

Chapter 10

Further Validation of the General Psychological Well-Being Scale Among a Setswana-Speaking Group

Itumeleng P. Khumalo, Q. Michael Temane, and Marié P. Wissing

The complexity of psychological well-being as a construct is rooted in its multifaceted nature, which includes dimensions from both the hedonic and eudaimonic perspectives (Ryan & Deci, 2001). Kashdan, Biswas-Diener, and King (2008) viewed the study of well-being as having come to consist of “two conceptual camps”, where the distinction between hedonic and eudaimonic approaches has gained general acceptance. Accordingly, hedonic well-being focuses on the subjective experience of happiness or pleasure (Diener, 1984, 2000; Ryan & Deci, 2001), which includes the judgement of good or bad elements of life, and can also be derived from the attainment of goals. Conversely, eudaimonic well-being focuses on meaningful living, authenticity, and striving for one’s potential (Ryff & Singer, 2008; Waterman, 1993). Waterman (2005) further asserts that eudaimonia occurs when people’s life activities are most congruent with their deeply held values, and when people are holistically fully engaged. According to Kashdan et al. (2008), the separate study of the two dimensions as distinct approaches has been costly to well-being research.

Beyond this distinction, Ryan and Deci (2001) have suggested that well-being is probably best conceived as multidimensional and as consisting of both hedonic and eudaimonic conceptions of well-being. The assessment of the extent to which a person feels good, content, and satisfied is not sufficient in explaining and measuring psychological well-being (Ryff & Singer, 2008).

I.P. Khumalo (✉)

Institute for Psychotherapy and Counselling, North-West University, Potchefstroom Campus, Potchefstroom, South Africa
e-mail: Tumi.Khumalo@nwu.ac.za

Q.M. Temane

School of Psychosocial Behavioural Sciences, North-West University, Potchefstroom Campus, Potchefstroom, South Africa

M.P. Wissing

School of Psychosocial Behavioural Sciences and The Africa Unit for Transdisciplinary Health Research, North-West University, Potchefstroom Campus, Potchefstroom, South Africa

Kashdan et al. (2008) have questioned the existence of two forms of happiness that would be qualitatively different and have encouraged the empirical study of the similarities and complementary facets of hedonic and eudaimonic models. In line with this thinking, models such as general psychological well-being (GPW; Wissing & Temane, 2008; Wissing & Van Eeden, 2002) and the Mental Health Continuum (MHC; Keyes, 2002) capture the essence of psychological well-being as comprised of intertwined and overlapping dimensions of hedonia and eudaimonia.

General Psychological Well-Being

General psychological well-being (Wissing & Temane, 2008; Wissing & Van Eeden, 2002) was empirically derived, and denotes an overlap of facets of hedonic well-being as represented by positive affect balance (Kammann & Flett, 1983) and life satisfaction (Diener, Emmons, Larsen, & Griffen, 1985), and eudaimonic dimension as represented by sense of coherence (Antonovsky, 1987, 1993). It emerged from an empirical exploration of multiple aspects of well-being (see Wissing & Van Eeden, 2002). In fact, GPW captures the essential complexity of well-being and projects itself as a flexible, multifaceted, and evolving construct in consideration of context. The GPW construct is a higher-order factor that cumulatively reflects an individual who is satisfied with life, who experiences positive affect, who has a belief of being capable, who experiences life as meaningful, and who has good interpersonal relationships, social support, and a sense of belonging (Wissing & Temane, 2008; Wissing & Van Eeden, 2002). These specific facets of well-being constitute the first level of the hierarchical organization of the GPW construct (see Wissing & Temane, 2008). The second level comprises (a) intrapersonal well-being, (b) self-efficacy/behavioural readiness, and (c) social satisfaction/belonging. At the third and apex level of the hierarchy is GPW, which is a holistic integration of the specific facets from both the hedonic and eudaimonic well-being dimensions in an intertwined and fluid manner.

In a study involving the General Psychological Well-being Scale (GPWS; Khumalo, Temane, & Wissing, 2010), an exploratory factor analysis produced four latent factors: (a) positive affect and meaningful satisfaction, (b) negative affect and poor coping, (c) positive meaningful relatedness, and (d) vitality. It is clear therefore that GPW is not only the sum of the multiple facets, but it is an integrated construct characterized by an intertwined and dynamic hybrid of overlapping dimensions, whose manifestation patterns may take different forms across various cultural contexts (Wissing & Temane, 2008). This attests to the assertions that psychological well-being is a dynamic process (Kashdan et al., 2008), and that contextual and cultural factors influence its manifestation (Christopher, 1999; Wissing & Temane, 2008). Contextual factors also influence the distribution of opportunities for self-realization as well as individuals' life experiences and outcomes (Ryff & Singer, 2008; Smith, 2004).

Sociocultural Context

Smith (2004) described culture as an entity that provides individuals with shared meanings, characterizes groupings at all levels, and subsequently influences their experience of the world. Sociocultural contexts have been categorized into collectivistic and individualistic cultural orientations (Triandis, 1995; Triandis & Gelfand, 1998; Triandis, McCusker, & Hui, 1990), albeit with variations across and within contexts. This categorization can also be differentiated in South Africa (Allik & McCrae, 2004; Wissing & Temane, 2008). The Afrikaans and English speaking white groups with a western European value system mainly subscribe to a more individualistic cultural orientation. The traditional black South African societies, have a more collectivistic cultural orientation, where in-group norms are a priority and the self is interdependently defined (Wissing & Temane, 2008). The present study took place among an African Setswana-speaking adult group. According to the value structure theory of Schwartz (1994), values define and differentiate cultural groups and subsequently influence a number of societal outcomes, including socioeconomic development, gender equality, social and moral attitudes, justice perceptions, and optimism (Vauclair, Hanke, Fischer, & Fontaine, 2011). Although with context-based differences, collectivism is more prevalent in Africa, Asia, and Latin America (Triandis et al., 1990). Mbiti (1990, 1991) and Nsamenang (2002) agree that Africans mainly subscribe to a collectivistic cultural orientation. Such context-specific differentiation in the nature and manifestation of general psychological well-being has been found in studies involving African samples (e.g., Khumalo, Temane, & Wissing, 2012; Wissing & Temane, 2008).

Wissing and Temane (2008) found different patterns of GPW manifestation between the more individualistic and the more collectivistic groups in a South African context. A dimension of self-efficacy or behavioural readiness was unique to the more individualistic group. In contrast, the more collectivistic group had social/contextual satisfaction as a unique factor. Intrapersonal well-being was a common dimension in both groups. According to Wissing and Temane (2008), behavioural readiness is reminiscent of the competence component, while social satisfaction is reminiscent of the relatedness component, both of the Self-Determination Theory (SDT; Ryan & Deci, 2000). In a subsequent study, Khumalo et al. (2012) explored the interaction of sociodemographic variables with the GPW construct and found that contextual and social variables play a significant role in the levels of general psychological well-being. They found urban living, employment, educational attainment, and marital status (i.e., being married) to positively predict general psychological well-being.

