date of first registration for above mentioned degree	2014	
Student number	20027470	
Title of thesis/dissertation/mini-dissertation	Validation of the Short Warwick-Edinburgh Mental Well-being Scale in a South African adult group.	
Study leader/promoter	Dr. L. Schutte	
Help-/co-leader/promoter	Prof. M. P. Wissing Ms. A. Cromhout	
Number of times of submission of this protocol (Mark were applicable)	1 st	X
	2 nd	
	3 rd	
Does this project fall under a greater umbrella project?	Yes	X
	No	
If yes, Ethical number of the larger project	NWU-00002-07-A2	
Title of the larger project	FORT3: The prevalence of levels of psychosocial health: dynamic relationships with biomarkers of (ill)health in South African society Sub-project: Meaning and Relational Well-being as core facets of functioning well and Psychosocial Health (NRF-CPRR funded project).	
Leader of the larger project	Prof. M. P. Wissing	

<p>Specific aims of larger project where by this study links</p>	<p>The general aims of FORT 1 (also feeding further into FORT 2 and FORT 3) were amongst others to:</p> <ul style="list-style-type: none"> • clarify the nature of psycho-social strengths, through a comparison of different constructs, and their operationalisations; • investigate the psychometric properties of scales measuring psychological and bio-psycho-social strengths in various cultural contexts; <p>FORT3: The specific aims were:</p> <ol style="list-style-type: none"> 1) to develop a psychometric scale to operationalise the G-factor model of psychological well-being, 2) to explore the meaning and manifestation of psychosocial well-being and its facets qualitatively in various South African ethnic groups (adolescents and adults), 3) to quantitatively explore the prevalence of various levels of mental health of adolescents and adults in various areas, groups and contexts in South Africa, 4) to explore possible shifts in the prevalence of various levels of mental health in 3-year follow-up surveys in a stratified random sample of Setswana-speaking South Africans in the NWP, 5) to determine the association of levels of psychosocial well-being (conceptualized and measured in terms of both the continuum of mental health-model and the G-factor model) with bio-markers of physical (ill)health (as determined in the overlap of FORT3 with the PURE and SABPA projects), 6) to determine the possible mediating role of predictors of health behaviours (such as coping strategies, social support, self-regulation and self-efficacy beliefs) between levels of psychological well-being and indicators of physical (ill)health, and 7) to explore the dynamics of levels of mental health (on pathogenic and fortigenic continuums), socio-demographic contexts, predictors of health behaviours and bio-markers of physical (ill)health. 8) To validate and develop additional scales as approved by HREC 2015. <p>Psychometric properties will be scrutinized in all sub-studies. Some of the questionnaires have been translated and validated in an African context, but where applicable, other instruments will also be translated (Brislin's method of front- and back-translations with use of the committee approach as suggested by Van de Vijver and Leung, 1997, and taking cultural expressions into account).</p>
---	--

Will new data be collected?			Yes	
			No	X
Names of small group panel within the school/unit that approved this research protocol (before send to AUTHeR)	1	Prof. Marié Wissing		
	2	Dr. Angelina Wilson		
	3	Dr. Lanthé Kruger		
	4	Dr. Vicki Koen		
	5	Ms. Amanda Cromhout		
Date of approval by above mentioned panel	11 April 2016			

Research proposal: Salome Smith

May 2016

1. Proposed title: Validation of the Short Warwick-Edinburgh Mental Well-being

Scale in a South African adult group.

Keywords: psychometric properties, scale validation, mental well-being, positive psychology, South Africa.

2. Problem statement

In today's exploration of the field of positive psychology there is widespread interest in the construct of well-being, and its different facets. In the field of positive psychology a distinction is made between two main perspectives, namely the hedonic perspective which focuses on the subjective experience of happiness and life satisfaction, and the eudaimonic perspective which focuses on positive psychological functioning, self-realisation, deeper meaning in happiness, personal growth and psychological strengths (Stewart-Brown & Janmohamed, 2008; Steger, Frazier, Oishi, & Kaler, 2006). The term positive mental health is used interchangeably with the term mental well-being and covers both affect and psychological functioning (Tennant et al., 2007).

With regard to well-being in different age groups there is an increasing emphasis on the positive attributes of children. According to Pollard and Lee (2003) it is only by examining the strengths and abilities of children that we can discover the core elements of

their well-being that enable them to flourish and thrive. The concept of child well-being has progressed from an emphasis on child protection (welfare) to focussing on all aspects of childhood – intrapersonal, interpersonal, familial and social (Raghavan & Alexandrova, 2014). Pollard and Lee (2003) identify five distinct domains of child well-being: physical, psychological, cognitive, social and economic. Amongst adolescents emotional and behavioural problems have been greatly associated with mental ill-health and greater risk of mental and social problems in adulthood. In the United Kingdom (UK) especially, there is an increasing focus on the promotion of emotional, social and mental well-being as a means of preventing emotional and behavioural problems in later life (Clarke et al., 2011). When focusing on adult life, Ryff (1995) identifies six core dimensions of well-being – self-acceptance, purpose in life, environmental mastery, positive relationships, autonomy and personal growth. Ryff (1995) reports that she and her colleagues found that certain aspects of well-being, like environmental mastery and autonomy increased with age, while others such as purpose in life and personal growth, decreased. Events such as having and raising children, experiencing educational or occupational achievements, and relocating in later life were also identified as key influences on psychological well-being during adulthood. Similarly, amongst the elderly mental well-being is influenced by the individual's personality makeup, family background, personal circumstances and even the community in which they live. Interventions that provide support and are combined with other forms of therapy and physical activity, could contribute to the prevention of mental ill-health and improve mental well-being (Grammatikopoulos, 2016).

In order to enhance our understanding of well-being and its correlates, measurement of the construct is essential. One attempt to measure well-being was the development of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS), which was developed by combining the results from focus groups and data on previous measures (Tennant et al.,

2007), specifically the Affectometer 2. Kammann and Flett (1983) developed the Affectometer 2, stemming from its parent scale, the Affectometer 1. The Affectometer 2 aimed to measure general well-being by evaluating the balance between positive and negative recent feelings.

Drawing on the validation of the Affectometer 2 in the UK and information gathered from focus groups an expert panel identified key concepts of mental well-being that were to be included in a new scale, and the WEMWBS was developed consisting of only positively worded items relating to positive mental health (Tennant et. al, 2007). During the focus groups participants were asked to discuss their concept of positive mental health and its relationship with items on the Affectometer 2, which they also completed (Tennant et al., 2007).

The WEMWBS is a 14-item scale measuring mental well-being in terms of subjective well-being and psychological functioning. Participants select statements on a 5-point Likert-scale and all items are scored positively. Higher scores therefore indicate higher levels of mental well-being. The scale consists of positively worded items relating to aspects of positive mental health (Stewart-Brown & Janmohamed, 2008). The items represent both hedonic (e.g., pleasure) and eudaimonic (e.g., meaning and self-realization) aspects of well-being. Tennant et al. (2007) developed and validated the WEMWBS for use within the UK (England and Scotland) and found it to have good content validity with confirmatory factor analysis supporting the single factor hypothesis. The standardised Cronbach's alpha value was 0.89 (student sample) and 0.91 (population sample) and showed high correlation with other mental health and well-being scales and lower correlation with scales measuring overall health (Tennant et al., 2007). The WEMWBS was found to have good content, construct and criterion-related validity as well as internal consistency reliability among undergraduate and

postgraduate student samples in England and Scotland with a Cronbach's alpha value of 0.83 for test-retest reliability at one week (Tennant et al., 2007).

In various other validation studies the WEMWBS has been shown to be valid and reliable for particular contexts. It was preliminarily validated by López et al. (2013) for a student sample in Catalonia, Spain, during the process of adapting it into Spanish. In this particular context it was determined to have a Cronbach's alpha value of 0.90 and satisfactory item total score correlations (between 0.44 and 0.76) and test-retest interclass correlation coefficient (0.84). Taggart et al. (2013) did a cross-cultural evaluation of the WEMWBS amongst Chinese and Pakistani groups in the UK. In the Chinese and Pakistani data respectively, Cronbach's alpha was 0.92 and 0.91, Spearman's correlation with the General Health Questionnaire (GHQ-12; Goldberg & Williams, 1988) was -0.63 and -0.55 and with the World Health Organization Well-being Index (WHO-5; developed by the World Health Organisation Collaborating Centre for Mental Health) 0.62 and 0.64 (Taggart et al., 2013).

The WEMWBS did not meet the unidimensionality expectations of the Rasch model in that some items showed bias for gender. The version of the WEMWBS to be validated in this study is the short version which, after further analysis of the original WEMWBS by Stewart-Brown et al. (2009), was resolved consisting of only seven items, and named the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS). Based on Rasch-model analyses, a subset of seven items was selected from the WEMWBS to form the SWEMWBS, which was found to be unidimensional and largely free of bias for gender (Stewart-Brown et al., 2009), with reliability of Cronbach's alpha value of 0.85. The SWEMWBS offers a more restricted view of mental well-being than the WEMWBS, with most items covering aspects of eudaimonic well-being and only a few items pertaining to hedonic well-being, and was found to be an effective measure in terms of the conciseness thereof. Respondents rate each statement on a 5-point Likert-scale ranging from 1 (*none of the time*) to 5 (*all of the time*). An

overall score is calculated by adding the scores for all items. The gender bias present in some items in the 14-item WEMWBS is eliminated in the 7-item SWEMWBS, making it the more preferable measure to use. The robust measurement properties and the fact that the SWEMWBS is a brief measure, also make it preferable to the WEMWBS when measuring mental well-being (Stewart-Brown et al., 2009).

The Chinese version of the SWEMWBS showed high levels of internal consistency and reliability ($\alpha = 0.89$), good test-retest reliability was observed, and it was proven to be culturally meaningful to clients with mental illness (Ng et al., 2014). Haver, Akerjordet, Caputi, Furunes, and Magee (2015) found that the SWEMWBS is a satisfactory measure for measuring mental well-being among the Norwegian and Swedish populations and their research supported its unidimensional structure. In their research among managers and general managers of a large hotel chain they determined the validity of the SWEMWBS for use in Norway and Sweden, with Cronbach's alpha values between 0.84 and 0.87. The various validation studies have shown that the SWEMWBS is applicable to a number of contexts. Although the WEMWBS has been validated for a Setswana-speaking sample in South Africa indicating a Cronbach's alpha of 0.88 (Khumalo, Temane, & Wissing, 2013; Stewart-Brown, 2013), as far as could be established, the SWEMWBS has not yet been validated for use within a South African adult group.

De Kock, Kanjee, and Foxcroft (2013) identify various reasons why test adaptation is important in a multicultural society like South Africa, including to enhance the fairness of the assessment by giving participants the choice of which language to complete measures in, to reduce the cost and time spent on developing a new measure by adapting existing measures, to facilitate comparative studies between different groups – nationally and internationally, and to compare the newly developed measures to existing norms of respected measures to ensure efficiency. To ensure that measures and test results are valid and reliable for all test-

takers, it is essential that assessment measures be adapted to accommodate the multicultural and multilingual society that South Africa consists of (De Kock et al., 2013). Very little measures have been validated for the South African context, and it cannot be assumed that measures that were found to be valid and reliable in other contexts, will also be applicable to the unique, multicultural South African context. No other studies on the validation of the SWEMWBS in Africa could be found. This study will address this gap with regards to the validation of the English version of the SWEMWBS for use within the South African context. If it is found to be valid and reliable the scale can be an important and useful measure to determine mental well-being in the South African context. Possible contributions of the study will be that the psychometric properties of the SWEMWBS will be evaluated with specific reference to the South African context, to determine whether the scale is valid and reliable for use in a South African adult group fluent in English. Validated versions of the scale have the potential to be used for further research in the field of hedonic and eudaimonic functioning and mental well-being.

3. Research aims and objectives

The aim of this research is to investigate the psychometric properties of the English version of the SWEMWBS in a South African adult group. The objectives are to investigate (a) the internal consistency reliability of the SWEMWBS, (b) the factorial validity of the SWEMWBS, and (c) the criterion-related validity of the SWEMWBS in a South African context.

4. Hypotheses

The hypotheses that this study will test are (a) that the English version of the SWEMWBS shows sufficient internal consistency reliability (b) that the SWEMWBS has a unidimensional factor structure, and (c) that the SWEMWBS is expected to have medium to high correlations with other well-being scales, such as the Satisfaction with Life Scale

(SWLS), the Positive Affect and Negative Affect Schedule (PANAS) – Positive Affect subscale, the Meaning in Life Questionnaire (MLQ) – Presence subscale, and all subscales and the total score of the Mental Health Continuum – Short Form (MHC-SF). The scale is expected to have negative correlations with a scale measuring negative affect, the PANAS – Negative Affect subscale and a scale measuring depression, the Patient Health Questionnaire-9 (PHQ-9). The scale is expected to have negligible correlations with the MLQ – Search subscale, which has been shown to have small correlations with well-being indicators.

5. Method

In this section we will discuss the research design used in the original larger project, the composition of the sample and the measuring instruments that were used. The procedure and data gathering, data analysis, and ethical aspects will also be discussed.

5.1. Research design

The data that will be used in this affiliated study is secondary data that was collected from 2011 to 2014 as part of the FORT3 project that used a mixed-methods cross-sectional survey design. The present study will only utilize the quantitative data. The data was captured as part of the FORT3 larger project which was approved by the Ethics Committee of the North-West University, South Africa (project number: NWU 00002-07-A2). The FORT3 project aims to understand, among other things, what people's perception and understanding is of well-being, how they experience happiness and meaningfulness, and also to determine the psychometric properties of the specific scales used during the project, in various cultural contexts. Permission to use the data collected through the demographical questionnaire, the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS), the Satisfaction with Life Scale (SWLS), the Positive Affect and Negative Affect Schedule (PANAS), the Meaning in Life Questionnaire (MLQ), the Questionnaire for Eudaimonic Well-being (QEWB), the

Mental Health Continuum – short form (MHC-SF) and the Patient Health Questionnaire-9 (PHQ-9), was granted by the project leader of the FORT3 project.

5.2. Participants

The participants were a nonprobability adult sample of 421 South African participants between the ages of 18 and 74 (mean = 39, SD = 12.705), of which 282 (66.8%) were female and 139 (32.9%) were male. Participants had to be at least 18 years of age, have at least Grade 12 in terms of level of education, and have sufficient skill in reading and writing English, as testified by participants' level of education and self-assessment. No exclusions were made based on socio-economic status. Participants had varying levels of education (secondary education = 33.4%, tertiary education = 34.8%, and post-graduate education = 29.9%).

5.3. Measuring instruments

5.3.1. Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS)

The SWEMWBS (Stewart-Brown et al., 2009) is a 7-item shortened version of the WEMWBS (Tennant et al., 2007). Respondents rate each statement on a 5-point Likert-scale ranging from 1 (*none of the time*) to 5 (*all of the time*). An overall score is calculated by adding the scores for all items. Sample items include “I’ve been feeling optimistic about the future”, and “I’ve been able to make up my own mind about things” (Haver et al., 2015). Based on Rasch-model analyses, a subset of seven items was selected from the original 14-item Warwick-Edinburgh Mental Well-being Scale (WEMWBS) to form the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS), which was found to be unidimensional and largely free of bias (Stewart-Brown et al., 2009), with a Cronbach’s alpha value of 0.85. The SWEMWBS offers a more restricted view of mental well-being than the WEMWBS, with most items covering aspects of eudaimonic well-being and only few items pertaining to hedonic well-being.

To determine the criterion-related validity of the SWEMWBS for the South African adult sample as proposed by this study, the following criterion scales, measuring both the eudaimonic and the hedonic perspectives, will be used: (a) the Satisfaction with Life Scale (SWLS), (b) the Positive Affect and Negative Affect Schedule (PANAS), (c) the Meaning in Life Questionnaire (MLQ), (d) the Questionnaire for Eudaimonic Well-being (QEWB), (e) the Mental Health Continuum – short form (MHC-SF) and (f) the Patient Health Questionnaire-9 (PHQ-9).

5.3.2. Satisfaction with Life Scale (SWLS)

The SWLS (Diener, Emmons, Larsen, & Griffin, 1985) measures the respondents' own assessment of their global life satisfaction on a 7-point Likert-scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The measure consists of five items including “In most ways my life is close to my ideal” and “I am satisfied with my life”. The scores are added to give a total satisfaction with life score up to a maximum of 35. In use among Western samples Pavot and Diener (1993) reported Cronbach's alpha values between 0.79 and 0.89. Wissing and van Eeden (2002) obtained sufficient reliability scores (Cronbach's alpha values between 0.70 and 0.86) and construct validity with the use of the English SWLS within a multicultural South African sample.

5.3.3. Positive Affect and Negative Affect Schedule (PANAS)

The PANAS (Watson, Clark, & Tellegen, 1988) is a 20-item self-report measure measuring positive and negative affect. It consists of a number of words that describe different feelings and emotions. Respondents are asked to indicate to what extent the statements are applicable within a certain time frame, usually “during the past week”. The scale ranges from 1 (*very slightly or not at all*) to 5 (*very much*). Sample statements include “During the past week, how often did you feel inspired?” and “During the past week, how

often did you feel guilty?” The time frame specified may differ (the past week, the past month, the past year etc.).

Positive affect (PA) can briefly be described as the extent to which a person feels enthusiastic, active and alert, whereas negative affect (NA) in general relates to subjective distress including anger, contempt, disgust etc. High PA is characterized by high energy, full concentration, pleasurable engagement, enthusiasm and alertness, while low PA is characterized by sadness and lethargy (Watson et al., 1988; Watson & Clark, 1984). High NA indicates subjective distress and unpleasurable engagement, while low NA indicates an absence of these feelings. Low NA is manifested in a state of calmness and serenity (Watson et al., 1988; Watson & Clark, 1984).

Good psychometric properties are reported for the PANAS with Cronbach’s alpha values of 0.85 for PA and 0.89 for NA within an adult population in the United Kingdom (UK) (Crawford & Henry, 2004). The scales were shown to be highly internally consistent, largely uncorrelated, and stable at appropriate levels over a two month time period. Factorial and external evidence of convergent and discriminant validity was also established (Watson et al., 1988; Crawford & Henry, 2004).

5.3.4. Meaning in Life Questionnaire (MLQ)

The MLQ (Steger et al., 2006) is a self-report measure assessing the presence of and search for meaning in life respectively. It consists of two five-item subscales (Presence and Search) and respondents rate their degree of agreement on a 7-point Likert-scale, ranging from 1 (*absolutely untrue*) to 7 (*absolutely true*). Statements include “I understand my life’s meaning” (Presence subscale) and “I am always looking to find my life’s purpose” (Search subscale). Steger et al. (2006) showed that the two subscales were reliable in mainly Western student samples, with the Cronbach’s alpha values for the Presence subscale ranging from 0.82 to 0.86 and Cronbach’s alpha values for the Search subscale from 0.86 to 0.87.

Construct, convergent and discriminant validity of the MLQ was also indicated. Temane, Khumalo, and Wissing (2014) investigated the psychometric properties of the MLQ in a South African sample, and it was found that the Cronbach's alpha values of 0.85 for MLQ – Presence subscale and 0.84 for MLQ – Search subscale show good reliability (Temane et al., 2014).

5.3.5. Questionnaire for Eudaimonic Well-being (QEWB)

The original QEWB of Waterman et al. (2010) consists of a 21-item Likert-scale and participants are asked to rate their agreement with each item on a scale from 0 (*strongly disagree*) to 4 (*strongly agree*). In this study, a scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) was used to measure eudaimonic well-being as conceptualised by Waterman et al. (2010). This was to ensure alignment with the larger project from which the present secondary data was obtained. Seven items are phrased in a negative direction and need reversed scoring. Statements include “I can say that I have found my purpose in life” and “I am confused about what my talents really are”. Waterman et al. (2010) showed sufficient reliability ($\alpha = 0.86$) and convergent, discriminant, construct and incremental validity for the scale among a group of ethnically diverse American students. However, Schutte, Wissing, and Khumalo (2013) questioned the use of parcelling in the original validation study as the parcels used by Waterman et al. (2010) did not appear unidimensional on face-value. They showed for a South African student sample that the assumption of unidimensional parcels was violated, and therefore the use of parcelling was contraindicated. Item-level analyses revealed a multidimensional (three- or four-factor) factor structure and good convergent and discriminant validity. The factors from the study of Schutte et al. (2013) will be used in the current study in addition to the scale's total score. The factors identified by Schutte et al. (2013) in the three-factor structure were Sense of Purpose ($\alpha = 0.77$), Purposeful Personal Expressiveness ($\alpha = 0.73$), and Effortful Engagement ($\alpha = 0.61$). Although the four-factor

structure (Sense of Purpose, Engagement in Rewarding Activities, Living from Beliefs and Effortful Engagement) explained greater variance, Schutte et al. (2013) suggested that the three-factor structure be used.

5.3.6. Mental Health Continuum – short form (MHC-SF)

The MHC-SF (Keyes, 1998, 2006a, 2006b, 2006c) is a 14-item questionnaire measuring positive mental health in terms of three sub-scales, namely Emotional Well-being, Social Well-being, and Psychological Well-being. Using a Likert-scale ranging from 0 (*never*) to 5 (*every day*), respondents rate how frequently each statement occurred during the past month. It consists of three items measuring emotional well-being in terms of positive affect and satisfaction with life, five items measuring social well-being based on Keyes' (1998) model of social well-being (with one item representing each dimension in his model, namely social well-being, social integration, social contribution, social coherence, social actualization and social acceptance) and six items measuring well-being as understood in Ryff's (1989) model of psychological well-being (with an item representing each dimension of self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth). Examples of statements include "During the past month, how often did you feel interested in life?" (Emotional Well-being subscale), "During the past month, how often did you feel that you belonged to a community (like a social group, or your neighbourhood)?" (Social Well-being subscale), and "During the past month, how often did you feel good at managing the responsibilities of your daily life?" (Psychological Well-being subscale). The Setswana version of this scale was validated by Keyes et al. (2008) and sufficient reliability ($\alpha = 0.72$) as well as construct, convergent and discriminant validity of the scale was found for a mainly Setswana-speaking group. Lamers, Westerhof, Bohlmeijer, Ten Klooster and Keyes (2011) confirmed the potential of the scale when they showed that

the scale has construct, convergent and discriminant validity, as well as sufficient reliability ($\alpha = 0.89$) in a representative Dutch sample.

5.3.7. Patient Health Questionnaire-9 (PHQ-9)

The PHQ-9 (Kroenke, Spitzer, & Williams, 2001) is a self-administered screening instrument to identify depression and determine the severity of depressive symptoms in the primary health care setting. On a 9-item Likert-scale respondents rate how often each symptom occurred over the past two weeks, ranging from 0 (*not at all*) to 3 (*nearly every day*). Symptoms include “Trouble falling or staying asleep, or sleeping too much”, “Poor appetite or overeating” and “Trouble concentrating on things, such as reading the newspaper or watching television”. Kroenke et al. (2001) found the measure to have sufficient reliability (Cronbach’s alpha values of 0.86 and 0.89), specificity, sensitivity and validity in a mainly Western sample, with data gathered at primary health care clinics and obstetrics-gynaecology sites. A vast number of studies have shown the validity of the PHQ-9 in various populations, for example among Nigerian students (Adewuya, Ola, & Afolabi, 2006), Chinese Americans (Yeung et al., 2008), Korean Americans (Donnelly, 2007) and Brazilian women (De Lima Osório, Mendes, Crippa, & Loureiro, 2009). Botha (2011) determined that the English version of the PHQ-9 was a valid and reliable measure of depression for a multicultural sample in South Africa ($\alpha = 0.86$).

5.4. Procedure and data gathering

This affiliated study will make use of secondary data collected as part of the EHHI project under the FORT3 larger project from 2011 to 2014 (ethical approval number NWU 00002-07-A2). Data for the larger study were obtained by post-graduate students who acted as fieldworkers under supervision of the researchers after they were trained in the administration of psycho-social well-being measures. A nonprobability method of recruiting participants was used, with the snowball method where the initially identified participants

were asked to recruit other participants who also fit the inclusion criteria. After the procedures were explained to participants by the fieldworkers, they were given the opportunity to review the information and decide whether or not they wanted to participate. Participation was completely voluntary and there was no penalty for those who chose not to participate or who wanted to withdraw at a later stage. The fieldworkers obtained written informed consent from those who agreed to participate. The informed consent forms were handed in separately from the questionnaires to ensure anonymity, privacy, and confidentiality. Opportunity for debriefing was made available to those who needed it, by providing participants with the telephone numbers of counsellors or psychologists who were requested to assist participants, if needed.

