

A partial validation of the WHOQOL-OLD in a sample of older people in South Africa

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PREFACE

The candidate chose to write an article consequently that it can be submitted to **Health and Quality of Life Outcomes** as the chosen research topic is in line with the aim and scope of the journal.

Health and Quality of Life Outcomes is an open access, peer-reviewed, online journal offering high quality articles, rapid publication and wide diffusion in the public domain. Health and Quality of Life Outcomes aims to promote the dissemination of knowledge on the Health-Related Quality of Life (HRQOL) assessment within the scientific community.

Health and Quality of Life Outcomes considers original manuscripts on Health-Related Quality of Life (HRQOL) assessment for the evaluation of medical interventions or psychosocial approaches and studies on psychometric properties of HRQOL and patient reported outcome measures, including cultural validation of instruments if they provide information about the impact of interventions. The journal will also consider study protocols and reviews summarising the present state of knowledge concerning a particular aspect of HRQOL and patient reported outcome measures. Reviews should generally follow systematic review methodology.

- The article is formatted according to the American Psychological Association's guidelines for examination purposes.
- The candidate is of aim to format the article for the intended journal (Health and Quality of Life Outcomes) according to guidelines for authors, upon examination.

INTENDED JOURNAL AND GUIDELINES FOR AUTHORS

This dissertation will be submitted to *Health and Quality of Life Outcomes* for possible publication.

Guidelines for Authors

Overview of Manuscript Sections for Research Articles

Manuscripts for Research Articles submitted to Health and Quality of Life Outcomes should be divided into the following sections (in this order):

- Title page
- Abstract
- Additional non-English language abstract
- Keywords
- Background
- Methods
- Results and discussion
- Conclusions
- List of abbreviations used (if any)
- Competing interests
- Authors' contributions
- Authors' information
- Acknowledgements
- Endnotes
- References
- Illustrations and figures (if any)
- Tables and captions
- Preparing additional files
- Style and language
- General

Currently, Health and Quality of Life Outcomes can only accept manuscripts written in English. Spelling should be US English or British English, but not a mixture. There is no explicit limit on the length of articles submitted, but authors are encouraged to be concise. Health and Quality of Life Outcomes will not edit submitted manuscripts for style or language; reviewers may advise rejection of a manuscript if it is compromised by grammatical errors. Authors are advised to write clearly and simply, and to have their article checked by colleagues before submission. In-house copyediting will be minimal. Non-native

speakers of English may choose to make use of a copyediting service.

Abbreviations. Abbreviations should be used as sparingly as possible. They should be defined when first used and a list of abbreviations can be provided following the main manuscript text.

Typography. Please use double line spacing. Type the text unjustified, without hyphenating words at line breaks. Use hard returns only to end headings and paragraphs, not to rearrange lines. Capitalize only the first word, and proper nouns, in the title. All pages should be numbered. Use the Health and Quality of Life Outcomes reference format. Footnotes are not allowed, but endnotes are permitted. Please do not format the text in multiple columns. Greek and other special characters may be included. If you are unable to reproduce a particular special character, please type out the name of the symbol in full. Please ensure that all special characters used are embedded in the text, otherwise they will be lost during conversion to PDF.

I dedicate this study to my beloved husband, Abie van Biljon.

Thank you for all the personal sacrifices made
for me to be able to the pursue my ideals.

May our Father's hand rest upon you always.

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A special word of appreciation and acknowledgement to all the **older people** that availed themselves to be part of this study.

OPSOMMING

`n Gedeeltelike validasie van die WHOQOL-OLD in `n steekproef van ouer persone in Suid-Afrika

Hierdie artikel beskryf die psigometriese eienskappe van die WHOQOL-OLD (`n bygevoegde module tot die Wêreld Gesondheid Organisasie se meetinstrument vir lewenskwaliteit onder ouer persone) in `n Suid-Afrikaanse steekproef. In internasionale literatuur word drie korter weergawes van die WHOQOL-OLD instrument ook gemeld. Die psigometriese eienskappe wat geassosieer word met hierdie drie kort weergawes van die WHOQOL-OLD word ook beskryf.

Die unieke uitdagings wat verouderende populasies voorhou, word in beide ontwikkelde en ontwikkelende lande beleef. In Suid-Afrika vermeerder die ouer populasie ook drasties. Daar is `n oneweredige verspreiding van ouer persone per etniese groep, met wit ouer persone wat die grootste groep van ouer Suid-Afrikaners verteenwoordig (21%, proporsioneel tot etniese groep). Ongeag die integrasiebeleide in postapartheid Suid-Afrika, veral in terme van behuisingsaangeleenthede, word die meerderheid van lang-termyn sorgfasiliteite steeds hoofsaaklik deur wit ouer persone bewoon. Vir hierdie rede het grootliks wit ouer persone die steekproef populasie van hierdie studie uitgemaak. Daar word wel projeksies gemaak dat hierdie prentjie in die toekoms sal verander as gevolg van `n meer aggressiewe transformasie-gedrewe beleid.

`n Nasionale oudit van residensiële sorgfasiliteite in 2010 het `n behoefte aan psigososiale intervensies getoon aangesien die lewenskwaliteit van inwoners as onbepaald

bevind is. In Suid-Afrika is navorsing te make met lewenskwaliteit grootliks vanuit `n sosio-ekonomiese- of gesondheidsorgperspektief gedoen. Die fokus is ook gewoonlik op `n spesifieke gemeenskap waarbinne ouer persone nie eksplisiet ingesluit word nie. Bewyse bestaan van verskeie kwalitatiewe studies onder ouer persone wat in lang-termyn sorgfasiliteite woon, vanuit `n psigologiese perspektief. Die tekort aan kwantitatiewe studies in hierdie area is egter betekenisvol.

Die afwesigheid van meetinstrumente, soos ontwerp vir `n ouer populasie, het ook gelei tot `n vergrote aanvraag vir die ontwikkeling van gerontologiese meetinstrumente met goeie psigometriese eienskappe om lewenskwaliteit te bepaal. Internasionaal het verskeie meetinstrumente soos toegepas onder ouer ouderdomsgroepe toenemend gewild geraak. Hierdie studie was veral geïnteresseerd in die WHOQOL-OLD instrument. Onder die dekmantel van die Wêreld Gesondheid Organisasie groep vir Lewenskwaliteit, het die samewerkende poging van talle navorsers van verskeie lande gelei tot die ontwikkeling van `n instrument wat fokus op die lewenskwaliteit van ouer populasie kohorte. Die aanvanklike ontwikkeling van die generiese WHOQOL meetinstrumente van lewenskwaliteit het in 15 sentrums oor die wêreld plaasgevind, hoewel nog nie in Suid-Afrika nie. Tydens die ontwikkeling van die bygevoegde module (die WHOQOL-OLD) vir ouer persone, was 22 sentrums wêreldwyd betrokke (Suid-Afrika uitgesluit).

Daar behoort nie aangeneem te word dat meetinstrumente wat in Westerse kontekste ontwikkel is toepaslik is in `n Suid-Afrikaanse konteks nie. Suid-Afrika is `n baie diverse nasie - die meerderheid van etniese groepe konformeer tot `n kollektivistiese bestaan. Gevolglik is die vasstelling van die psigometriese eienskappe vir sulke meetinstrumente in `n Suid-Afrikaanse konteks nodig. Dit is belangrik om te merk dat die deelnemers in hierdie

studie meer individualisties ingestel is wat goed vergelyk met die tendens in Westerse samelewings. Hierdie studie was die eerste stap in die verkenning van die instrument se betroubare gebruik in Suid-Afrika. Vraelyste is voltooi deur 176 ouer persone wat Afrikaanssprekend en Engels magtig was. Die deelnemers is woonagtig in lang-termyn sorgfasiliteite in Potchefstroom, Noordwes provinsie van Suid-Afrika. Hulle ouderdomme het gewissel tussen 61 en 95 en die gemiddelde ouderdom van deelnemers was 77 jaar. Daar was 50 manlike- en 126 vroulike deelnemers. Almal het gemiddeld tot goeie gesondheid en kognitiewe vaardigheid gerapporteer. Die huidige studie het bevestigende resultate gehad ten opsigte van die oorspronklike faktor struktuur van die WHOQOL-OLD sowel as die drie kort weergawes van die instrument. Resultate van hierdie huidige steekproef blyk om in ooreenstemming te wees met die oorspronklike struktuur-model. Die betroubaarhede geassosieer met die verskillende sub-dimensies dui op 'n betroubare instrument. Die oorspronklike WHOQOL-OLD vraelys met sy 24-items of enige van die drie kort weergawes van die instrument kan gevolglike toegepas word in die Suid-Afrikaanse konteks.

