The Subjective and Psychological Well-Being of Children in South Africa: a Population-Based Study

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Abstract

Objective and subjective indicators reflect distinct but complementary information on children's lives. While South Africa has well-developed reporting systems and reasonable data on children's objective living conditions, there is a substantial lack of data as it relates to subjective indicators – that is what children think and feel, and how they evaluate their overall life and different aspects of their lives. This study is conceptualised to contribute to the data on children's subjective and psychological well-being. We used a nationally representative population-based sample to provide an analysis of children's subjective well-being (including context-free cognitive life-satisfaction, domain-based cognitive life-satisfaction, and positive and negative affect) and psychological well-being (eudaimonic perspective) across the nine provincial regions, age (10- to 12-years-old), gender (boys and girls), geographical context (urban and rural), and socio-economic status (low, lower-middle, and middle). We used data from the South African Children's Worlds Study, with a nationally representative sample of 7 428 children (10- and 12-years-old), selected from primary schools in all nine provincial regions in South Africa. We found an appropriate fit structure for all the measuring instruments, and confirmed measurement invariance across provincial region, age, gender, geographical context, and socio-economic status. The scores on these separate components on children's subjective and psychological well-being represent normative scores, and can be generalised to 10- and 12-year-old children across the country.

Keywords Children · Subjective well-being · Eudaimonic well-being · Psychological well-being · South Africa · Children's Worlds Survey · Confirmatory factor analysis

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Background and Rationale

Children in South Africa have a long-standing history of exposure to political violence, oppression, abuse, and neglect. Understanding children and childhood in South Africa is incomplete without reference to the oppressive regime of apartheid, a system of institutionalised racism. The apartheid legislative framework was based on a racist philosophy of segregation and social exclusion – having characterised the socio-political landscape of South Africa for nearly fifty years. Owing to apartheid, the prohibition of equal access to the law, property, and freedom of movement negatively impacted on families and their capacity for providing a nurturing environment and healthy life for their children. The unequal allocation of resources across the racial classification system during apartheid, for example the disproportionate investment in education and health of the 'Black child', resulted in a deluge of deleterious effects on the developmental trajectory and well-being of children (Savahl et al., 2019a, b).

Unfortunately, this consistent under-development has persisted in the post-apartheid context, with the transgenerational transmission of trauma, internalised inadequacy, poverty, and inequity (Savahl et al., 2019a, b). A joint report by UNICEF (2011) South Africa and the South African Human Rights Commission on racial inequalities in South Africa details the following outcomes of a black child in relation to a white child: 18 times more likely to live in poverty, 12 times more likely to experience hunger, 2 times less likely to have access to adequate sanitation and water, 1.5 times less likely to have access to early child development programmes, 2 times less likely to complete secondary education. Over a decade later, the situation for children has further deteriorated.

Social theorists such as Biko (1978) and Bulhan (1985) contend that the legacy of social oppression manifests in chronically high levels of violence, trauma, and social inequality among young people who display negative behaviours, emergent from the vestiges of internalised apartheid oppression. They carry the impression of an 'apartheid of the heart'; where healing from the prolonged traumatic oppression has not taken place (Savahl et al., 2019a). Lockhat and Van Niekerk (2000, p. 292) articulate the socio-historical context eloquently:

> …the state waged a carefully planned social, economic and political war on its own (black) children in the interest of maintaining white privilege. Indeed the apartheid state could quite legitimately be accused of perpetrating intentional and active child abuse… apartheid was violence perpetrated by the state on its black citizens and children in particular. Why was this violence necessary? Simply put, apartheid was a political system with the expressed aim of maintaining the political dominance of a white minority over a black majority. That this violence was perpetrated on black children can be seen as a necessary pre-condition for the maintenance and success of apartheid.

Following the advent of democracy in 1994, the new South African government enacted a series of legal commitments to make South Africa a better place for children (Savahl et al., 2015). The first of these legal commitments is evident

in Sect. 28 of the Bill of Rights (South African Constitution, p. 1255), which details children's basic human rights and advances the notion that "A child's best interest are of paramount importance in every matter concerning the child". This was complemented by the ratification of the United Nations Convention on the Rights of the Child (UNCRC) on the 16th of June 1995.