Scale Development and Psychometric Properties

General psychological well-being, and subsequently the GPWS, resulted from a shared variance between the Affectometer (AFM; Kammann & Flett, 1983), Sense of Coherence (SOC; Antonovsky, 1987, 1993), and Satisfaction With Life Scale

(SWLS; Diener et al., 1985). These measuring instruments were developed in a western context and were adopted for use in an African context (see Wissing et al., 2010). Therefore, the initial development and validation of the GPWS followed a combined etic–emic approach that resulted in a self-report measure of general psychological well-being in an African context (Khumalo et al., 2010). Self-report measures are considered essential in the study of well-being, and in fact are the best way of inquiring about a person’s level of well-being (Diener & Ryan, 2009; Haefffel & Howard, 2010; Kashdan et al., 2008). A need exists, however, to develop and further validate measures of psychological well-being in various contexts and in different languages (Christopher, 1999; Wissing et al., 2010). The development and validation of the GPWS in an African context, yet from components previously conceptualized and measured in a western context, is in line with Christopher’s (1999) assertion that even when psychological well-being components can be shared across cultures, their interpretation may take different forms and arrangements in different contexts.

Construct validity, informed by theoretical background and previous empirical findings (e.g., Khumalo et al., 2010, 2012; Wissing & Temane, 2008; Wissing & Van Eeden, 2002) is a more emphasized psychometric characteristic in the present study. According to Clark and Watson (1995), the most precise and efficient measures are those with established construct validity. Such measures would be a manifestation of their target construct as optimally articulated in theory, and would be well supported by empirical data. In addition to construct validity, the scale’s reliability, criterion-related validity, item functioning, as well as the manifestation and dynamics of the latent trait/construct were explored (cf. Clark & Watson, 1995; John & Benet-Martínez, 2000; Paunonen & Ashton, 1998). Through this process, the quality of measurement regarding to the ability of the GPWS to be replicated and make sense so that meaningful inferences can be made will be explored (cf. John & Benet-Martínez, 2000).

Aim of the Study

The aim of the chapter is therefore to explore and report on the validity of the General Psychological Well-being Scale as a measure of GPW in an African context. The psychometric properties of the GPWS and the manifestation of GPW are explored in a Setswana-speaking group. Recommendations regarding the structure and item content of the GPWS, as applied in an African context, are given.

Method

Design

The study was a quantitative cross-sectional survey among a sample of adult community members. A cross-sectional survey allowed us to collect data from a sample drawn from a well-defined target population. Although it was, as by

definition, a single time point data collection exercise, it does allow for more than just the reporting of the prevalence of phenomena, but the study associations and relationships between variables are possible (see Visser, Krosnick, & Lavrakas, 2000).

Participants

Members of the general community from two settings in the North West Province, South Africa participated in the study. The total sample consisted of 1,275 participants and came from a rural village named Ganyesa ($n=697$), which is near Vryburg, and from an urbanized residential area named Ikageng ($n=553$) that is adjacent to the town of Potchefstroom. The sample consisted of male (33 %) and female (67 %) adults aged between 30 and 97 years, with the mean age of 55 years. They completed Setswana versions of the scale batteries in the form of structured interviews conducted by trained bilingual field workers. Vryburg is a semirural town, which is characterized by agricultural activity. Potchefstroom, in contrast, is an urbanized and well-resourced town that hosts a university and is nearer to other metropolitan areas (Temane & Wissing, 2006). Table 10.1 gives a description of the total sample, the rural and urban groups, and their description according to gender and age, as well as the GPWS total score descriptive statistics according to the sample groups.

Measuring Instruments

General Psychological Well-Being Scale

The GPWS is a 20-item scale designed as a unidimensional measure of general psychological well-being on a 7-point agreement response scale (1 = *strongly disagree*; 7 = *strongly agree*). In its development and validation study, favourable psychometric properties were found. The scale was found to be reliable in a Setswana-speaking sample, attaining a Cronbach's alpha of .89. The one factor structure was supported by confirmatory factor analysis, but not exploratory factor analysis. Exploratory factor analysis yielded four latent factors. In a subsequent study, Structural Equation Modelling supported this four factor model while the IRT Rasch model showed the one-factor solution to have good fit (Khumalo, Temane, & Wissing, 2011). However, the Rasch model—as a one-parameter logic model—works on a testable specification of unidimensionality (Cella & Chang, 2000). Criterion-related validity was demonstrated by interscale correlations with other indices of positive and negative well-being. In the present study, the GPWS attained a Cronbach's alpha value of .87. In its development and validation study, the GPWS was translated into Setswana using the Brislin (1970, 1990) back-translation research committee approach (Maneesriwongul & Dixon, 2004). The present study used the Setswana version.

Table 10.1 Descriptive statistics and reliability indices of the general psychological well-being scale (GPWS) per sample

Group	N	Male (%)	Female (%)	Mean age (sd)	GPWS		Range		GPWS Kurtosis	GPWS Skewness	Cronbach alpha
					Mean	SD	Min.	Max.			
Combined community	1,268	407 (33 %)	836 (67 %)	54.80 (10.18)	83.88	21.76	29	140	-.74	-.05	.87
Rural community	694	205 (30 %)	481 (70 %)	54.00 (9.70)	80.13	20.96	29	140	-.65	.08	.85
Urban community	556	202 (36 %)	142 (64 %)	55.70 (10.68)	88.73	22.00	30	136	-.67	-.28	.88

Mental Health Continuum–Short Form

The Mental Health Continuum–Short Form (MHC–SF; Keyes, 2002, 2005b) is a 14-item scale designed to measure mental health along a continuum of categories of languishing, moderate mental health, and flourishing. It consists of three subscales: emotional well-being, social well-being, and psychological well-being. It uses a response format of a 6-point frequency scale (0=*never*; 5=*everyday*). The Setswana version of the MHC–SF has been found to be reliable and valid (Keyes et al., 2008). Keyes et al. (2008) reported a Cronbach’s alpha of .74 in a Setswana-speaking sample. In the present study a Cronbach’s alpha coefficient of .78 for the community sample was found.