5.5. Data analysis

Descriptive statistics (mean, standard deviation, skewness and kurtosis) and reliability coefficients (Cronbach's alpha coefficients, average inter-item correlations, and the correlation matrix) will be calculated. The study will make use of confirmatory factor analysis and/or exploratory factor analysis to establish factorial validity. Convergent validity will be established by considering the correlation patterns between the SWEMWBS and scales used in conjunction with it (SWLS, PANAS, MLQ, QEWB, MHC-SF and PHQ-9). The study will make use of the SPSS and Mplus statistical analysis software programs and the data analysis will be done by the study leader who is a qualified statistician.

5.6. Ethical aspects

This affiliated study will be based on secondary data that was collected under projects that form part of the FORT3 larger project, and adhered to the requirements for ethical approval as were applicable at the time. The original study was approved by the Ethics Committee of the North-West University, with project number NWU 00002-07-A2. The study forms part of the FORT3 project that aims to understand, among other things, what

people's perception and understanding is of well-being, how they experience happiness and meaningfulness, and also determine the psychometric properties of the specific scales used during the project, in various cultural contexts. For the purpose of this affiliated study ethical approval will be obtained from the Health Research Ethics Committee of the North-West University. The aim of this affiliated study – to investigate the psychometric properties of the SWEMWBS in a South African context – was specified in the original aims of the larger project, as investigating the psychometric properties of scales measuring psychological and bio-psycho-social strengths in various cultural contexts. The data will still be used for its intended purpose, and no additional risk to participants is foreseen in the current study. Only anonymised secondary data will be used under supervision of the project leader and study leaders. The completed questionnaires and the written consent forms were handed in separately to ensure anonymity, privacy, and confidentiality. The dataset that will be used by the student-researcher will be copied into a password protected file onto an external hard-drive, then loaded onto a password protected computer and permanently deleted from the external hard-drive. When the research is completed the dataset will also be permanently deleted from the student-researcher's computer.

5.6.1. Recruitment of participants

In the original FORT3 project during which the data was collected, post-graduate students acted as fieldworkers under supervision of the researchers after they were trained in the administration of psycho-social well-being measures. The participants were recruited using the snowball sampling method. Participants were informed about the aim and purpose of the research, what the data will be used for and how it will be stored, both verbally by the trained fieldworkers, and in writing. Informed consent forms explaining the process were provided and after being given a break with time to review and/or discuss the details and procedures participants handed in the written consent forms separately from the anonymously

completed questionnaires. Participants were also informed that participation was entirely voluntary, that data would stay anonymous, and that they could withdraw from the study at any point without any repercussions or negative consequence. No incentives were offered for participation.

5.6.2. Inclusion and exclusion criteria

To be included in the study participants had to be between the ages of 18 and 74 years, have at least Grade 12 in terms of level of education in order to ensure good comprehension and English competence, and have sufficient skill in reading and writing English. Both genders were allowed to participate and no exclusions were made based on socio-economic status or ethnicity.

5.6.3. Risk and benefit

The original study required that participants complete a selection of questionnaires. No specific interventions were involved. There was minimal risk associated with participating in the study. No direct benefits to participants were identified, although there were the indirect benefits of gaining self-knowledge and insight. Benefits to the discipline include that the study will contribute to scientific knowledge of psychosocial well-being in the South African context which could promote interventions focused on the improvement of the well-being and positive mental health of the population, as well as adding to existing knowledge about the subject. The potential benefits thus outweighed the potential risks related to the study.

5.6.4. Anonymity

The participants completed the questionnaires anonymously. The signed written consent forms were handed in separately from the questionnaires and the data was captured anonymously and stored on password protected databases in locked offices at the North-West University. To further ensure anonymity data analysis will only be done on group scores and

participants will in no way be identified during the analysis of the data or the reporting of the results of the current sub-study.

5.6.5. Informed consent

Written informed consent was obtained by trained fieldworkers from all the participants prior to participation in the research. The informed consent form provided details on the aim of the study, indicated that participation was voluntary and participants could withdraw from the study at any time, should they so wish, without any repercussions, that there is minimal foreseeable risk associated with participation, that responses will only be used as part of a group and only group scores will be used for analyses, the approximate duration of completion of the questionnaires, and how the study will contribute to science and society. The researchers' names and contact details were also provided.

5.6.6. Archiving and storage

The data that was gathered is currently stored on password protected computers in locked offices at the Africa Unit for Trans-disciplinary Health Research (AUPH) at the North-West University. After the data has been used by the student-researcher for the purpose of the proposed study, it will be deleted from her computer to ensure that no data is kept separately from the original datasets. While still in use by the student-researcher the data will also be stored on a password protected computer in a locked office. Only authorized researchers have access to the collected data. No manipulation of data was possible. The data will be stored for six years after the last publication springing forth from the data, where after the data will be destroyed by shredding it.

5.6.7. Dissemination of findings

The findings of this study will be submitted to the South African Journal of Psychology for publication.

5.6.8. Debriefing

For participants who felt the need for debriefing after completion of the questionnaires, sufficient opportunity was made available by providing participants with the telephone numbers of counsellors or psychologists who were requested to assist participants, if needed.

5.6.9. Consent for use of scales

Consent was obtained from the authors of all the scales used, for their use as well as further validation thereof.

5.6.10. Competence and skills

The supervisor of this affiliated study is competent to guide the data analysis of the present study. She obtained a Master's Degree in Statistics as well as Psychology, and has experience as a statistical consultant. In terms of research expertise she specializes in scale validation. The co-supervisor is an expert in positive psychology and research, leader of the FORT research-programme, and has conducted many scale validation studies in the past. The supervisor and the co-supervisor are both registered Clinical Psychologists. The assistant study leader holds a master's degree in Positive Psychology. The student-researcher holds an honours degree in Psychology and is currently studying towards a Masters of Arts in Positive Psychology. As such, the team is deemed to have the necessary skills and competence to undertake the study.

6. Expected contributions of the study

It is expected that the study will aid in the validation of the SWEMWBS for a multicultural South African context and contribute to the availability of a short well-being screening instrument that can be used in large epidemiological studies on health and well-being as well as use of the SWEMWBS in future research and practice within the South African population.

7. Structure and publishing

7.1. Structure

- Title page
- Acknowledgements
- Summary
- Opsomming
- Table of contents
- Preface
- Letter of permission
- Section 1 – Background orientation
- Section 2 – Manuscript
 - Title page
 - Abstract
 - Problem statement
 - Method
 - Results
 - Discussion
- Section 3 – Conclusion and reflection
- Complete reference list

7.2. Intended journal(s)

This research will be submitted to the South African Journal of Psychology for publication.

8. Budget

Because this study will be making use of secondary data there will be no costs for the collection or capturing of the data. The proposed costs will be covered by the student-researcher. The following costs are estimated:

Item	Description	Costs
Statistical Analysis	R150.00 per hour x 30 hours	R 4 500.00
Language editing	R0.35 per word x 263 words per page x 100 pages	R 9 205.00
Electronic copy of dissertation	1 x CD	R 25.00
Binding hard copies of dissertation	3 copies x (R0.50 per page x 100 pages + R50 for binding)	R 300.00
Registration	2 years x R1 450.00	R 2 900.00
Miscellaneous		R 1 000.00
Total		R 17 930.00

9. Time schedule

Activity	Date
Submission of proposal to small group	5 April 2016
Date of small group	11 April 2016
Submit names of students whose research proposals will be discussed by AUTHeR (before 12:00)	13 April 2016
Electronic submission of research proposal to AUTHeR (before 12:00)	18 April 2016
AUTHeR discussion of research proposal	25 April 2016

Submit names and ethical applications of relevant students to the Health Research Ethical Committee	17 May 2016
Title registration and research committee	12 May 2016
Health Research Ethical Committee discussion of ethical application	8 June 2016
Conduct research, write article and literature review, and data analysis	15 June 2016 – 30 September 2016
Notify administration that dissertation will be submitted	31 August 2016
Language editing of dissertation	30 September 2016
Submit dissertation	31 October 2016
Submit final dissertation	30 November 2016

References

- Adewuya, A. O., Ola, B. A., & Afolabi, O. O. (2006). Validity of the Patient Health Questionnaire (PHQ-9) as a screening tool for depression amongst Nigerian university students. *Journal of Affective Disorders*, 96(1–2), 89-93.
doi:10.1016/j.jad.2006.05.021
- Botha, M. N. (2011). *Validation of the Patient Health Questionnaire (PHQ-9) in an African context* (Master's thesis). North-West University, Potchefstroom. Retrieved from <http://dspace.nwu.ac.za/handle/10394/4647>
- Clarke, A., Friede, T., Putz, R., Ashdown, J., Martin, S., Blake, A., ... & Stewart-Brown, S. (2011). Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Validated for teenage school students in England and Scotland. A mixed methods assessment. *BMC Public Health*, 11, 487-495. doi:10.1186/1471-2458-11-487
- Crawford, J. R., & Henry, J. D. (2004). The positive and negative affect schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, 43, 245-265.
- De Kock, F., Kanjee, A., & Foxcroft, C. (2013). Cross-cultural test adaptation, translation and tests in multiple languages. In C. Foxcroft, & G Roodt (Eds.), *Introduction to psychological assessment in the South African context* (4th ed.) pp. 83-106. Cape Town: Oxford University Press.
- De Lima Osório, F., Mendes, A. V., Crippa, J. A., & Loureiro, S. R. (2009). Study of the discriminative validity of the PHQ-9 and PHQ-2 in a sample of Brazilian women in the context of primary health care. *Perspectives in Psychiatric Care*, 45(3), 216-227.
doi:10.1111/j.1744-6163.2009.00224.x
- Diener, E., Emmons, R., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71–75.

- Donnelly, P. J. (2007). The use of the Patient Health Questionnaire-9 Korean Version (PHQ-9K) to screen for depressive disorders among Korean Americans. *Journal of Transcultural Nursing, 18*(4), 324-330.
- Goldberg, D. P., & Williams, P. (1988). *A user's guide to the General Health Questionnaire*. Windsor, UK: NFER-Nelson.
- Grammatikopoulos, I. A. (2016). The geriatric giant: Mental health and well-being in elderly. *Mental Health in Family Medicine, 12*, 110-111.
- Haver, A., Akerjordet, K., Caputi, P., Furunes, T., & Magee, C. (2015). Measuring mental well-being: A validation of the Short Warwick-Edinburgh Mental Well-Being Scale in Norwegian and Swedish. *Scandinavian Journal of Public Health, 43*(7), 721-727. doi: 10.1177/1403494815588862
- Kammann, R. & Flett, R. (1983). Affectometer 2: A scale to measure current level of general happiness. *American Journal of Psychology, 35*(2), 259-265.
- Keyes, C. L. M. (1998). Social Well-Being. *Social Psychology Quarterly, 61*(2), 121-140.
- Keyes, C. L. M. (2006a, April). *If health matters: When will we stop saying one thing and doing another?* Keynote address presented at the South African Conference on Positive Psychology: Individual, social and work wellness. Potchefstroom, South Africa.
- Keyes, C. L. M. (2006b). Mental health in adolescence: Is America's youth flourishing? *American Journal of Orthopsychiatry, 76*(3), 395-402. doi:10.1037/0002-9432.76.3.395
- Keyes, C. L. M. (2006c). The subjective well-being of America's youth: Toward a comprehensive assessment. *Adolescent and Family Health, 4*(1), 3-11.
- Keyes, C. L. M., Wissing, M. P., Potgieter, J. P., Temane, Q. M., Kruger, A., & Van Rooy, S. (2008). Evaluation of the Mental Health Continuum–Short Form (MHC–SF) in

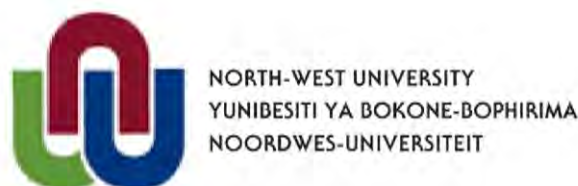
- Setswana-speaking South Africans. *Clinical Psychology & Psychotherapy*, 15(3), 181-192. doi:10.1002/cpp.572
- Khumalo, I. P., Temane, Q. M., & Wissing, M. P. (2013). Further validation of the General Psychological Well-being Scale among a Setswana-speaking group. In M. P. Wissing. (Ed.), *Well-being research in South Africa* (pp.199-224). Dordrecht: Springer.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9. *JGIM: Journal of General Internal Medicine*, 16(9), 606-613. doi:10.1046/j.1525-1497.2001.016009606.x
- Lamers, S. M. A., Westerhof, G. J., Bohlmeijer, E. T., ten Klooster, P. M., & Keyes, C. L. M. (2011). Evaluating the psychometric properties of the Mental Health Continuum-Short Form (MHC-SF). *Journal of Clinical Psychology*, 67(1), 99-110. doi:10.1002/jclp.20741
- López, M. A., Gabilondo, A., Codony, M., García-Forero, C., Vilagut, G., Castellví, P., ... & Alonso, J. (2013). Adaptation into Spanish of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) and preliminary validation in a student sample. *Quality of Life Research*, 22, 1099-1104. doi 10.1007/s11136-012-0238-z
- Ng, S. S. W., Lo, A. W. Y., Leung, T. K. S., Chan, F. S. M., Wong, A. T. Y., Lam, R. W. T., & Tsang, D. K. Y. (2014). Translation and validation of the Chinese version of the Short Warwick-Edinburgh Mental Well-being Scale for patients with mental illness in Hong Kong. *East Asian Arch Psychiatry*, 24, 3-9.
- Pavot, W., & Diener, E. (1993). Review of the Satisfaction with Life Scale. *Psychological Assessment*, 5(2), 164-172. doi:10.1037/1040-3590.5.2.164
- Pollard, E. L., & Lee, P. D. (2003). Child well-being: A systematic review of the literature. *Social Indicators Research*, 61(1), 59-78. doi: 10.1023/A:1021284215801

- Raghavan, R., & Alexandrova, A. (2014). Toward a theory of child well-being. *Social Indicators Research*, 121(3), 887-902. doi: 10.1007/s11205-014-0665-z
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081. doi:10.1037/0022-3514.57.6.1069
- Ryff, C. D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science*, 4(4), 99-104. Retrieved from <http://www.jstor.org/stable/20182342>
- Schutte, L., Wissing, M. P., & Khumalo, I. P. (2013). Further validation of the questionnaire for eudaimonic well-being (QEWB). *Psychology of Well-Being: Theory, research and practice*, 3(3). Retrieved from <http://www.psywb.com/content/3/1/3>
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53(1), 80-93. doi:10.1037/0022-0167.53.1.80
- Stewart-Brown, S. (2013). The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): Performance in Different Cultural and Geographical Groups. In C. L. M. Keyes (Ed.), *Mental well-being: International contributions to the study of positive mental health* (pp.133-150). Dordrecht: Springer.
- Stewart-Brown, S. & Janmohamed, K. (2008). *Warwick-Edinburgh Mental Well-being Scale (WEMWBS) User guide, version 1*. Retrieved from <http://www.cppconsortium.nhs.uk/admin/files/1343987601WEMWBS%20User%20Guide%20Version%201%20June%202008.pdf>
- Stewart-Brown, S., Tennant, A., Tennant, R., Platt, S., Parkinson, J., & Weich, S. (2009). Internal construct validity of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS): A Rasch analysis using data from the Scottish Health Education

- Population Survey. *Health & Quality of Life Outcomes*, 7, 1-8. doi:10.1186/1477-7525-7-15
- Taggart, F., Friede, T., Weich, S., Clarke, A., Johnson, M., & Stewart-Brown, S. (2013). Cross cultural evaluation of the Warwick-Edinburgh mental well-being scale (WEMWBS) – a mixed methods study. *Health and Quality of Life Outcomes*, 11(27). Retrieved from <https://hqlo.biomedcentral.com/articles/10.1186/1477-7525-11-27>. doi:10.1186/1477-7525-11-27
- Temane, L., Khumalo, I. P., & Wissing, M. P. (2014). Validation of the Meaning in Life Questionnaire in a South African context. *Journal of Psychology in Africa*, 24(1), 51-60.
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., ... & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, 5(63). Retrieved from <http://hqlo.biomedcentral.com/articles/10.1186/1477-7525-5-63> doi:10.1186/1477-7525-5-63
- Waterman, A. S., Schwartz, S. J., Zamboanga, B. L., Ravert, R. D., Williams, M. K., Agocha, ... & Donnellan, M. B. (2010). The Questionnaire for Eudaimonic Well-Being: Psychometric properties, demographic comparisons, and evidence of validity. *The Journal of Positive Psychology*, 5(1), 41-61. doi: 10.1080/17439760903435208
- Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*, 96, 465-490.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070.

- Wissing, M. P., & van Eeden, C. (2002). Empirical clarification of the nature of psychological well-being. *South African Journal of Psychology*, 32(1), 32-44.
- Yeung, A., Fung, F., Yu, S., Vorono, S., Ly, M., Wu, S., & Fava, M. (2008). Validation of the Patient Health Questionnaire-9 for depression screening among Chinese Americans. *Comprehensive Psychiatry*, 49(2), 211-217.
doi:10.1016/j.comppsy.2006.06.002

1.2 Approved HREC application



Faculty of Health Sciences Ethics Office for Research, Training and Support

NWU ETHICS APPLICATION FORM FOR HREC Application for Ethics Approval for Health Research Studies with Human Participants and Biological Samples of Human Origin (April 2015)

CONFIDENTIAL!

NB! This document contains confidential information that is intended exclusively for the applicant(s), the Health Research Ethics Committee (HREC) of the Faculty of Health Sciences of the North-West University and the designated reviewers. Should this document or parts thereof come into your possession in error, you are requested to return it to the HREC without delay or destroy it. Unauthorised possession, reading, studying, copying or distribution of this material, or any other form of abuse, is illegal and punishable.

Instructions and recommended path for the completion of your application:

- a. The research proposal forms the base document that is evaluated in conjunction with this application form. This application form gives the researcher the opportunity to expand on specific ethical issues required for approval.
- b. All applicants complete § 1, 2, 3, 4, 5 and 7.
- c. Select and complete the research-specific sub-sections from § 6 as applicable to the specific requirements of your study (utilise the table of contents).
- d. Ensure that a proposal that has been approved by an appropriate Scientific/Research Proposal Committee is attached to the application form as well as proof of its approval according to the standardised template (see § 4.1).
- e. Also attach an executive summary of the study (see § 4.1.1).
- f. The applicants should ensure that a copy of the informed consent form for approval, that has been compiled according to the informed consent template and checklist supplied by the Faculty of Health Sciences Ethics Office for Research, Training and Support, is submitted with the ethics application form.
- g. Any questionnaires or interview schedules that will be used in the completion of the study have to be attached
- h. Any advertisements that will be used in the study have to be attached
- i. Attach any permission letters received from governing bodies.
- j. Attach any contracts with collaborators/sponsors.
- k. For applications of collaborative studies being conducted on more than one site, it is required that copies of the proposal and the informed consent forms from all centres involved in the study are included with the application.
- l. Attach a 2-page narrative CV for each of the researchers involved in the study.
- m. Liaise with the appropriate officials and colleagues mentioned in § 8, complete and sign a printed copy.

- n. Submit scanned copies of the signed pages.
- o. Include copies of proof of ethics training for all researchers involved in the study (not older than three years).
- p. Submit the completed Ethics Application Form (with all the required attachments) via e-mail to Ethics-HRECAApply@nwu.ac.za.
- q. All required documentation (as previously outlined) should be attached separately to the aforementioned e-mail as indicated in point p.
- r. Applicants must please ensure that all required finalised documents as indicated above are included with the application. **No additional attachments or version correction(s) will be accepted.** If this does occur and the application was incomplete then it will have to be resubmitted with the application form and all the required attachments which could mean that the application may miss the deadline for the closing of the agenda for the HREC meeting.

NWU Ethics Number			
Campus	Potchefstroom	Faculty	Health Sciences
Principle Investigator/Study Leader	Mrs. L Schutte	Research entity	AUTHeR
Study Title	Validation of the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS) in a South African adult group.		

Table of Contents

1.	SECTION 1: STUDY IDENTIFICATION	1
1.1	FULL, DESCRIPTIVE TITLE OF THE STUDY	1
1.2	NAME OF THE STUDY LEADER/PRIMARY INVESTIGATOR NBI NOT THE STUDENT'S NAME	1
1.3	NAME OF THE STUDENT (IF APPLICABLE)	1
1.4	STUDENT NUMBER	1
1.5	RESEARCH ENTITY E.G AUTHER	1
1.6	DISCIPLINE E.G. CONSUMER SCIENCES	1
1.7	TYPE OF STUDY	1
1.8	IN THIS STUDY USE IS MADE OF	1
1.9	ENVISAGED COMMENCEMENT AND COMPLETION DATE OF THE STUDY	2
2.	SECTION 2: STUDY CLASSIFICATION	2
2.1	NAME OF THE ETHICS COMMITTEE HANDLING THE APPLICATION	2
2.2	DATE OF FIRST APPLICATION	2
2.3	DATE OF REVISED APPLICATION (IF APPLICABLE)	2
2.4	VERSION NUMBER	2
2.5	ESTIMATED RISK LEVEL	3
2.6	CONTEXT OF THE STUDY	3
2.7	THIS STUDY ENCOMPASSES ASPECTS THAT REQUIRE ADDITIONAL ETHICAL EXPLANATION	3
2.8	FOR THIS STUDY THE FOLLOWING PERSONS WILL BE INCLUDED IN THE STUDY TEAM	4
2.9	THE FOLLOWING PROFESSIONAL SUPERVISORY PERSONS ARE INVOLVED IN THIS STUDY (MAY IN NO WAY BE DIRECTLY PART OF THE RESEARCH TEAM)	5
3.	SECTION 3: DETAIL OF STUDY LEADER/PRINCIPAL INVESTIGATOR, CO-WORKERS AND SUPERVISORS	5
3.1	DETAILS OF STUDY LEADER/PRINCIPLE INVESTIGATOR	5
3.2	DETAILS OF STUDY SUPERVISOR	6
3.3	PROFESSIONAL SUPERVISORS	7
3.4	OTHER MEMBERS OF THE STUDY TEAM	7
3.5	CONFLICT OF INTERESTS AND SPONSORS (IF APPLICABLE)	8
3.6	COLLABORATIONS (IF APPLICABLE)	9
3.7	CONTRACTUAL AGREEMENTS (IF APPLICABLE)	9
3.8	CONFIDENTIALITY	9
3.9	INDEMNITY	10
4.	SECTION 4: RESEARCH PROPOSAL AND SCIENTIFIC COMMITTEE APPROVAL	10
4.1	EXECUTIVE SUMMARY AND RESEARCH PROPOSAL	10
5.	SECTION 5: ADDITIONALLY REQUIRED INFORMATION ABOUT ETHICAL IMPLICATIONS OF THE RESEARCH NOT PROVIDED IN THE PROPOSAL	11
5.1	WHAT WILL BE EXPECTED OF PARTICIPANTS DURING DATA GATHERING?	11
5.2	RISKS AND PRECAUTIONS	11
5.3	BENEFITS FOR PARTICIPANTS	12
5.4	RISK/BENEFIT RATIO ANALYSIS	12
5.5	FACILITIES	12
5.6	LEGAL AUTHORISATION	13
5.7	GOODWILL PERMISSION /CONSENT	13
5.8	CRITERIA FOR PARTICIPANT SELECTION AND RECRUITMENT	13
5.9	PARTICIPANT RECRUITMENT	14
5.10	INFORMED CONSENT (CONSENT, PERMISSION, ASSENT AND DISSENT)	14
5.11	INCENTIVES AND/OR REMUNERATION OF PARTICIPANTS	15
5.12	ANNOUNCEMENT OF STUDY RESULTS TO PARTICIPANTS	15
5.13	PRIVACY AND CONFIDENTIALITY	15
5.14	MANAGEMENT, STORAGE AND DESTRUCTION OF DATA/BIOLOGICAL SAMPLES	16
5.15	MONITORING OF RESEARCH	17
5.16	MISLEADING OF PARTICIPANTS (IF APPLICABLE)	17
5.17	USE OF PREVIOUSLY COLLECTED DATA/BIOLOGICAL SAMPLES (IF APPLICABLE)	17
5.18	USE OF FILED PRIVILEGED INFORMATION (IF APPLICABLE)	19
5.19	JUSTIFIABILITY OF STATISTICAL PROCEDURES	19
6.	SECTION 6: MATTERS THAT NECESSITATE ADDITIONAL INFORMATION	20
6.1	SEC 6A: VULNERABLE PARTICIPANTS	20
6.2	SEC 6B: INFECTION, GENETIC MODIFICATION AND COMMERCIALISATION OF CELL AND TISSUE LINES	21
6.3	SEC 6C: USE OF DRUGS/MEDICINES	23
6.4	SEC 6D: USE OF DRUG DELIVERY SYSTEMS	25
6.5	SEC 6E: USE OF FOOD, FLUIDS OR NUTRIENTS	26

6.6	SEC 6F: USE OF RADIO-ACTIVE SUBSTANCES	27
6.7	SEC 6G: USE OF TOXIC SUBSTANCES OR DANGEROUS SUBSTANCES	28
6.8	SEC 6H: MEASURING INSTRUMENTS AND QUESTIONNAIRES THAT NEED PSYCHOMETRIC INTERPRETATION	29
7.	SECTION 7: OTHER ETHICS EVALUATIONS AND RISK INSURANCE	33
7.1	SEC 7A: EVALUATION BY OTHER RESEARCH ETHICS COMMITTEES.....	33
7.2	SEC 7B: RISK INSURANCE.....	33
8.	SECTION 8: DECLARATIONS.....	34
8.1	SEC 8A: STUDY LEADER	35
8.2	SEC 8B: STATISTICAL CONSULTANT (IF APPLICABLE)	37
8.3	SEC 8C: RESEARCH DIRECTOR (SCHOOL DIRECTOR IF EDUCATION REQUEST)	38

1. SECTION 1: STUDY IDENTIFICATION

Provide the necessary descriptions below to identify this study application:

1.1 Full, descriptive title of the study

Validation of the Short Warwick-Edinburgh Mental Well-being Scale in a South African adult group.