The Bill of Rights and the UNCRC provided the impetus for the development of further child-specific legislation. These legislations include the Children's Act (No. 38 of 2005), the associated Children's Amendment Act (No. 41 of 2007), and the Child Justice Act (2008). These legal contracts have entrenched the rights and needs of children in the development strategies of the government, as well as guaranteeing children's socio-economic rights and protection from abuse, exploitation, and neglect. For example, through the Social Security Agency Act of 2004, the government has ensured that children are the beneficiaries of social grants to mitigate vulnerability and poverty. The National Programme of Action (NPAC), co-ordinated by the Office on the Rights of the Child (ORC), was put in place to provide "a holistic framework for the integration of all policies and plans which was developed by the government departments as well as civil society to promote the well-being of children" (2012, p. 9). Currently, the South African government is implementing the fourth National Programme of Action for Children. Importantly, the South African government has also enacted 'The National Child Care and Protection Policy' (2019–2024), which gives effect to the Children's Act (2005) and strengthens the coordination of the childcare and protection system and facilitates the full use of available resources for improved services that promote positive development of all children. The policy articulates the national vision: "that all children in South Africa live in safe and nurturing families, communities, and societies which enable and support their survival, their development to their full potential, their protection from violence, abuse, neglect, and exploitation, and their participation in decisions that affect them" (Department of Social Development, 2019, p. 9). Taken together, these legislative frameworks and governmental strategies have prioritised the well-being of children. However, regardless of these advancements the objective living conditions of children remain compromised.

Objective and Subjective Indicators of Children's Well-Being in South Africa

While South Africa has made strides in its Constitutional advancement, the country is ranked as the most unequal country globally. This is reflected in its Human Development Index of 0.709 (ranked 114 out of 189 countries), a Gini coefficient of 0.63, and an Inequality adjusted Human Development Index of 0.468 (United Nations Development Programme, 2022). The high levels of inequality and inequity are evident in polarised disadvantaged and under-resourced communities, and privileged and well-resourced communities. Several objective indicators of child health and well-being are important to highlight; compounded by the country's past. In relation to child health, while the latest available data show a declining infant and under-five mortality rate, it is still unacceptably high (Statistics South

Africa, 2020). Of grave concern are the data on poverty, with most recent statistics showing that 62.1% of children are living in multi-dimensionally poor households, with higher rates of poverty reported among children in rural and non-metropolitan areas than urban areas (Statistics South Africa/United Nations Children's Fund [UNICEF], 2020). This is closely related to child stunting, an indicator of chronic malnutrition, which has been persistently high over the past two decades, impacting approximately 27% of children younger than five-years (May et al., 2020).

In terms of basic education, substantial headway has been made within five key domains: access, redress, equity, quality, and efficiency. While the country has observed near-universal schooling access for children aged 7-15-years-old (98%) (General Household Survey: Focus on Schooling 2019, 2021), the existing inequities in the education system demonstrate that children from higher SES contexts are more likely to complete secondary school than children from lower SES contexts (Statistics South Africa, 2017). Further, while there is sophisticated legislation to protect children from all forms of harm, implementation has been inadequate, as children face violence within the home, school, and neighbourhood. Between October to December 2022, 2 846 children were victims of contact crimes, an increase of 27 cases from July to September 2022. Of the 2 846 child crime victims in October to December 2022, this included 319 murders, 488 attempted murders, and 2 039 incidents of grievous bodily harm (South African Police Service, 2022). Children also experience corporal punishment (at home and at school) despite it being unlawful, malicious types of psychological punishment, gender- and sexual-based violence, and bullying victimisation (Savahl et al., 2019b). Although violence crosscuts socio-economic and class status, the burden of poverty, inequality, high levels of violence, and vulnerability is exceeded among children living in impoverished and disadvantaged contexts and circumstances (Adams & Savahl, 2022). A longitudinal study conducted by Richter et al. (2018) found that over the past two decades, only 1% of the sample had not been exposed to or experienced violence in their home, school, and community. Two-thirds of the participants reported exposure to community violence, and more than half reported exposure to violence in their home. An ongoing concern is the lasting effects of violence, including mental and psychological impacts during childhood and into adulthood, post-traumatic stress disorder, substance use, anxiety, maladjustment, effects on education, and depression. The alarming majority of children and families do not have access to mental health resources to address these effects throughout their lifetime.