Sleutelwoorde: Lewenskwaliteit; ouer persone; lang-termyn sorgfasiliteit; psigometriese eenskappe; WHOQOL-OLD meetinstrument.

SUMMARY

A partial validation of the WHOQOL-OLD in a sample of older people in South Africa.

This article describes the psychometric properties of the WHOQOL-OLD (an add-on module to the World Health Organization's Quality of Life measure for older people) in a South African sample. International literature cites three short versions of the WHOQOL-OLD instrument. The psychometric properties associated with these three short versions of the WHOQOL-OLD are also described.

The unique challenges posed by ageing populations are evident in both developed and developing countries. In South Africa the elderly population is also increasing dramatically. There is a disproportionate distribution of older persons per ethnic group, with white older people representing the largest group of older South Africans (21%, proportional to ethnic group). Regardless of integration policies in post-apartheid South Africa, especially in terms of housing arrangements, the majority of long-term care facilities in South Africa remain to be occupied predominantly by white older people. For this reason the participants of this study were mostly older white South Africans. It is, however, projected that this picture will change in future times due to more aggressive transformation-driven policies.

A national audit of residential care facilities by the Department of Social Development in 2010 indicated a need for psychosocial interventions since the QoL of residents was found to be undetermined. QoL research in South Africa has largely been conducted from socio-economic and health-care perspectives and has tended to focus on specific societies in which older people are usually not explicitly included. Evidence exists of various qualitative studies among older people living in long-term care facilities, from a

psychological perspective. However, the short supply of quantitative studies in this setting is significant.

The lack of measurements developed for an older population also resulted in an increasing need for the development of gerontological QoL measurements with sound psychometric properties. Internationally, various measures of QoL utilised in older age groups have become increasingly popular. This study took particular interest in the WHOQOL-OLD instrument. Under the auspices of the World Health Organization Quality of Life group, a collaborative effort among numerous researchers from various countries has led to the development of a measure focussing on the QoL in older population cohorts. The initial development of the generic WHOQOL measures of quality of life occurred in 15 different centres worldwide, excluding South Africa. In the development of an add-on module, 22 centres around the world were involved (again excluding South Africa).

It cannot be assumed that measuring instruments developed in a Western context are applicable in an African context. South Africa is a very diverse nation - the majority of ethnic groups lead a collectivistic existence. As a result the determination of the psychometric properties of such instruments, for use within South Africa, was needed. It is of importance to note that the participants of this study were more individualistically inclined, which is comparable to Western societies. This study was the first step in exploring the instrument's reliable use within South Africa. Surveys were completed by 176 older people who were fluent in both Afrikaans and English. Participants of the study resided in long-term care facilities in Potchefstroom in the North-West province of South Africa. Their ages varied between 61 and 95 and the mean age of participants was 77 years. Of the respondents, 50 were male and 126 were female. All reported average to good health and cognitive ability. The current study found encouraging results related to the original factor structure of the WHOQOL-OLD as well as the three shorter versions of this instrument. Results from the

data of the current sample seem to fit the original structure model well. The reliabilities associated with the various sub-dimensions point to a reliable instrument. The original WHOQOL-OLD questionnaire with its 24 items or any of the three short versions of this instrument can therefore be utilised in a South African context.

Keywords: Quality of life; older people; long-term care facility; psychometric properties; WHOQOL-OLD measuring instrument.

PERMISSION TO SUBMIT ARTICLE FOR EXAMINATION PURPOSES

The candidate opted to write an article, with the support of her supervisor.

I hereby grant permission that she may submit this article for examination purposes in partial fulfilment of the requirements for the degree Master of Arts in Clinical Psychology.

Prof. V. Roos

DECLARATION BY RESEARCHER

I hereby declare that this research manuscript, **A partial validation of the WHOQOL-OLD in a sample of older people in South Africa**, is my own effort.

I also declare that all sources used have been referenced and acknowledged.

Furthermore I declare that this dissertation was edited and proofread by a qualified language editor as prescribed.

Finally I declare that this research was submitted to the Turn-it-in Software and a satisfactory report was received with regards to plagiarism.

L. van Biljon

BACKGROUND AND LITERATURE REVIEW

Population Ageing

The global phenomenon of population ageing has given rise to multiple concerns pertaining to social welfare, health care systems and governmental legislation (De Luca d'Alessandro, Bonacci, & Geraldi, 2011). The shift to an older age structure in- and across nations is the result of long-term downward trends in fertility together with gains in the mean life expectancy (Grundy & Tomassini, 2005). Population statistics by the Population Reference Bureau (2012) indicate that the number of persons aged 60 years and over is expected to sharply increase by 2050. Projections show that more than 1 in every 5 people will be aged 60 years or over by then. The latter translates to 2 billion people being older than 60 years by 2050 (Population Reference Bureau, 2012).

Population Ageing in Developing Countries

Joubert and Bradshaw's (2006) work indicates that population ageing is currently happening more rapidly in developing countries, as opposed to the more gradual process seen in developed countries. In developing regions, the number of persons currently aged 60 years or over is expected to increase nearly fourfold from 2005 to 2050 (Population Reference Bureau, 2012). South Africa has one of the most rapidly ageing populations in Africa (Westaway, Olurunju, & Rai, 2007). According to the Population Reference Bureau (2012), 86% of all older persons in Southern Africa reside in South Africa. These numbers demand attention. Aboderin (2005) expressed her concern about the impact that changing family structures and societal shifts in living arrangements has on older people's quality of life (QoL) in developing countries such as South Africa.

According to the 2011 national census, the South African population increased from 40.5 million in 1996 to 51.7 million in 2011 (41 million black, 4.6 million coloured, 4.6 millio

n-white and 1.5 million Asian/Indian). The 2011 national census indicated life expectancy as 54 years for men and 59 years for women (Statistics South Africa, 2011). These estimates take into account the effects of decreased mortality due to HIV and AIDS. The life expectancy figures of white South Africans as an ethnic sub-population are far above the national projected expectancies (Timaeus, Dorrington, Bradshaw, & Nannan, 2001).

Closer investigation of the 2011 estimates revealed that 5.9% of black-, 7.3% of coloured-, and 10% of Asian/Indian South Africans are aged 60 years and above. White South Africans aged 60 or older account for 21% of the entire white population, which is considered to be substantial. It is expected that within the next decade this figure will increase to 30% (Statistics South Africa, 2011). This sharp increase can be ascribed to migration patterns (many young white South Africans immigrate abroad, leaving an older cohort behind), low fertility rates (females in this ethnic group tend to have fewer babies at older ages), and the baby boomer incursion (a larger birth cohort followed the end of World War II in 1945) (Biggs, Phillipson, Leach, & Money, 2007).

Socio-political Influences

The National Party was voted into power in 1948 after which a policy of apartheid or 'the separate development of the races' was installed. Only after the multi-racial elections in 1994 an end was brought to the apartheid regime by the ANC-led government. Ever since, the South African government has struggled to rectify the imbalances between racial groups, especially pertaining to education, employment equity, health care and adequate housing (Thompson, 2000).

Living Arrangements of Older People in South Africa

With the increase of older individuals in the population, an increasing demand for lon

g-term living arrangements resulted since there are more older people dependent on care by others (Van der Walt, 2011). A long-term living arrangement is defined as “a building or other structure used primarily for the purposes of providing accommodation and of providing 24-hour service to older persons” (Older Persons Act, No. 13 of 2006, p. 6, Department of Social Development, 2006). An audit by the Department of Social Development found that the majority of facilities (79%) are located in metropolitan and urban areas. Sixteen per cent (16%) of long-term care facilities are concentrated in rural areas and a mere 5% of these facilities are located in informal/squatter areas. This has the effect that these facilities are mainly occupied by white older people (Department of Social Development, 2010). Furthermore, facilities are distributed disproportionately. There are more facilities in the wealthier provinces such as the Western Cape and Gauteng, and fewer facilities in poorer provinces such as the Eastern Cape, Limpopo and the Free State.