1.2 Name of the Study Leader/Primary investigator **NB!** Not the student's name

Mrs. L. Schutte

1.3 Name of the Student (if applicable)

Salome Smith

1.4 Student number

20027470

1.5 Research entity e.g AUTHeR

Africa Unit for Trans-disciplinary Health Research (AUTHeR)

1.6 Discipline e.g. Consumer sciences

Positive Psychology

1.7 Type of study

Type of study

Single study ☐

Larger study ☐

Affiliated-study under a larger study ☒

Educational ☐

Other: Specify Type here

1.8 In this study use is made of

Mark ALL options as "Yes" or "No" with X in the appropriate box – more than one option may be marked as "Yes".

Description	Yes	No
Human participants (subjects)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Qualitative	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Quantitative	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mixed method	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other e.g. program evaluation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Filed privileged information (e.g. medical files) or stored biological samples of	<input type="checkbox"/>	<input checked="" type="checkbox"/>

human origin (e.g. samples collected for another study or medical diagnosis)

1.9 Envisaged commencement and completion date of the study

More information

Here you can indicate the expected commencement and ending dates of the study, which may be anything from a day to a few years. The full expected duration of the study must be filled in below. Even if the expected duration of the study is uncertain, you can still make an estimate here and report the progress with the annual report. Ensure that the commencement date is at least a few weeks after the date of the HREC meeting at which your application is to be reviewed. The HREC will only grant ethics approval for a one year period. If the study should take longer, a monitoring report requesting permission for continuation must be submitted to the HREC two months before the expiry of the study.

Commencement Date

2 0 1 6 - 0 8 - 1 5
c c y y m m d d

Completion Date

2 0 1 7 - 1 2 - 3 1
c c y y m m d d

2. SECTION 2: STUDY CLASSIFICATION

Complete every option of all the questions in this section. This section is used to classify your study and select suitable reviewers.

2.1 Name of the Ethics Committee handling the application

Health Research Ethical Committee of the North-West University

2.2 Date of first application

Fill in below the date of the first submission of this ethics application

2 0 1 6 - 0 6 - 1 4
c c y y m m d d

2.3 Date of revised application (if applicable)

Fill in below the date of the submission of the revised ethics application

2 0 - - - -
c c y y m m d d

2.4 Version number

Fill in the number of times this application has been submitted.

Version: - - - 1

2.5 Estimated risk level

Please indicate the estimated risk level of the research by using the two risk level tables indicated for adult human participants or children/incapacitated adults.

Estimated risk level for adult human participants	
Minimal risk	<input checked="" type="checkbox"/>
Medium risk	<input type="checkbox"/>
High risk	<input type="checkbox"/>
Estimated risk level for children/incapacitated adults	
No more than minimal risk of harm (negligible risk)	<input checked="" type="checkbox"/>
Greater than minimal risk but provides the prospect of direct benefit for the child/incapacitated adult	<input type="checkbox"/>
Greater than minimal risk with no prospect of direct benefit to the child/incapacitated adult, but a high probability of providing generalizable knowledge	<input type="checkbox"/>

2.6 Context of the Study

Mark ALL options as “Yes” or “No” with X in the appropriate box – more than one option may be “Yes”.

Description	Yes	No
Scientific Research	Study falls within a research entity	<input checked="" type="checkbox"/> <input type="checkbox"/>
	Study falls outside a research entity	<input type="checkbox"/> <input checked="" type="checkbox"/>
	Study includes postgraduate students (e.g. masters or doctorate)	<input checked="" type="checkbox"/> <input type="checkbox"/>
	Study includes contract work	<input type="checkbox"/> <input checked="" type="checkbox"/>
Education and training (e.g. undergraduate practicals)	For staff of the North-West University	<input type="checkbox"/> <input checked="" type="checkbox"/>
	For students (undergraduate or postgraduate learners)	<input type="checkbox"/> <input checked="" type="checkbox"/>
	For other learners (not associated with University)	<input type="checkbox"/> <input checked="" type="checkbox"/>

2.7 This study encompasses aspects that require additional ethical explanation

Mark ALL options as “Yes” or “No” with X in the appropriate box – more than one option may be “Yes”. If a specific option is marked please complete the corresponding section in Section 6.

Description	Yes	No
Vulnerable participants	<input type="checkbox"/> <input checked="" type="checkbox"/>	
Infection, genetic modification and commercialisation of cell and tissue lines	<input type="checkbox"/> <input checked="" type="checkbox"/>	
Use of drugs / medicines	<input type="checkbox"/> <input checked="" type="checkbox"/>	
Use of drug delivery systems	<input type="checkbox"/> <input checked="" type="checkbox"/>	

Use of food, fluids or nutrients	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Use of radio-active substances	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Use of toxic substances or dangerous substances	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Measuring instruments and questionnaires that need psychometric interpretation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Any other aspect of potentially ethically sensitive nature (specify below)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Other aspects (specify)

Not applicable

2.8 For this study the following persons will be included in the study team

Fill in the number concerned with ALL options. Ensure that the participant numbers in this table correspond with the individuals indicated in Section 3.1, 3.2 and 3.4.

More information

The **study leader** is generally viewed as the individual who takes the final responsibility for all aspects of the study e.g. study leader or principle investigator.

The **study supervisor** is generally the individual responsible for the day-to-day management of the study.

Description		Number	
		Local	Foreign
Only for research studies	Study Leader (e.g. study leader/principle investigator)	1	0
	Study supervisor (day to day manager)	0	0
	Co-workers (researchers of the North-West University)	2	0
	Co-workers (researchers outside the North-West University)	0	0
	Co-workers (postgraduate students of the North-West University)	1	0
	Assistants/field workers	0	0
Only for education and training (e.g. undergraduate practicals)	Educator	0	0
	Co-workers (lecturers of the North-West University)	0	0
	Co-workers (lecturers outside the North-West University)	0	0
	Students (undergraduate learners of the North-West University)	0	0
	Students (postgraduate learners of the North-West University)	0	0
	Other learners (not associated with the North-West University)	0	0
	Assistants/field workers	0	0
Sponsors		0	0

Other members of the study team not mentioned above (specify)

Not applicable

2.9 The following professional supervisory persons are involved in this study (may in no way be directly part of the research team)

More information

Supervisor indicates that the individual is an independent monitor involved during data gathering of the study and acts as an advocate for the participants/patients. (Fill in the number involved in ALL options.

Researcher / Supervisor	Number	Researcher / Supervisor	Number
Supervisory Doctor	0	Supervisory Psychologist	0
Supervisory Nurse	0	Supervisory Pharmacist	0
Supervisory Psychiatrist	0	Supervisory Social worker	0

Other supervisory person (specify)

Not applicable

I hereby declare that the above information in "Section 2: Study Classification" is complete and correct and that I did not withhold any information.

Yes No



Remember to save your document regularly as you complete it!

3. SECTION 3: DETAIL OF STUDY LEADER/PRINCIPAL INVESTIGATOR, CO-WORKERS AND SUPERVISORS

3.1 Details of Study Leader/Principle investigator

More information

NB! Only NWU staff, or extraordinary professors in collaboration with staff of the North-West University, may register as Study Leaders/Principal Investigators. The Study Leader/Principal Investigator accepts final, overall responsibility for the total study.

Surname	Full Names	Title
Schutte	Lusilda	Mrs
NWU Campus	Faculty	Research entity/School
Potchefstroom	Health Sciences	AUTHeR
Position	University No.	Professional Registration (body & category)
Lecturer	13012584	HPCSA Clinical Psychologist
Telephone	NWU-box or Postal Address	
Work Home Cell	Address	
018 299 1104 Type here Type here	Internal Box 500	

E-mail Address

lusilda.schutte@nwu.ac.za

[PLEASE ATTACH THE TWO-PAGE NARRATIVE CV OF THE STUDY LEADER]

More information

NB! A 2-page CV in a narrative format, giving a brief overview of:

- a researcher's qualifications
- career path to date
- specific research experience applicable to the present study (e.g. methodology or skills required)
- supervisory experience
- publication list (for the past 4 years)

3.2 Details of Study Supervisor

Is the Study Leader also the study supervisor?

(Please mark with X in the appropriate box.)

More information

Where the Study Leader is not physically present or consistently available and where supervision of the research activities is necessary, a suitable researcher/lecturer may be designated as **study supervisor**. The study supervisor is part of the study team.

Yes

No

X

If "Yes", this part can be left blank.

If "No" (i.e. if the Study Leader is not the Study Supervisor) give details below.

1.

Surname

Full Names

Title

NWU Campus

Faculty

Research entity/School

Position

University no.

Professional Registration
(body & category)

Telephone

Work

Home

Cell

NWU-box
Address

or

Postal

E-mail Address

[PLEASE ATTACH THE TWO-PAGE NARRATIVE CV OF THE STUDY SUPERVISOR]

More information

NB! A 2-page CV in a narrative format, giving a brief overview of:

- a researcher's qualifications
- career path to date
- specific research experience applicable to the present study (e.g. methodology or skills required)
- supervisory experience
- publication list (for the past 4 years) (if applicable)

3.3 Professional Supervisors

This section is completed if applicable and mentioned in Section 2.9.

More information

Professional supervisor does not refer to the study leader or the study supervisor. In all cases where medical emergencies may possibly arise, the physical presence of a doctor and a registered nurse is required. For the drawing of blood samples (e.g. diet manipulation and similar studies) the presence of a registered nurse is sufficient.

3.3.1 Name and qualifications of all supervisory professional persons

Name	Qualifications	Professional Registration	Function
Not applicable	Not applicable	Not applicable	Not applicable

(Type one name per row, or type "Not applicable" if there is no supervisory person.)

[PLEASE ATTACH THE TWO-PAGE NARRATIVE CV OF THE PROFESSIONAL SUPERVISOR/S]

More information

NB! A 2-page CV in a narrative format, giving a brief overview of:

- a researcher's qualifications
- career path to date
- specific research experience applicable to the present study (e.g. methodology or skills required)
- supervisory experience
- publication list (for the past 4 years) (if applicable)

3.4 Other Members of the Study Team

Names, qualifications, professional registration and functions of all the other co-workers (researchers, postgraduate students in the case of a research study, or lecturers (in the case of training) and assistants/field workers who form part of the study team) should be indicated. The information given in this table should correspond with the number of team members given in Section 2.8 (Add extra rows to the table if required.)

Name	Qualifications	Professional Registration	Association and/or Function
M. P. Wissing	D.Phil., Drs. Phil.	HPCSA – Clinical Psychologist	Co-supervisor

A Cromhout	MAPP	None	Assistant supervisor
S Smith	BA Hons	HPCSA Psychometrist, Independent Practice	– Masters degree student

Note: Type one name per row, or type "none" if there is no other team member.

[PLEASE ATTACH A TWO-PAGE NARRATIVE CV FOR ALL THE MENTIONED RESEARCH TEAM MEMBERS IN THIS SECTION]

More information

NB! A 2-page CV in a narrative format, giving a brief overview of:

- a researcher's qualifications
- career path to date
- specific research experience applicable to the present study (e.g. methodology or skills required)
- supervisory experience
- publication list (for the past 4 years)

3.5 Conflict of Interests and Sponsors (if applicable)

3.5.1 Declare with full details any conflict of interests that any member of the study team or professional supervisor (see § 3.1, 3.2, 3.3 and 3.4) might have.

More information

Examples of conflict of interest: financial, non-financial: intellectual, bias, overly optimistic promises of potential benefits, role of the researcher/s, desire of professional advancement, desire to make a scientific breakthrough, relationship with participants.

Name of Researcher	Complete description of the conflict and how it will be managed
Not applicable	Not applicable

Note: Type one name per row, or type "Not applicable" if there is no member of the study team or professional supervisor with a conflict of interest.

3.5.2 Give full details of all sponsors of the study.

Name of Sponsor	Contact Details	Affiliation & Contribution	Nature & Extent
Not applicable	Not applicable	Not applicable	Not applicable

Note: Type one name per row, or type "Not applicable" if there are no sponsors. Add extra rows to the table if required.

3.5.3 Is any participant in the study directly or indirectly involved with one or more of the sponsors or the researchers? Give full details.

Name of Participant	Association with Sponsor/Researcher
Not applicable	Not applicable

Note: Type one name per row, or type "Not applicable" if there are no such participants. Add extra rows to the table, if required.

3.5.4 Does any member of the study team receive any form of remuneration or other benefits from the sponsor(s), either directly or indirectly? Give full details.

Name of Team Member	Details
Not applicable	Not applicable

Note: Type one name per row, or type "Not applicable" if there are no such team members. Add extra rows to the table if required.

3.6 Collaborations (if applicable)

Declare with full details all collaboration agreements, e.g. with researchers or lecturers from another institution, national or international, who will be working on a defined section of the study.

More information

Your local team may collaborate with a team from a different national institution in South Africa or internationally, and thereby incorporate and benefit from their expertise and/or facilities. Typically, in such cases, functions and responsibilities differ for certain parts of the study. These functions and responsibilities must be fully described.

Name of Collaborator	National/International (Indicate which)	Full Description of functions and responsibilities
Not applicable	Not applicable	Not applicable

Note: Type one name per row, or type "Not applicable" if there are no contractors. Add extra rows to table, if required.

3.7 Contractual Agreements (if applicable)

Declare with full details all contractual agreements (e.g. with team members, collaborators and sponsors) on the study. Please note: A copy of any contractual agreements must be submitted to the Health Research Ethics Committee, together with the submission of this application. Add extra rows to the table, if required.

More information

Sometimes there are contractual obligations with co-workers or organisations outside the University. These contractual obligations may e.g. place restrictions on certain aspects on the availability of raw data i.t.o. intellectual right of ownership. Particularly where foreign co-workers are involved, these contracts can get complex. Therefore you must indicate here what these contractual obligations encompass, whether the University approved and sanctioned it and declare and describe any other potential legal and ethical implications thereof.

Name of Contractor	Full Description of the agreement
Not applicable	Not applicable

Note: Type one name per row, or type "Not applicable" if there are no contractors. Add extra rows to the table, if required.

[PLEASE ATTACH ALL CONTRACTUAL AGREEMENTS]

3.8 Confidentiality

Note: Other people involved in the research that could pose a risk to confidentiality should sign confidentiality agreements e.g. transcribers and co-coder/s.

[PLEASE ATTACH ALL CONFIDENTIALITY AGREEMENTS (SEE CONFIDENTIALITY AGREEMENTS AS APPROVED BY THE LEGAL OFFICE OF THE NWU)]

3.9 Indemnity

Note: If people are involved in the research as part of the research team but are not as staff on the payroll of the university or by contract on the payroll of the university, they will not be covered by the insurance of the university and have to sign an indemnity form.

[PLEASE ATTACH ALL INDEMNITY FORMS (SEE INDEMNITY FORMS AS APPROVED BY THE LEGAL OFFICE)]

Remember to save your document regularly as you complete it!

4. SECTION 4: RESEARCH PROPOSAL AND SCIENTIFIC COMMITTEE APPROVAL

4.1 Executive summary and research proposal

4.1.1 Executive summary of the study

Provide an executive summary (maximum 150 words) of the study in the following format:

- brief problem statement (approx. 3 sentences)
- aims and objectives of the study
- study design and method

In order to enhance our understanding of well-being and its correlates, measurement of the construct is essential. One attempt to measure well-being was the development of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS), of which the short version will be validated through this study, and which, after further analysis of the original WEMWBS by Stewart-Brown et al. (2009), was resolved consisting of only seven items, and named the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS), and found to be largely free of gender-bias with good unidimensionality.

The aim of this research is to investigate the psychometric properties of the English version of the SWEMWBS in a South African adult group. The objectives are to investigate (a) the internal consistency reliability of the SWEMWBS, (b) the factorial validity of the SWEMWBS, and (c) the criterion-related validity of the SWEMWBS in a South African context.

The data that will be used in this affiliated study is secondary data that was collected from 2011 to 2014 as part of the FORT3 project that used a mixed-methods cross-sectional survey design. The present study will only utilize the quantitative data.

4.1.2 Proposal

Note: For each study a descriptive proposal has to be submitted and is used as the main document for evaluation. The proposal should reflect the ethics of the research throughout. Attach a proposal approved by the Scientific/Proposal Committee of your research entity.

[ATTACH THE RESEARCH PROPOSAL]

4.1.3 Scientific/Proposal Committee approval

This study should have been reviewed and approved by a Scientific/Proposal Committee.

More information

The proposal needs to be approved by a Scientific/Proposal Committee before it will be reviewed by the HREC. The HREC relies on the scientific expertise of this committee regarding the evaluation of the scientific merit and design of the study.

Yes	Details
<input checked="" type="checkbox"/>	Name of formal Scientific/Proposal Committee: AUTHeR
	Title, initials and surname of all of the members of Scientific/Proposal Committee present during the review.
	Prof. Petra Bester Prof. Vera Roos Dr. Gerda Reitsma Dr. Nicole Claassen
	Date of approval: 25 April 2016
No	
<input type="checkbox"/>	Reason: Not applicable

4.1.4 Letter confirming approval of protocol

The HREC has to have proof of confirmation of approval by the Scientific/Proposal Committee.

[ATTACH CONFIRMATION OF APPROVAL OF THE STUDY PROPOSAL BY THE SCIENTIFIC/PROPOSAL COMMITTEE ON THE MANDATED TEMPLATE.]

Remember to save your document regularly as you complete it!

5. SECTION 5: ADDITIONALLY REQUIRED INFORMATION ABOUT ETHICAL IMPLICATIONS OF THE RESEARCH NOT PROVIDED IN THE PROPOSAL

Note: The information contained in this section is *additional* to what is contained in the proposal.

5.1 What will be expected of participants during data gathering?

What will be expected of participants during data gathering e.g. a one hour interview, venepuncture, needle prick, etc.

More information

Highlight what participants will be expected to do and what will be done to them, and how long it will take? This includes aspects such as procedures, sample collections and methods of information gathering and what the probable associated experience of participants will be. Provide particular details on any step that might violate privacy e.g. having to undress. This section supports you in the completion of the section in the informed consent form entitled, "What will your responsibilities be?"

Participants were asked to complete a selection of questionnaires with reference to psychosocial well-being, which would take approximately 30 minutes to complete. Although the questionnaires relate to well-being, some items could evoke emotional responses from participants. Therefore, debriefing was offered to participants who needed it.

5.2 Risks and precautions

Name and explain *all the possible risks* for *all procedures* that the participants might experience during the research. Use the template at the back of the approved risk level descriptor document to guide you into identifying all the possible types of risk as well as the probability and magnitude of harm. Ensure that you also include reference to various biological sampling techniques e.g. venepuncture, buccal swabs etc. By completing this section it will help you to answer the two sections on “Are there risks involved in your taking part in research?” and “What will happen in the unlikely event of some form of harm occurring as a direct result of your taking part in this research study?” in the informed consent form.

Risks (e.g. physical, psychological, social, legal, economic, dignitary and community) Identify all the possible risks.	Precautions (When describing these precautions be clear on how they will mitigate all the identified risks)
Psychological	Although the questionnaires relate to well-being, some items could evoke emotional responses from participants. For participants who felt the need for debriefing after completion of the questionnaires, sufficient opportunity was made available by providing participants with the telephone numbers of counsellors or psychologists who were requested to assist participants, if needed.

5.3 Benefits for participants

Describe 1) the potential *direct* benefits that the study might hold for the *individual participants*; or 2) the *indirect* benefits that the study holds for the *society at large* or for *the researchers and the organisations/institutions* they are working for, through the knowledge gained. By completing this section it will help you to answer the section on “Will you benefit from taking part in this research” in the informed consent form.

Direct benefits for participants	Indirect benefits for society at large or for the researchers/institution
None	Participants could gain self-knowledge and insight regarding psychosocial well-being from completing the questionnaires. The study will also contribute to scientific knowledge of psycho-social well-being in the South African context (study) and provide information on the utility of the SWEMWBS as a measure of psychosocial well-being in the South African context.

5.4 Risk/benefit ratio analysis

The overall benefits should, in general, *always outweigh the risks*, for a study to be considered ethical. If this is not the case, there needs to be a *strong justification* for why research ethics approval should be given.

Benefit outweighs the risks	<input checked="" type="checkbox"/>	
Risks outweigh the benefit	<input type="checkbox"/>	Justify: Not applicable

5.5 Facilities

Describe the place(s) and facilities in detail where the study will be implemented. This description is applicable to both institutions and the community. Also describe the availability of measures to handle emergencies in an applicable manner and how this will be executed.

The initial sample completed their questionnaires in air conditioned rooms with convenient chairs and tables and proper lighting. A later group of participants could complete the questionnaires in their own time at a place convenient to them. All participants were given the opportunity to obtain contact details of qualified professionals to provide debriefing if needed.

5.6 Legal authorisation

Describe in detail *which bodies* must grant legal authorisation for this study (e.g. Department of Health, Medicine Control Council, etc.). Mention *whether authorisation has already been obtained*, with reference to attached proof, or *how you will go about getting authorisation* before the study commences.

Conditional approval will be granted to obtain this authorisation but the study cannot commence before the HREC has received the final documents.

Not applicable

[PLEASE UPLOAD ALL DOCUMENTS INDICATING LEGAL AUTHORISATION]

5.7 Goodwill permission /consent

Describe in detail *what interest group representatives* must give permission for this study (e.g. community leaders, church leaders, tribal chiefs or other). Also mention *whether permission has already been obtained*, with reference to attached proof, or *how you will go about getting permission* before the study commences.

Conditional approval will be granted until proof of goodwill permission has been granted but the study cannot commence before the HREC has received the final documents.

Not applicable

[PLEASE UPLOAD ALL LETTERS OF GOODWILL PERMISSION]

5.8 Criteria for participant selection and recruitment

Describe in full which inclusion and exclusion criteria will be used to select participants and justify each of your choices. If you include one of the following in your exclusion/inclusion criteria, the need for it in the research has to be justified i.e. *race or ethnic origin, person's health or sex life, a person's inherited characteristics or biometric information*. Ensure that your exclusion criteria are not merely the opposite of the inclusion criteria.

Inclusion criteria	Justification
Participants had to be between the ages of 18 and 74 years, have at least a Grade 12 education, and sufficient skill in reading and writing English.	In the original larger study, the participants were required to complete open-ended questions and respond to rating scale type questionnaires in English. To ensure sufficient reading and writing skills for this task, participants had to be at least 18 years of age and have good command of English as attested by a Grade 12 level of

	education. This is also applicable to this specific affiliated study, which aims to investigate the psychometric properties of the English version of the SWEMWBS in a South African adult group.
Exclusion criteria	Justification
Not applicable	Not applicable

5.9 Participant recruitment

Recruitment of human participants must take place within a specified time frame/schedule (i.e. specified starting and ending date) and cannot continue indefinitely. Explain how you will go about recruiting the participants.