Researchers have expressed concern about the exclusive use of objective indicators in determining children's well-being and overall quality of life (Casas et al., 2013), with some commentators suggesting an integration of objective and subjective approaches (see Huebner et al., 2012; Sarriera & Bedin, 2017; Tonon 2018). If we hope to gain a complete picture of children's lives, we require both objective and subjective data. This position is based on the notion that objective and subjective indicators reflect distinct but complementary information on children's lives (Casas, 2011; Diener & Suh, 1997; Huebner et al., 2012). This has shifted the focus to research on children's subjective perspectives or self-reported well-being. The essence of the 'subjective' is that it represents

self-reported reflections and appraisals. To access the subjective, we need to engage directly with children to complement the objective data, within various contexts, settings, and cultures (Savahl et al., 2019a, b).

Subjective and Psychological Well-Being

Contemporary empirical research on well-being over the last four decades has generally developed within two distinct approaches, namely hedonic well-being and eudaimonic well-being. Hedonic perspectives of well-being focus on subjective well-being or happiness, and circumventing pain and attaining pleasure (Diener, 1984; Ryan & Deci, 2001). Eudaimonic perspectives, follows a dynamic process, and focuses on the extent to which an individual is fully functioning in society. It is often concretised as 'psychological well-being' and includes concepts such as purpose and meaning of life, autonomy, life goals, and self-actualisation (Casas, 2011; Nahkur & Casas, 2021; Rees & Savahl et al., 2020; Ryff, 1995; Ryff & Singer, 2008). A review by Waterman (1993) was one of the earliest studies to synthesise the existing empirical research within the hedonic and eudaimonic well-being approaches. He noted that research within the hedonic and eudaimonic approaches to well-being resulted in two distinct and divergent areas of inquiry, each with a specific research agenda and body of literature (Huta & Waterman, 2014). This further points to the distinct epistemological and theoretical considerations of each approach. Deci and Ryan (2008) indicate that there is a similarity between the experience of hedonia and eudaimonia, with studies showing a high statistical covariance between both (Linley et al. 2009; Waterman et al. 2008). Further, research conceptualised a structural model of well-being (Ditzel et al., 2022), which included both hedonic and eudaimonic elements linked to provide a holistic measure of SWB.

While researchers have endeavoured to develop an integrated model of well-being that advances strengths approaches that preclude problem behaviour (see Pollard & Rosenberg 2003), there is a lack of consensus on the conceptual definitions. Ryan and Deci (2001) note that the lack of consensus may, to some extent, be attributed to these two divergent approaches and interpretations of well-being. Within psychology, denotations of well-being have often been associated with optimal psychological functioning and life experiences (Gao & McLellan, 2018). Researchers have also consistently challenged the notion that well-being and psychological distress exist on a bipolar continuum, rather than advancing a position of conceptual independence (Jahoda, 1958; Huebner et al., 2012; Keyes, 2006; Seligman & Csikszentmihalyi, 2000). Taken together, Lopes et al. (2003) suggest that using measures of psychological distress in conjunction with measures of well-being provide a more comprehensive understanding of children's overall quality of life. As it relates to well-being, our position is that both hedonic inspired (SWB) and eudaimonic inspired (PWB) understandings provide critical information.