Policies on Ageing in South Africa

The South African government aligned the national legislation pertaining to older people, the Older Persons Act (Department of Social Development, 2006), with international objectives as posed by the Madrid International Plan of Action on Ageing (2002). The main objectives for older persons as quoted from the Older Persons Act in 2006, are:

- To maintain and promote the status, well-being and quality of life, safety and security of older persons,
- To ensure that older persons remain in the community as long as they can,
- To promote participation of older persons in the community so as to promote them as people, and
- To recognise the skill and wisdom of older persons.

This study takes on a particular interest in the challenges associated with-, and the pro

motion of the QoL of older people as stipulated in one of the main objectives in the act (see first objective above).

A Précis of QoL

Evident from the preceding section is the notion that both international and national policies emphasise the QoL of older people. QoL as a construct is used across various disciplines, mainly as a general description that includes the physical and non-physical dimensions of life in general (Skelton & Dinan-Young, 2008).

Definitions of QoL. The various definitions of QoL as found in the literature reveal the differences in opinion and the complexity of the concept. Mendola and Pelligrini (1979) were of the opinion that QoL is the individual's satisfaction with their social situation, whilst noting perceived physical capacity. Møller (2007) stated that QoL can be seen as how well a country's citizens live. Higgs and his colleagues (2007), who used the term everyday quality of life (EQL), defined it as the function of the resources and external factors that affect how that person is able to live as well as the internal choices that a person makes along with their effects; how satisfied an individual is; and the perceived level of subjective well-being or happiness. According to Veenhoven (2000), a proper definition of QoL ought to take into account 'the livability of an environment, the utility of life, the life-ability of a person and the appreciation of life measured against life changes. The definition, found to be best aligned with objectives of this study, and consequently used as the operational definition throughout this manuscript, is the one posed by the World Health Organization (WHOQOL, 1993). This definition holds that QoL includes an individual's perception of their position in life in the context of the culture and value systems in which they live in relation to their goals.

Theories of QoL. Two categories of QoL-theories are found within the literature; the so-called top-down or bottom-up theories. The bottom-up theories state that one's satisfaction

with the various domains in one's life accumulate to a sense of overall well-being and happiness (Møller, 2004). QoL research has traditionally been dominated by this theory. The Multiple Discrepancy Theory, or top-down theory, has lately gained some field in the literature and holds that overall satisfaction with one's life is indicative of how one feels about the various aspects of life (Gaibie & Davids, 2011; Møller, 2004).

Measuring QoL. QoL and its properties have been widely studied across many disciplines with little indication of its exact meaning. Various measures are available in the health-orientated and economic disciplines (Ball & Chernova, 2008; Brown et al., 2003; Chyun et al., 2006; Hayo & Seifert, 2003; Jones, Voaklander, Johnston, & Suarez-Almazor, 2001; Revicki, 1989). According to Daatland (2005) the health-orientated and economic disciplines have primarily influenced the overall perception of QoL. Within the discipline of psychology, research on QoL has numerous focal areas. Baltes and Smith (2003) found that QoL studies tend to measure or describe a singular factor of QoL or focus on a specific domain. Furthermore, a review by Hambleton, Keeling and McKenzie (2009) showed that diverse disciplinary interest in QoL bears little consensus as a result of different underlying theoretical approaches.

QoL research among older persons. There seems to be a growing recognition in the literature that studying QoL amongst older people is a complex matter. According to Hyde, Wiggins, Higgs and Blane (2003), QoL research in older population samples requires greater transparency in terms of population dynamics and research aims, context, methodology and theoretical grounding. The lack of QoL measurements developed for and within the elderly population resulted in an increasing need for the development of gerontological QoL measurements with sound psychometric properties (Halvorsrud & Kalfoss, 2007).

Internationally, various measures of QoL in older age groups have become increasingly popular (Bowling & Stenner, 2011; Grant & Bowling, 2011), including the Older People's

Quality of Life Questionnaire (OPQOL), the 19-item Control, Autonomy, Satisfaction and Pleasure questionnaire (CASP-19) and the older people's version of the World Health Organization's Quality of Life questionnaire (WHOQOL-OLD). The present study took a particular interest in the WHOQOL-OLD instrument and its short forms as condensed by Fang et al. (2011). These authors established three short-form versions of the WHOQOL-OLD module. The short forms contain the best items of the original module, but are much shorter and demonstrate good internal consistency and criterion validity.

A Psychological Perspective on QoL

Psychological perspectives on QoL shed light on the wellness in human beings which has a link to the broader fortigenic paradigm and the sub-discipline of positive psychology (Seligman & Csikszentmihalyi, 2000; Strümpher, 1995). Historically, the epistemology of positive psychology has conformed to a deductive and quantitative research approach (Linley, Joseph, Harrington, & Wood, 2006). According to Sheldon and King (2001) the focus of social research interest ought to be on understanding the entire breadth of human experience, and it has been found that the discipline of positive psychology has made advances to also suit the goal of qualitative research. Positive psychology has been depicted as making a call on mainstream psychology to have a greater focus on the positive aspects of human nature and individual traits and virtues (Seligman & Csikszentmihalyi, 2000). Dunn and Dougherty (2005) referred to positive psychology as a science towards understanding human strengths in order to help people both psychologically and physically.

Psychology of ageing and QoL. Ageing is considered to be a natural, universal complex and highly individual process characterised by progressive declines in the function of most physiological and psychological systems, which leads to increasing frailty (Skelton & Dinan-Young, 2008). A consensus definition of ageing is a process or group of processes occurring

in living organisms that begins with birth and with the passing of time leads to a loss of adaptability, functional impairment and eventually death (Spirduso, Francis, & MacRae, 2005). There is often little consistency across studies on the question of when late life begins (Belsky, 1999; Stuart-Hamilton, 2006). Gerontologists tend to select a figure of 60 years or 65 years to denote the age of onset, as various psychological and physical changes tend to manifest around this threshold (Bromley, 1988; Decker, 1980). In this study, people of 60 years and over were considered older people. In South Africa this is also the age when citizens become entitled to receive their pension benefits. Apart from describing stages of ageing or onset of ageing, efforts to examine behaviour in old age are more recent when compared to examinations of behaviour in children as one of psychology's oldest fields of inquiry (Birren & Schroots, 2000).

The psychology of ageing is the study of behaviour in the ageing phase of life (Belsky, 1999). Over the past few decades the psychology of ageing has become an established field and, as described by Belsky (1999), the field is bound to branch out to many other fields. The behaviour of older people is shaped by everything from their health status, cognitive capacity, their historical context and their socio-economic-position.

Theories in psychology of ageing. Psychological theories of ageing include lifespan development theory which is the most recent and widely cited explanatory framework in the psychology of ageing (Baltes & Smith, 1999), the theory of selective optimisation with compensation (Baltes & Baltes, 1990), socio-emotional selective theory (Carstensen, 1992), cognition and ageing theory (Salthouse, 1999), personality and ageing theory (Levinson, 1978) and gerotranscendence theory (Tornstam, 1996). The researcher also found particular interest in the literature concerned with lifespan development theory (Johnson, 2005). Lifespan development theory favours the continuous developmental capacity of older people despite the limitations of ageing. The focus here is on how the adaptive fitness and resilience of older people are influenced by the dynamics of lifespan development. Baltes and Smith (1999) postulate that

t a condition of loss or constraint has the ability to catalyse positive change in older people. Lifespan development theory is furthermore aligned with the ontological assumptions that social reality is not fixed (Gergen, 2009) and that older people's physical, cultural, historical and environmental conditions have an impact on how they perceive QoL. This also complies with Bengtson, Elder and Putney (2005), who stated that contemporary perspectives of QoL in old age cannot be regarded as a relevant truth for all older people.