Patient Health Questionnaire

The Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) is a 9-item self-report depression scale used to establish a diagnosis of unipolar depressive disorder as well as to grade the severity of depressive symptoms. Kroenke et al. (2001) found the scale to be reliable and reported a Cronbach’s alpha of .89, as well as satisfactory criterion-related and construct validity. Among Nigerian university students, Adewuya, Ola, and Afolabi (2006) found a Cronbach’s alpha of .85. A previous study among a Setswana-speaking sample yielded a Cronbach’s alpha of .81 (Khumalo et al., 2010). The current samples yielded Cronbach’s alpha coefficients of .81.

General Health Questionnaire

The GHQ is a 28-item scale that consists of four subscales measuring somatic symptoms, anxiety, insomnia, social dysfunction, and depression, and is suitable for detecting specific symptoms that are indicative of mental illness and psychological distress (Goldberg & Hillier, 1979; Werneke, Goldberg, Yalcin, & Ustun, 2000). In previous studies, Wissing and Van Eeden (2002) found a Cronbach’s alpha of .91, and Keyes et al. (2008) found a Cronbach’s alpha of .89 for the total scale in a Setswana-speaking sample. The GHQ was found to be reliable in the present study’s sample, yielding a Cronbach’s alpha of .89.

Warwick-Edinburg Mental Well-Being Scale

The Warwick-Edinburg Mental Well-Being Scale (WEMWBS; Tennant et al., 2007) is a 14 item, 5-point Likert-type scale (1=*none of the time*; 5=*all of the time*) developed to measure positive mental well-being. All of its items are positively worded and focus on the positive. Mental well-being is intended to be a unitary single construct that explores a wide conception of well-being, including

affective-emotional aspects, cognitive-evaluative dimensions, and psychological functioning. In its original validation study, WEMWBS was found to have good construct and criterion-related validity. Its reliability was supported by Cronbach's alpha values of .89 for the student sample and .91 for the general population sample, as well as test-retest (after 1 week) reliability coefficient of .83 ($p < 0.01$). The present study found a Cronbach's alpha index of .88 for the Setswana version.

Coping Self-efficacy Scale

The Coping Self-Efficacy Scale (CSES; Chesney, Neilands, Chambers, Taylor, & Folkman, 2006) is a 26-item scale designed to measure perceived confidence in coping with challenges and threats. It is measured on an 11-point response scale with three anchor points (0 = *cannot do at all*; 5 = *moderately certain can do*; 10 = *certain can do*). For each of the items, the scale asks to what extent participants are able to perform certain behaviours when things are not going well for them or when they have problems. In the original validity and reliability study, Chesney et al. (2006) found a reliability index of .95. The present study found a reliability index of .89 for the Setswana version. Among other multicultural South African groups, Wissing et al. (2011) reported Cronbach's alphas of .86 and .88 for the CSES.

Procedure

Data was collected within a cross-sectional survey that involved two research projects: the PURE-SA (*Prospective Urban and Rural Epidemiological study – South Africa*) coordinated by Kruger (2005), and the FORT-3 (*Understanding and promoting psychosocial health, resilience, and strengths in an African context*) coordinated by Wissing (2008). After obtaining informed consent, trained field workers assisted participants in completing paper and pencil batteries by way of structured interviews. All the completed responses were captured as data and subsequently analysed by using SPSS, AMOS, and Winsteps statistical software programs.

Ethical Aspects

The data was collected as part of the joint collaboration between two research projects; FORT-3 (Wissing, 2008) and PURE-SA (Kruger, 2005). Both research projects were registered with the research ethics committee of the North-West University and have been awarded ethics approval numbers; namely, NWU-00002-07-A2 for FORT-3 and 04M10 for PURE-SA. Research ethical aspects such as confidentiality,

informed consent, voluntary participation, the right to withdraw, and the demarcation of the use of data were observed during all the stages of the research process.

Data Analysis

In exploring the reliability and validity of the GPWS, Classical Test Theory (CTT), Structural Equation Modelling (SEM), and Item Response Theory (IRT) approaches were used. The CTT methods reported descriptive statistics, Cronbach's reliability coefficients, confirmatory and exploratory factor analyses, interscale correlations, *t*-test mean comparisons, ANOVA, and regression analyses. SEM reported fit indices for the measurement models of the scale. The Rasch model of IRT was used to report item characteristics including difficulty parameters, model fit, and response scale thresholds.

Classical Test Theory

The following measurement properties for the GPWS were reported; namely, reliability indices, descriptive statistics, construct validity, and convergent and discriminant validity, as well as relationships with relevant independent variables (cf. Clark & Watson, 1995; John & Benet-Martínez, 2000; Paunonen & Ashton, 1998; Zickar, 1998). A psychometrically sound measuring instrument must have adequate means and variances, reliabilities, factor structures, and correlations with other indices (Clark & Watson, 1995; Paunonen & Ashton, 1998). Confirmatory and exploratory factor analyses were employed to explore the GPWS's construct validity and factor structure. Maximum likelihood factor extraction method and non-orthogonal (direct oblimin) rotation were also used (cf. Costello & Osborne, 2005).

Structural Equation Modelling

We used SEM to test the underlying theoretical construct in the present data. The fit indices (c.f. Byrne, 2001; Clara, Cox, Enns, Murray, & Torgrudc, 2003; Kline, 2011) for the theoretically guided model (a unidimensional factor solution) and the plausible alternative models (two and three factor solutions) were computed and compared. Wissing and Temane (2008) and Wissing and Van Eeden (2002) presented GPW as a higher-order, unidimensional construct with underlying facets. Therefore, for the one-factor model, all 20 items of the GPWS were treated as first-order indicator variables for the higher-order variable GPW.

The following fit indices (see Byrne, 2001; Hu & Bentler, 1999) were reported: Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA),

Chi square (X^2), Chi square/degrees of freedom ratio (X^2/df), Tucker-Lewis Index (TLI), and Akaike Information Criterion (AIC). Comparative Fit Index compares the hypothesized model to the independent model, and values above .90 indicate good fit. Root Mean Square Error of Approximation assesses the amount of misfit and should preferably be a value less than .05 for an acceptable fit (Byrne, 2001; Forster, Barkus, & Yavorsky, 2006). A chi square index compares the obtained covariance structure with the predicted structure, and a nonsignificant value is indicative of a good fit (Forster et al., 2006). A chi square/degrees of freedom ratio (X^2/df) value closer to 1 is indicative of good fit. Values below 5 are regarded as acceptable. The TLI is an incremental fit index, compares a common baseline model with the specified model, and is supposed to be close to 1 for good model fit (Byrne, 2001; Forster et al., 2006; Hu & Bentler, 1999). The AIC is a predictive fit index, according to which a better fitting model would be less complex and have fewer fit parameters (Kline, 2011). According to Martens (2005), TLI, RMSEA, and CFI, among others, are less likely to be affected by external factors such as sample size.