More information

This process should take place in such a way that the participants do not feel intimidated by the process or implicitly “bribed”, but decide absolutely voluntarily to participate. It should be fair and equitable. Include aspects of community entry e.g. advertisements, community advisory boards and the use of gatekeepers and mediators etc.

In the original FORT3 project during which the data was collected, post-graduate students acted as fieldworkers under supervision of the researchers after they were trained in the administration of psycho-social well-being measures. The participants were recruited using the snowball sampling method. Participants were informed about the aim and purpose of the research, what the data will be used for and how it will be stored, both verbally by the trained fieldworkers, and in writing. Informed consent forms explaining the process were provided and after being given a break with time to review and/or discuss the details and procedures participants handed in the written consent forms separately from the anonymously completed questionnaires. Participants were also informed that participation was entirely voluntary, that data would stay anonymous, and that they could withdraw from the study at any point without any repercussions or negative consequence. No incentives were offered for participation.

5.10 Informed consent (consent, permission, assent and dissent)

The focus in this section is on a detailed informed consent *process description*. According to law all participants must be fully informed about the implications and risks associated with participation in the study.

More information

How will you go about contacting them and explaining the study and accompanying implications to all participants? Ensure that participants are aware that participation in the research is voluntary and that they may withdraw from the study at any time. Where research is not carried out in participants’ mother tongue, explain how you will go about conveying the information in an understandable manner. Where participants are not literate, a witness should be involved in obtaining informed consent. Be clear on who will obtain the informed consent (independent person) and how the researcher will be included to explain the research and answer questions. Discuss the role of the independent person. For your convenience you can use the template for informed consent as well as the accompanying checklist. Be clear on your description of the use of consent, permission, assent and dissent. For minors ensure that parental permission and child assent or adolescent consent (where applicable) is obtained for all participants.

Written informed consent was obtained by trained fieldworkers from all the participants prior to participation in the research. The informed consent form provided details on the aim of the study, indicated that participation was voluntary and participants could withdraw from the study at any time, should they so wish, without any repercussions, that there is minimal

foreseeable risk associated with participation, that responses will only be used as part of a group and only group scores will be used for analyses, the approximate duration of completion of the questionnaires, and how the study will contribute to science and society. The researchers' names and contact details were also provided.

[PLEASE UPLOAD YOUR INFORMED CONSENT FORM FOR APPROVAL AND THE INFORMED CONSENT CHECKLIST]

5.11 Incentives and/or remuneration of participants

Is any form of incentive and/or reimbursement offered to the participants?

If "Yes", describe it in full in terms of *what, how, where, when, how much, terms and conditions*, etc. Remember to work according to the TIE principle (time, inconvenience, expenses e.g. transport and meals).

If no remuneration is offered, *justify why this is not the case* (Please mark with X in the relevant block and provide details).

Yes	No	Description
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not applicable

5.12 Announcement of study results to participants

Indicate *what, how, when and to whom* you will communicate the results of the study to the participants.

What?	Publication of results in an academic journal.
How?	Publication of results in an academic journal.
When?	After all data that was gathered were analysed and interpreted.
To whom?	Interested parties.

5.13 Privacy and Confidentiality

Explain how you will ensure both privacy and confidentiality throughout the research.

Privacy

Privacy is concerned with who has access to *personal information and records* about the participant as well as *privacy during physical measurements* e.g. anthropometric measures or *psychological procedures* e.g. interviews/focus groups. Explain how privacy will be ensured in your study.

The participants completed the questionnaires anonymously. The signed written consent forms were handed in separately from the questionnaires and the data was captured anonymously and stored on password protected databases in locked offices at the North-West University. To further ensure anonymity data analysis will only be done on group scores and participants will in no way be identified during the analysis of the data or the reporting of the results of the current affiliated study. Only authorised researchers have access to the databases.

Confidentiality

Confidentiality ensures that *appropriate measures* will be implemented to *prevent disclosure of information* that might identify the participant either during the course of the research or afterwards e.g. anonymising data or pooling results. Explain how confidentiality will be

ensured in your study.

The participants completed the questionnaires anonymously. The signed written consent forms were handed in separately from the questionnaires and the data was captured anonymously and stored on password protected databases in locked offices at the North-West University. To further ensure anonymity data analysis will only be done on group scores and participants will in no way be identified during the analysis of the data or the reporting of the results of the current sub-study. Only authorised researchers have access to the databases.

5.14 Management, storage and destruction of data/biological samples

Describe how you will manage the collected data/biological samples as well as the storage thereof.

Data/biological samples management

For management of data/biological samples, indicate:

- what data/biological samples will be stored
- how it will be stored
- how data in its various forms will be managed e.g. questionnaires, recorded interviews or biological samples
- who will manage the data/biological samples storage
- who will have access to the stored data/biological samples
- how will data be regained from other research team members
- and if data sharing is to occur, how will this be managed?

Ensure that you refer to both *electronic* and *hard copy versions* of data as well as *biological samples*.

The original completed questionnaires (hard copies) are stored in locked offices at the Africa Unit for Trans-disciplinary Health Research (AUFHeR) of the North-West University. Electronic copies of data that was gathered through the questionnaires is currently stored on password protected computers of the study leader of the present study and the principal investigator of the larger study. After the data has been used by the student-researcher for the purpose of the proposed study, it will be deleted from her computer to ensure that no data is kept separately from the original datasets. While still in use by the student-researcher the data will also be stored on a password protected computer in a locked office. Only authorized researchers have access to the collected data. No manipulation of data was possible.

Storage and destruction of data/biological samples

Describe:

- where and how data/biological samples will be stored
- for how long it will be stored
- who will be responsible for storage
- how it will be destroyed?

Ensure that you refer to both *electronic* and *hard copy versions* of data as well as *biological samples*

The original completed questionnaires (hard copies) will stored in locked offices at the Africa Unit for Trans-disciplinary Health Research (AUFHeR) of the North-West University for six years after the last publication springing forth from the data, whereafter the data will be destroyed by shredding it. Electronic data will be stored on password protected computers of the study leader of the present study and the principal investigator of the larger study for at least six years after the last publication springing forth from the data. When the data does

not serve any purpose anymore, it will be permanently deleted.

5.15 Monitoring of research

Describe how you as the researcher will monitor:

- both the *implementation and progress* of the research
- compliance with the approved protocol
- the management of ethics throughout the research process
- the management of amendments during the execution of the research study, should they be needed
- how *incidents and adverse events/serious adverse events* (if applicable) will be reported.

The study leader, co-study leader (who is the principal investigator of the larger study to which this study is affiliated) and assistant study leader will assure that the approved protocol is complied with and research is done in an ethical manner by the student researcher.

5.16 Misleading of participants (if applicable)

Is use made of any form of misleading in the research, where the participants are not told the complete truth (e.g. placebo or psychotherapeutic interventions)?

More information

*In the case of using a placebo (e.g. drug or psychotherapeutic intervention), justification has to be provided that there is no alternative treatment with proven efficacy. When such an alternative treatment exists, the **standard of care** should be provided to both the experimental and control group.*

If “Yes”, in either case of using a placebo or during a psychotherapeutic intervention:

- justify in full why it is necessary
- describe how the participants will be protected against potential negative consequences of the placebo or misleading information/action.
- when you will disclose and debrief
- describe how you will disclose to them that they were misled.

Yes	No	Justification	Precautionary measures
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not applicable	Not applicable
		Disclosure	
		When?	How?
		Not applicable	Not applicable

5.17 Use of previously collected data/biological samples (if applicable)

When your research study is making use of previously collected data or biological samples, provide a comprehensive description of the following.

What was the purpose of the original collection?

The study forms part of the FORT3 project that aims to understand, among other things, what people’s perception and understanding is of well-being, how they experience happiness and meaningfulness, and also determine the psychometric properties of the specific scales used during the project, in various cultural contexts.

What will your purpose be?

To investigate the psychometric properties of the English version of the SWEMWBS in a South African context.

Give a description of how research integrity was ensured in the original study by referring to:

- **how informed consent was obtained from participants**
- **what they consented for**
- **the circumstances under which the data/biological samples were gathered**
- **how the ethics of data/biological sample collection was ensured?**

Participants were informed about the aim and purpose of the research, what the data will be used for and how it will be stored, both verbally by the trained fieldworkers, and in writing. Informed consent forms explaining the process were provided and after being given a break with time to review and/or discuss the details and procedures participants handed in the written consent forms separately from the anonymously completed questionnaires. Participants were also informed that participation was entirely voluntary, that data would stay anonymous, and that they could withdraw from the study at any point without any repercussions or negative consequence, that there is minimal foreseeable risk associated with participation, that responses will only be used as part of a group and only group scores will be used for analyses, the approximate duration of completion of the questionnaires, and how the study will contribute to science and society.

Participants were told that the research aimed to understand what people think about their lives and well-being, and how they experience happiness, well-being and meaningfulness. (In order to do analyses on the data and draw conclusions to address this aim, it is scientifically and ethically required to validate the scales, which is the aim of the present affiliated study.)

The initial sample completed their questionnaires in air conditioned rooms with convenient chairs and tables and proper lighting. A later group of participants could complete the questionnaires in their own time at a place convenient to them.

The ethics of the original study was assured by the fact that the larger study have ethical clearance from the ethics committee (ethics clearance number NWU-00002-07-A2 valid until 2017/02/19). Details of ethical matters attended to are addressed in the rest of this document.

Give a detailed description of:

- **how data/biological sample storage was managed**
- **where and how data/biological samples were stored**
- **for how long it was stored**
- **who was responsible for storage**
- **how it was ensured that no tampering occurred?**

The original completed questionnaires (hard copies) are stored in locked offices at the Africa Unit for Trans-disciplinary Health Research (AUFHeR) of the North-West University. Electronic copies of data that was gathered through the questionnaires is currently stored on password protected computers of the study leader of the present study and the principal investigator of the larger study. After the data has been used by the student-researcher for the purpose of the proposed study, it will be deleted from her computer to ensure that no data is kept separately from the original datasets. While still in use by the student-researcher the data will also be stored on a password protected computer in a locked office. Only authorized researchers have access to the collected data. No manipulation of data was possible.

Foreseeable risks for participants or researchers involved in using the previously collected data/biological samples?

Risks	Precautions
-------	-------------

Participants: There was minimal risk associated with participating in the study, but although the questionnaires relate to well-being, some items could evoke emotional responses from participants.		For participants who felt the need for debriefing after completion of the questionnaires, sufficient opportunity was made available by providing participants with the telephone numbers of counsellors or psychologists who were requested to assist participants, if needed.	
Researchers: None		None	
Will re-consent be necessary? If "Yes" motivate: <ul style="list-style-type: none"> • why • for what • how this re-consent will be obtained. 			
Yes	No	Why?	Not applicable
<input type="checkbox"/>	<input checked="" type="checkbox"/>	For what?	Not applicable
		How?	Not applicable

[ATTACH A LETTER FROM THE STUDY LEADER/PI GIVING PERMISSION FOR THE USE OF THE DATA/BIOLOGICAL SAMPLES]

[ATTACH THE ETHICAL APPROVAL OF THE ORIGINAL STUDY]

[ATTACH THE INFORMED CONSENT DOCUMENTATION FOR RE-CONSENT (IF APPLICABLE)]

5.18 Use of filed privileged information (if applicable)

Filed privileged information may be used for research purposes with the research ethics committee *waiving informed consent*. Give a detailed description of the process under the following headings.

The nature of the information to be used:	
Not applicable	
Process of obtaining permission/ethical approval for access:	
Not applicable	
Process of data collection:	
Not applicable	
Process of anonymization of the data:	
Not applicable	
Foreseeable risks for participants whose filed privileged information is being accessed:	
Risks	Precautions
Not applicable	Not applicable

5.19 Justifiability of statistical procedures

5.19.1 Statistical consultation

Indicate how you ensured the suitability of the statistical procedures to be used in this study e.g. consultation or proof of expertise.

The study will make use of the SPSS and MPlus statistical analysis software programs and the data analysis will be done by the study leader who is a qualified statistician and has experience as a statistical consultant.

5.19.2 Justification of sample size

Indicate how the sample size was determined e.g. power calculation or previously reported study designs.

The sample, consisting of 421 participants, is of sufficient size to effectively do the analyses described in this paragraph, as a minimum of 300 participants is required for factor analysis (Tabachnik & Fidell, 2001).

5.19.3 Method of randomisation (if applicable)

If randomisation is to be used in this study, please indicate the manner by which randomisation will be assured.

Not applicable

5.19.4 Statistical methodology

Describe the means by which the statistical analyses will be conducted i.e. descriptive statistics, comparisons to be made, specific statistical tests to be used and the manner in which co-variance will be corrected for.

Descriptive statistics (e.g., mean, standard deviation, skewness and kurtosis) and reliability coefficients (e.g., Cronbach's alpha coefficients, average inter-item correlations, and the correlation matrix) will be calculated. The study will make use of confirmatory factor analysis and/or exploratory factor analysis to establish factorial validity. Convergent validity will be established by looking at the correlation patterns between the SWEMWBS and scales used in conjunction with it (SWLS, PANAS, MLQ, QEWS, MHC-SF and PHQ-9). The study will make use of the SPSS and MPlus statistical analysis software programs and the data analysis will be done by the study leader who is a qualified statistician.

Remember to save your document regularly as you complete it!

6. SECTION 6: MATTERS THAT NECESSITATE ADDITIONAL INFORMATION

6.1 Sec 6a: Vulnerable participants

Please complete this section if your study includes *minors, adults with incapacities, persons in dependent relationships e.g. prisoners, students, persons with physical disabilities, collectivities and research-naïve communities*. (Mark ALL options as "Yes" or "No" with X in the appropriate box – more than one option may be "Yes").

Description	Yes	No
Minors	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Adults with incapacities	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Persons in dependent relationships e.g. prisoners	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Students	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Persons with physical disabilities	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Collectivities	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Research-naïve communities	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Specify: Not applicable		

6.1.1 Description

Give a detailed description of the vulnerable group by referring to:

- who they are
- where they come from
- what makes them vulnerable.

6.1.2 Justification for inclusion

Explain the necessity for including this specific group of vulnerable people as human participants (subjects) indicating the *direct benefit to the participants themselves* or the *indirect benefit of an improved scientific understanding*.

6.1.3 Additional precautionary measures to reduce the risk of harm

Explain any additional precautionary measures you will take to reduce the possibility of harm.

Remember to save your document regularly as you complete it!

6.2 Sec 6b: Infection, genetic modification and commercialisation of cell and tissue lines

6.2.1 What will you be doing with the cell or tissue line?

Infection of the cell or tissue line	<input type="checkbox"/>
Genetic modification of the cell or tissue line	<input type="checkbox"/>
Commercialisation of the cell or tissue line	<input type="checkbox"/>

6.2.2 Number

How many cell and/or tissue lines will be used in the study?

Description	Number
Cell lines	0
Tissue lines	0

[OPEN UP THE APPROPRIATE AMOUNT OF SPACES IN SECTION 6.2.3 ACCORDING TO 6.2.2]

6.2.3 Product information

Provide detailed product information, so that the reviewers can evaluate the ethically justifiable use of the cell and tissue lines. Give the necessary details below.

More information

Human origin and consent:
For standard cell and/or tissue cultures from banks such as the ATCC consent already exists for general, ethically justifiable and medically related research.

Potential dangers and risks:
*Tissue banks such as the ATCC classify cell and/or tissue cultures as “bio safety level 1, 2 or 3”, depending on potential for infection with pathogens which may be harmful to man, or cancerous characteristics that would make growth in a person possible after undesirable, accidental inoculation. **NB!** These cell cultures may never be used in people.*

Cell Line or Tissue Line

Approved Name & Code	Description
Type here	Type here

Source / Origin / Supplier	Catalogue No.	Biosafety level?
Type here	Type here	<div>Level 1 <input type="checkbox"/></div> <div>Level 2 <input type="checkbox"/></div> <div>Level 3 <input type="checkbox"/></div>

Method of Storage and Maintenance

Type here

Potential Dangers	Precautionary measures
Type here	Type here

Other Relevant Information

Type here

6.2.4 What is the infectious agent to be used (if applicable)?

Type here

6.2.5 Has the participant given informed consent for commercialisation of their cell line?

Yes	No	If “Yes” attach a copy of the completed informed consent form If “No”, justify why not: Type here
<input type="checkbox"/>	<input type="checkbox"/>	

6.2.6 Has a benefit sharing agreement been undertaken with the participant if commercialisation of their cell line is being undertaken?

If "Yes" attach the agreement. If "No" justify why this is the case.

Yes	No	If "Yes" attach a copy of the completed benefit sharing document
<input type="checkbox"/>	<input type="checkbox"/>	If "No", justify why not:
Type here		

6.2.7 Expertise and facilities

Do you have the necessary expertise to work with the cell and/or tissue cultures? Provide full details. Mark "Yes" or "No" with X in the appropriate box. Provide additional details as requested.

Yes	Details	
<input type="checkbox"/>	Principal investigator	Researchers/Students/Fieldworkers
	Type here	Type here
No	How do you plan to get the expertise required?	
<input type="checkbox"/>	Principal investigator	Researchers/Students/Fieldworkers
	Type here	Type here

6.2.8 Facilities

Describe the facilities that are in place to work with the cell and/or tissue line.

Type here

6.2.9 Biosafety

Explain the measures you have in place to protect the safety of researchers/workers/the environment against the potential detrimental effects of the infection, genetic modification or commercialisation of the cell and/or tissue and waste. Also specify methods and safety measures for the disposal of cell and/or tissue cultures. If available, attach the standard operating procedures (SOPs) of these processes.

Type here

Remember to save your document regularly as you complete it!

6.3 Sec 6c: Use of Drugs/Medicines

Please complete this section if any drugs or medicines are used or administered in this study.

6.3.1 Number

How many types of drugs / medicines will be used in the study? If more than one dosage form or brand name of the same drug (active ingredient) is used, it must be counted and mentioned separately. Where applicable, placebos must also be mentioned and calculated.

Description of Drugs / medication	Dosage
Type here	Type here

[OPEN UP THE APPROPRIATE AMOUNT OF SPACES IN SECTION 6.3.2 ACCORDING TO 6.3.1]

6.3.2 Product information

Provide detailed product information as requested

Drug 1

Approved Pharmacological (Generic) Name	Brand Name(s) (if applicable)
Type here	Type here

Registered at the MCC-SA? ¹		If "Yes", MCC-SA Registration Number ²	If registered at the MCC-SA Error! Bookmark not defined. , is this for the indications, dosages and administrations as used in this study? Provide details where necessary.
Yes	No	Type here	Type here
<input type="checkbox"/>	<input type="checkbox"/>		

Accepted Dosage(s)	Accepted Administration Route(s)
Type here	Type here

Pharmacological Action, Therapeutic Effects & Indications	Side-effects, Precautions & Contra-indications
Type here	Type here

Other Relevant Information
Type here

Proof of preclinical approval of the product
Type here

6.3.3 Special authorisation for use in humans:

If any of the medication is not registered with the Medicine Control Council or, if it is registered but the study deals with indications for which it is not specifically registered, or if other doses, dosages, dosage forms or administration routes are used than what is registered, special approval must be obtained for the clinical test from the Medicine Control Council. Has such special authorisation been obtained? Please mark with X in the appropriate box and complete further as applicable.

¹ MCC-SA = Medicine Control Council of South Africa.

² The MCC-SA registration number can be found on medicine product leaflets.

Yes	No	Authorisation Number	Date of Authorisation																				
<input type="checkbox"/>	<input type="checkbox"/>	Type no. here or type "Not applicable"	<table border="1"> <tr> <td>2</td> <td>0</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> </tr> <tr> <td>c</td> <td>c</td> <td>y</td> <td>y</td> <td></td> <td>m</td> <td>m</td> <td></td> <td>d</td> <td>d</td> </tr> </table>	2	0			-			-			c	c	y	y		m	m		d	d
2	0			-			-																
c	c	y	y		m	m		d	d														

If "Yes" please upload a copy of the approval letter. If "No" please explain the manner in which you plan to go about obtaining approval before the study begins.

NB! Final approval of the application by the HREC is dependent on the approval of the study by the Medicine Control Council. No study may continue before written approval is obtained.

If "No", type explanation here, or type "Not applicable"

[PLEASE UPLOAD MCC APPROVAL LETTER]

- 6.3.4 Explain the measures that will be in place to protect the workers, participants and the environment against the potential side-effects of the medicinal substances and waste (disposal).

Type here

Remember to save your document regularly as you complete it!

6.4 Sec 6d: Use of drug delivery systems

Please complete this section if any drug delivery systems are used or administered in this study.

6.4.1 Number

How many types of drug delivery systems will be used in the study? If more than one dosage form of a drug delivery system is used, it must be counted and mentioned separately.

Description of drug delivery system

Type here

Dosage

Type here

[OPEN UP THE APPROPRIATE AMOUNT OF SPACES IN SECTION 6.4.2 ACCORDING TO 6.4.1]

6.4.2 Drug delivery system information

Provide detailed drug delivery system information as requested. ? If more than one drug delivery system is used, it must be counted and mentioned separately.

Drug delivery system 1

Approved Name

Type here

Registered at the MCC-SA?

If "Yes", MCC-SA Registration

If registered at the MCC-SA, is this for the indications, dosages and administrations as used

Yes	<input type="checkbox"/>	Number	in this study? Provide details where necessary.
No	<input type="checkbox"/>	Type here	Type here

Accepted Dosage(s)	Proof of	Accepted	Administration
Type here	Route(s)	Type here	Type here

Side-effects	Contra-indications	Precautions
Type here	Type here	Type here

Other Relevant Information
Type here

6.4.3 Special authorisation for use in humans

If any of the drug delivery systems are not registered with the Medicine Control Council or, if it is registered but the study deals with indications for which it is not specifically registered, or if other doses, dosages, dosage forms or administration routes are used than what is registered, special approval must be obtained for the clinical test from the Medicine Control Council. Has such special authorisation been obtained? Please mark with X in the appropriate box and complete further as applicable.

Yes	No	Authorisation Number	Date of Authorisation																				
<input type="checkbox"/>	<input type="checkbox"/>	Type no. here or type "Not applicable"	<table border="1"> <tr> <td>2</td> <td>0</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> </tr> <tr> <td>c</td> <td>y</td> <td>y</td> <td></td> <td></td> <td>m</td> <td>m</td> <td></td> <td>d</td> <td>d</td> </tr> </table>	2	0			-			-			c	y	y			m	m		d	d
2	0			-			-																
c	y	y			m	m		d	d														

If "Yes" please upload a copy of the approval letter.

If "No" please explain the manner in which you plan to go about obtaining approval before the study begins.

NB! Final approval of the application by the HREC is dependent on the approval of the study by the Medicine Control Council. No study may continue before written approval is obtained.

If "No", type explanation here, or type "Not applicable"
--

[PLEASE UPLOAD MCC APPROVAL LETTER]

6.4.4 Explain the measures that will be in place to protect the workers, participants and the environment against the potential side-effects of the drug delivery system and waste (disposal).

Type here

Remember to save your document regularly as you complete it!

6.5 Sec 6e: Use of Food, Fluids or Nutrients

Please complete this section if any food, fluids or nutrients (alone or in combination) are used or administered in this study. This also applies to dangers with abuse, whether or not it holds any potential danger for people, animals or the environment.

Note: This does not include the provision of a regular plate of food for maintenance during residence.

6.5.1 Number

How many kinds of food, fluids or nutrients will be used in the study?

More information

If more than one dosage form or brand name of the food, fluids or nutrient is used, it must be counted and mentioned separately. Placebos are also included, except if the placebo treatment includes no administration.

Description	Number
Food	0
Fluids	0
Nutrients / nutrient combinations	0

[OPEN UP THE APPROPRIATE AMOUNT OF SPACES IN SECTION 6.5.2 ACCORDING TO 6.5.1]

6.5.2 Product information:

Provide detailed product information, so that the reviewers can evaluate the ethically justifiable use of the food, fluids and nutrients.

Food, Fluid or Nutrient

Approved Name	Normal Quantities and Uses
Type here	Type here

Potential Dangers with Abuse	Contra-indications	Precautions
Type here	Type here	Type here

Other Relevant Information & Literature References

Type here

6.5.3 Explain the measures that will be in place to protect the workers, participants and the environment against the potential detrimental effects of the food, fluids or nutrients and waste.