Psychological Studies of QoL Research amongst Older People in South Africa

Most of the existing studies on the QoL of older people have taken place in Western contexts. From a quantitative and psychological framework, little research was found in the South African literature. QoL research in South Africa has largely focussed on specific societies, in which older people are not explicitly included (Møller, 2000; Møller, 2004; Dept. of Social Development, 2007). South African studies have also largely been conducted from socio-economic or health perspectives (Møller, 2000; Møller, 2004; Ferreira, Lund, & Møller, 1995). Evidence has been found of qualitative studies among older people living in long-term care facilities (Roos & Malan, 2012; Roos & du Toit, 2014; Van Biljon & Roos, in press; Van Biljon, Roos, & Botha, 2014; Van der Walt, 2011). However, quantitative studies in South African settings are in short supply. This research was thus motivated by the fact that there seems to be limited evidence of psychological studies of QoL amongst older persons. Furthermore, the researcher aspired to determine whether an internationally validated questionnaire on QoL for older people could reliably be applied within the South African context.

Reliable use of the WHOQOL-OLD questionnaire or its short forms among older people within a South African sample will yield a concise measure of older people's rating of QoL. Especially in the context of long-term care institutions, such findings could provide care givers, management and even policy makers with a more holistic idea of what older

people need in order to have QoL. The research question is therefore whether or not the WHOQOL-OLD and the shorter versions thereof can be used as a reliable instrument for measuring the QoL of older people living in long-term care facilities in Potchefstroom, South Africa.

Article Proceedings

The conducted research will be presented in an article format. A critical reflection will follow the article with the aim to clarify and account for the contribution made by the study in the field of gerontological research.

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TITLE OF DISSERTATION, AUTHORS AND CONTACT DETAILS**A partial validation of the WHOQOL-OLD in a sample of older people in South Africa**

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MANUSCRIPT FOR EXAMINATION

Abstract

This paper describes the psychometric properties of the WHOQOL-OLD, an add-on module to the World Health Organisation's Quality of Life measure for older people in a South African sample. The WHOQOL-OLD module was further condensed into three short versions which contain the best items of the original module. The psychometric properties associated with the three short versions of the WHOQOL-OLD are also described. Data were collected from Afrikaans-speaking older people ($n = 176$) residing in long-term care facilities in Potchefstroom, situated in the North-West province of South Africa. The mean age of participants was 77 years. Fifty (50) participants were male and 126 were female. All reported average to good health and cognitive ability. The current study found encouraging results related to the original factor structure of the WHOQOL-OLD as well as the three short versions of this instrument. Results stemming from the data of the current sample seem to be a good fit with the original factor structure of the WHOQOL-OLD. The reliabilities associated with the various sub-dimensions point to a reliable instrument. The WHOQOL-OLD with its 24 items, or any of the three short versions of this instrument can, therefore, be utilised in a South African context (version 1 of the short versions seems to be the better fitting version).

Keywords: Quality of life; older people; long-term care facility; psychometric properties; WHOQOL-OLD measuring instrument

Introduction

The transition to an older age structure (also known as population ageing) is a consequence of gains in average life expectancy and long-term downward trends in fertility (Grundy & Tomassini, 2005). The work of Joubert and Bradshaw (2006) has shown that population ageing was formerly experienced as a gradual process by more developed countries. Currently population ageing seems to happen more rapidly in both developed and developing countries. Population ageing can yet be described as a global phenomenon according to Joubert and Bradshaw (2006). Developing countries conform to similar demographic trends and are ageing faster than developed countries. As a developing country, South Africa has a rapidly ageing population. As described by Westaway, Olorunju and Rai, (2007) 'one of the most rapidly ageing populations in Africa'. Eighty-six (86) per cent of all older persons in the southern part of Africa reside in South Africa, according to the Population Reference Bureau (2012).

With the swift increase in the number of older persons, an increasing demand for long-term care facilities has arisen. Older people are often dependent on others/carers for support. According to Van der Walt (2011) there are fewer people to look after the increasing numbers of older people needing this care. According to South African legislation, a long-term care facility can be described as "a building or other structure used primarily for the purposes of providing accommodation and of providing 24-hour service to older persons" (Older Persons Act, No. 13 of 2006, p. 6, Dept. of Social Development, 2006). Pre-1994 socio-political influences have exerted a major impact on the availability of long-term care for all older persons in South Africa. The majority of facilities were only made available for white older people under apartheid rule. However, these facilities were neutralised in post-apartheid South Africa and opened to all South Africans regardless of their ethnicity (Dept. of Social Development, 2010). An audit by the Department of Social Development found that

79% of these facilities are concentrated in metropolitan areas or small urban areas (also known as formal areas). A mere 5% of long-term care facilities are situated in squatter areas or informal areas. There seems to be more of a distribution in rural areas (16%). The majority of these facilities are currently still occupied predominantly by white older people (Dept. of Social Development, 2010). However it has been projected by the same department that this picture will change in future times due to transformation driven policies.

Long-term care facilities are a well-liked preference for older people as it provides them with safety and security. Moreover, residence in these facilities is financially more sustainable to older people than alternate forms of living. Concepts like service, care, comfort and socialisation form part of what these facilities have to offer (Wanless, 2001). However, the conversion from living independently to living in an institution is challenging for some older individuals. Various intra- and interpersonal forfeits are required when adapting in a new living environment (Lee, Woo, & MacKenzie, 2002). Physical living space is often reduced and privacy is often compromised. Individual circumstances determine the fostering- or frustrating effect of institutionalised living. The latter has a great impact on the quality of life (QoL) of older people. In long-term care facilities, QoL is furthermore found to be a significant predictor of mortality and physical dependence (Dorr, et al. 2006).

The properties of QoL have been studied widely across many disciplines with limited indication of its exact meaning (Hambleton, Keeling, & McKenzie, 2009). For some time now there seems to have been a growing recognition that the QoL of older people is complex and the study thereof requires greater transparency in terms of context, population dynamics and research aims, methodology and theoretical grounding (Hyde, Wiggins, Higgs, & Blane, 2003). The definition of QoL also brings to the fore certain controversies as there is little consensus on how QoL ought to be defined (Kane, 2003; Lee, Yu, & Kwong, 2009). The definition proposed by the World Health Organization Quality of Life group (WHOQOL,

1993) is adopted for the purpose of this study. The group holds that QoL is ‘a multi-dimensional concept which involves an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns’.

QoL research in South Africa has largely demonstrated a focus on specific societies - older people are usually not explicitly included in these societies (Møller, 2000; Møller, 2004; Dept. of Social Development, 2007). Socio-economic and health care perspectives have furthermore dominated the focus of South African studies on QoL (Møller, 2000; Møller, 2004; Ferreira, Lund, & Møller, 1995). There seems to be evidence of various qualitative studies among older people living in long-term care facilities (Roos & Malan, 2012; Roos & du Toit, 2014; Van Biljon & Roos, in press; Van Biljon, Roos, & Botha, in press; Van der Walt, 2011). However, there is a markedly short supply of quantitative studies in this setting.

The lack of QoL measurements developed for and within the elderly population has resulted in an increasing need for the development of gerontological QoL measurements with sound psychometric properties (Halvorsrud, Kalfoss, & Diseth, 2008). Internationally various measures of QoL in older age groups have become increasingly popular (Bowling & Stenner, 2011; Grant & Bowling, 2011), including Older People's Quality of Life Questionnaire (OPQOL), the 19-item Control, Autonomy, Satisfaction and Pleasure-Questionnaire (CASP-19) and the older people version of the World Health Organization's Quality of Life Questionnaire- version for older people (WHOQOL-OLD). This study took particular interest in the WHOQOL-OLD instrument.

Under the auspices of the World Health Organization Quality of Life group, a collaborative effort among numerous researchers from various countries has led to the development of a measure focusing on the QoL in older population cohorts (Power, Quinn, &

Schmidt, 2005). The initial development of the generic WHOQOL measures of quality of life occurred in 15 different centres worldwide. Two main generic instruments resulted; the WHOQOL-100, which consists of 24 facets grouped into six domains, and the WHOQOL-BREF which is a reduced 26-item version with four domains. The development of these instruments included a multidimensional and multicultural approach that suggested the assessment of physical, psychological, social relations, environmental and overall QoL and health satisfaction domains (Skevington, Sartorius, & Amir, 2004). Controversy over the issue of whether the WHOQOL instruments that had been validated in younger adult populations were suitable for elderly samples led to the development of an add-on module for older people.