Item Response Theory (IRT)–Rasch Model

The Rasch model (Dawis, 1987, 2000; De Bruin, 2004; Linacre, 2002, 2003; Rasch, 1960) is also known as the one-parameter logistic model. It was used to examine the functioning of each item of the GPWS through computing difficulty estimates (Rasch calibrations), fit indices (infit and outfit mean square values), and thresholds of rating scale categorizations for each item (De Bruin, 2004; Linacre, 2002; Rasch, 1960; Van der Walt & Steyn, 2007). It examines the psychometric properties of a scale at item level, and works on a testable specification of unidimensionality (Cella & Chang, 2000). Infit and outfit mean square values (reported in Table 10.7) indicate the degree to which the items measure the same latent trait.

The infit mean square value had an expected value of 1.0; when it is above 1.0, it indicates greater variation and when below 1.0, it indicates less variation. Values above 1.3 are regarded as indicating significant misfit, while significant overfit is indicated by values less than .75 (see Van der Walt & Steyn, 2007). The infit mean square values for most of the items except for GPWS19 (infit MNSQ=1.42) and GPWS20 (infit MNSQ=1.54) were within an acceptable range for variation in scores. Items 19 and 20 demonstrated significant misfit from the rest of the items when measuring GPW as a unidimensional construct.

Related to infit, the outfit mean square is determined by dividing the chi-square by the number of participants (N). Values below 1.0 indicate that an item overfits the model while values above 1.0 show less than desirable fit. A range between 0.7 and 1.4 demonstrates adequate fit (see De Bruin, 2004; Linacre, 2002). Except for GPWS19 (outfit MNSQ=1.89) and GPWS20 (outfit MNSQ=1.45), items of the GPWS in the present data demonstrated adequate fit.

In the present study, the Rasch one-parameter logistic model using the Winsteps programme (Linacre, 2003) was applied for analysis. It is, however, noted that multidimensional IRT models are better suited for assessing broad and complex constructs, whether they be hierarchical or nonhierarchical (Reise, Morizot, & Hays, 2007). The GPW is proposed as a hierarchical model.

Results

Reliability and Descriptive Statistics

Cronbach's alpha reliability indices and descriptive statistics are reported in Table 10.2. The GPWS yielded a high Cronbach's alpha index ($\alpha = .87$) for the total sample. This reliability score was comparable with that found in a previous study involving the GPWS among a Setswana-speaking group (see Khumalo et al., 2010). Nunnally (1978), Nunnally and Bernstein (1994), and Streiner (2003) recommend a Cronbach's alpha coefficient range of between .70 and .90 as being satisfactory or good. Values above .90 indicate redundancy in item content (Streiner, 2003). A reliability coefficient that is lower than .70 indicates that the items are not sufficiently coherent as a measure of the same construct, and therefore may be tapping peripheral constructs.

The total sample obtained a mean score of 83.88. The score range for the GPWS total was between a minimum of 29 and a maximum of 140. A significant difference was found between the rural ($M = 80.13$) and urban ($M = 88.73$) residents, with a t -test score of $t(1,241) = 7.03$, $p = .00$. The distribution is reported by way of kurtoses and skewness values (cf. Pallant, 2011). The total sample yielded a more flat distribution of scores, characterized by a kurtosis of $-.74$, and a skewness close to zero ($-.05$). The rural group yielded a positively skewed distribution of $.08$, while the urban group yielded a negative skewness of $-.28$, and both of their kurtoses were negative, indicating a flat distribution. Positive skewness values reflect a clustering of scores to the left, which is the low end of the distribution, while negative ones reflect clustering at the high end (Pallant, 2011).

At item level, the response scale for the GPWS ranges between 1 (*strongly disagree*) and 7 (*strongly agree*). In the present study, the item mean scores ranged between 2.94 for GPWS1 ("My life seems stuck") and 6.13 for GPWS20 ("I find strength in my faith and spiritual beliefs"). The largest standard deviation for any of the items was 2.28, obtained for GPWS15, which had a mean score of 3.90. Standard deviation is an estimate of the average variability, demonstrating the degree to which scores cluster close to the mean of the measured variable (Field, 2005). Item-total correlations ranged between .25 for GPWS19 ("I experience personal relationships that provide support") and .72 for GPWS12 ("My life is full of interest"). In addition, all items except for GPWS19 ($r = .16$) and GPWS20 (.27) yielded item-total correlation coefficients above .30. All items, except for GPWS20, had negative kurtoses. Both positive and negative skewness values were within the -1 and $+1$ range, except for GPWS 19 with -1.16 , and GPWS20 with -2.59 .

Table 10.2 Descriptive statistics, Pearson item-total correlations per item of the GPWS among the Setswana-speaking community sample (N=1,275)

Item	M	SD	Range		Skewness	Kurtosis	Item-total Correlation	Cronbach alpha if item deleted
			Minimum	Maximum				
GPWS 1	2.94	1.98	1	7	.95	-.66	.43**	.86
GPWS 2	4.78	2.10	1	7	-.70	-1.15	.57**	.86
GPWS 3	3.80	2.17	1	7	.20	-1.69	.43**	.86
GPWS 4	4.47	2.05	1	7	-.50	-1.38	.67**	.85
GPWS 5	4.51	2.06	1	7	-.50	-1.33	.67**	.85
GPWS 6	4.65	2.00	1	7	-.66	-1.13	.67**	.85
GPWS 7	3.92	2.20	1	7	.06	-1.64	.65**	.86
GPWS 8	3.79	2.13	1	7	.20	-1.60	.57**	.86
GPWS 9	4.42	2.05	1	7	-.50	-1.40	.54**	.86
GPWS10	3.29	2.09	1	7	.73	-1.16	.45**	.86
GPWS 11	3.75	2.21	1	7	.28	-1.17	.52**	.86
GPWS 12	4.36	2.09	1	7	-.32	-1.51	.72**	.85
GPWS 13	3.85	2.15	1	7	.16	-1.65	.51**	.86
GPWS 14	4.81	1.89	1	7	-.79	-.89	.55**	.86
GPWS 15	3.90	2.28	1	7	.12	-1.74	.56**	.86
GPWS 16	3.59	2.14	1	7	.38	-1.51	.56**	.86
GPWS 17	4.21	1.99	1	7	-.20	-1.36	.41**	.86
GPWS 18	3.55	2.00	1	7	.36	-1.46	.50**	.86
GPWS 19	5.16	1.91	1	7	-1.16	-.22	.25**	.87
GPWS 20	6.13	1.31	1	7	-2.59	6.78	.32**	.86
GPWS-T	83.88	21.76	29	140	-.05	-.74	.	.