Type here

Remember to save your document regularly as you complete it!

6.6 Sec 6f: Use of Radio-Active Substances

6.6.1 Description:

Where any radio-active substances are used in experiments or administered to participants, give full details thereof, including the isotopes and possible risks it may hold for the participants/researchers/workers/environment.

Type here

6.6.2 Competence and licensing:

Do you have the necessary competence and licensing from the Department of Health at your disposal to work with radio-active substances? Mark "Yes" or "No" with X in the appropriate box. Provide the authorisation number if "Yes".

Yes	Details	
<input type="checkbox"/>	Study leader	Researchers/Students/ /Fieldworkers
	Type here	Type here
	Authorisation number	Type here
No	How do you plan to get the expertise required?	
<input type="checkbox"/>	Study leader	Students/Researchers/Fieldworkers
	Type here	Type here

Attach a copy of the approval certificate from the Radiation Control Officer.

[PLEASE UPLOAD THE APPROVAL LETTER FROM THE RADIATION CONTROL OFFICER]

6.6.3 Facilities

Describe the facilities and procedures to ensure safe use and disposal of the radio-active substances? Explain the measures you have in place to protect the safety of participants/researchers/workers/environment against the potential detrimental effects of the radio-active substances and waste. If applicable, also specify methods and safety measures for the disposal of radio-active contaminated body fluids and tissue.

Type here

Remember to save your document regularly as you complete it!

6.7 Sec 6g: Use of Toxic Substances or Dangerous Substances

Please complete this section if any toxic or dangerous substances are used or administered in this study. This also applies to dangers with abuse, whether or not it holds any potential danger for people, animals or the environment.

6.7.1 Number

How many toxic substances/dangerous substances will be used in the study?

Description	Number
Toxic substances	0

Other dangerous substances	0
----------------------------	---

6.7.2 Product information

Provide detailed product information, so that the reviewers can evaluate the ethically justifiable use of the toxic and dangerous substances.

NB! If more than one such substance is used, select and copy the whole table and paste as many tables underneath as is necessary.

Substance 1

Approved Name	Normal Uses & Dosages
Type here	Type here

Action & Toxic Effects/Dangers	Contra-indications	Precautions
Type here	Type here	Type here

Other Relevant Information
Type here

6.7.3 Explain the measures that will be in place to protect the workers, participants and the environment against the potential detrimental effects of the toxic or dangerous substances and waste

Possible detrimental effects	Precautions
Type here	Type here

Remember to save your document regularly as you complete it!
--

6.8 Sec 6h: Measuring instruments and questionnaires that need psychometric interpretation

Please complete this section if any measuring instruments or validated questionnaires are used in this study that needs psychometric interpretation.

NB! Do not complete this section for any other types of questionnaires.

6.8.1 Name

Which psychometric measuring instruments and validated questionnaires will be used in the study?

Description

Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS), the Satisfaction with Life Scale (SWLS), the Positive Affect and Negative Affect Schedule (PANAS), the Meaning in Life Questionnaire (MLQ), the Questionnaire for Eudaimonic Well-being (QEWB), the Mental Health Continuum – short form (MHC-SF) and the Patient Health Questionnaire-9 (PHQ-9).

6.8.2 Information about the measuring instrument/questionnaire

Provide detailed information on the psychometric measuring instrument/questionnaire, so that the reviewers can evaluate the ethically justifiable use thereof.

NB! If more than one psychometric measuring instrument/questionnaire is used, select and copy the whole table and paste as many tables underneath as is necessary.

Psychometric measuring instrument/questionnaire

Approved Name	Normal Application
Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS)	Measuring mental well-being

Reliability	Validity
Scale has been found to be reliable in other countries. The aim of the present study is to determine reliability for a South African adult group.	Scale has been found to be valid in other countries. The aim of the present study is to determine validity for a South African adult group.

Other Relevant Information

Type here

Psychometric measuring instrument/questionnaire

Approved Name	Normal Application
The Satisfaction with Life Scale (SWLS)	Respondent's own assessment of their global life satisfaction

Reliability	Validity
$\alpha=0.70$ and 0.86 for the English version within a multicultural South African sample (Wissing & van Eeden, 2002).	Good construct validity was determined for the English version within a multicultural South African sample (Wissing & van Eeden, 2002)

Other Relevant Information

Type here

Psychometric measuring instrument/questionnaire

Approved Name	Normal Application
Positive Affect and Negative Affect Schedule (PANAS)	A self-report measure measuring positive and negative affect.

Reliability	Validity
$\alpha=0.85$ for PA and $\alpha=0.89$ for NA within an adult population in the UK (Crawford & Henry, 2004).	Factorial and external evidence of convergent and discriminant validity was established (Watson et al., 1988; Crawford & Henry, 2004).

Other Relevant Information

Type here
Psychometric measuring instrument/questionnaire

Approved Name	Normal Application
Meaning in Life Questionnaire (MLQ)	A self-report measure assessing the presence of and search for meaning in life respectively

Reliability	Validity
$\alpha=0.85$ for MLQ – Presence subscale and $\alpha=0.84$ for MLQ – Search subscale in a South African sample (Temane, Khumalo, & Wissing, 2014)	Construct, convergent and discriminant validity of the MLQ was indicated in mainly Western student samples (Steger et al., 2006)

Other Relevant Information
Type here
Psychometric measuring instrument/questionnaire

Approved Name	Normal Application
Questionnaire for Eudaimonic Well-being (QEWB)	Measures participants' level of eudaimonic well-being (self-reported)

Reliability	Validity
For the three-factor structure: Sense of Purpose ($\alpha = 0.77$), Purposeful Personal Expressiveness ($\alpha = 0.73$), and Effortful Engagement ($\alpha = 0.61$) within a South African student sample (Schutte, Wissing, & Khumalo, 2013)	Good convergent and discriminant validity for a South African student sample (Schutte, Wissing, & Khumalo, 2013)

Other Relevant Information
Type here
Psychometric measuring instrument/questionnaire

Approved Name	Normal Application
Mental Health Continuum – Short form (MHC-SF)	Measuring positive mental health in terms of three subscales, namely Emotional Well-being, Social Well-being, and Psychological Well-being.

Reliability	Validity
$\alpha = 0.72$ for the Setswana version of the scale (Keyes, et al., 2008)	Construct, convergent and discriminant validity of the scale was found for a mainly Setswana-speaking group (Keyes, et al., 2008)

Other Relevant Information
Type here

Psychometric measuring instrument/questionnaire	
Approved Name	Normal Application
Patient Health Questionnaire-9 (PHQ-9)	As screening instrument to identify depression and determine the severity of depressive symptoms in the primary health care setting.
Reliability	Validity
$\alpha = 0.86$ for a multicultural South African sample (Botha, 2011)	The English version was determined to be a valid measure for use within a multicultural South African sample (Botha, 2011)
Other Relevant Information	
Type here	

6.8.3 Validation for target group:

Is the measuring instrument validated for the target group (e.g. for South African circumstances)? Provide full details. Please mark with X in the appropriate box and provide details.

Yes	No	Details
<input type="checkbox"/>	<input checked="" type="checkbox"/>	SWEMWBS – to be determined by this study
Yes	No	Details
<input checked="" type="checkbox"/>	<input type="checkbox"/>	SWLS – Wissing and van Eeden (2002) obtained sufficient reliability scores (alpha values between 0.70 and 0.86) and construct validity with the use of the English SWLS within a multicultural South African sample. Reliability indicators will be calculated for the present sample.
Yes	No	Details
<input type="checkbox"/>	<input checked="" type="checkbox"/>	PANAS – Factorial and external evidence of convergent and discriminant validity was established within an adult population in the UK (Crawford & Henry, 2004). Reliability indicators will be calculated for the present sample.
Yes	No	Details
<input checked="" type="checkbox"/>	<input type="checkbox"/>	MLQ – Temane, Khumalo, and Wissing (2014) investigated the psychometric properties of the MLQ in a South African sample and good validity was determined. Reliability indicators will be calculated for the present sample.
Yes	No	Details
<input checked="" type="checkbox"/>	<input type="checkbox"/>	QEWB – Schutte, Wissing, and Khumalo (2013) showed for a South African student sample good convergent and discriminant validity with a multidimensional (three- or four-factor) factor structure. Reliability indicators will be calculated for the present sample.
Yes	No	Details
<input checked="" type="checkbox"/>	<input type="checkbox"/>	MHC-SF – The Setswana version of this scale was validated by Keyes et al. (2008) and construct, convergent and discriminant validity of the scale was found for a mainly Setswana-speaking group. Reliability indicators will

Yes	No	be calculated for the present sample.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Details PHQ-9 – Botha (2011) determined that the English version of the PHQ-9 was a valid and reliable measure of depression for a multicultural sample in South Africa ($\alpha = 0.86$). Reliability indicators will be calculated for the present sample.

Remember to save your document regularly as you complete it!

7. SECTION 7: OTHER ETHICS EVALUATIONS AND RISK INSURANCE

7.1 Sec 7a: Evaluation by other Research Ethics Committees

Please complete this section if this study has been or will be evaluated by any other research ethics committees, for example with multi-institutional studies. Provide information about all research ethics committees involved in the review and approval of this study.

Name of the Research Ethics Committee	Date of Approval/In Process	Contact or E-mail address of the research ethics committee	Approval no.
Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable
Not applicable	Not applicable	Not applicable	Not applicable

Remember to save your document regularly as you complete it!

7.2 Sec 7b: Risk Insurance

The North-West University has insurance at its disposal to cover the risk of claims against the University in case of damage to participants due to professional negligence – the maximum cover is currently R100 million per annum (all studies included). However, this is only available if studies are ethically approved and researchers have kept to the proposal.

7.2.1 Describe the potential risks to which the participants/researchers/assistants/field workers are going to be subject to in so far as complications may lead to summonses.

Type	Risks
Participants	Although the questionnaires relate to well-being, some items could evoke emotional responses from participants. For participants who felt the need for debriefing after completion of the questionnaires, sufficient opportunity was made available by providing participants with the telephone numbers of

	counsellors or psychologists who were requested to assist participants, if needed.
Researchers	Minimal risk with regard to involvement in the study is foreseen. However, since some items could evoke emotional responses from participants, this could also impact on researchers. Researchers may also contact the arranged counsellors or psychologists if needed.
Assistants and/or field workers	Minimal risk with regard to involvement in the study is foreseen. However, since some items could evoke emotional responses from participants, this could also impact on field workers. Researchers may also contact the arranged counsellors or psychologists if needed.
Others	Not applicable

7.2.2 These potential risks are covered by:

North-West University	<input checked="" type="checkbox"/>
Sponsor/s	<input type="checkbox"/>
Other: Specify: Type here	<input type="checkbox"/>

Is this insurance adequate (measured against the potential risks)?
Please mark with X in the appropriate box.

Yes	No	If "No", indicate what will be done to ensure that there is sufficient coverage?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Type here

Remember to save your document regularly as you complete it!

8. SECTION 8: DECLARATIONS

Applications and declaration are filled in and signed by:

Sec 8a: Study Leader

Sec 8b: Statistical Consultant

Sec 8c: Research Director

The pages with declarations and signatures must be **scanned** with this form.

[SCAN ALL SIGNED DECLARATIONS]

Health Research Ethics Application

Study Leader (Title, Initials and	Study Title (see § 1.1)
--------------------------------------	----------------------------

Surname)	
Mrs. L. Schutte	Validation of the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS) in a South African adult group.

NWU Ethics Number				-					-			-		
-------------------	--	--	--	---	--	--	--	--	---	--	--	---	--	--

8.1 Sec 8a: Study Leader

Application and Declarations by Study Leader

I, the undersigned, hereby apply for approval of the research study as described in the preceding proposal and declare that:

- 8.1.1 The information in this application is, to the best of my knowledge, correct and that no ethical codes will be violated with the study;
- 8.1.2 I will make sure that the study is managed ethically justifiably from start to finish;
- 8.1.3 In the case of human participants;
 - 8.1.3.1 I will put it clearly to all participants that participation (including assent) in any research study is absolutely voluntary and that no pressure, of whatever nature, will be placed on any potential participant to take part;
 - 8.1.3.2 I will put it clearly to all participants that any participant may withdraw from the study at any time and may ask that his/her data no longer be used in the study, without stating reasons and without fear of any form of prejudice;
 - 8.1.3.3 every participant who takes part in the study will receive the accompanying form for informed consent and it will be ensured that every participant understands the information (including the process and risks) fully;
 - 8.1.3.4 every participant will sign the informed consent in writing before the study commences, or a witness will stand in on behalf of the participant when the participant is illiterate;
 - 8.1.3.5 the written permission of the parent or legal guardians of all minor subjects will be obtained before the research commences;
 - 8.1.3.6 any foreseeable risk is restricted to the minimum, any permanent damage is avoided as far as possible and that appropriate precautions and safety measures are in place;
 - 8.1.3.7 confidentiality of all the information of all participants will be respected and ensured;
- 8.1.4 I and all co-workers/assistants/field workers are appropriately qualified, capable and legally competent to implement the proposed studies/procedures/interventions;
- 8.1.5 I will not deviate from the approved proposal and that I understand approval for the study will be cancelled if I deviate from the proposal without the approval of the Health Research Ethics Committee;
- 8.1.6 the study is scientifically justifiable;
- 8.1.7 where necessary, all contracts, permits and the applicable documents of relevance will be obtained before the research commences;
- 8.1.8 I will ensure that all data/biological samples are stored safely and remain in the possession of the North-West University;
- 8.1.9 I will report in writing any incidents or adverse events/serious adverse events that occur during the study without delay to the Health Research Ethics Committee;
- 8.1.10 I undertake to respect intellectual property rights throughout and to avoid any form of plagiarism;
- 8.1.11 I will obtain permission for amendments to the protocol and report annually (or more often for medium and high risk studies) to the Health Research Ethics Committee on the prescribed monitoring report concerning progress of the study;

8.1.12 I will notify the Health Research Ethics Committee should the study be terminated.

Name (Title, Full Names & Surname)	Qualifications
Mrs. L. Schutte	M. Sc. Clinical Psychology M. Sc. Statistics

	<table border="1"> <tr> <td>2</td><td>0</td><td>1</td><td>6</td> <td>-</td> <td>0</td><td>6</td> <td>-</td> <td>1</td><td>2</td> </tr> <tr> <td>c</td><td>c</td><td>y</td><td>y</td> <td></td> <td>m</td><td>m</td> <td></td> <td>d</td><td>d</td> </tr> </table>	2	0	1	6	-	0	6	-	1	2	c	c	y	y		m	m		d	d
2	0	1	6	-	0	6	-	1	2												
c	c	y	y		m	m		d	d												
Signature	Date																				

Remember to save your document regularly as you complete it!

Health Research Ethics Application

Study Leader (Title, Initials & Surname)	Study Title (see § 1.1)
Mrs. L. Schutte	Validation of the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS) in a South African adult group.

NWU Ethics Number

				-						-			-		
--	--	--	--	---	--	--	--	--	--	---	--	--	---	--	--

8.2 Sec 8b: Statistical Consultant (If applicable)

The statistician of the Statistical Consultation Service of the North-West University completes this section (where applicable).

8.2.1 Have you ascertained that the statistical analyses to be used in this study is justifiable according to your judgement?

Please mark with X in the appropriate box and provide details.

Yes	No	Remarks
X <input type="checkbox"/>	<input type="checkbox"/>	The study leader of the present study has a masters degree in Statistics and worked at Statistical Consultation Services for a few years. According to her discretion, the statistical analyses to be used in this study is justifiable.

Name (Title, Full Names & Surname)	Qualifications
Mrs. L. Schutte	M. Sc. Clinical Psychology M. Sc. Statistics

	<table border="1"> <tr> <td>2</td><td>0</td><td>1</td><td>6</td> <td>-</td> <td>0</td><td>6</td> <td>-</td> <td>1</td><td>2</td> </tr> <tr> <td>c</td><td>c</td><td>y</td><td>y</td> <td></td> <td>m</td><td>m</td> <td></td> <td>d</td><td>d</td> </tr> </table>	2	0	1	6	-	0	6	-	1	2	c	c	y	y		m	m		d	d
2	0	1	6	-	0	6	-	1	2												
c	c	y	y		m	m		d	d												
Signature	Date																				

Remember to save your document regularly as you complete it!

Health Research Ethics Application

Study Leader (Title, Initials & Surname)	Study Title (see § 1.1)
Mrs. L. Schutte	Validation of the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS) in a South African adult group.

NWU Ethics Number

			-						-			-		
--	--	--	---	--	--	--	--	--	---	--	--	---	--	--


8.3 Sec 8c: Research Director (School director if Education request)

I, the undersigned, hereby declare that the above study has been reviewed by a Scientific/Proposal Committee and may proceed to the Health Research Ethics Committee and that the Study Leader/Researcher has enough physical facilities, equipment and money at his/her disposal to implement and complete the study.

8.3.1 Research Director:

The director of the research entity signs here.

Name (Title, Full Names & Surname)	Capacity
Prof. Petra Bester	Research Director AUTHeR

	2	0	1	6	-	0	6	-	1	3
	c	c	y	y		m	m		d	d
Signature	Date									

Remember to save your document regularly as you complete it!

Credits

Compiled by the Faculty of Health Sciences Ethics Office for Research, Training and Support

©Copyright 2016, North-West University, all rights retained

Section 2

Manuscript for evaluation

2.1 Manuscript in Article Format

This mini-dissertation is submitted in article format as indicated in the 2017 General Academic Rules (A4.1.1.1.4 and A4.4.2.9) of the North-West University. The manuscript and article style adhere to the requirements for the specific journal, namely the *South African Journal of Psychology*, to which it will be submitted. Some exceptions are made, such as the length of the manuscript. The manuscript will be shortened before submission for publication.

2.2 Guidelines to Authors for the *South African Journal of Psychology*

The *South African Journal of Psychology* publishes empirical, theoretical and review articles on all aspects of psychology.

1. Peer review policy

The South African Journal of Psychology operates a blind peer review process with each manuscript reviewed by at least two referees. All manuscripts are reviewed as rapidly as possible and the editorial team strives for a decision within 8-10 weeks of submission, although this is dependent on reviewer availability.

Where authors are invited to revise manuscripts for re-submission, the editor must be notified (by e-mail to sajp@psyssa.co.za) of their intention to resubmit and the revised manuscript should be re-submitted within four weeks.

2. Article types

The *South African Journal of Psychology* considers submissions addressing South African, African or international issues, including:

1. Manuscripts reporting on research investigations
2. Review articles focusing on significant issues in Psychology

New submissions should not exceed 5500 words, including references, tables, figures, etc. Authors of manuscripts returned for revision and extension should consult the Editorial Office regarding amended length considerations.

All manuscripts should be written in English and include an abstract of not more than 250 words. The writing must be of a high grammatical standard, and follow the technical guidelines stipulated below. The publication guidelines of the American Psychological Association 6th edition (APA 6th) must be followed in the preparation of the manuscript. Manuscripts of poor technical or language quality will be returned without review.

3. How to submit your manuscript

Before submitting your manuscript, please ensure you carefully read and adhere to all the guidelines and instructions to authors provided below. Manuscripts not conforming to these guidelines may be returned.

The *South African Journal of Psychology* is hosted on SAGE Track, a web-based online submission and peer review system powered by ScholarOne™ Manuscripts. Please read the Manuscript Submission guidelines below, and then visit <http://mc.manuscriptcentral.com/sap> to login and submit your article online.

IMPORTANT: Please check whether you already have an account in the system before trying to create a new one. If you have reviewed or authored for the journal in the past year it is likely that you will have had an account created. For further guidance on submitting your manuscript online please visit ScholarOne™ Online Help.

All papers must be submitted via the online system. If you would like to discuss your paper prior to submission, please contact: sajp@psyssa.co.za

4. Journal contributor's publishing agreement

Before publication SAGE requires the author as the rights holder to sign a Journal Contributor's Publishing Agreement. SAGE's Journal Contributor's Publishing Agreement is

an exclusive licence agreement which means that the author retains copyright in the work but grants SAGE the sole and exclusive right and licence to publish for the full legal term of copyright. Exceptions may exist where an assignment of copyright is required or preferred by a proprietor other than SAGE. In this case copyright in the work will be assigned from the author to the Psychological Society of South Africa. For more information please visit our Frequently Asked Questions on the SAGE Journal Author Gateway.

4.1 SAGE Choice and Open Access

If you or your funder wish your article to be freely available online to non-subscribers immediately upon publication (gold open access), you can opt for it to be included in SAGE Choice, subject to payment of a publication fee. The manuscript submission and peer review procedure is unchanged. On acceptance of your article, you will be asked to let SAGE know directly if you are choosing SAGE Choice. To check journal eligibility and the publication fee, please visit SAGE Choice. For more information on open access options and compliance at SAGE, including self author archiving deposits (green open access) visit SAGE Publishing Policies on our Journal Author Gateway.

5. Declaration of conflicting interests

Within your Journal Contributor's Publishing Agreement you will be required to make a certification with respect to a declaration of conflicting interests. The *South African Journal of Psychology* does not require a declaration of conflicting interests but recommends you review the good practice guidelines on the SAGE Journal Author Gateway.

6. Other conventions

6.1 Research ethics

Authors should specify the steps taken to facilitate ethical clearance – that is, the ways in which they comply with all ethical issues pertaining to their study, including obtaining

informed consent. The manuscript must include the name of the institution that granted ethical approval for the research (if applicable).

7. Acknowledgements

In order to ensure a blind-review, acknowledgments should be included in the final stages of the manuscript review process, i.e. on final acceptance. Any acknowledgements should appear first at the end of your article prior to your Declaration of Conflicting Interests (if applicable), any notes and your References.

All contributors who do not meet the criteria for authorship should be listed in an ‘Acknowledgements’ section. Examples of those who might be acknowledged include a person who provided purely technical help, writing assistance, or a department chair who provided only general support. Authors should disclose whether they had any writing assistance and identify the entity that paid for this assistance.

7.1 Funding Acknowledgement

To comply with the guidance for Research Funders, Authors and Publishers issued by the Research Information Network (RIN), the *South African Journal of Psychology* additionally requires all Authors to acknowledge their funding in a consistent fashion under a separate heading. Please visit Funding Acknowledgements on the SAGE Journal Author Gateway to confirm the format of the acknowledgment text in the event of funding or state in your acknowledgments that: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

8. Permissions

Authors are responsible for obtaining permission from copyright holders for reproducing any illustrations, tables, figures or lengthy quotations previously published elsewhere. For further information including guidance on fair dealing for criticism and review, please visit our Frequently Asked Questions on the SAGE Journal Author Gateway.

9. Manuscript style

9.1 File types

Only electronic files conforming to the journal's guidelines will be accepted. Preferred format for the text and tables of your manuscript is Word DOC. Please also refer to additional guidelines on submitting artwork below.

9.2 Journal Style

The *South African Journal of Psychology* conforms to the SAGE house style. Click [here](#) to review guidelines on SAGE UK House Style.

Research-based manuscripts should use the following format: The introductory/literature review section does not require a heading, thereafter the following headings /subheadings should be used: Method (Participants; Instruments; Procedure; Ethical considerations; Data analysis (which includes the statistical techniques or computerized analytic programmes, if applicable); Results; Discussion; Conclusion; References.

The “Ethical considerations” section must include the name of the institution that granted the ethical approval for the study (if applicable).

9.3 Reference Style

The South African Journal of Psychology adheres to the APA reference style. Click [here](#) to review the guidelines on APA to ensure your manuscript conforms to this reference style.

9.4. Manuscript Preparation

The text should be double-spaced throughout and with a minimum of 3cm for left and right hand margins and 5cm at head and foot. Text should be standard 12 point.

9.4.1 Keywords and Abstracts: Helping readers find your article online

Authors should include (a) an Abstract of up to 250 words and (b) up to 6 alphabetised keywords.

The title, keywords and abstract are key to ensuring readers find your article online through online search engines such as Google. Please refer to the information and guidance on how best to title your article, write your abstract and select your keywords by visiting SAGE's Journal Author Gateway Guidelines on How to Help Readers Find Your Article Online.

9.4.2 Corresponding Author Contact details

Provide full contact details for the corresponding author including email, mailing address and telephone numbers. Academic affiliations are required for all co-authors. These details should be presented separately to the main text of the article to facilitate anonymous peer review.

9.4.3 Guidelines for submitting artwork, figures and other graphics

For guidance on the preparation of illustrations, pictures and graphs in electronic format, please visit SAGE's Manuscript Submission Guidelines.