In the development of an add-on module, 22 centres around the world were involved in conducting focus groups with older people, their carers and other professionals working with older people (Power et al., 2005) (South Africa was not one of the centres). These focus groups aimed to identify gaps in die original generic instruments which were relevant to QoL for older people. The outcome was a 24-item, 6-facet module (4 items per facet).

These six facets include, in no particular order: Sensory Abilities (SAB); Autonomy (AUT); Past, Present, and Future Activities (PPF); Social Participation (SOP); Death and Dying (DAD); and Intimacy (INT). The "Sensory Abilities" facet includes 4 items which assess sensory functioning and the impact of loss of sensory abilities on quality of life, e.g. *'To what extent do problems with your sensory functioning (hearing, vision, taste, smell, touch) affect your ability to interact with others'*. The "Autonomy" facet refers to independence in old age and describes the extent to which the older person is able to live autonomously and to take own decisions, e.g. *'How much freedom do you have to make your own decisions?'*. The "Past, Present, and Future Activities" facet describes satisfaction about achievements in life and as well as things to which the older person looks forward, e.g. *'To*

what extent do you feel that you have enough to do each day?'. The "Social Participation" facet delineates participation in activities of daily living, especially in the community, e.g. *'How satisfied are you with your opportunity to participate in community activities?'*. The "Death and Dying" facet is related to concerns, worries and fears about death and dying, e.g. *'How much do you fear being in pain before you die?'*, while the "Intimacy" facet includes 4 items concerned with the older person's ability to have personal and intimate relationships, e.g. *'To what extent do you experience love in your life?'* (Power & Schmidt, 2006).

Similar to other WHOQOL instruments (WHOQOL-100, WHOQOL-Bref), each item is scored on a Likert-type scale ranging from 1 to 5 with higher scores representing greater QoL. Items 1, 2, 6, 7, 8, 9 and 10 are reverse-coded items. The time period assessed in the module comprises the two-week period prior to testing and the instrument is based on self-report. The work of Fang et al. (2011) further condensed the WHOQOL-OLD module by establishing three short-form versions of the module. The short forms contain the best items of the original module, but are much shorter and demonstrate good internal consistency and criterion validity. Older adults with poor vision or physical disabilities or serious illness may find it less problematic to read and complete the shorter version of the questionnaire (Fang et al., 2011). These researchers suggested that "more studies on the validation of these three versions of the short-form WHOQOL-OLD module will be necessary with new data sets in order to allow implementation in future international studies" (Fang et al., 2011, p. 77).

On par with studies in other countries such as Norway (Halvorsrud, Kalfoss, & Diseth, 2008), Brazil (Chachamovich, Fleck, Trentini, & Power, 2011) and the United Kingdom (Fang et al, 2011), the aim of this study is to describe the reliability of the WHOQOL-OLD and the short versions of the module by means of analysing the metric properties thereof based on research conducted in a South African sample of older people (aged 60 years and older) residing in long-term care facilities.

Problem Statement

An audit of long-term care facilities by the Department of Social Development (2010) stipulated that the QoL of older people in these settings is ill-defined and undetermined. A failure to operationalise the concept of QoL adequately for older people will endanger welfare proposals as well as comparisons with other populations. The use of lengthy questionnaires has been found to be ineffective and futile amongst older people as they are opposed to the completion of comprehensive forms to report on their health or psychological status, as this is often tiring and inconvenient to them (Fang et al., 2011). The WHOQOL-QOL is a 24-item, 6-facet instrument with cross-cultural reliability (Power, et al., 2005). The instrument has won ground internationally as a concise add-on instrument which yields valuable information pertaining to older people's QoL. Three short versions of the original 24-item instrument, consisting of 6 items each, has been proposed (Fang et al., 2011). Reliable use of the WHOQOL-OLD or its short forms among older people within a South African sample will yield a concise measure of older people's rating of their QoL in long-term institutions and furthermore provide care givers, management and even policy makers with a more holistic idea of what older people need in order to have QoL. The research question is, therefore, whether or not the WHOQOL-OLD and the shorter versions thereof can be used as a reliable instrument for measuring QoL of older people living in long-term care facilities in South Africa.

Aims and Objectives

The first objective of the current study is to determine the psychometric properties of the WHOQOL-OLD among older people in long-term care facilities in Potchefstroom, South Africa. Secondly, the current study aims to determine the metric properties associated with three short versions of the WHOQOL-OLD with a view to determining which short version

would be most suitable when used in conjunction with the WHOQOL-100 or BREF (the latter is a more elaborate QoL instrument, also developed by the WHOQOL-group).

Methodology

Research Method and Design

Quantitative research is an objective and systematic process where research designs such as surveys and experimental approaches are used to produce numerical data (Stangor, 2011). A non-experimental, descriptive approach was followed, therefore no hypothesis is posed. A cross-sectional survey design was implemented for the study (Stangor, 2011).

The Research Instrument

Scale description. The WHOQOL-OLD is a self-reporting , 24-item and 6-facet quantitative instrument in English, which measures specific aspects of QoL as pertaining to older people. These facets include: Sensory Abilities (SAB); Autonomy (AUT); Past, Present, and Future Activities (PPF); Social Participation (SOP); Death and Dying (DAD); and Intimacy (INT). The psychometric properties of the WHOQOL are based on the results of the WHOQOL-OLD Field Trial (Power et al., 2005).

Internal consistency. Cronbach's alpha as a measure of internal consistency demonstrated satisfactory values with an acceptable range from $(\alpha) = .72$ to $\alpha = .88$ for each facet score, while the total score displayed a consistency coefficient of $\alpha = .89$ (Power et al., 2005).

Research Context and Participants

The research context can be sketched against the backdrop of long-term care facilities that offer independent living, assisted living and frail care living arrangements (Dept. of Social Development, 2006). The target population comprised all older people residing in long-term care facilities in Potchefstroom. According to Stats SA's mid-year population estimates in 2012, the North-West province has high numbers of older people in terms of land per province, therefore long-term care facilities in Potchefstroom were used as data collection sites. Convenience sampling was used to obtain participants residing in these long-term care facilities in Potchefstroom (Stangor, 2011). According to the guidelines provided by Statistical Consultation Services of the North-West University in Potchefstroom, a study sample of 150 participants ought to be sufficient whilst investigating the psychometric properties of a 24-item questionnaire. However, a larger number of participants was opted for. Older people of both genders above the age of sixty were acquired as participants. The only exclusion criteria that pertained to the study constituted cases where the older people was longer able to communicate congruently or was frail to the point where they needed full-time care. The latter were not included in the study in order to protect them from giving consent without comprehending what was entailed.

Participants belonged to the same subculture and shared various characteristics, e.g. inhabiting a shared living space. Afrikaans was the mother tongue of all the participants, although all participants could also speak and fully understand English. A total of 176 willing participants of both genders between the ages of 61 and 95 years and who were still able to communicate congruently and fully understood the purpose of the research completed the questionnaires. The original English version of each item was available in the self-report survey.

Biographical information pertaining to age, gender, language, ethnicity, gender, marital status, health status and cognitive abilities was obtained. The mean age among participants was 77 years and the male to female ratio yielded 50(M):126(F). The majority (except for two) of participants constituted white South Africans; this notion corresponds with the explanation of trends in long-term care occupation in South Africa in the introduction of this study. Participants' marital status did not form part of the selection criteria, although more than half were widowed at the time of research. None of the participants lived in frail care units although some received help with activities of daily living.

The majority of participants resided independently on the premises, implying they were still fully capable of taking care of themselves. On a self-rating Likert-type scale (1=poor, 5=excellent), participants rated their health as average to good. Likewise, on a self-rating scale for cognitive abilities, participants rated their abilities as average to good

Research Procedure and Ethics

A thorough literature study were conducted which focussed on the nature and impact of QoL of older people residing in long-term care facilities and screening instruments that have been used in the field. Permission to use the WHOQOL-OLD module within a South African context was obtained from the authors in the United Kingdom.