Note: GPWS=General psychological well-being scale

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

Dynamics of General Psychological Well-Being

In examining the manifestation and dynamics of the GPW construct, its interaction with gender, age, environmental setting, depression, and positive mental health were examined. The PHQ-9 (Kroenke et al., 2001) and MHC-SF (Keyes, 2002, 2005b) were used as indices of depression and positive mental health, respectively. Linear regression analyses indicating the influence of these variables are reported in Table 10.3.

Gender

The male participants in the study attained a mean score of 83.72 ($SD=22.04$), while the female participants scored 84.13 ($SD=21.76$). The t -test score of $t(1,240)=-.313, p=.754$ indicated that there is not a significant difference in the levels of general psychological well-being between men and women in this sample. The regression analysis demonstrated that gender obtained a beta coefficient of .01 ($p=.75$), and explained no variance (R^2) in the GPWS. The Spearman rho

Table 10.3 Linear regression analysis for GPWS with gender, age, environmental setting, positive mental health, and depression among a Setswana-speaking community sample (n = 1,275)

Independent variable	Coefficients of correlation and regression						
	r/r_s	R^2	Adjusted R^2	B	Beta	F	Sig. (ρ)
Gender	.01/.01	.00	.00	.41	.01	.10	.75
Age	.06*/.05	.00	.00	.14	.06	4.83	.03
Environmental setting	-.20**/-.20**	.04	.04	-8.60	-.20	49.42	.00
Positive mental health	.41**/.40**	.17	.17	14.91	.41	261.79	.00
Depression	-.39**/-.39**	.15	.15	-6.33	-.39	218.87	.00

Note: GPWS=General psychological well-being scale

* Correlation is significant at the 0.05 level (2-tailed), ** Correlation is significant at the 0.01 level (2-tailed)

correlation coefficient ($r_s = .01$) between gender and the GPWS also indicated an insignificant association between the two.

Age

The association between age and the GPWS is indicated by a small positive Pearson correlation coefficient of .06 (significant at the 0.05 level) and a regression equation with a beta coefficient of .06 ($p = .03$). However, age accounted for 0 % ($R^2 = .00$) of the variance in the GPWS. This result demonstrates an inconclusive relationship between age and general psychological well-being.

Environmental Setting

Whether an individual lived in a rural or urban setting accounted for 4 % of the variance ($R^2 = .038$) in their level of general psychological well-being. The Spearman rho coefficient of $-.20$ describing the association between the GPWS and environmental setting was significant at the 0.01 level. The t -test score of $t(1,241) = 7.03$, $p = .000$ demonstrated a significant difference between the rural ($M = 80.13$, $SD = 20.96$) and urban ($M = 88.13$, $SD = 22.00$) groups, showing the urban residents to be doing better than their rural counterparts.

Depression

The association between GPW and depression is illustrated in Fig. 10.1. Levels of depression were graded according to PHQ cutoff criteria (Kroenke & Spitzer, 2002) for the categories no depression, mild, moderate, moderately severe, and severe depression. Analysis of variance (ANOVA) yielded significant results, $F(4) = 57.05$, $p = .000$, indicating a significant difference between the categories, with general

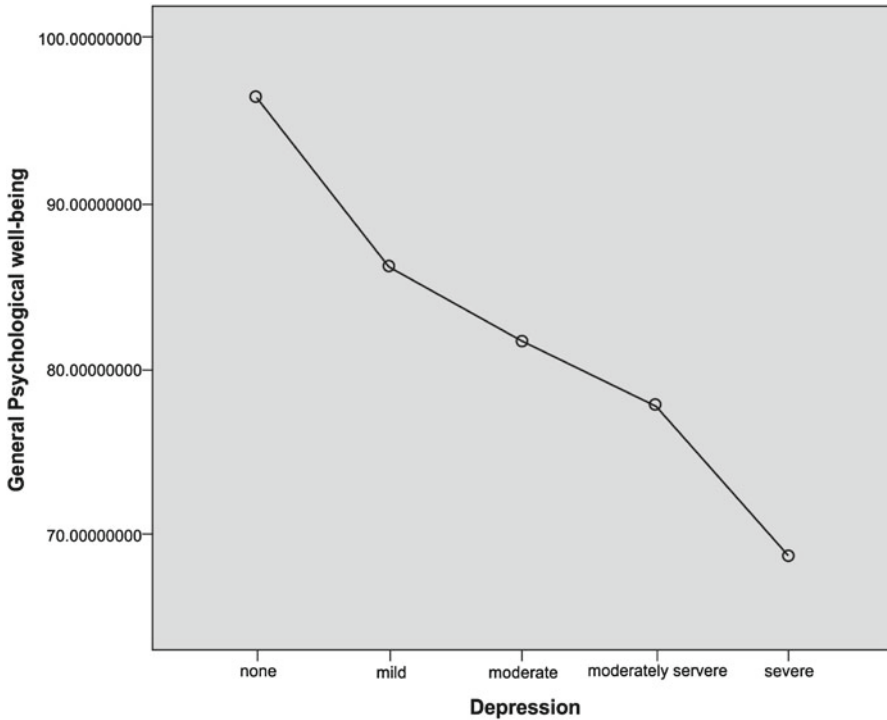


Fig. 10.1 General psychological well-being (GPWS) and levels of depression (PHQ-9)

psychological well-being decreasing with the severity of depression ($r_s = -.39$). The relationship between GPW and depression was further characterized by a standardized beta coefficient of $-.39$ ($p = .00$), with a coefficient of determination (R^2) of $.15$ (15 % of the variance).

Positive Mental Health

The association between GPW and positive mental health is illustrated in Fig. 10.2. Positive mental health categories were determined as specified along the Mental Health Continuum: They are languishing, moderate mental health, and flourishing. A significant difference, $F(2) = 130.91$, $p = .000$, in the GPWS mean scores was found between the categories along the continuum. The association between the two indices of well-being is given by a Spearman rho of $.40$, significant at a 0.01 level. The flourishing group attained the highest GPWS mean score, followed by the moderately mentally healthy group; the languishing group scored the lowest. A standardized beta coefficient of $.41$ ($p = .00$) defined the straight line drawn between GPW and MHC, with positive mental health explaining 17 % of the variance in general psychological well-being.