The Current Study

In South Africa, there is no national study on children's SWB or PWB. Some earlier studies conducted by Savahl et al. (2017a, b), provided data on children's SWB, albeit within a provincial sample (Western Cape). They found mean SWB scores (on a 100-point scale) of 81.30 for context-free life satisfaction, 82.84 for domain-based life satisfaction, and 86.00 for the single-item on Overall Life Satisfaction (Savahl et al., 2017a, b). However, considering the heterogenous nature of children and childhood in South Africa, these results are not generalisable across South Africa – this raises the important issue of the lack of normative data on children's well-being. Acquiring normative population level data on children's SWB and PWB is critical for policymaking. The analysis of quality population-level data provides policymakers with a comprehensive understanding of the needs and challenges faced by different cohorts of children across the country. One of the significant benefits of normative population level data is that it aids policymakers to identify specific disparities in children's lives and address social inequities and lack of services effectively. In this way, policymakers can design targeted interventions to address these disparities. The lack of good quality data (e.g., normative population-level data), limits the capacity of policymakers to measure and monitor the impact of policies; this can result in policies that do not achieve their intended goals (Ben-Arieh, 2008, 2009; Bradshaw, 2015; Savahl et al., 2019a, b). As it relates to policy, Lee and Yoo (2017) in their cross-country analysis, found that children's social contexts, their social environments, relationships, freedom to choose, and sense of self contributed significantly to children's SWB. In the African context, Tiliouine (2016) found a significant relation between children's rights and their well-being. Taken together, these constructs are all amenable to social policy intervention.

The current study contributes by providing an analysis of children's SWB and PWB using population-level data, and applying the full conceptual model of SWB as outlined by Savahl et al. (2021). These include the following components of SWB: context-free cognitive life satisfaction, domain-specific life satisfaction, positive affect, negative affect, and PWB. Specifically, we report on these components across the nine provincial regions, age (10- and 12-years-old), gender (boys and girls), geographical context (urban and rural), and socio-economic status (low, lower-middle and middle). The focus of the study is on reporting these separate components and not on testing any conceptual models. Therefore, our approach is based on the separate components structural model as detailed by Busseri and Sadava (2011).

Aims and Objectives

Our study is guided by the following overarching aim: To determine the subjective well-being and psychological well-being of children in South Africa using a nationally representative population-based sample. More specifically the study aimed to provide an analysis of children's subjective well-being (including context-free cognitive life-satisfaction, domain-based cognitive life-satisfaction, and positive and

negative affect) and psychological well-being across the nine provincial regions, age (10- to 12-years-old), gender (boys and girls), geographical context (urban and rural), and socio-economic status. Prior to commencing this analysis, we confirm the structural validity of each latent construct by testing the measurement scales using confirmatory factor analysis. We developed the following objectives to guide the study:

1. To determine the structural validity of each latent construct measuring children's subjective and psychological well-being.
2. To determine children's subjective and psychological well-being across:

   a. The nine geographical provinces of South Africa.
   b. Two age groups (10 and 12-years).
   c. Gender (boys and girls).
   d. Geographical context (urban and rural).
   e. Socio-economic status (low, lower-middle, and middle).

Conceptualising Subjective and Psychological Well-Being

Subjective Well-Being

The construct of SWB is conceptualised as the cognitive and affective appraisals that individuals make about their lives, the circumstances influencing their lives, and the conditions in which they live (Diener, 2005, 2006). It therefore has both cognitive and affective components. The cognitive component refers to perceptions of global and domain-specific life satisfaction. Global life satisfaction is context-free, and refers to an individual's overall subjective evaluation of their life, independent of their specific aspects of life. Domain-specific life satisfaction refers to satisfaction with certain aspects of one's life (e.g. family, health, community, living conditions etc.).

The affective component refers to the experiences of positive and negative affect. The importance of the affective component of SWB is largely grounded on the work of Bradburn's (1969) research, who perceived SWB an outcome of an individual's position on two independent dimensions, described as positive affect and negative affect. These two dimensions are conceptualised as independent, with overall well-being dependent on the relative balance or tension between positive and negative affect (Bradburn, 1969). Russell (2003) expanded the traditional positive-negative dichotomy with the formulation of the Core Affect Theory, where core affect is defined as neurophysiological states accessible at a higher level of consciousness that manifest in moods and emotions. Russell's (2003) circumplex model theorises the affect self-ratings allocation to different octants formed by the confluence of two-dimensional axes with an opposite affect at each extreme.