Ethical approval was obtained from the HREC with the following ethics number and title: NWU-00053-10-S1 "*An exploration of enabling contexts*". Convenience sampling was used to obtain participants residing in long-term care facilities in Potchefstroom. Managers of facilities were contacted to negotiate them acting as mediators in the study, whereafter the aims and the process of the research were explained to them. Their willingness to collaborate was established by means of written consent.

Older people living in the participating facilities were invited to the research by means of a newsletter/advertisement two weeks prior to the actual date of commencement of data collection. An informed consent form attached to the questionnaire was posted to the residents in their on-site mailboxes. Willing participants had two weeks to complete the questionnaire and to place it in the red box provided by the researcher at the reception area of the facility. The boxes were clearly marked with the phrase '*completed research forms*'. Willing participants therefore had sufficient time to familiarise themselves with the research aims and the data collection process and to contact the researcher in event of any uncertainties. The researcher collected the box on the date specified in the newsletter/advertisement.

The population group of interest can be regarded as a vulnerable community. As a result the following key ethical principles were adhered to:

Respect for persons. The older people who formed part of the study were treated with respect and dignity. Participants were provided with enough time to reflect on the research and to make an informed decision to participate. A possible decrease in reading abilities (sight) among older persons was considered and thus the questionnaire was made available/distributed in large print. Furthermore, the involvement of predominantly white older persons in the research was justified by the fact that the majority of long-term care facilities are occupied by white older people (Dept. of Social Development, 2010). However, no persons were be excluded on the basis of race, disability, gender, language, religion or sexual orientation.

Relevance and value. The results of the current study have the potential to establish the use of the WHOQOL-OLD module and the short forms as statistically reliable measures in a South African context with a view to aid public well-being. As stated in the introduction of this manuscript, QoL in long-term care facilities is often compromised. Therefore, easily

accessible baseline data on older people's rating of their QoL in these settings will provide care providers as well as policy makers with a more holistic idea of what older people need in order to have QoL whilst living in institutions. Furthermore, this study envisages to add to knowledge generation and the production of scientific literature in the field of gerontology. Psycho-gerontology is a well-established field of study in the international arena whilst studies of scientific value in South Africa are scant.

Risk of harm and likelihood of benefit. Within the proposed study a favourable risk-benefit ratio was aimed for. The results of this study hope to be of interest and benefit to older people in the sense that care providers as well as policy makers will be able to establish the QoL of residents in long-term care at any point in time. Possible risks of the study included possible fatigue and emotional turmoil to older people who had emotional reactions to some of the items in the questionnaire. However, no such incidents were reported.

Informed consent. Participation in the research was completely voluntary and predicated by informed consent by managers of the care facilities and participants. The researcher and manager of each facility worked in close collaboration in order to make the distribution of questionnaires as well as the administration and collection thereof as hassle-free as possible to the residents. Informed consent was obtained prior to questionnaire completion; the mediators acted as a witness to the informed consent process. Older people who were not able to communicate congruently and/or who were frail to the point that they needed to be cared for physically were not included as participants in this study. All residents received a document which contained relevant information on the purpose and procedures of the study. They were assured of privacy and confidentiality. They were furthermore informed that they could withdraw from the study at any point and refuse to fill in surveys without any negative consequences. Willing residents were asked to identify themselves as participants by means of signing the informed consent form, where after they completed the

questionnaire anonymously and placed it in the red box provided.

Distributive justice. A fair selection of participants took place which gave all residents the opportunity to participate in the study. The completion of a 24-item questionnaire posed a low risk of harm to participants. The only exclusion criteria constituted cases where older people were no longer able to communicate congruently or when they were frail to the point where they needed full-time care. No older persons were excluded unreasonably or unfairly on the basis of their race, age, sex, sexual orientation, disability, education, religious beliefs, marital status, ethnic or social origin, conscience, belief or language.

Privacy and confidentiality. Privacy and confidentiality were of critical ethical importance. Questionnaires were numbered/coded, therefore the identity of participants was not revealed. At most, non-participating residents were aware of the actual participation of fellow-residents. However, the actual data were only handled by the researcher and co-supervisor.

Statistical Analysis

The questionnaires were coded into an Excel spreadsheet where after statistical analysis was performed. The current study analysed the correlation matrix during exploratory factor analysis (EFA). Principal axis factor analysis was employed to investigate the underlying structure of the latent variable. In order to determine the number of factors to be extracted, both parallel analysis (PA) (Horn, 1965) and the minimum average partial test (MAP) (Velicer, 1976) were used. These two techniques are viewed as the most reliable estimation methods with a statistical basis (Horn, 1965; Zwick & Velicer, 1986). To determine whether the correlation matrix was factor analysable (Henson & Roberts, 2006), Bartlett's Test of Sphericity had to be significant, while the Kaiser-Meier-Olkin measure of

sampling adequacy had to be above the recommended value of 0.6 (Field, 2005). Factor loadings of 0.3 were deemed as significant (Hair, Black, Babin, Anderson, & Tatham, 2006).

In order to evaluate the competing factor structures associated with the WHOQOL-OLD as well as the three short forms, the current study employed confirmatory factor analysis (CFA). In so doing, the current study follows the suggestion by Van Prooijen and Van Der Kloot (2001). In essence, they seem to suggest that "if CFA cannot confirm results of EFA on the same data, one cannot expect that CFA will confirm results of EFA in a different sample or population" (Van Prooijen & Van Der Kloot, 2001, p. 780). In addition to evaluating the factor structure suggested by EFA, comparable fit statistics for the original structure of the General Self-Efficacy Scale were obtained by means of CFA.

In estimating the reliability associated with the dimensions of the WHOQOL-OLD and the short versions, Cronbach's alpha (α) was employed. Reliability estimates that are 0.7 and higher are indicative of good reliability. However, estimates as low as 0.6 may be acceptable when conducting exploratory research (Hair et al., 2006).

The data was treated as continuous. Through analysing the covariance matrix, the data was assessed for normality (Jackson, Gillaspay, & Purc-Stephenson, 2009). A test of multivariate normality was used to determine the skewness of data to be used during CFA (Jöreskog & Sörbom, 2006). On the basis of the test of multivariate, the data was deemed skewed. The latter required the use of the robust maximum likelihood method of estimation.

All the analyses related to the confirmatory factor analysis were conducted using LISREL 8.80 (Jöreskog & Sörbom, 2006). Several fit indices were used, including the Satorra-Bentler Scaled Chi-square, Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and the Goodness of Fit Index (GFI). Values close to 0.95 for GFI and CFI are considered indicative of a good model fit. It is suggested that values close

to 0.06 are indicative of acceptable fit for RMSEA (Hu & Bentler, 1999). In addition, Akaike's Information Criterion (AIC) can be used when comparing competing models, with smaller values indicating the better fitting model (Byrne, 2006).

Results

From Table 1 it is evident that there are three eigenvalues from the dataset that are bigger than the eigenvalues (95th percentile) from the random dataset.

Table 1

Parallel Analysis Results

Variable	Real-data eigenvalues	Mean of random eigenvalues	95 percentile of random eigenvalues
1	32.0	8.9	9.8
2	11.5	8.2	8.8
3	10.7	7.6	8.1
4	6.7	7.1	7.6
5	5.9	6.7	7.1
6	4.0	6.3	6.7
7	3.8	5.9	6.3
8	3.4	5.6	5.9
9	3.1	5.2	5.6
10	2.7	4.9	5.2
11	2.4	4.6	4.8
12	2.1	4.2	4.5
13	2.0	3.9	4.2
14	1.9	3.6	3.9
15	1.5	3.3	3.6
16	1.4	2.9	3.3
17	1.3	2.6	3.0
18	1.1	2.3	2.6
19	0.8	1.9	2.3
20	0.7	1.6	2.0
21	0.5	1.2	1.6
22	0.2	0.9	1.3
23	0.2	0.5	0.9
24	0.0	0.0	0.0

The results of the minimum average partial test (MAP) (Table 2) show the smallest average partial to be 0.02311. This value is associated with the second dimension. Hence, based on the results of both Parallel Analysis and MAP, both three- and two-dimensional structures can be investigated based on exploratory factor analysis results.