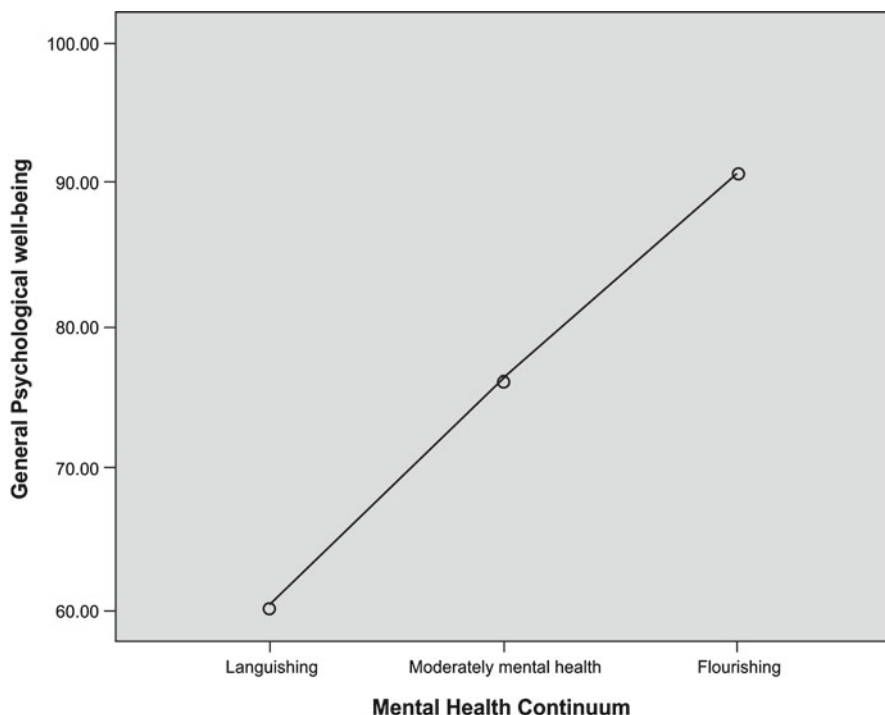


Fig. 10.2 General psychological well-being (GPWS) and mental health continuum (MHC-SF)

Validity

Convergent and Discriminant Validity

Pearson correlation coefficients are reported in Table 10.4 as an indication of the relationship between the GPWS and positive well-being, measured using MHC-SF, CSES, and WEMWBS, as well as negative well-being measured using PHQ and GHQ. Additionally, the GPWS yielded positive associations with positive well-being measures and negative associations with negative well-being measures, with all correlation coefficients being significant at the 0.01 level. The correlation coefficients between the GPWS and MHC-SWB ($r = .28$), CSES-SFF ($r = .18$) and GHQ-SD ($r = -.25$) were, however, below .30.

Construct Validity and Factor Structure

Confirmatory and exploratory factor analyses results are reported in Table 10.5 and SEM measurement model fit indices are reported in Table 10.6. Confirmatory factor analysis with specification for one factor yielded a factor with an eigenvalue of 5.91,

Table 10.4 Criterion-related validity: Pearson coefficient correlations between the GPWS and other indices of positive and negative psychological well-being in the community sample

Variable (valid N)	Pearson correlation
MHC-T (1,266)	.48**
MHC-EWB (1,266)	.51**
MHC-PWB (1,266)	.31**
MHC-SWB (1,266)	.28**
PHQ-T (1,261)	-.41**
CSES-T (1,264)	.31**
CSES-SFF (1,262)	.18**
CSES-PFC (1,263)	.30**
CSES-SUE (1,264)	.30**
WEMWBS (1,258)	.42**
GHQ-T (1,261)	-.45**
GHQ-SS (1,261)	-.33**
GHQ-AS (1,261)	-.34**
GHQ-SD (1,260)	-.25**
GHQ-DS (1,260)	-.38**

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

Table 10.5 Maximum likelihood confirmatory factor analysis and exploratory factor analysis with direct oblimin rotation on items of GPWS in the Setswana-speaking community sample (n=1,275)

Item	CFA (factor matrix)		EFA (pattern matrix)				
	Factor loading	Comm.	F1	F2	F3	F4	Comm.
GPWS 1	.34	.16	–	.32	–	–	.16
GPWS 2	.58	.34	.61	–	–	–	.34
GPWS 3	.33	.21	–	.45	–	–	.21
GPWS 4	.72	.53	.82	–	–	–	.53
GPWS 5	.73	.54	.84	–	–	–	.54
GPWS 6	.71	.49	.73	–	–	–	.49
GPWS 7	.59	.39	–	.48	–	–	.39
GPWS 8	.50	.31	–	.48	–	–	.31
GPWS 9	.56	.32	.55	–	–	–	.32
GPWS10	.33	.23	–	.56	–	–	.23
GPWS11	.43	.33	–	.64	–	-.36	.33
GPWS 12	.75	.52	.60	–	–	–	.52
GPWS 13	.40	.23	–	.51	–	–	.23
GPWS 14	.54	.30	.34	–	–	–	.30
GPWS 15	.46	.32	–	.58	–	–	.32
GPWS 16	.45	.35	–	.63	–	–	.35
GPWS 17	.35	.14	–	–	.32	–	.14
GPWS 18	.48	.24	.35	–	–	–	.24
GPWS 19	–	.10	–	–	.39	–	.10
GPWS 20	–	.13	–	–	.32	–	.13
Eigenvalue	5.91	–	5.91	1.92	1.19	1.02	–
% variance explained	29.53	–	29.53	9.58	5.95	5.08	–

Note: GPWS=General psychological well-being scale
 Values less than 0.3 are not displayed

Table 10.6 Goodness of fit estimates for GPWS among the Setswana-speaking community sample

Latent model	X^2	Df	CFI	RMSEA	TLI	AIC	X^2/df
			>.90	<.05	>.90	Smaller	
One factor	1504.97	170	.800	.079	.753	1624.97	8.85
Two factor	406.25	103	.950	.048	.934	504.25	3.94
Three factor	416.87	116	.952	.045	.936	524.87	3.59

Note: X^2 Chi square, df degrees of freedom, TLI Tucker-Lewis Index, CFI Comparative fit index, $RMSEA$ Root Mean Square of approximation, AIC Akaike's Information Criterion, X^2/df Chi square degrees of freedom ratio

and explained 29.53 % of the variance. However, only 18 of the 20 items of the GPWS had significant loadings on this factor. Items 19 and 20 obtained factor loadings below .32. According to Costello and Osborne (2005), the determination that an item belongs to a factor is indicated by a factor loading above .32. In an earlier study by Wissing and Van Eeden (2002) in their exploration of the GPW construct, exploratory factor analysis yielded a primary factor with an eigenvalue of 6.48 and explaining 16.4 % of the variance.