The cognitive and affective components of SWB are conceptualised on a tripartite hierarchical structure that are conceptually linked and moderately correlated, each making a unique contribution towards the overall construct of SWB (Diener,

2009). As it relates to children's SWB, we are interested in their appraisals of the extent to which they are satisfied with their life in general, with various aspects of their life, and how they feel about their life (Savahl et al., 2017a, b).

While the tripartite structure is the most widely used conceptualisation of SWB, Savahl, et al. (2021) have recently presented a model of children's SWB based on a hierarchical (second-order) structural configuration. Using data from the third wave of the Children's Worlds Study, which included a large sample of children from 35 countries, they demonstrated the viability of a hierarchical conceptualisation of children's SWB. They put forward a quadripartite second-order model consisting of context-free and domain-based life satisfaction, positive affect, and negative affect. The quadripartite model has been further confirmed by Ditzel et al. (2022). Alternative conceptualizations that offer a less structural approach and more aligned to the discursive tradition or post-structural turn in the social sciences is also evident in the literature (see Fattore 2020; Savahl et al., 2015).

Interest in children's SWB has increased significantly over the past two decades largely as a result of epistemological shifts encapsulated in innovative epistemological and theoretical advancements in childhood and developmental theory, and the near universal progression and ratification of child rights legislation. It is from these epistemological positions that childhood is regarded as a valid structural feature of society and children's perspectives acknowledged as valid, their experiences as real, with the capacity to meaningfully reflect on their lives (Savahl et al., 2015).

These epistemological shifts and conceptual advancements provided the momentum for large-scale empirical initiatives, such as the Health Behaviour in School Children (HBSC), the Program for International Student Assessment (PISA), the Children's Worlds Survey (see Casas & Rees 2015; Rees et al., 2020), and the Multinational Qualitative Study on Children's Understanding of their Well-Being (Fattore et al., 2018). These studies have generated substantial data that can be used for cross-cultural and comparative studies. Further, they have provided a platform that advanced epistemological, theoretical, and conceptual understandings of children's well-being, and facilitated innovations in measurement theory as it relates to measuring the construct of child well-being. Importantly, it also raised children's status on the political agenda of governments across the world, prioritising children as an important population cohort, childhood as a valid structural feature of society, and children's SWB as a critical social policy consideration. With children's well-being now within the policy space, considerations regarding its conceptualisation and measurement have become a priority (Savahl et al., 2021). In the current study, we use a range of scales designed to measure the different components of SWB (context-free cognitive life satisfaction; domain-based life satisfaction; positive and negative affect). Given the overarching aim of the study, we used Busseri and Sadava's (2011) 'separate components' conceptual model to report on each 'separate' component of children's SWB. Specifically, we used the Children's Worlds: Subjective Well-Being Scale, the

Domain-Based Subjective Well-Being Scale, and the Scale of Positive and Negative Affect to measure these components.

Psychological (Eudaimonic) Well-Being

Eudaimonic well-being is based on the notion of human flourishing, with a basis in finding purpose in life and community engagement (Estola et al., 2014). Eudaimonia essentially underscores that well-being comprises more than only happiness, which indicates that people's reports of satisfaction or happiness (including positive affect) does not necessarily mean that they are 'psychologically well' (Deci & Ryan, 2008). Huta and Waterman (2014) conceptualised eudaimonia into four categories of analysis, namely: (a) orientations: orientations, value, motives, and goals, (b) behaviours: behavioural content and activities characteristics, (c) experiences: subjective experiences, emotions, and cognitive appraisals, and (d) functioning: indices of positive psychological functioning, mental health, and flourishing (Huta & Waterman, 2014). This highlights the role of self-realisation as a key component of human potential (Huta & Waterman, 2014). Similarly, Ryan and Deci (2000) denote eudaimonia to comprise pursuing intrinsic goals, including personal growth, relationships, community contributions and physical health, being autonomously motivated, behaving in mindful ways, satisfying needs for autonomy, and competence and relatedness. However, Bauer (2008) describes eudaimonia as growth – by enhancing ego development/maturity and subjective well-being over time (Huta & Waterman, 2014). Estola et al. (2014) note further that a flourishing life also encompasses fulfilling one's purpose.