Figures supplied in colour will appear in colour online regardless of whether or not these illustrations are reproduced in colour in the printed version. For specifically requested colour reproduction in print, you will receive information regarding the costs from SAGE after receipt of your accepted article. The inclusion of photographs is generally discouraged.

9.4.4 Guidelines for submitting supplemental files

The South African Journal of Psychology does not currently accept supplemental files.

9.4.5 English Language Editing services

Non-English speaking authors who would like to refine their use of language in their manuscripts might consider using a professional editing service. Visit English Language Editing Services on our Journal Author Gateway for further information.

10. After acceptance

10.1 Proofs

We will email a PDF of the proofs to the corresponding author.

10.2 E-Prints

SAGE provides authors with access to a PDF of their final article. For further information please visit <http://www.sagepub.co.uk.nwulib.nwu.ac.za/authors/journal/reprint.sp>.

10.3 SAGE Production

At SAGE we place an extremely strong emphasis on the highest production standards possible. We attach high importance to our quality service levels in copy-editing, typesetting, printing, and online publication (<http://online.sagepub.com.nwulib.nwu.ac.za/>). We also seek to uphold excellent author relations throughout the publication process.

We value your feedback to ensure we continue to improve our author service levels. On publication all corresponding authors will receive a brief survey questionnaire on your experience of publishing in the *South African Journal of Psychology* with SAGE.

10.4 OnlineFirst Publication

A large number of journals benefit from OnlineFirst, a feature offered through SAGE's electronic journal platform, SAGE Journals. It allows final revision articles (completed articles in queue for assignment to an upcoming issue) to be hosted online prior to their inclusion in a final print and online journal issue which significantly reduces the lead time between submission and publication. For more information please visit our OnlineFirst Fact Sheet.

11. Further information

Any correspondence, queries or additional requests for information on the Manuscript Submission process should be sent to the Editorial Office as follows:

Email: sajp@psyssa.co.za

(Retrieved from <https://us.sagepub.com/en-us/nam/south-african-journal-of-psychology/journal202212#submission-guidelines> on 6 April 2017)

**Validation of the Short Warwick-Edinburgh Mental Well-being Scale in a South
African adult group**

Salome Smith ^{a*}, Lusilda Schutte ^b, Marié P. Wissing ^c, Amanda Cromhout ^d

Author affiliations

^{a*} Corresponding author. Africa Unit for Transdisciplinary Health Research (AUTHeR), North-West University, Potchefstroom Campus, Private Bag X6001, Potchefstroom 2520, South Africa. ⁺27724494423 salome.smith@nwu.ac.za

^b Africa Unit for Transdisciplinary Health Research (AUTHeR), North-West University, Potchefstroom Campus, Private Bag X6001, Potchefstroom 2520, South Africa. ⁺27182991104 Lusilda.Schutte@nwu.ac.za

^c Africa Unit for Transdisciplinary Health Research (AUTHeR), North-West University, Potchefstroom Campus, Private Bag X6001, Potchefstroom 2520, South Africa. ⁺27182992603 Marie.Wissing@nwu.ac.za

^d Africa Unit for Transdisciplinary Health Research (AUTHeR), North-West University, Potchefstroom Campus, Private Bag X6001, Potchefstroom 2520, South Africa. ⁺27836174231 cromhout.amanda@gmail.com

Abstract

The aim of this study was to explore the psychometric properties of the English version of the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS) in a multicultural South African adult group ($N = 421$, with ages ranging from 18 to 74) by examining the internal consistency reliability, the factorial validity, and the convergent and discriminant validity of the scale. The scale displayed good internal consistency reliability and the hypothesised single-factor model (as evident from exploratory and confirmatory factor analysis) was supported by the data. The scale exhibited convergent and discriminant validity. The findings suggested that the SWEMWBS holds potential for use in future research and practice pertaining to mental well-being among South African adults.

Keywords: mental well-being, measurement, multicultural, positive psychology, psychometric properties, scale validation, South Africa.

Validation of the Short Warwick-Edinburgh Mental Well-being Scale in a South African adult group

The construct of well-being and its different facets has attracted a lot of attention in the current exploration of the field of positive psychology and well-being. Contrary to the traditional view of psychology which has focused mainly on the treatment of pathology, positive psychology emphasises building positive qualities, that is the enhancement of well-being through the promotion of mental health and the facilitation of flourishing (Seligman & Csikszentmihalyi, 2014). Keyes (2005) opine that mental health and mental illness are not at opposite ends of a single continuum, but are two correlated dimensions. Being free of mental illness does therefore not translate into having good mental health or flourishing (Keyes, 2005). The promotion of positive mental health deserves specific attention in theory and application, but this requires valid and reliable measuring instruments for purposes of evaluation. To contribute to the validation of such measuring instruments this study aimed to explore the psychometric properties of the English version of the SWEMWBS in a South African adult group. Different views on well-being necessitates the continuous validation of newly emerging scales.

Different Views on Well-being

Scholars differentiate between two main perspectives on well-being, namely hedonic and eudaimonic well-being. The hedonic perspective focuses on the subjective experience of happiness and life satisfaction, while the eudaimonic perspective focuses on positive psychological functioning, self-realisation, deeper meaning in happiness, personal growth and psychological strengths (Ryan & Deci, 2001; Steger, Frazier, Oishi, & Kaler, 2006; Stewart-Brown & Janmohamed, 2008).

Hedonic perspectives. Throughout the ages various philosophers and scholars have argued that the pursuit of pleasure is life's ultimate goal. The predominant view in this case is

that well-being consists of subjective happiness that is not only caused by physical pleasure, but also from the attainment of goals or other desired outcomes (Ryan & Deci, 2001).

Subjective well-being, which is closely associated with hedonic well-being, is then defined by three components, namely life satisfaction, the presence of positive mood and the absence of negative mood (Ryan & Deci, 2001).

Eudaimonic perspectives. The eudaimonic view and theories, on the other hand, claim that well-being would not necessarily be achieved when all desires are met, because although some experiences might produce pleasure, the experience might not be good for the person and would not promote well-being (as an extreme example one could refer to recreational drug use). Rather, well-being would be achieved by activities that underpin values that the person attaches great meaning to, or that offer greater meaning in life than mere short-lived pleasure experiences (Ryan & Deci, 2001). Ryff (1995) tested a multidimensional model of psychological well-being that included six distinct components of psychological wellness – self-acceptance, environmental mastery, purpose in life, positive relations with others, personal growth and autonomy. These components are associated with eudaimonic living, which has been shown to influence both emotional and physical health (Ryff & Singer, 1998). The proposed multidimensional structure was supported by confirmatory factor analyses of data from a nationally representative American sample (Ryff, 1995).

Ryan and Deci (2001) used the theoretical framework of self-determination theory (SDT), which focuses greatly on self-actualization. Three basic psychological needs are identified by SDT, namely autonomy, competence and relatedness. The theory states that the fulfilment of these needs is essential for psychological growth and the occurrence of intrinsic motivation (Ryan & Deci, 2000; Sheldon & Kasser, 2001). SDT proposes that satisfaction of the basic psychological needs promotes subjective well-being as well as eudaimonic well-

being, resulting from the belief that satisfaction with life and experiencing more positive affect than negative affect frequently indicate psychological wellness (Ryan & Deci, 2001).

Theories of overall mental well-being. Well-being is included in the World Health Organisation's (WHO) definition of health, stating that health is a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 2001a, p. 1). In addition, the WHO defines mental health as "... a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (WHO 2001b, p.1). Considering the above-mentioned definitions the term "positive mental health" can be used interchangeably with the term "mental well-being" (Tennant et al., 2007) in the field of positive psychology. Different theories of overall mental well-being exist.

According to Keyes (2002) and Huppert and So (2013) someone who is flourishing (i.e., having high levels of overall mental health) is described as feeling good (positive emotion) and functioning well (psychologically and socially). Seligman (2013) proposed the PERMA theory of well-being that describes five well-being indicators, namely positive emotion, engagement, relationships, meaning and accomplishment. Each of these elements can be measured to provide an indication of the overall level of well-being.

Huppert and So (2013) identify ten features of positive well-being that combine the hedonic and the eudaimonic aspects of well-being, namely competence, emotional stability, engagement, meaning, optimism, positive emotion, positive relationships, resilience, self-esteem, and vitality (Huppert & So, 2013). Their conceptualization of positive mental health includes both hedonic and eudaimonic components (positive feeling and positive functioning), which aligns with the research done by Keyes (2002), Tennant et al. (2007) and Diener et al. (2010).

Measurement of Well-being

A variety of measuring instruments have been developed to measure and understand indicators of hedonic and eudaimonic well-being. For example, the Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) and the Positive and Negative Affect Schedule (PANAS) – Positive Affect subscale (Watson, Clark, & Tellegen, 1988) measures well-being from a hedonic point of view, and the Questionnaire for Eudaimonic Well-being (QEWB; Waterman et al., 2010) and Ryff's (1995) Scales of Psychological Well-being, which measure well-being from a eudaimonic perspective. Several instruments also exist that set out to measure overall mental health, for example the Mental Health Continuum Short Form (Keyes, 1998, 2002, 2006a, 2006b, 2006c) as well as the Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007) and the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS; Stewart-Brown et al., 2009).

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)

The WEMWBS was developed in an attempt to measure overall mental well-being. It was developed by combining the results of focus group discussions and data from an existing measure, namely the Affectometer 2 (Kammann & Flett, 1983; Tennant et al., 2007). During the focus groups participants were asked to discuss their understanding of positive mental health and its relationship with items on the Affectometer 2, which they also completed (Tennant et al., 2007). The aim of the Affectometer 2 is to measure general well-being by evaluating the balance between positive and negative recent feelings. An expert panel identified key concepts of mental well-being by exploring the UK validation of the Affectometer 2 and information gathered from focus groups. These concepts were then included in a new scale, the WEMWBS, which consisted of only positively worded items relating to positive mental health (Stewart-Brown & Janmohamed, 2008; Stewart-Brown et al., 2009; Tennant et al., 2007).

The WEMWBS is a 14-item scale that measures mental well-being in terms of subjective well-being and psychological functioning (Stewart-Brown & Janmohamed, 2008), thus both hedonic and eudaimonic aspects of well-being are represented. Participants are asked to score statements on a 5-point Likert-scale and all items are scored positively. Higher scores indicate higher levels of mental well-being. The WEMWBS was developed and validated for use within the UK (England and Scotland) by Tennant et al. (2007) who determined that the scale had good content validity as well as factorial validity, with confirmatory factor analysis supporting a single factor hypothesis. The Cronbach's alpha value was .89 for their student sample with a value of .83 for test-retest reliability after a one week interval. For a representative population sample the Cronbach's alpha value was .91. Scale scores showed high correlations with scores on other mental health and well-being scales and lower correlations with scores on scales measuring overall health (Tennant et al., 2007).

The Spanish version of the WEMWBS was validated by Lopez et al. (2013) for a student sample in Catalonia, Spain. A Cronbach's alpha value of .90 and satisfactory item total score correlations (between .44 and .76) and test-retest interclass correlation coefficient (.84) were established for the sample. A cross-cultural evaluation of the WEMWBS amongst Chinese and Pakistani groups in the UK was carried out by Taggart et al. (2013) who obtained Cronbach's alpha values of .92 and .91 for the Chinese and Pakistani data respectively. Preliminary analyses of the WEMWBS in a Setswana-speaking sample in South Africa indicated a Cronbach's alpha value of .88 and item-total correlations ranging from .46 to .64. Confirmatory factor analysis indicated that all items loaded on a single factor (Stewart-Brown, 2013).

The Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS)

Upon further investigation it was found that the WEMWBS did not meet the unidimensionality assumption of the Rasch model and that some items showed bias for gender. After further analysis of the original WEMWBS by Stewart-Brown et al. (2009) a shortened version using only some of the original items was proposed consisting of seven items, and subsequently named the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS). The SWEMWBS was found to be unidimensional and largely free of bias for gender, with a Cronbach's alpha value of .85 and a correlation of .95 with scores on the full scale in a representative adult sample in Scotland (Stewart-Brown et al., 2009). The SWEMWBS offers a slightly more restricted view of mental well-being than the WEMWBS, with most items covering aspects of eudaimonic well-being. However, the robust measurement properties and the fact that the SWEMWBS is a brief measure, make it preferable to the WEMWBS when measuring mental well-being (Stewart-Brown et al., 2009). Fat, Scholes, Boniface, Mindell, and Stewart-Brown (2016) compared the SWEMWBS and WEMWBS to evaluate the SWEMWBS as a tool to measure mental well-being and found its performance to be very similar to the performance of the WEMWBS in an English adult group, with Cronbach's alpha values for the SWEMWBS and WEMWBS at .84 and .92 respectively.

Ng et al. (2014) established good internal reliability ($\alpha = .89$) for the Chinese version of the scale in their research among Chinese-speaking patients with mental illness. They found the translated version of the scale to be a short, acceptable and culturally meaningful measure of mental well-being among mentally ill patients, although studies among other populations were recommended. Factor analysis identified a single component, in line with the English version of the scale. Haver, Akerjordet, Caputi, Furunes, and Magee (2015) investigated the psychometric properties of the SWEMWBS and aimed to validate the scale

for use in Norway and Sweden. Their sample consisted of managers and general managers employed by a large hotel chain. The results of the confirmatory factor analysis showed support for the scale's unidimensional structure and acceptable reliability was reported with Cronbach's alpha values ranging between .84 and .87 (Haver et al., 2015). As far as could be established, the English version of the SWEMWBS has not yet been validated for use within a South African adult group.

Measurement in Different Cultural Contexts

The broad spectrum of cultures that make up societies in the modern world emphasizes the necessity of being able to apply research findings to multicultural contexts. The concept of culture is continually changing and influenced by peoples' environments, social and political events and the interaction of individual and group differences. If one was to simplify the term one could say that culture refers to the customs, languages, practices and learned behaviours inherent to a specific group of people. These are usually passed on through the generations (Rasmussen & Lavish, 2014). It stands to reason that professionals in the field of psychology should be able to provide services to a variety of clients with diverse cultural backgrounds and worldviews that will often differ from their own. These cultural differences need to be taken into account and responded to accordingly (Ivers, Johnson, Clarke, Newsome, & Berry, 2016; Sue, Arrerondo, & McDavis, 1992), and researchers need to pay attention to the cultural relevance and potential bias of the measure if it is to be used in a multicultural context (Foxcroft, 2004).

Fair measurement may be compromised when a measure that was developed for one cultural group is applied to another cultural group without due consideration of the cultural applicability and meaning of the construct being measured. Where measures are administered in a culture different from the one for which it was developed, there is a risk of misinterpretation of the results because of insensitivity to the differences in cultural values,

and differences relating to interpretation and understanding of certain concepts. Because mental healthcare services include a large component of assessment and measurement of various factors, it is important to be aware of how different cultural values might affect the outcome of assessments measuring psychological constructs (Capielo, Mann, Nevels, & Delgado-Romero, 2014).

When it comes to scale development, assessment measures should be reliable and valid (Clark & Watson, 1995) for the specific population they are applied to, as the group may differ from the original sample. With specific reference to cross-cultural test development it is important to realise that most psychological measures have been developed in Western cultures, with inherent Western values in mind. One of the challenges that cross-cultural researchers face is how to measure similar constructs in non-Western cultures (Ho et al., 2014) without necessarily developing new measures, which can be very expensive and time-consuming. Certain concepts in the field of psychology (as in many other fields of research) may differ across cultures and one cannot assume that a measure developed in one culture will be equally valid in another. It is therefore important to keep in mind that a measure should be culturally appropriate. To ensure cultural appropriateness the rigorous translation and adaptation of measures may be necessary (Stevenson & van Brakel, 2013). In a multicultural society like South Africa, the translation and/or adaptation and/or validation of assessment instruments developed elsewhere in the world are important for a variety of reasons. De Kock, Kanjee and Foxcroft (2013) and Guillemin, Bombardier and Beaton (1993) list some advantages of adaptation and/or validation of existing measures, including (a) the enhancement of the fairness of the assessment; (b) reducing the cost and time spent on developing a new measure by using existing measures; (c) facilitating comparative studies between different groups – nationally and internationally – by providing a standard measure for the measurement of the same construct in different cultural contexts; (d) comparing the

newly developed measures to existing norms of respected measures to ensure efficiency; and (e) the inclusion of immigrants or minority groups is considered rather than only the country's dominant culture. To ensure that measures and test results are fair for all test-takers, it is essential that the validity and reliability of the measures should be assessed in each context in which the measures are used. This is particularly relevant in a multicultural and multilingual society like South Africa (De Kock, Kanjee, & Foxcroft, 2013).

The Present Study

The aim of this study was to investigate the psychometric properties of the English version of the SWEMWBS in a multicultural South African adult group. The objectives were to investigate (a) the factorial validity of the SWEMWBS, (b) the internal consistency reliability of the SWEMWBS, and (c) the convergent and discriminant validity of the SWEMWBS in a South African context. The hypotheses that this study tested were that the following psychometric properties hold for the English version of the SWEMWBS in the current South African sample: (a) the SWEMWBS has a unidimensional factor structure, (b) the SWEMWBS shows sufficient internal consistency reliability, and (c) the SWEMWBS has medium to high positive correlations with other well-being scales, such as the Satisfaction with Life Scale (SWLS), the Positive Affect and Negative Affect Schedule (PANAS) – Positive Affect subscale, the Meaning in Life Questionnaire (MLQ) – Presence subscale, and all subscales and the total score of the Mental Health Continuum Short Form (MHC-SF). The scale was expected to have negative correlations with a scale measuring negative affect, namely the PANAS – Negative Affect subscale, and a scale measuring depression, namely the Patient Health Questionnaire-9 (PHQ-9). It was also expected that the scale would have negligible correlations with the MLQ – Search subscale, which has been shown to have small correlations with well-being indicators (Steger et al., 2006).

No other studies on the validation of the English version of the SWEMWBS in Africa could be found. This study will address the gap regarding the validation of the English version of the SWEMWBS for use within a South African context. Possible contributions of the study include evaluating the psychometric properties of the English version of the SWEMWBS with specific reference to the South African context, and determining whether the scale is valid and reliable for use in a South African adult group fluent in English. Validated versions of the scale have the potential to be used in research about health and overall well-being where brief scales are required to shorten test batteries in order to prevent respondent fatigue. Such versions may also, for example, be used in research about physical health where psychological well-being forms part of a longer battery of assessment measures.

Method

Design and Participants

This study made use of data that was collected from 2011 to 2014 as part of the FORT3 research project (Wissing, 2008/2012). In the original study, a mixed-methods cross-sectional survey design was used, where the participants completed a battery of measurement scales in addition to some open-ended questions. A nonprobability method of recruiting participants was used and a sample of 421 South African participants between the ages of 18 and 74 ($M = 39.01$, $SD = 12.71$) was selected, of which 282 were female. Participants had to be at least 18 years old, have at least Grade 12 in terms of level of education, and have sufficient skills in reading and writing English. Education levels were secondary education = 33.4%, tertiary education = 34.8%, and post-graduate education = 29.9%. No exclusions were made based on socio-economic status.

Measuring Instruments

In addition to a socio-demographic questionnaire and the SWEMWBS, the following measurement instruments of well-being from both eudaimonic and hedonic perspectives were

used to establish the convergent and discriminant validity of the SWEMWBS for the South African adult sample. Each of the scales relevant to the present study will now be briefly described.

Socio-demographic questionnaire. Socio-demographic characteristics of participants, such as gender, age, and highest level of education were assessed in this questionnaire.

Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS). The SWEMWBS (Stewart-Brown et al., 2009) is a 7-item scale measuring overall mental well-being. Respondents are asked to rate the extent to which each statement describes their experience over the last two weeks on a Likert-scale ranging from 1 (*none of the time*) to 5 (*all of the time*). The scores for all items are added to calculate an overall score. Items include statements such as “I’ve been feeling optimistic about the future”, and “I’ve been able to make up my own mind about things”.

Satisfaction with Life Scale (SWLS). The SWLS (Diener et al., 1985) is a 5-item scale that measures the respondents’ own assessment of their global life satisfaction on a Likert-scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Items include “In most ways my life is close to my ideal” and “I am satisfied with my life”. The scores for each statement are added to give a total score of up to a maximum of 35. Cronbach’s alpha values between .79 and .89 were reported in use among Western samples (Pavot & Diener, 1993). Support for a unidimensional factor structure and sufficient reliability scores were also obtained by Wissing and van Eeden (2002) with the use of the English SWLS within a multicultural South African sample ($\alpha = .70$ for adults aged 18 to 35 years; $\alpha = .83$ for adults aged 36 to 64 years; and $\alpha = .86$ for adults aged 65+). Wissing, Wissing, du Toit, and Temane (2008) established Cronbach’s alpha values of .66 and .85 for the English version of the

SWLS, for African and Western subgroups in South Africa respectively. The Cronbach's alpha value for the sample in the present study was .85.

Positive Affect and Negative Affect Schedule (PANAS). The PANAS (Watson et al., 1988) is a 20-item self-report scale that measures positive and negative affect. A number of words that describe different feelings and emotions are provided and respondents are asked to indicate to what extent the statements are applicable in general. The scale ranges from 1 (*very slightly or not at all*) to 5 (*very much*). Examples of emotions or feelings named in the questionnaire include “inspired” and “guilty”.

Watson et al. (1988) reported good psychometric properties for the PANAS for a sample of primarily undergraduate students, with Cronbach's alpha values ranging from .86 to .90 for PA (positive affect) and .84 to .87 for NA (negative affect). Acceptable psychometric properties were also reported within an adult population in the United Kingdom with Cronbach's alpha values of .85 for PA and .89 for NA. Factorial and evidence of convergent and discriminant validity were also established (Crawford & Henry, 2004; Watson et al., 1988). No literature reporting on the reliability of the PANAS in a South African context could be identified. The Cronbach's alpha values for the sample in the present study were .80 for PA and .88 for NA.

Meaning in Life Questionnaire (MLQ). The MLQ (Steger et al., 2006) consists of two 5-item subscales (Presence and Search) and respondents rate their level of agreement on a Likert-scale, ranging from 1 (*absolutely untrue*) to 7 (*absolutely true*). Statements include “I understand my life's meaning” (Presence subscale) and “I am always looking to find my life's purpose” (Search subscale). Steger et al. (2006) determined that the two subscales were reliable in mainly Western student samples, with Cronbach's alpha values ranging from .82 to .86 and .86 to .87 for the Presence and Search subscales respectively. Construct, convergent and discriminant validity of the MLQ were also indicated. Temane, Khumalo, and

Wissing (2014) investigated the psychometric properties of the English version of the MLQ in a South African sample and confirmatory factor analysis revealed a two-factor model of meaning in life with the scale showing good reliability with Cronbach's alpha values of .85 for the Presence subscale and .84 for the Search subscale (Temane et al., 2014). For the sample in the present study the Cronbach's alpha values were .82 and .90 for the Presence and Search subscales respectively.

Mental Health Continuum Short Form (MHC-SF). The MHC-SF (Keyes, 1998, 2002, 2006a, 2006b, 2006c) is a 14-item questionnaire measuring positive mental health in terms of three subscales. Respondents rate how frequently each statement occurred during the past month on a Likert-scale ranging from 0 (*never*) to 5 (*every day*). It consists of three items measuring emotional well-being (positive affect and life satisfaction), five items measuring social well-being based on Keyes' (1998) model of social well-being, and six items measuring well-being as described by Ryff's (1989) model of psychological well-being. Examples of statements include "During the past month, how often did you feel interested in life?" (Emotional Well-being [EWB] subscale), "During the past month, how often did you feel that you belonged to a community (like a social group, or your neighbourhood)?" (Social Well-being [SWB] subscale), and "During the past month, how often did you feel good at managing the responsibilities of your daily life?" (Psychological Well-being [PWB] subscale). Lamers, Westerhof, Bohlmeijer, ten Klooster, and Keyes (2011) confirmed the potential of the scale when they determined that the scale had construct, convergent and discriminant validity, as well as sufficient reliability ($\alpha = .89$) in a representative Dutch sample. Keyes et al. (2008) validated the Setswana version of this scale and sufficient reliability ($\alpha = .74$ for the total score, and .73, .67 and .59 for EWB, PWB and SWB respectively) as well as construct, convergent and discriminant validity of the scale was found for a mainly Setswana-speaking South African group. De Bruin and du Plessis (2015)

established that the English version of the MHC-SF is an effective measure of a single well-being factor with three sub-components, namely emotional, social and psychological well-being, in a South African student sample ($\alpha = .87$ for the total score and .79, .77 and .79 for EWB, PWB and SWB respectively). The Cronbach's alpha values for the sample in the present study were .82 for EWB, .84 for SWB and .83 for PWB.