Exploratory factor analysis yielded four factors with an eigenvalue above one. Following the guidelines of Costello and Osborne (2005) and Worthington and Whittaker (2006), the first three factors were considered as major and therefore were also considered for interpretation. The fourth factor was excluded due to its having only one item that was also cross-loading; namely, GPWS11: "I feel there must be something wrong with me." A factor with fewer than three items is considered weak and unstable (Costello & Osborne, 2005). In the case of such a factor and cross-loading item(s), the item and/or factor should be deleted (Costello & Osborne, 2005; Worthington & Whittaker, 2006). Therefore, only the first three factors were retained. The first factor, which consisted of 8 items, can be named *positive affect and meaningful satisfaction* ($\alpha=.86$), the second factor with 9 items can be named *negative affect and poor social support* ($\alpha=.79$), and the third factor with 3 items can be named *meaningful connectedness and vitality* ($\alpha=.35$). Although the initial development and validation study (see Khumalo et al., 2010) found four factors from EFA, the three factors emerging from the present study's exploratory factor analysis reflected similar findings.

Structural Equation Modelling

The measurement models based on confirmatory factor analyses were explored. They yielded the relations between latent variables and their indicator variables (cf. Oishi, 2007); in this case the GPWS-total and its items. Three measurement models were tested for fit. The one-factor solution model ($X^2=1504.97$; $CFI=.800$; $TLI=.753$; $RMSEA=.079$) was compared with the two-factor solution ($X^2=406.25$; $CFI=.950$; $TLI=.934$; $RMSEA=.048$) and the three-factor solution ($X^2=416.87$; $CFI=.952$; $TLI=.936$; $RMSEA=.045$). The two and three factor solutions demonstrated fitting the present data better than the single factor solution. Similarly, Khumalo et al. (2011) had found fit indices that supported a four factor solution for the GPWS, as opposed to the unidimensional

model that demonstrated to be a poor fitting model. This finding suggests that data supports a hierarchical multidimensional model of the general psychological well-being construct (see Wissing & Temane, 2008).

Item Functioning

Item Response Theory

Using the Rasch-model, item difficulty estimates (b parameters) and item rating scale response thresholds were computed, and are reported in Table 10.7. Difficulty estimates, which refer to the probability of endorsement or scoring high on an item (Hays, Morales, & Reise, 2000) ranged between $-.89$ for GPWS20 and $.43$ for GPWS1. According to Hays et al. (2000), most trait score and difficulty estimates range between -2 and 2 . Those items with large positive difficulty estimates are endorsed only by participants with a large positive latent construct (θ), whereas items with large negative b parameters will be endorsed by everyone except people with the most extreme construct (Zickar, 1998).

Since rating scales are an extension of the item content (Cella & Chang, 2000), the pattern of responding to items by computing thresholds at each rating scale category (Linacre, 2002) is reported. For the GPWS, the items are expected to have thresholds that increase monotonically because the ratings form a progression with increased manifestation of the latent construct (see Hahn, Cella, Bode, & Hanrahan, 2010; Linacre, 2002). Consistent with expectations, the results of the present study demonstrated a general pattern of increasing threshold values with increased manifestation of general psychological well-being.

Discussion

The aim of the present study was to explore the psychometric properties of the General Psychological Well-being Scale as a measure of general psychological well-being in a Setswana-speaking community sample. It was therefore concerned with the content and structure of the GPW construct and its operationalization, as well as the contextual dynamics within which it is experienced. In addition to the reliability, validity, and item functioning, the study also explored the application of the scale and the manifestation of the construct based on sociodemographic variables; namely, age, gender, and environmental setting. The findings indicated that the GPWS is a reliable measure, with good convergent and discriminant validity. Its factor structure, as indicated by CFA and EFA, using CTT and SEM approaches, indicated a multifaceted, hierarchically organized construct. Therefore, in the present data, the GPWS was not found to be a unidimensional measure of general psychological well-being.

Table 10.7 General psychological well-being scale (GPWS) item statistics in Rasch 1-parameter model among a Setswana-speaking community sample (N=1,275)

Item	Measure	Error	Infit MNSQ	Outfit MNSQ	Item-score correlation	Response thresholds						
						1	2	3	4	5	6	7
GPWS1	.43	.02	1.18	1.32	.35	-.12	.00	.12	.18	.35	.28	.63
GPWS2	-.17	.02	1.00	.99	.50	-.34	-.19	-.18	-.02	.04	.20	.33
GPWS3	.14	.02	1.21	1.36	.35	-.18	-.06	.02	.11	.21	.21	.44
GPWS4	-.07	.02	.75	.75	.61	-.32	-.24	-.08	.02	.12	.25	.45
GPWS5	-.08	.02	.76	.72	.61	-.37	-.23	-.03	.05	.12	.24	.45
GPWS6	-.13	.02	.73	.72	.61	-.38	-.24	-.10	-.02	.05	.23	.45
GPWS7	.10	.02	.88	.91	.59	-.26	-.14	.00	.11	.06	.30	.47
GPWS8	.14	.02	.95	1.12	.50	-.25	-.10	.03	.09	.07	.03	.44
GPWS9	-.06	.02	.95	.98	.46	-.30	-.16	.00	.11	.12	.20	.46
GPWS10	.30	.02	1.14	1.24	.37	-.11	-.05	.02	.18	.27	.31	.43
GPWS11	.15	.02	1.11	1.24	.44	-.22	-.07	.05	.12	.14	.26	.41
GPWS12	-.04	.02	.70	.66	.67	-.42	-.21	-.04	.08	.12	.27	.46
GPWS13	.12	.02	1.08	1.21	.43	-.22	-.08	.00	.06	.09	.25	.43
GPWS14	-.18	.02	.84	.89	.48	-.41	-.21	-.06	-.03	.05	.20	.38
GPWS15	.11	.02	1.11	1.11	.48	-.24	-.09	.04	.08	.07	.27	.39
GPWS16	.21	.02	.98	1.12	.49	-.24	-.07	.09	.11	.17	.32	.43
GPWS17	.01	.02	1.07	1.17	.33	-.23	-.11	.06	.07	.11	.22	.34
GPWS18	.22	.02	.98	1.18	.43	-.26	-.06	.16	.21	.15	.25	.57
GPWS19	-.31	.02	1.42	1.89	.17	-.16	-.06	-.07	-.16	.01	.11	.24
GPWS20	-.89	.03	1.54	1.45	.26	-.46	-.33	-.19	-.11	-.06	.06	.17

The high Cronbach's alpha attests to its reliability in this sample. The scale yielded comparable mean scores across age and gender, and significant differences across the urban-rural divide. Its correlation with other indices of positive (MHC; Keyes, 2002, 2005b; WEMWBS; Tennant et al., 2007; CSES; Chesney et al., 2006) and negative (PHQ-9; Kroeke et al., 2001; GHQ; Goldberg & Hillier, 1979) well-being attests to its convergent and discriminant validity. The level of GPW at different degrees of depression (Kroenke et al., 2001) and the categories of the mental health continuum (Keyes, 2002) were consistent with theoretical expectations. Factor analyses and fit indices did not support the unidimensional factor solution. However, they did support a multifaceted construct with a hierarchical organization, as well as a positive and negative well-being dichotomy. As proposed by Wissing and Temane (2008), the GPW is at the apex of this hierarchy.