While there has been an increasing acknowledgement of the role that both hedonic and eudaimonic well-being plays in the understanding of quality of life, there is a large discrepancy in the empirical research initiatives between the two approaches. A substantial amount of research on well-being has focused on the hedonic approach. A particular gap has been identified by several scholars (Fernandes et al., 2010; Gao & McLellan 2018; Nahkur & Casas, 2021) who foregrounded adopting the eudaimonic approach to understanding psychological well-being, particularly in low-to-middle income contexts among children and adolescents.

Wells (2014) notes that a paradigm shift ensued across disciplines and gained momentum since the World Health Organization's (1946) definition of health focusing on *salutogenesis* (factors that support human health and well-being), as opposed to pathogenesis (negative factors and development of illness/disease). The body of research by Ryff (1989), Ryff and Singer (2005, 2008) have made substantial contributions to the conceptualisation and measurement of PWB specifically. In a seminal oeuvre, Ryff and Singer (2008) unpack the historical antecedents of eudaimonia and hedonia, rooted in Aristotle's *Nichomachean Ethics* (350 B.C). In particular, they maintain that while Aristotle referred to eudaimonia as the highest possible achievement of human action, the work of Bradburn (1969) translated this as 'happiness'. They argue that this led to a substantial investment in research on hedonic well-being, and the sub-discipline

of subjective well-being (Diener, 1984) that examines people's cognitive and affective evaluations of their lives. While Diener's (1984) tripartite structure was widely endorsed, Bradburn (1969) and other researchers' conceptualisation was considered a *misnomer*, as it implied that hedonia and eudaimonia were synonymous, and more importantly excluded the eudaimonic approach (Ryff & Singer, 2008). This latter point was a strong motivation for Ryff's (1989, 1995) conceptualisation and development of PWB, which focused on an individual's self-realisation (Ryff & Singer, 2008).

Hedonic approaches have dominated research on children's well-being, with significantly fewer studies including a focus on PWB. An early effort to address this shortcoming was undertaken by the Children's Society in 2013, which employed Ryff's (1989) model. While PWB has been explored among adolescents, the theoretical conceptualisation and indicators employed have differed substantially across disciplines (Gao & McLellan, 2018). A focus of existing research on young people's PWB has predominantly focused on indicators of mental health, including anxiety and depression. Evidently, PWB has been used as a broad construct without a clear theoretical embeddedness. Moreover, there is a dearth of research on PWB (from a eudaimonic perspective) among adolescents, and even fewer studies with children. Gao and McLellan (2018) argue that this lack of clarity has contributed to the challenges in synthesising the existing empirical evidence on children and adolescents' PWB. For this reason, it is important to explore whether existing models of PWB are appropriate to use among children. The current study intends to contribute in this regard by using a measure developed in alignment with Ryff's (1989) six components of PWB, namely: self-acceptance, environmental mastery, positive relations with others, autonomy, personal growth, and purpose in life. Each component has its own goals to achieve and once attained, an individual reaches their 'true' self with meaning and direction in life (Ryff & Keyes, 1995; Ryff, 2014).

To date, to the best of our knowledge, this model of PWB has been examined in five empirical studies (Chan et al., 2019; Emadpoor et al., 2016; Gao & McLellan, 2018; Lavasani et al., 2011; Nahkur & Casas, 2021) with children or adolescents, and has been employed in a multinational survey on children's well-being, the Children's Worlds: International Survey on Children's Well-being. In the Children's Worlds Study, while the six components of Ryff's (1989) model were assessed, some item wordings were adapted using Deci and Ryan's (2008) work, and further contextualised and adapted to each by child advisory groups. The instrument is called the *Children's Worlds Psychological Well-Being Scale* (CW-PWBS) (see Rees et al., 2020).

Nahkur and Casas (2021) tested the fit and comparability of the CW-PWBS across 13 countries with 12-year-olds with data from Wave 2 and 3 of the Children's Worlds Study. Using multi-group confirmatory factor analysis, they found that correlations and regressions can be meaningfully compared using a five-item version of the scale, by excluding the dimension of 'self-acceptance'. The authors therefore caution against the use of mean scores in making meaningful comparisons of the scale items cross-culturally.