Patient Health Questionnaire-9 (PHQ-9). The PHQ-9 (Kroenke, Spitzer, & Williams, 2001) is a self-administered screening instrument to identify depression and determine the severity of depressive symptoms in the primary health care setting. Respondents rate in nine items how often each symptom occurred over the past two weeks on a Likert-scale ranging from 0 (*not at all*) to 3 (*nearly every day*). Symptoms include "Trouble falling or staying asleep, or sleeping too much", "Poor appetite or overeating" and "Trouble concentrating on things, such as reading the newspaper or watching television". Kroenke et al. (2001) established sufficient reliability ($\alpha = .86$ and .89), specificity, sensitivity and validity in two mainly Western samples. The validity of the PHQ-9 has been investigated in various populations, including Nigerian students (Adewuya, Ola, & Afolabi, 2006), Chinese Americans (Yeung et al., 2008), Korean Americans (Donnelly, 2007) and Brazilian women (De Lima Osório, Mendes, Crippa, & Loureiro, 2009). Botha (2011) determined that the English version of the PHQ-9 was a valid and reliable measure of depression for a multicultural sample in South Africa ($\alpha = .86$). The Cronbach's alpha value for the present sample was .86.

Procedure and Ethical Considerations

The data used in this study was collected under the FORT3 larger project from 2011 to 2014. Ethical approval was granted by the Health Research Ethics Committee of the North-West University (ethical approval number NWU 00002-07-A2). Post-graduate students who acted as fieldworkers collected the data under supervision of the researchers

after they were trained in the administration of psycho-social well-being measures. The data was collected using a nonprobability snowball method of recruiting participants, where the fieldworkers identified participants within their communities who adhered to the inclusion criteria. The identified participants were then asked to identify other potential participants from their communities who fit the inclusion criteria. Those who were interested in participating were then approached by the fieldworkers and provided with the details of the study. Participants were given the opportunity to review all the provided information and procedures and decide whether or not they wanted to participate. Participation was completely voluntary and there was no penalty for those who chose not to participate or who wanted to withdraw at a later stage. Written consent was obtained by the fieldworkers from those who agreed to participate. Participants completed the research battery at a time and place that they found convenient and submitted the completed battery to the fieldworker.

The informed consent forms were handed in separately from the questionnaires to ensure privacy and confidentiality. The opportunity for debriefing was made available if needed.

Data Analysis

Descriptive statistics (mean, standard deviation, skewness and kurtosis) and reliability indicators (Cronbach's alpha coefficients, corrected item-total correlations, and the correlation matrix) were calculated. Confirmatory factor analysis and exploratory factor analysis were done to establish factorial validity. Convergent validity was established by looking at the correlation patterns between the scores of the SWEMWBS and scales of psychological well-being and ill-being used in conjunction with it (SWLS, PANAS, MLQ, MHC-SF and PHQ-9). The study made use of IBM SPSS Statistics 23 and Mplus Version 7.4 statistical analysis software programs (Muthén & Muthén, 1998-2015). Data analysis comprised of four stages. Stage 1 focused on obtaining descriptive statistics for each item in

the SWEMWBS, whereas Stage 2 examined the factor structure of the SWEMWBS. In Stage 3 the internal consistency reliability of the SWEMWBS was determined and Stage 4 concluded the investigation by assessing the convergent and discriminant validity of the SWEMWBS. The subsequent description elaborates on the four stages.

Stage 1: Descriptive statistics of individual items. Using IBM SPSS Statistics 23, the descriptive statistics (including means, standard deviations, skewness and kurtosis) were calculated for each item of the SWEMWBS. Curran, West, and Finch (1996) and Kim (2013) indicate that data can be regarded as normally distributed if the skewness and kurtosis display absolute values of less than 2.0 and 7.0 respectively.

Stage 2: Construct validity and factor structure. Stage 2 is subdivided into part A and part B. Each part will now be described in more detail.

Stage 2A: Confirmatory factor analysis (CFA). In part A, confirmatory factor analysis using Mplus version 7.4 (Muthén & Muthén, 1998-2015) was conducted to determine the factor structure of the SWEMWBS. Confirmatory factor analysis is a form of structural equation modelling (SEM) during which a measurement model is estimated to assess the psychometric properties of scales (Byrne, 2005; Hair, Black, Babin, & Anderson, 2014). The measurement model was estimated using the robust maximum likelihood estimator (MLR), which is statistically relatively robust to non-normality (Hox, Maas, & Brinkhuis, 2010). Moreover, missing data was dealt with using full information maximum likelihood estimation. The estimation of a measurement model includes the specification of observed variables (i.e., usually the items of a scale), and unobserved latent variables (i.e., the construct that the items are intended to measure; Byrne, 2012; Hair et al., 2014). In this study, a unidimensional, 7-item measurement model was estimated using items adopted from Stewart-Brown et al. (2009) to measure mental well-being. Factor loadings on the extracted factor as well as R^2 -values were also considered.

When establishing how well a model fits the data, the chi-square (χ^2) test statistic is examined to determine goodness-of-fit by assessing the similarity between the estimated covariance matrix (theory) and the observed covariance matrix (reality; Hair et al., 2014). The χ^2 statistic tends to be large if the sample size is large, and is therefore reported but not used for interpretation. Because the χ^2 -value is affected by sample size, scholars suggest that various other fit indices should be inspected in addition to the χ^2 -value to evaluate whether the data fits the proposed model in an acceptable manner, including absolute and incremental fit indices (Hu & Bentler, 1999; Byrne, 2012; Hair et al., 2014). Absolute fit indices reflect how well the specified model reproduces the observed data, that is, how well the sample data fit a researcher's theory (Hair et al., 2014). The absolute fit indices considered in this study include the root mean square error of approximation (RMSEA) and the standardised root mean square residual (SRMR). The RMSEA determines the degree to which the measurement model predicts the observed covariance matrix (Hair et al., 2014). A RMSEA value below 0.05 indicates good fit while values below 0.08 suggest reasonable fit (Byrne, 2012). The standardised root mean square residual (SRMR) considers the standardised residual difference between the predicted and observed co-variance (Hair et al., 2014; Hu & Bentler, 1999). Similarly to the RMSEA, a value less than 0.08 has been generally accepted to indicate good fit, while a revised cut-off value of 0.05 has been suggested more recently (Byrne, 2012; Hu & Bentler, 1999).

In contrast to absolute fit indices, incremental fit indices assess how well an estimated model fits the data relative to a baseline model (Hair et al., 2014). In most instances, the baseline model is referred to as the independent or null model, which assumes that all observed variables are uncorrelated (Geiser, 2012). Incremental fit indices considered in this study include the comparative fit index (CFI) and the Tucker-Lewis index (TLI), which are both insensitive to model complexity (Hair et al., 2014). Values exceeding 0.90 are generally

considered to be indicative of acceptable fit (Geiser, 2012; Hair et al., 2014), although a value of 0.95 is recommended (Byrne, 2012).

Apart from considering the global fit indices, the current study assesses factorial validity by considering the standardised factor loadings of each item and the proportion of variance explained by the extracted factor (R^2) for each item. Standardised factor loadings that are statistically significant and above .30 are evident of factorial validity (Hair et al., 2014).

Stage 2B: Exploratory factor analysis (EFA). In part B of Stage 2 exploratory factor analysis was done using IBM SPSS Statistics 23 to provide further evidence of the factor structure of the SWEMWBS (Byrne, 2005). The study utilised principal axis factoring as a method of extraction. Although the researchers expected only one factor to be extracted, they allowed for more than one factor to be extracted in their explorations. Therefore they had to specify a rotation method, where direct oblimin rotation, which forms part of oblique rotation methods, was chosen (Field, 2013). Direct oblimin rotation was selected for the study, since the items in the SWEMWBS measure the same construct, and subsequently any subfactors can be expected to correlate with one another (Hair et al., 2014). To determine whether the data was appropriate for exploratory factor analyses, the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) was examined (Field, 2013). The Bartlett's test of sphericity should be significant ($p < 0.0001$) and the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) should be greater than 0.5 (Field, 2013). Eigenvalues, which represent the amount of variance accounted for by a factor, the total percentage of the variance explained by the extracted factors and the scree plot were examined to determine the number of factors to extract (Field, 2013; Hair et al., 2014). Field (2013), Hair et al. (2014) and Pallant (2013) suggest that factors of which the eigenvalues exceed 1 and the total percentage of variance explained is

larger than 50 per cent should be retained. In addition, the point of inflexion on the scree plot gives an indication of the number of factors to be retained (Field, 2013). To obtain a greater understanding of the underlying factor structure of the SWEMWBS, the factor loadings, as well as the communalities of all items were inspected. Factor loadings that are above .40, suggest the retention of that item (Field, 2013; Hair et al., 2014). Communality refers to the proportion of common variance within a variable, that is, the total amount of variance that a variable shares with other variables included in the analysis (Field, 2013; Hair et al., 2014). The closer communality values are to one, the less unique variance a variable has, which indicates that the factor structure is supported (Field, 2013).

Stage 3: Internal consistency reliability. In order to determine the reliability of the SWEMWBS, the Cronbach's alpha coefficient was calculated. Pallant (2013) explains that Cronbach's alpha coefficients are indicators of a scale's internal consistency, that is whether the items are measuring the same construct. Cronbach's alpha coefficient values above .70 suggest good internal consistency, and above .80 are considered high, and thus a reliable scale (Hair et al., 2014; Kline, 2000; Moerdyk, 2009; Nunnally & Bernstein, 1995; Pallant, 2013). Since the Cronbach's alpha coefficient is influenced by the number of items included in the scale, the corrected item-total correlation values are also examined. Values greater than .30 suggest that the items should be retained (Field, 2013). These values are indicative of the correlations between each item and the total score from the questionnaire (excluding the particular item), and in a reliable scale, all items should correlate with the total (Field, 2013). In addition, inter-item correlations were used to explore to what extent scores on one item were related to scores on all other items in the scale – in essence, the extent to which items assessed the same content (Piedmont, 2014). Briggs and Cheek (1986) suggest that optimal inter-item correlations should range between .20 and .40 for items to be retained. In addition, the inter-item correlation matrix should be free of negative values (after reversing the scores

of reversed-phrased items; Pallant, 2013). Pearson's correlation coefficient was used in this study.

Stage 4: Convergent and discriminant validity. Convergent and discriminant validity reveals whether “a scale performs as expected, in relation to other variables selected as meaningful criteria” (Malhotra, 2007, p.286). Evidence of convergent and discriminant validity exists when a scale is correlated with other constructs as expected in theory (Churchill, 1995). Subsequently, convergent and discriminant validity of the SWEMWBS was assessed by calculating the Pearson product-moment correlation coefficients with the Satisfaction with Life Scale (Diener et al., 1985), the Positive Affect and Negative Affect Schedule (Watson et al., 1988), the Meaning in Life Questionnaire (Steger et al., 2006), the Mental Health Continuum Short Form (Keyes, 1998, 2006a, 2006b, 2006c) and the Patient Health Questionnaire-9 (Kroenke et al., 2001). Although the study used a statistical significance level of 0.01, the strength of the significance was also considered by calculating effect sizes, specifically the correlation (r)-values (Cohen, 1988; Field, 2013). Field (2013) states that absolute r -values of .10, .30 and .50 represent small, medium, and large effects respectively.

Results

Stage 1: Descriptive Statistics of Individual Items

Table 1 depicts the descriptive statistics (mean, standard deviation, skewness and kurtosis) for each of the seven items in the SWEMWBS.

<Insert Table 1 approximately here>

The item-level mean scores ranged from 3.42 ($SD = 1.06$ for item 3) and 4.11 ($SD = 0.86$ for item 7). Given that a 5-point Likert-scale was used to measure the items in the SWEMWBS, it is evident from Table 1 that participants had a positive perception as reflected in most of the items. Skewness values ranged between -0.26 (item 3) and -0.93 (item 7),

whereas kurtosis values ranged between -0.02 (item 6) and 0.91 (item 2). Based on the range of skewness and kurtosis values depicted in Table 1, it can be concluded that the distribution of item scores on the SWEMWBS do not deviate substantially from normality (Curran et al., 1996; Tabachnick & Fidell, 2013).

Stage 2A: Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis was used to determine the factor structure of the SWEMWBS. Specifically, a 7-item unidimensional measurement model was tested. This model displayed acceptable values across a number of fit indices, and it can subsequently be argued that the single-factor measurement model fits the data quite well. Table 2 summarizes the global fit indices for the confirmatory factor analysis of the SWEMWBS, and the standardised factor loadings and R^2 -values from the confirmatory factor analyses are displayed in Table 3.

<Insert Table 2 approximately here>

<Insert Table 3 approximately here>

Table 3 indicates that the standardised factor loadings of all items were above the recommended cut-off value of .30 and statistically significant at $p < .01$ (Hair et al., 2014). In terms of variance explained by the model per item, item 5 ($R^2 = .64$; “I’ve been thinking clearly”), item 4 ($R^2 = .48$; “I’ve been dealing with problems well”) and item 3 ($R^2 = .39$; “I’ve been feeling relaxed”) had the most variance explained by the mental well-being factor. These findings suggest that the unidimensional 7-item measurement model displays sufficient evidence of factorial validity (Hair et al., 2014).

Stage 2B: Exploratory Factor Analysis (EFA)

To examine the factor structure of the scale further, exploratory factor analysis was undertaken (Field, 2013; Hair et al., 2014). In this study the Bartlett’s test of sphericity yielded significant results ($p < 0.0001$) and the Kaiser-Meyer-Olkin (KMO) measure of

sampling adequacy (MSA) had an acceptable value of 0.844. Subsequently, the sample size was considered to be adequate for EFA (Field, 2013; Pallant, 2013).

Based on the eigenvalue (>1) criterion and scree plot, one factor was extracted (eigenvalue = 3.215), which explained 45.92% of the total variance in the data. Even though the variance explained did not reach the 50% ideal, the one-factor solution was considered to be more appropriate than multifactor structures, given all the other indicators.

Table 3 reports the factor loadings as well as the communalities for each of the seven items included in the exploratory factor analysis, and illustrates that item 5 (.51) and item 4 (.40) had the highest communality values. Additionally, Table 3 shows that the factor loadings of all the items were above .40, suggesting both factorial validity and the retention of all items (Field, 2013).

Stage 3: Reliability Analysis

The internal consistency reliability of the SWEMWBS was assessed by examining the Cronbach's alpha coefficient, and corrected item-total correlations for each item (Field, 2013), as depicted in Table 3 as well as the inter-item correlations shown in Table 4.

<Insert Table 4 approximately here>

In this study the inter-item correlation values ranged between .17 and .58 with a mean score of .36. Moreover, the Cronbach's alpha value (.80) is above the recommended cut-off value of .70 and the item-total correlations ranged between .38 and .67. Together, these findings indicate that the SWEMWBS displays acceptable internal consistency reliability for the current sample (Allen & Bennett, 2012; See Table 2).

Stage 4: Convergent and Discriminant Validity

To assess convergent and discriminant validity, Pearson product-moment correlation coefficients (r -values) between scores on the SWEMWBS and a series of other scales were calculated. The results for these calculations can be found in Table 5.

<Insert Table 5 approximately here>

From Table 5 it can be seen that significant positive correlations exist between scores on the SWEMWBS and the Mental Health Continuum Short Form – total score (MHCSF-tot), Mental Health Continuum Short Form – Psychological Well-being subscale (MHCSF-PWB), Mental Health Continuum Short Form – Subjective Well-being subscale (MHCSF-SWB), Mental Health Continuum Short Form – Emotional Well-being subscale (MHCSF-EWB), Satisfaction with Life Scale (SWLS), Meaning in Life Questionnaire – Presence subscale (MLQ-P) and Positive Affect and Negative Affect Schedule – Positive Affect subscale (PANAS-PA). In contrast, significant negative correlations exist between scores on the SWEMWBS and the Patient Health Questionnaire-9 (PHQ-9), Positive Affect and Negative Affect Schedule – Negative Affect subscale (PANAS-NA), and Meaning in Life Questionnaire – Search subscale (MLQ-S). Although the negative correlation between scores on the SWEMWBS and scores on the MLQ-S were statistically significant, the effect size (correlation coefficient) was small suggesting that the correlation was not practically significant. All other effect sizes were medium to large, suggesting practically significant associations. All correlations were in line with the stated hypotheses in this regard, supporting convergent and discriminant validity for the SWEMWBS for the sample at hand (Churchill, 1995; Malhotra, 2007).

Discussion

The aim of this study was to explore the psychometric properties of the English version of the SWEMWBS in a South African adult group. The results showed very good psychometric properties and supported the use of the scale within the present context.

In line with the first and second hypotheses the results indicated that the English version of the 7-item SWEMWBS has a unidimensional factor structure supported by both confirmatory factor analysis and exploratory factor analysis, and sufficient internal

consistency reliability ($\alpha = .80$). The third hypothesis of convergent and discriminant validity was also supported in that scores on the scale showed positive correlations with scores on other well-being scales, specifically the Mental Health Continuum Short Form (total score as well as subscales), the Satisfaction with Life Scale, the Meaning in Life Questionnaire – Presence subscale, and the Positive Affect and Negative Affect Schedule – Positive Affect subscale. As was hypothesised scores on the SWEMWBS had negative correlations with scores on the Positive Affect and Negative Affect Schedule – Negative Affect subscale, and the Patient Health Questionnaire-9, measuring negative affect and depression respectively. The scores also indicated a negligible correlation with scores on the Meaning in Life Questionnaire – Search subscale, which has been shown to have small correlations with well-being indicators (Steger et al., 2006).

The results from this study among a nonprobability sample of adults in South Africa compare well to findings from validation studies of the instrument done among other populations. In a study using data from the Health Survey for England (2010 to 2013), Fat et al. (2016) focused on a comparison between the English versions of the SWEMWBS and WEMWBS to evaluate the SWEMWBS as a tool to measure mental well-being among adults 16 years and older. They found its performance to be very similar to the performance of the WEMWBS. Their study indicated high and statistically significant correlations between the SWEMWBS and WEMWBS ranging from .80 to .96 in different subgroups with $p < .001$. Fat et al. (2016) obtained Cronbach's alpha values for SWEMWBS and WEMWBS of .84 and .92 respectively. The findings in the present study also correspond with research on the SWEMWBS done by Stewart-Brown et al. (2009) among a representative sample of the adult population aged 16 to 74 in Scotland ($\alpha = .85$), as well as studies done among representative adult samples by Ng et al. (2014) in China ($\alpha = .89$), and by Haver et al. (2015) in Norway

and Sweden (α between .84 and .87), in that the scale exhibited good psychometric properties for the current sample.

Implications for Practice in South Africa

According to Prince et al. (2007) mental health awareness integrated into all elements of healthcare, including healthcare delivery, would contribute to the maximising of the effectiveness of the small number of mental health professionals available in most low-income and middle-income countries, including South Africa. The support for the use of the SWEMWBS for the South African adult sample used in the present study paves the way for more research into developing and evaluating interventions designed to improve the well-being of individuals. Because of the small number of mental health professionals and services available in South Africa, the population could benefit from a shift in focus from merely servicing immediate medical needs to becoming responsible for maintaining mental health in a more holistic manner (Chopra et al., 2009) which includes overall mental well-being and long-term sustainable interventions. To this end it is important that interventions that not only address problems, but also aim to improve well-being, are implemented. Brief, robust measures with good psychometric properties available to investigate positive mental health in the South African context are needed to monitor and evaluate such interventions and the SWEMWBS could contribute to that.

The use of brief scales provide several benefits than longer scales for both research and policy-making in that they are more cost-effective, specifically in terms of data collection, and are easier to interpret, while still retaining a high degree of accuracy (Bowling, 2005). In addition to clinical measures, measures of positive mental health, such as the SWEMWBS, could be administered to get a holistic picture of the mental health of the South African population. Such research could contribute to the development of public policy and interventions aimed at improving mental well-being, thereby benefiting the population.

The question remains whether the SWEMWBS would possess similarly good psychometric properties if it were translated and administered in some of the other national languages of South Africa or if the English version of the instrument was administered in other South African groups. Ideally, well-being scales that are intended for use in a population should accommodate the cultural diversity of the population. Although the English version of the scale was found to be valid in the present multicultural South African group, levels of mental well-being might be even more accurately assessed if the measure was administered to specific cultural groups in their native language. Further studies that explore the psychometric properties of the SWEMWBS in other groups and using different translations could also shed further light on whether the theory and assumptions about mental health that underlies the scale are appropriate in the broader South African population.

Limitations and Recommendations

Some limitations were present in this study. The use of a nonprobability sample limits the generalizability of the findings, and future research could focus on the psychometric properties of the SWEMWBS in other South African groups, languages and cultural contexts. A related possible limitation of the present study is that the questionnaire was only presented in English, and was thus intended for a group fluent in English. There is ultimately a need for measures to be presented in participants' first language as their cultural background could influence their understanding of the scale items and the subsequent responses. The data was gathered over four years and there could have been influences, such as political changes, that might have affected the results. A strength of this study is that it was conducted on an adult group in contrast to many critiqued studies using only student populations. Although the psychometric properties reported in this study were greatly acceptable and the study contributed to the further validation of the SWEMWBS, a recommendation for future research could be to translate the scale into the other official South African languages and

investigate its psychometric properties in different age and cultural groups. Furthermore, the use of other analytical procedures, such as Rasch analysis, could provide further insight into the (uni)dimensionality of the scale.

Conclusion

Although much research has been done on the validation of the WEMWBS in various contexts, less validation studies have been conducted for the SWEMWBS. The purpose of the current study was to explore the psychometric properties of the English version of the SWEMWBS in a South African adult group by investigating the factorial validity, internal consistency reliability, and the convergent and discriminant validity of the scale.

In the current study the scale exhibited sufficient factorial and convergent and discriminant validity within the present South African context with high internal consistency reliability. The results suggest that the English version of the SWEMWBS could potentially be used for the monitoring of and research pertaining to overall mental well-being among multicultural South African adult groups fluent in English.

Acknowledgement

This work is based on the research supported in part by the National Research Foundation (NRF) of South Africa (Grant Numbers: 106050). Opinions, findings, conclusions and recommendations expressed are those of the authors and the NRF accepts no liability whatsoever in this regard.

References

- Adewuya, A. O., Ola, B. A., & Afolabi, O. O. (2006). Validity of the patient health questionnaire (PHQ-9) as a screening tool for depression amongst Nigerian university students. *J Affect Disord*, 96(1-2), 89-93. doi:10.1016/j.jad.2006.05.021
- Allen, P., & Bennett, K. (2012). *SPSS Statistics: a practical guide*. Melbourne: Cengage Learning.
- Botha, M. N. (2011). *Validation of the Patient Health Questionnaire (PHQ-9) in an African context*. (Master's thesis), North-West University, Potchefstroom, South Africa. Retrieved from <http://dspace.nwu.ac.za/handle/10394/4647>
- Bowling, A. (2005). Just one question: If one question works, why ask several? *Journal of Epidemiological Community Health*, 53(3), 342-345. Retrieved from <http://jech.bmj.com/> doi:10.1136/jech.2004.021204
- Briggs, S. R., & Cheek, J. M. (1986). The role of factor analysis in the development and evaluation of personality scales. *Journal of Personality*, 54, 106-148.
- Byrne, B. M. (2005). Factor analytic models: Viewing the structure of an assessment instrument from three perspectives. *Journal of Personality Assessment*, 85(1), 17-32.
- Byrne, B. M. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. New York: Routledge.
- Capielo, C., Mann, L., Nevels, B., & Delgado-Romero, E. (2014). Multicultural considerations in measurement and classification of positive psychology. In J. Teramoto Pedrotti & L. M. Edwards (Eds.), *Perspectives on the Intersection of Multiculturalism and Positive Psychology*, 7, (pp. 31-44). Dordrecht: Springer.
- Chopra, M., Lawn, J. E., Sanders, D., Barron, P., Karim, S. S. A., Bradshaw, D., . . . Mayosi, B. M. (2009). Achieving the health Millennium Development Goals for South Africa: challenges and priorities. *The Lancet*, 374(9694), 1023-1031.