Table 2

Minimum Average Partial Test (MAP Results)

Dimensions	Average Partial
1	0.03242
2	0.02311
3	0.02356
4	0.04074
5	0.09252
6	0.37147
7	0.99999

Table 3 reports on the significant factor loadings associated with the two-dimensional factor structure - as suggested by the MAP test. Factor 1 contains items representing Intimacy. The items loading on Factor 2 seem to represent developmental tasks required by individuals to experience a high quality of life during their old age. Both these two factors have reliabilities exceeding 0.80. This two-dimensional solution had a Kaiser-Meier-Olkin measure of sampling adequacy (KMO) of 0.88. In addition, Bartlett's Test of Sphericity was significant.

Table 3

Factor Loadings for the Two-dimensional Structure of the WHOQOL-OLD

Variable	F 1	F 2
1		0.625
2		0.745
3		0.644
4		0.600
5		0.392
6		0.439
7		0.411
8		0.490
9		0.384
10		0.606
11		0.589
12		0.667
13		0.569
14		0.512
15		0.544
16		0.607
17		0.546
18		0.615
19		0.608
20		0.655
21	0.716	
22	0.739	
23	0.907	
24	0.903	
Reliability	0.92	0.92

The items that had significant factor loadings, associated with the three-dimensional structure, are reported in Table 4. The three-dimensional solution had a KMO of 0.84. In addition, Bartlett's Test of Sphericity was significant. Factor 1 contains items representing Death and Dying. The items loading on Factor 2 represent Intimacy. Factor 3 seems to represent the developmental tasks required by individuals to experience a high quality of life during their old age. All three the identified factors have reliabilities exceeding 0.80.

Table 4

Factor Loadings for the Three-dimensional Structure of the WHOQOL-OLD

Item	F 1	F 2	F 3
1			0.537
2			0.690
3			0.579
4			0.528
5			0.354
6	0.790		
7	0.817		
8	0.735		
9	0.596		
10			0.505
11			0.615
12			0.647
13			0.446
14			0.480
15			0.434
16			0.561
17			0.468
18			0.552
19			0.587
20			0.626
21		0.713	
22		0.721	
23		0.902	
24		0.893	
Reliability	0.85	0.92	0.89

To allow for meaningful comparisons, the current study used confirmatory factor analysis to evaluate three different conceptualisations of the WHOQOL-OLD. The original six-dimensional structure was compared with the factor structures proposed by parallel analysis (3 factors) as well as the minimum average partial test (2 factors). It is clear that the original factor structure exhibits better fit than the other two models. The values associated with the RMSEA, CFI, and SRMR all indicate model fit. However, the two-factor conceptualisation of the WHOQOL-OLD exhibits poor levels of fit as evident from the values associated with the RMSEA, SRMR, and CFI. The indices associated with the three-dimensional structure points to a model with reasonable fit.

Table 5

Summary of Goodness-of-fit Statistics (WHOQOL-OLD Module)

	Original factor structure	Two-dimensional structure	Three-dimensional structure
S-B χ^2	339.05	713.00	576.39
Df	237	251	249
RMSEA	0.050 (0.037; 0.061)	0.111 (0.094; 0.111)	0.075 (0.065; 0.085)
SRMR	0.070	0.104	0.081
CFI	0.97	0.88	0.94
AIC	465.05	1015.36	597.80

Note: S-B χ^2 = Satorra-Bentler Scaled Chi-square; df = Degrees of Freedom; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardised Root Mean Square Residual; CFI = Comparative Fit Index; AIC = Akaike's Information Criterion.

The goodness-of-fit statistics associated with the short versions of the WHOQOL-OLD are reported in Table 6. It is clear that all three measurement models exhibit good levels of fit to the data - especially in terms of the values associated with the RMSEA, CFI, and SRMR. Version 1 seems to be the best fitting model due to it having the lowest value associated with AIC.

Table 6

Summary of Goodness-of-fit Statistics (Short Versions of the WHOQOL-OLD Module)

	Version 1	Version 2	Version 3
S-B χ^2	7.744	10.910	6.767
Df	5	9	5
RMSEA	0.056 (0.000; 0.129)	0.083 (0.000; 0.096)	0.045 (0.000; 0.121)
SRMR	0.041	0.047	0.039
CFI	0.98	0.98	0.98
AIC	27.74	34.91	68.47

Note: S-B χ^2 = Satorra-Bentler Scaled Chi-square; df = Degrees of Freedom; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardised Root Mean Square Residual; CFI = Comparative Fit Index; AIC = Akaike's Information Criterion.

The standardised factor loadings and errors are reported in Table 7 for the measurement model depicting the original factor structure of the WHOQOL-OLD. It is evident that both the AUT and PPF dimensions have the lowest reliabilities in comparison with the other dimensions. However, they are still above the acceptable level of 0.6.

Table 7

Standardised Factor Loadings and Errors: Original Factor Structure

Item	SAB	AUT	PPF	SOP	DAD	INT	Error
20	0.61						0.63
1	0.60						0.65
2	0.82						0.32
10	0.64						0.59
3		0.74					0.45
4		0.73					0.47
5		0.55					0.70
11		0.58					0.66
12			0.70				0.50
13			0.53				0.72
15			0.53				0.72
19			0.70				0.51
14				0.58			0.66
16				0.75			0.43
17				0.64			0.59
18				0.66			0.57
6					0.76		0.42
7					0.82		0.33
8					0.79		0.38
9					0.59		0.66
21						0.75	0.44
22						0.78	0.39
23						0.91	0.17
24						0.91	0.18
Alpha	0.759	0.726	0.716	0.740	0.817	0.902	

Note: SAB = Sensory Abilities; AUT = Autonomy; PPF = Past, Present, and Future Activities; SOP = Social Participation; DAD = Death and Dying; INT = Intimacy.

The phi matrix, reporting the correlations among the six dimensions of the WHOQOL-OLD, is presented in Table 8. It is evident that DAD and INT have low correlations with some of the other five dimensions.

Table 8

Phi Matrix: Original Factor Structure

	1	2	3	4	5	6
1. SAB	1.00					
2. AUT	0.51	1.00				
3. PPF	0.62	0.81	1.00			
4. SOP	0.55	0.60	0.99	1.00		
5. DAD	0.21	0.26	0.33	0.27	1.00	
6. INT	0.13	0.31	0.55	0.48	0.16	1.00

Note: SAB = Sensory Abilities; AUT = Autonomy; PPF = Past, Present, and Future Activities; SOP = Social Participation; DAD = Death and Dying; INT = Intimacy.

Discussion

The first objective of the current study was to determine the psychometric properties of the WHOQOL-OLD within a South African sample. The current study found encouraging results related to original factor structure of the WHOQOL-OLD. The data obtained from the current sample seem to fit the model of the instrument well, especially when considering the goodness-of-fit statistics (RMSEA = 0.050; CFI = 0.97; SRMR = 0.070). All three these indices are indicative of a well-fitting model. The reliabilities associated with the six dimensions also point to a reliable instrument. However, the reliabilities associated with the AUT ($\alpha = 0.726$) and PPF ($\alpha = 0.716$) may leave room for some improvement.

Using a large sample ($n = 5566$) from 20 different countries, the developers of the WHOQOL-OLD found the following goodness-of-fit statistics (RMSEA = 0.052; CFI = 0.939) associated with a measuring instrument consisting of six dimensions (Power et al., 2005). It is clear that the current study echoes those results obtained by Power and his colleagues, albeit with slightly better fit.

The estimates of reliability found in the current study are slightly lower than that obtained by Power and his colleagues (2005): Sensory Abilities ($\alpha = 0.76$ vs $\alpha = 0.84$), Social Participation ($\alpha = 0.74$ vs $\alpha = 0.79$), Death and Dying ($\alpha = 0.82$ vs $\alpha = 0.84$), and Past, Present, and Future Activities ($\alpha = 0.72$ vs $\alpha = 0.74$). The current study found that the following dimensions had slightly higher reliabilities: Intimacy ($\alpha = 0.90$ vs $\alpha = 0.88$), Autonomy ($\alpha = 0.73$ vs $\alpha = 0.72$).