Factor Structure and Item Functioning

General psychological well-being (Wissing & Temane, 2008; Wissing & Van Eeden, 2002) is conceptualized as a multifaceted yet unidimensional construct that is organized in a hierarchical fashion and that is flexibly combined in complex ways across different sociocultural contexts. In the present study, CFA yielded one primary factor consisting of 18 of the 20 items of the scale. This finding was also supported by the infit and outfit mean square values from the Rasch model.

Most—but not all—of the items were found to function coherently as indicator variables of the GPW construct. More specifically, items 19 (“I experience personal relations that provide support”) and 20 (“I find strength in my faith and spiritual beliefs”) demonstrated poor fit. The content of these items represent interpersonal and spiritual relatedness. This could refer to spiritual well-being, which involves religious and social components as vertical and horizontal dimensions (cf. Ellison, 1983; Ellison & Smith, 1991).

Structural equation modelling indicated that the two and three factor solution models fitted the data better than the single factor solution. Overall, EFA retained all 20 items of the scale, but yielded three major factors in support of the constituting facets of general psychological well-being. The emergent three-factor structure represents the following dimensions: positive affect and meaningful satisfaction ($\alpha = .86$); negative affect and poor social support ($\alpha = .79$); and meaningful connectedness and vitality ($\alpha = .35$). The first factor is indicative of the interrelatedness of subjective happiness and the experience of meaningfulness. According to Fredrickson (2000), positive meaning elicits positive emotions in much the same way as happiness may play a role in predisposing people to positive meaning. Steger (2009) also reports that people prosper when they engage in intrinsically meaningful activity. The second factor illustrates the co-occurrence of negative affect and the perception of poor social support. Social support is accepted as a positive resource that contributes to well-being (Pretorius, 1998). The third factor includes vitality, which is the positive and restorative emotional state associated with a sense of enthusiasm and energy (Ryan & Frederick, 1997). It occurs within the context of social and spiritual relatedness.

The two factor solution shows the independence of positive and negative well-being. This is in line with the findings of Keyes (2005a) and Huppert and Whittington (2003), who empirically found that health and illness does not form a single bipolar dimension, but instead found that the two are distinct yet correlated factors. Therefore, psychological well-being and mental health are more than just the absence of symptoms of ill-being (Keyes, 2002; Wissing & Van Eeden, 2002). Using the Mental Health Continuum, Keyes (2005a) found that the best fitting models supported the idea that measures of mental illness and mental health form separate, correlated axes. Positive and negative well-being components are differentially influenced by demographic, health, and social factors (Huppert & Whittington, 2003). Assessment of subjective well-being includes both positive and negative affect (Diener, 2000), and a valid measure includes both positive and negative well-being content (Huppert & Whittington, 2003).

Associations with Related Constructs

The GPWS correlated positively and highly with other indices of positive well-being, and the inverse was true for the negative well-being indices. General psychological well-being was positively associated with positive mental well-being (Tennant et al.,

2007), coping self-efficacy (Chesney et al., 2006), and flourishing (Keyes, 2002; Keyes et al., 2008). Inversely, it was negatively associated with depression (Kroenke et al., 2001), social dysfunction, anxiety, insomnia, and the perception of somatic symptoms (Goldberg & Hillier, 1979). Analysis of variance also showed that GPW is associated with depression and positive mental health at varying degrees along their spectra.

Gender, Age, and the Rural–Urban Divide

Consistent with the findings of Wissing et al., (2013), the present study found individuals in the urban area to experience higher levels of psychological well-being than those in the rural area. It is hypothesized that urban areas are well resourced in that they have greater economic status, social support, and self-efficacy as compared to the rural areas (Tsuno & Yamazaki, 2007). No conclusive differences in psychological well-being between male and female participants and across the age span were found in the present study. Similar results were found for GPWS in a previous study (see Khumalo et al., 2012). The shared conditions of living can explain the lack of difference in general psychological well-being between men and women and across age.

Recommendations

These findings highlight positive aspects and limitations of the GPWS. The findings of the present study and those of previous studies (e.g., Khumalo et al., 2010, 2011) give an indication of recommendations for further refinement of the GPWS. To achieve greater balance between the interrelated dimensions, items with overrepresentation need to be systematically excluded (Clark & Watson, 1995). The decrease of the rating scale categories of the GPWS from seven to five (see Linacre, 2002) could improve its measurement consistency. A large number of response rating categories have the potential to be confusing and irritating to participants (Linacre, 2002). Because of the complex nature of the GPW construct as a hierarchically organized model and the present study's finding that the GPWS is not a unidimensional measure, future studies should consider multidimensional IRT models (Reise et al., 2007) instead of the unidimensional Rasch model.

Qualitative research methods should be employed for the improvement of item content, especially in determining the culturally embedded meaning making of the measured constructs (cf. Camfield, Crivello, & Woodhead, 2009; Pedrotti, Edwards, & Lopez, 2009). The positive wording/phrasing of the items without reverse scoring (e.g., Tennant et al., 2007) will improve the accuracy of participants' responses and scale coherence. Cutoff points for the categories of degrees or levels of well-being (e.g., Keyes, 2002, 2005b; Keyes et al., 2008) will allow for individual and population,

or sample, categorization according to levels of functioning. The development of norms according to age and gender is a recommendation for further study. Correlation with objective indices of health and well-being is recommended as a criterion-related validity measure. Finally, it is recommended that future studies should apply the GPWS in samples from other language groups and regional areas, and especially across the individualism–collectivism divide.

Conclusion

In presenting the findings regarding the nature and structure of GPW, as well as the psychometric properties of its measure (i.e., the GPWS), this chapter has shed light on GPW as experienced, conceptualized, and measured in an African context. The understanding of a well-being construct relies on its proper operationalization (Lucas, 2007). The GPWS is a promising self-report measurement of general psychological well-being as a complex, integrated construct of holistic psychological well-being that includes dimensions from both the hedonic and eudaimonic well-being perspectives. It is also an illustration of the optimal conceptualisation and operationalization of well-being, as embedded in the sociocultural context within which people live. Christopher (1999) and Sokoya, Muthukrishna, and Collings (2005) agree that the meaning and experience of well-being are culturally rooted and socially constructed. Moreover, the African context has often been neglected and little is known in the positive psychology research about African populations (Ryff & Singer, 1998; Suh & Oishi, 2004). Lastly, the way that well-being is defined and measured influences most of the spheres of life that concern improving human function, including practices of government, teaching, therapy, parenting, and even preaching (Ryan & Deci, 2001).

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