- Churchill, G. A. (1995). *Marketing Research: Methodological foundations* (6th ed.). Chicago: Dryden.
- Clark, L. A., & Watson, D. (1995). Constructing Validity: Basic Issues in Objective Scale Development. *Psychological Assessment*, 7(3), 309-319.
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Crawford, J. R., & Henry, J. D. (2004). The positive and negative affect schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, 43, 245-265.
- Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods*, 1(1), 16-29.
- De Bruin, G. P., & du Plessis, G. A. (2015). Bifactor Analysis of the Mental Health Continuum – Short Form (MHC-SF). *Psychological reports*, 116(2), 438-446.
doi:10.2466/03.02.PR0.116k20w6
- De Kock, F., Kanjee, A., & Foxcroft, C. (2013). Cross-cultural test adaptation, translation and tests in multiple languages. In C. Foxcroft & G. Roodt (Eds.), *Introduction to psychological assessment in the South African context* (4th ed), pp. 83-106. Cape Town: Oxford University Press.
- De Lima Osório, F., Mendes, A. V., Crippa, J. A., & Loureiro, S. R. (2009). Study of the discriminative validity of the PHQ-9 and PHQ-2 in a sample of Brazilian women in the context of primary health care. *Perspectives in Psychiatric Care*, 45(3), 216-227.
doi:10.1111/j.1744-6163.2009.00224.x
- Diener, E., Emmons, R., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49(1), 71-75.

- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*, 97, 143-156. doi:10.1007/s11205-009-9493-y
- Donnelly, P. J. (2007). The use of the Patient Health Questionnaire-9 Korean Version (PHQ-9K) to screen for depressive disorders among Korean Americans. *Journal of Transcultural Nursing*, 18(4), 324-330.
- Fat, L. N., Scholes, S., Boniface, S., Mindell, J., & Stewart-Brown, S. (2016). Evaluating and establishing national norms for mental wellbeing using the short Warwick–Edinburgh Mental Well-being Scale (SWEMWBS): Findings from the Health Survey for England. *Quality of Life Research*, 1-16.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). London: Pearson.
- Foxcroft, C. D. (2004). Planning a psychological test in the multicultural South African context. *SA Journal of Industrial Psychology*, 30(4), 8-15.
- Geiser, C. (2012). *Data analysis with Mplus*. Guilford Press.
- Guillemin, F., Bombardier, C., & Beaton, D. (1993). Cross-cultural adaptation of health-related quality of life measures: Literature review and proposed guidelines. *Journal of Clinical Epidemiology*, 46(12), 1417-1432.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis* (7th ed.). Harlow: Pearson.
- Haver, A., Akerjordet, K., Caputi, P., Furunes, T., & Magee, C. (2015). Measuring mental well-being: A validation of the Short Warwick-Edinburgh Mental Well-Being Scale in Norwegian and Swedish. *Scand J Public Health*, 43(7), 721-727. doi:10.1177/1403494815588862

- Ho, S. M., Rochelle, T. L., Law, L. S., Duan, W., Bai, Y., & Shih, S. (2014). Methodological issues in positive psychology research with diverse populations: Exploring strengths among Chinese adults. In J. Teramoto Pedrotti & L. M. Edwards (Eds.), *Perspectives on the intersection of multiculturalism and positive psychology* (Vol. 7, pp. 45-57). Dordrecht: Springer.
- Hox, J. J., Maas, C. J., & Brinkhuis, M. J. (2010). The effect of estimation method and sample size in multilevel structural equation modeling. *Statistica Neerlandica*, 64(2), 157-170.
- Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.
- Huppert, F. A., & So, T. T. C. (2013). Flourishing Across Europe: Application of a New Conceptual Framework for Defining Well-Being. *Social Indicators Research*, 110(3), 837-861. doi:10.1007/s11205-011-9966-7
- Ivers, N. N., Johnson, D. A., Clarke, P. B., Newsome, D. W., & Berry, R. A. (2016). The relationship between mindfulness and multicultural counseling competence. *Journal of Counseling & Development*, 94, 72-82. doi:10.1002/jcad.12063
- Kammann, R., & Flett, R. (1983). Affectometer 2: A scale to measure current level of general happiness. *American Journal of Psychology*, 35(2), 259-265.
- Keyes, C. L. M. (1998). Social Well-being. *Social Psychology Quarterly*, 61(2), 121-140.
- Keyes, C. L. M. (2002). The Mental Health Continuum: From languishing to flourishing in life. *Journal of Health and Social Research*, 43, 207-222.
- Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of consulting and clinical psychology*, 73(3), 539.

- Keyes, C. L. M. (2006a, April). *If health matters: When will we stop saying one thing and doing another?* Paper presented at the South African Conference on Positive Psychology: Individual, social and work wellness, Potchefstroom, South Africa.
- Keyes, C. L. M. (2006b). Mental health in adolescence: Is America's youth flourishing? *American Journal of Orthopsychiatry*, 76(3), 395-402. doi:10.1037/0002-9432.76.3.395
- Keyes, C. L. M. (2006c). The subjective well-being of America's youth: Toward a comprehensive assessment. *Adolescent and Family Health*, 4(1), 3-11.
- Keyes, C. L. M., Wissing, M. P., Potgieter, J. P., Temane, Q. M., Kruger, A., & van Rooy, S. (2008). Evaluation of the Mental Health Continuum – Short Form (MHC–SF) in Setswana-speaking South Africans. *Clinical Psychology & Psychotherapy*, 15(3), 181-192. doi:10.1002/cpp.572
- Kim, H. Y. (2013). Statistical notes for clinical researchers: Assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry and Endodontics*, 38(1), 52-54.
- Kline, P. (2000). *Handbook of psychological testing*. London: Routledge.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9. *Journal of General Internal Medicine*, 16(9), 606-613. doi:10.1046/j.1525-1497.2001.016009606.x
- Lamers, S. M. A., Westerhof, G. J., Bohlmeijer, E. T., ten Klooster, P. M., & Keyes, C. L. M. (2011). Evaluating the psychometric properties of the Mental Health Continuum – Short Form (MHC-SF). *Journal of Clinical Psychology*, 67(1), 99-110. doi:10.1002/jclp.20741
- Lopez, M. A., Gabilondo, A., Codony, M., Garcia-Forero, C., Vilagut, G., Castellvi, P., . . . Alonso, J. (2013). Adaptation into Spanish of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) and preliminary validation in a student sample. *Qual Life Res*, 22(5), 1099-1104. doi:10.1007/s11136-012-0238-z

- Malhotra, N. K. (2007). *Marketing research: An applied orientation* (5th ed.). Upper Saddle River, New Jersey: Pearson.
- Moerdyk, A. (2009). *The principles and practice of psychological assessment*. South Africa: Van Schaik.
- Muthén, L. K., & Muthén, B. O. (1998-2015). Mplus (Version 7.4) [Computer software]. Los Angeles, CA: Muthén and Muthén.
- Ng, S. S. W., Lo, A. W. Y., Leung, T. K. S., Chan, F. S. M., Wong, A. T. Y., Lam, R. W. T., & Tsang, D. K. Y. (2014). Translation and validation of the Chinese version of the Short Warwick-Edinburgh Mental Well-being Scale for patients with mental illness in Hong Kong. *East Asian Arch Psychiatry*, 24, 3-9.
- Nunnally, J., & Bernstein, I. (1995). *Psychometric theory*. New York: McGraw-Hill.
- Pallant, J. (2013). *SPSS survival manual* (5th ed.). New York: McGraw-Hill.
- Pavot, W., & Diener, E. (1993). Review of the Satisfaction with Life Scale. *Psychological Assessment*, 5(2), 164-172. doi:10.1037/1040-3590.5.2.164
- Piedmont, R. L. (2014). Inter-item correlations. In A. C. Michalos (Ed.), *Encyclopedia of Quality of Life and Well-Being Research*, pp. 3303-3304. Dordrecht: Springer Netherlands.
- Prince, M., Patel, V., Saxena, S., Maj, M., Maselko, J., Phillips, M. R., & Rahman, A. (2007). No health without mental health. *The Lancet*, 370(9590), 859-877.
- Rasmussen, H. N., & Lavish, L. (2014). Broad definitions of culture in the field of multicultural psychology. In J. Teramoto Pedrotti & L. M. Edwards (Eds.), *Perspectives on the Intersection of Multiculturalism and Positive Psychology* (Vol. 7, pp. 17-30). Dordrecht: Springer.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am. Psychol.*, 55, 68-78.

- Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52, 141-166.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081. doi:10.1037/0022-3514.57.6.1069
- Ryff, C. D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science*, 4(4), 99-104. Retrieved from <http://www.jstor.org/stable/20182342>
- Ryff, C. D., & Singer, B. (1998). The contours of positive human health. *Psychol. Inq.*, 9, 1-28.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2014). Positive Psychology: An Introduction. In M. Csikszentmihalyi (Ed.), *Flow and the Foundations of Positive Psychology: The Collected Works of Mihaly Csikszentmihalyi*, (pp. 279-298). Dordrecht: Springer.
- Seligman. (2013). Building the State of Wellbeing. *A Strategy for South Australia. Adelaide Thinker in Residence 2012F13. Government of South Australia.*
- Sheldon, K. M., & Kasser, T. (2001). Goals, congruence, and positive well-being: New empirical support for humanistic theories. *Journal of Humanistic Psychology*, 41(1), 30-50.
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53(1), 80-93. doi:10.1037/0022-0167.53.1.80
- Stevenson, S. A., & van Brakel, W. H. (2013). The cross-cultural equivalence of participation instruments: A systematic review. *Disability & Rehabilitation*, 35(15), 1256-1268. doi:10.3109/09638288.2012.731132

- Stewart-Brown, S. (2013). The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS): Performance in Different Cultural and Geographical Groups. In C. L. M. Keyes (Ed.), *Mental well-being: International contributions to the study of positive mental health*, (pp. 133-150). Dordrecht: Springer.
- Stewart-Brown, S., & Janmohamed, K. (2008). *Warwick-Edinburgh Mental Well-being Scale (WEMWBS) User guide, version 1* Retrieved from <http://www.cppconsortium.nhs.uk/admin/files/1343987601WEMWBS%20User%20Guide%20Version%201%20June%202008.pdf>
- Stewart-Brown, S., Tennant, A., Tennant, R., Platt, S., Parkinson, J., & Weich, S. (2009). Internal construct validity of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS): a Rasch analysis using data from the Scottish Health Education Population Survey. *Health Qual Life Outcomes*, 7, 15. doi:10.1186/1477-7525-7-15
- Sue, D. W., Arrerondo, P., & McDavis, R. J. (1992). Multicultural counseling competencies and standards: A call to the profession. *Journal of Counseling & Development*, 70, 477-486.
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson Education.
- Taggart, F., Friede, T., Weich, S., Clarke, A., Johnson, M., & Stewart-Brown, S. (2013). Cross cultural evaluation of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) --a mixed methods study. *Health Qual Life Outcomes*, 11, 27. doi:10.1186/1477-7525-11-27
- Temane, L., Khumalo, I. P., & Wissing, M. P. (2014). Validation of the Meaning in Life Questionnaire in a South African context. *Journal of Psychology in Africa*, 24(1), 51-60. doi:10.1080/14330237.2014.904088

- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., . . . Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. *Health Qual Life Outcomes*, 5, 63. doi:10.1186/1477-7525-5-63
- Waterman, A. S., Schwartz, S. J., Zamboanga, B. L., Ravert, R. D., Williams, M. K., Agocha, V. B., . . . Donnellan, M. B. (2010). The Questionnaire for Eudaimonic Well-Being: Psychometric properties, demographic comparisons, and evidence of validity. *The Journal of Positive Psychology*, 5(1), 41-61. doi:10.1080/17439760903435208
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070.
- WHO. (2001a). Basic documents (43 ed.). Geneva: World Health Organisation.
- WHO. (2001b). Strengthening mental health promotion. Geneva: World Health Organisation (Fact sheet no. 220).
- Wissing, J. A. B., Wissing, M. P., du Toit, M. M., & Temane, Q. M. (2008). Psychometric properties of various scales measuring psychological well-being in a South African context: The FORT 1 Project. *Journal of Psychology in Africa*, 18(4), 511-520.
- Wissing, M. (2008/2012). *The prevalence of levels of psychosocial health: dynamics and relationships with biomarkers of (ill) health in South African social contexts (FORT3)*. Research project with ethical approval registered at the North-West University.
- Wissing, M. P., & van Eeden, C. (2002). Empirical clarification of the nature of psychological well-being. *South African Journal of Psychology*, 32(1), 32-44.
- Yeung, A., Fung, F., Yu, S., Vorono, S., Ly, M., Wu, S., & Fava, M. (2008). Validation of the Patient Health Questionnaire-9 for depression screening among Chinese

Americans. *Comprehensive Psychiatry*, 49(2), 211-217.

doi:10.1016/j.comppsy.2006.06.002

Table 1

Descriptive statistics of individual items of the SWEMWBS

Item	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
1. I've been feeling optimistic about the future	3.73	0.94	-0.46	-0.25
2. I've been feeling useful	3.89	0.92	-0.89	0.91
3. I've been feeling relaxed	3.42	1.06	-0.26	-0.61
4. I've been dealing with problems well	3.64	0.88	-0.64	0.60
5. I've been thinking clearly	3.74	0.91	-0.68	0.44
6. I've been feeling close to other people	3.72	0.98	-0.58	-0.02
7. I've been able to make up my own mind about things	4.11	0.86	-0.93	0.77

Note. *M* = mean; *SD* = standard deviation

Table 2

Cronbach's alpha and summary of the fit indices for the confirmatory factor analysis (CFA) of the SWEMWBS

	α	χ^2	df	χ^2/df	p	RMSEA	90% CI	CFI	TLI	SRMR
One-factor CFA of SWEMWBS	.80	36.21	14	2.58	0.01	0.06	0.04;0.09	0.96	0.93	0.04
Recommended value	> .70			2-5	0.05	< 0.08 /		> 0.95	> 0.95	< 0.08 /
						< 0.05		/ >	/ >	< 0.05
								0.90	0.90	

Note. α = Cronbach's alpha coefficient, χ^2 = chi-square statistic; df = degrees of freedom; χ^2/df = normed chi-square; p = p -value of chi-square test; RMSEA = root mean square error of approximation; 90% CI = 90% confidence interval of the RMSEA; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean square residual.

Table 3

Item-level results from the reliability analysis, confirmatory factor analysis and exploratory factor analysis of the SWEMWBS

Item	Reliability		CFA		EFA	
	Corrected item-total correlation	α if item is deleted	Standardised factor loading	R^2	Standardised factor loading	Communality
1	.38	.80	.40**	.16	.42	.19
2	.51	.78	.53**	.28	.56	.27
3	.56	.77	.62**	.39	.63	.33
4	.59	.76	.69**	.48	.68	.40
5	.67	.75	.80**	.64	.79	.51
6	.50	.78	.58**	.33	.57	.29
7	.51	.78	.59**	.35	.58	.30

Note. CFA = confirmatory factor analysis; EFA = exploratory factor analysis; R^2 = proportion of variance explained by the extracted factor.

** $p < 0.01$

Table 4

Pearson's correlation coefficients between items of the SWEMWBS

Item	1	2	3	4	5	6	7
1	1.00						
2	.37	1.00					
3	.31	.35	1.00				
4	.29	.34	.47	1.00			
5	.27	.38	.47	.58	1.00		
6	.17	.34	.36	.34	.48	1.00	
7	.22	.33	.31	.37	.50	.36	1.00

Table 5

Pearson's correlation coefficients between the SWEMWBS and other measures of well-being

Scale	<i>r</i>
SWLS	.44**
MLQ-P	.44**
MLQ-S	-.17**
MHCSF-EWB	.52**
MHCSF-SWB	.54**
MHCSF-PWB	.56**
MHCSF-tot	.67**
PHQ	-.52**
PANAS-PA	.40**
PANAS-NA	-.36**

Note. SWLS = Satisfaction with Life Scale; MLQ = Meaning in Life Questionnaire; MLQ-P = MLQ – Presence subscale; MLQ-S = MLQ – Search subscale; MHCSF-tot = Mental Health Continuum Short Form – total score; MHCSF-EWB = MHCSF – Emotional Well-being subscale; MHCSF-SWB = MHCSF – Social Well-being subscale; MHCSF-PWB = MHCSF – Psychological Well-being subscale; MHCSF-tot = MHCSF – total score; PHQ = Patient Health Questionnaire – total score; PANAS = Positive Affect and Negative Affect Schedule; PANAS-PA = PANAS – Positive Affect subscale; PANAS-NA = PANAS – Negative Affect subscale.

**correlations significant at the 0.01 level

Section 3

Conclusion and Reflection

Conclusion

The purpose of the current study was to explore the psychometric properties of the English version of the SWEMWBS in a South African adult group by investigating the factorial validity, the internal consistency reliability, and the convergent and discriminant validity of the scale. In the present study the scale displayed sufficient factorial and convergent and discriminant validity as well as high internal consistency reliability within the specific South African sample. The results indicated that the English version of the SWEMWBS was acceptable for the particular multicultural South African adult sample within the study, and that it holds potential for future research and practice pertaining to mental well-being among South African adults.

The validation of a measure in each new context where it is applied is extremely important to ensure the fairness of assessments, especially in a diverse society like South Africa. If we are to expand our understanding of well-being and all its facets, it is essential that we should be able to measure the construct in a variety of contexts. The present study made an important contribution in this regard.

Despite making an important contribution, the present study only explored the validity of the English version of the SWEMWBS in a specific multicultural sample. Ideally, well-being scales that are intended for use across populations should accommodate the cultural diversity of the population and future research could focus on the adaptation as well as the translation of the scale specifically for the various indigenous South African groups. Such endeavours should keep in mind the possibility of misinterpretation or misunderstanding due to differences in meaning across cultures.

Critical Reflection on the Relevance of Scale Validation in the South African Context

After the first democratic elections in 1994 South Africa experienced regulation by a new constitution (Constitution of the Republic of South Africa, Act 108 of 1996) that emphasizes basic human rights. These human rights include the equality of all individuals according to the Employment Equity Act No. 55 of 1998 (Section 8) and questions concerning equality in psychological measurement were raised at that time. When a psychometric measure is to be used in a multicultural context, researchers need to pay attention to the cultural relevance and potential bias of the measure within that context (Foxcroft, 2004). The question arose as to the applicability of existing psychological knowledge and practice to the social problems in South Africa (De la Rey & Ipser, 2004; Macleod, 2004). In terms of psychological assessment, the new regulations meant greater demands on the cultural appropriateness of psychological measurement instruments. Culture includes the customs, language, practices and learned behaviours inherent to a specific group of people (Rasmussen & Lavish, 2014) and influences how we interpret certain questions and ultimately respond to questionnaires. In a multicultural setting like South Africa cultural differences may affect responses to psychometric measures, potentially reducing the validity of that measure for a specific group if the questionnaire is not suitable for that group (Meiring, van de Vijver, & Rothmann, 2006).

The validation of existing measures for use in the multicultural South African context is therefore extremely relevant in terms of attaining more accurate results. Scales that show promise in terms of cross-cultural suitability can be used in future research. No other validation studies on the English version of the SWEMWBS for a South African adult group could be found, indicating a knowledge gap in terms of the validation of this scale in the current context. This study aimed to address that gap.

Advantages of Brief Measures

Given the challenges of obtaining appropriate samples, the cost of conducting empirical research, and the time involved in gathering and analysing data, many researchers have shifted to a strategy of testing multiple hypotheses with the same sample (Carver, 1997). This typically involves different measures, placing a relatively large response burden on the participants, and the use of brief instruments is therefore an advantage for such studies (Carver, 1997). Brief measuring instruments have the further advantage of cost effectiveness, simpler administration and easier interpretation of results (Campbell & Hemsley, 2009). Shorter measuring instruments allow for easier administration among participants, which may reduce intentional (e.g. wilful misrepresentation) as well as unintentional (e.g. misunderstanding) respondent errors (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Higher levels of respondent errors may influence the validity of the measure (Brenner, Billy, & Grady, 2003). Brief measures such as the SWEMWBS that are found to be valid and reliable in specific contexts enable researchers to compare data and allow for the inclusion of more constructs in future studies. A unidimensional measure adds to the advantages by simplifying results considerably, giving a clear understanding of the outcomes (Brenninkmeijer & van Yperen, 2003).

Personal Reflection

Working as a counsellor and psychometrist in public education I am constantly surrounded by students from a vast variety of backgrounds, languages and cultures. I have come to realise that it is imperative that, even though the immediate need of students from different cultures might be similar in terms of the services we provide (psychometric testing, career counselling, emotional counselling, and study skills development), their diversity should be approached in a manner that reflects their cultural values and assures them of their importance as cultural beings within a cultural environment that might be different from their

own. This study has emphasized the importance of the validation of psychological and psychometric measures for the cultures in which they are applied. Most of the norms for psychometric measures available today are standardised for Western cultures but are also being used in practice to evaluate persons from other cultural backgrounds, mostly because norms for the vast variety of cultures specifically within South Africa are not readily available, if available at all. Realising this shortfall within psychology in South Africa made the validation of a scale being used in the South African multicultural context an obvious choice for research.

The research process was both challenging and rewarding. The first challenge was writing the research proposal and having it approved by the research committee. Having done that the next step was ethical approval. I was very fortunate that both these processes were received extremely well by the persons involved and approval was granted without major changes. During the process of writing this dissertation I not only gained knowledge about the research topic through the literature study and data analysis, but also learned valuable lessons about prioritizing, goal setting, persevering and time management. Each part of the dissertation had to be conducted in an organised manner and within a specific time frame. Being employed full-time and running a household with a toddler while at the same time writing a dissertation brought numerous challenges but also contributed to the realisation of the privilege of being able to work on this project.

I learnt about the importance of having scales validated for specific populations to ensure fairness and enhance reliability, while simultaneously broadening the credibility of the measure and the field of psychology as a whole. Although I am pleased with the results because they support the use of the scale in the multicultural South African context, I am not blind to the necessity of further research into the validation thereof for specific cultural and language groups, to further ensure the validity and reliability of the scale.

Looking back I can honestly say that even though I found the process of writing this mini-dissertation challenging in terms of time constraints and other commitments, I also found the process exciting and liberating. I enjoyed exploring the literature about the topic and learning about scale validation in general, and I discovered that more often than not we can achieve more than we think we are capable of. I obtained valuable skills in report writing and self-insight. I was recently asked if I would consider doing a master's degree again, having now gone through the mini-dissertation process. I can honestly say that yes, I would. I found the learning process immensely rewarding, especially learning about statistics – the role and interpretation thereof. I have a great love of learning and feel enriched by having completed this step in my academic career.

I am immensely grateful to all who afforded me this opportunity and supported me throughout the journey.

References

- Brener, N. D., Billy, J. O., & Grady, W. R. (2003). Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: evidence from the scientific literature. *Journal of adolescent health, 33*(6), 436-457.
- Brenninkmeijer, V., & van Yperen, N. (2003). How to conduct research on burnout: advantages and disadvantages of a unidimensional approach in burnout research. *Occupational and environmental medicine, 60*(suppl 1), i16-i20.
- Campbell, A., & Hemsley, S. (2009). Outcome Rating Scale and Session Rating Scale in psychological practice: Clinical utility of ultra-brief measures. *Clinical Psychologist, 13*(1), 1-9.
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International journal of behavioral medicine, 4*(1), 92-100.
- De la Rey, C., & Ipser, J. (2004). The call for relevance: South African psychology ten years into democracy. *South African Journal of Psychology, 34*(4), 1.
- Employment Equity Act, number 55 (1998).
- Foxcroft, C. D. (2004). Planning a psychological test in the multicultural South African context. *SA Journal of Industrial Psychology, 30*(4), 8-15.
- Macleod, C. (2004). South African psychology and relevance: Continuing challenges. *South African Journal of Psychology, 34*(4), 613-629.
- Meiring, D., van de Vijver, F. J. R., & Rothmann, S. (2006). Bias in an adapted version of the 15FQ+ in South Africa. *South African Journal of Psychology, 36*, 340-356.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology, 88*(5), 879.

- Rasmussen, H. N., & Lavish, L. (2014). Broad Definitions of Culture in the Field of Multicultural Psychology. In J. Teramoto Pedrotti & L. M. Edwards (Eds.), *Perspectives on the Intersection of Multiculturalism and Positive Psychology* (Vol. 7, pp. 17-30). Dordrecht: Springer.
- Constitution of the Republic of South Africa. (1996). Government Gazette, no. 17678, Vol. 400, Cape Town, 19 October 1998.