In a sample of 400 participants, Bowling (2009) reported a very low reliability ($\alpha = 0.40$) associated with all 24 items of the WHOQOL-OLD. However, the same researcher found a much more acceptable reliability (0.845) in another sample ($n = 536$). The current study obtained a higher reliability ($\alpha = 0.882$) with a smaller sample ($n = 176$).

Analysing the phi matrix (the intercorrelations between the sub-dimensions), it is evident that the majority are moderately related. However, the Death and Dying and Intimacy dimensions show much lower correlations with the other sub-dimensions. A similar result was obtained by the developers of the WHOQOL-OLD with regards to the Death and Dying dimension (Power & Schmidt, 2006, p. 18). Interestingly, Chachamovich et al. (2008) found that the Death and Dying dimension had inadequate fit to their model.

In short, the current study seems to support the findings of the developers of the WHOQOL-OLD in terms of the original factor structure of the WHOQOL-OLD (Power et al., 2005).

The second objective of the current study was to determine the psychometric properties associated with the three short versions of the WHOQOL-OLD. Researchers also explored three shorter versions of the WHOQOL-OLD instrument (Fang et al., 2011). These authors found acceptable reliabilities associated with Version 1 ($\alpha = 0.68$), Version 2 ($\alpha = 0.68$), and Version 3 ($\alpha = 0.65$). Findings of data in the current study found a slightly lower

reliability for Version 1 ($\alpha = 0.65$). In contrast to the findings of Fang et al. (2011), Version 2 ($\alpha = 0.61$) and Version 3 ($\alpha = 0.57$) had lower reliability estimates. This is especially true for Version 3, which leaves room for improvement which can be done through more studies on the validation of these three versions of the short-form WHOQOL-OLD module.

The developers (Fang et al., 2011) of the three short versions did not obtain goodness-of-fit statistics associated with each of these three measurement models. The current study contributes to the current literature by providing these goodness-of-fit statistics. It is clear that although the three versions had lower estimates of reliability, the data exhibited excellent fit to the theory - especially when looking at the values associated with the RMSEA, CFI, and SRMR. In addition, Akaike's Information criterion seems to suggest that Version 1 of the short WHOQOL-OLD provides a better fitting model than the other two versions.

In addition, parallel analysis and the minimum average partial test suggested two competing conceptualisations of the WHOQOL-OLD. The current sample seems to suggest that the three-dimensional model is a better conceptualisation when compared with the two-dimensional model - based on the value of AIC. Only the three-dimensional model exhibited acceptable levels of fit, although it is not as good as that of the original structure proposed by Power and his colleagues (2005).

Recommendations and Limitations

South Africa has 11 official languages. A study by Wissing et al. (2010) describes language as the medium through which cultural meaning is created. It is recommended that future studies could consider validation of the WHOQOL-OLD modules in the mother tongue of the people involved.

Depending on the needs of the researchers, they may use either the original WHOQOL-OLD questionnaire with its 24 items, or Version 1 of the three short versions of this instrument. It is suggested that when researchers want to cover the breadth of QoL in older adults that the WHOQOL-OLD be used. This will enable them to investigate the impact of six dimensions on various important outcomes associated with QoL.

However, when researchers are concerned about the impact that the length of the WHOQOL-OLD may have on the responses of older adults, then the short version could be used. It is furthermore recommended that the two competing conceptualisations of the original WHOQOL-OLD be further investigated by other researchers to determine the applicability of these factor structures.

A limitation of the study is that findings cannot be generalised to other ethnic groups or older people in other contexts due to sample size and cultural diversities in South Africa. However, the sample was sufficient to determine and describe the psychometric properties of the WHOQOL-OLD, as applied to Afrikaans speaking older people who were equally proficient in English and shared an individualistic way of living with Western contexts, which were the primary objectives of this study.

Conclusion

The overarching aim of determining the psychometric properties of the WHOQOL-OLD was to establish whether the instrument could reliably be used within the South African context. A reliable measure with good psychometric properties will yield new knowledge in the area of QoL and might direct future research efforts and put current resources in residential care facilities to better use. It is hoped that a better understanding of the QoL of older people as the result of utilising this instrument on a larger scale will inform policy

makers, the management structures of facilities, care givers, family members of the residents, and the older people residing in these facilities on how to make decisions to promote their overall QoL.

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CRITICAL REFLECTION

This manuscript described the psychometric properties of both the WHOQOL-OLD module as well as three short versions of the module. This study contributes to the body of gerontological literature on QoL in South Africa seeing as limited amounts of quantitative research, from a psychological or psychometric perspective, were found on the topic of QoL in South Africa. Limited measurements with good psychometric properties exist for older populations (Halvorsrud, Kalfoss, & Diseth, 2008). This is particularly true within the South African context.

This gap in research in the field of gerontology encourages researchers (such as myself) to investigate the psychometric properties and reliability of international measures with the hope of possible validation and local use. Another contribution of this study was to establish whether the original WHOQOL-OLD questionnaire with its 24 items, or any of the three short versions of this instrument can be utilised in a South African context (Version 1 of the short forms, however, seems to be the better fitting version). As stated in the introduction of this manuscript, the World Health Organization Quality of Life group has 22 international centres which monitor and report on the QoL of older people. South Africa can henceforth also be represented in the data base (Peel, Bartlett, & McClure; 2004).

Well-being and QoL are generally broadly described in ageing policies, with a vague indication of what is meant. Socio-economic welfare and health care should not be mistaken for the more subjective nature of QoL as found in the psychology literature. It is a recommendation of the current study for future audits by the government to use the original WHOQOL-OLD questionnaire with its 24 items, or Version 1 of the three short versions of the WHOQOL-OLD in combination with the WHOQOL-100 or WHOQOL-BREF. The

utilisation of this instrument will yield a reliable measure of older people's actual QoL and planning by policy makers can address important aspects of QoL accordingly.

The findings of this study give an account of the reliability of a measure as applied to Afrikaans-speaking older people within a particular context. Therefore, the results should and cannot be generalised to other ethnic groups or older people in South Africa. Although the sample and design of the study were not of such a nature that the instrument could be validated as such, the sample was indeed sufficient to determine the psychometric properties of the WHOQOL-OLD, which was the primary objective of this study. The findings of the current study do, however, pave the way for an in-depth exploration of the QoL of older people of other ethnicities and in other contexts such as in community-based research, through the application of the methodological procedure adopted in the current study and by being able to confidently adhere to the protocols suggested by the WHOQOL-group (Power & Schmidt, 2006).

Reflexivity of the Researcher

I have formerly been involved in an extensive qualitative study on QoL in the same context (Van Biljon & Roos, in press ; Van Biljon, Roos, & Botha, in press). My qualitative research was a prelude to statistical enquiry. I endeavoured to firstly understand the subject matter clearly. With the qualitative baseline obtained from my previous work, I adhered to one of my own recommendations for future studies: "future quantitative work in the field ought to consider conducting such endeavours according to the QoL research protocols suggested by the World Health Organization".

Quantitative research and the methodology thereof were unfamiliar waters for me prior to this study. The application thereof and write-up of the research were challenging. I

do, however, endeavor to become established as a well-rounded and developed researcher, and the current study was a worthy effort in that direction. I devoted myself to providing a true and accurate account of the data, under the guidance of my promoter and co-promotor. Furthermore I have tried to be as transparent, informative and factual as possible with regards to how this study took place and thus have provided the examiner with an accompanying CD. The documents on the CD include the more technical aspects of this research.

Conclusion

The findings of this study on the psychometric properties of the WHOQOL-OLD within a smaller sample of participants point to a reliable instrument. The utilisation of the instrument on a larger scale throughout South Africa, has the potential to elicit findings that will yield a clearer picture of QoL of older people which could potentially lead to the maintenance and/or promotion of older people's QoL. One avenue through which QoL can be maintained and/or promoted is through psychosocial intervention. When counselors, community workers or even carers/family members are aware of older people's state of QoL, it is less of an effort to look for aspects in older people's lives that have the transformational ability to exert a positive influence in multiple dimensions. From the literature it is emphasised that such interventions should ideally encompass the promotion of older people's strengths and their potential to grow, with a reduced focus on areas that are resistant to change (Wissing et al., 2010).

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