To conclude, we note that since Ryff's (1989) model was initially developed for adults, its applicability to children and adolescents requires further development and investigation. A related issue is the lack of studies demonstrating appropriate psychometric properties such as reliability and construct validity and cross-cultural comparability of the PWB measurement scales in research with children and adolescents. Finally, research on PWB and its determinants among children in LMIC's such as South Africa remains a largely unexplored area. To that end, in the current study, we used the Children's Worlds: Psychological Well-Being Scale (CW-PWBS), a scale specifically developed to measure six dimensions of psychological well-being from a eudaimonic perspective (self-acceptance, positive relationships, environmental mastery, personal growth, autonomy, purpose/meaning in life).

Method

Research Design

The study used secondary data sourced from the third wave of the South African Children's Worlds Study (see www.isciweb.org). The Children's Worlds Study is a global survey currently in its fourth iteration. The survey aims to assess children's subjective perceptions and evaluations of their lives and well-being and specific factors that influence their well-being, across different contexts and countries (Rees & Savahl et al., 2020). The third wave of the study in South Africa, employed a cross-sectional survey design and used a nationally representative stratified random sample of children aged 10- and 12-years-old. Data were collected from February 2018 to June 2019.

The Dataset: Sampling and Participants

The South African Children's Worlds study was conducted across the nine provincial regions in South Africa:

- Western Cape
- Eastern Cape
- Northern Cape
- North West
- Mpumalanga
- Gauteng
- KwaZulu-Natal
- North West
- Limpopo

The sampling frame was school-based, and included children registered at primary schools across all nine provinces from two age groups (10- and 12-years-old).

In South Africa, children in these age groups are generally in Grades 4 and 6. The target population thus included 3 016 010 children registered in primary schools in South Africa aged 10- and 12-years. The total number of registered learners per grade is, grade 4: 1 043 124 and grade 6: 863 686 (Statistics South Africa, 2014). The stratification for the study was based on Grade (4 or 6), geographical location (urban or rural), and provincial region. Using a 99% confidence interval and 1.5% margin of error, the total sample comprised 7 428 children between the ages of 10- and 12-years-old.

Instrumentation

The instrument used to collect data in the survey was initially developed in 2009 by a group of international experts in the field of children's SWB. The instruments comprised several standardised scales. For each wave of the survey, countries adapted and translated the instrument to the specific country context using the standards as outlined by the International Test Commission (2017). In South Africa this process comprised the backward translation method, cognitive testing with children from the local contexts (using child participation methodology), and the consideration of an expert translation committee. We translated the questionnaires into seven languages. The scales used in the current study are presented below:

The Children's Worlds Subjective Well-Being Scale (CW-SWBS) We developed the CW-SWBS from Huebner's Students' Life Satisfaction Scale (SLSS; Huebner, 1991). The SLSS is one of the most widely used scales to measure global life satisfaction in children and has been validated across many contexts, including South Africa (see Savahl et al., 2017a, b). In the third wave of the survey, the core international group developed an amended version of the SLSS based on the findings of participatory qualitative research conducted with children across a diverse selection of participating countries. This amended scale consisted of six items, three taken from the original SLSS, and three new items distilled from the qualitative research. The scale response options were on an 11-point 0–10-point unipolar agreement scale with end-labelled verbal anchors of "not all agree" (0) to "Totally agree" (10). The CW-SWBS has shown acceptable internal consistency (0.93) and an appropriate fit structure (Savahl et al., 2021).

The Children's Worlds Domain-Based Subjective Well-Being Scale The importance of including domain-based items in measuring the SWB is well-established (Davern et al., 2007; Diener et al., 1999). Given the appropriateness of combining items of different levels of abstraction, we developed The Children's Worlds: Domain-Based Subjective Well-Being Scale (CW-DBSWBS). This was based on the Personal Well-Being Index – School-Children (PWI-SC) (Cummins & Lau, 2005) and the Brief Multidimensional Students' Life Satisfaction Scale (Seligson et al., 2003). The scale comprises 11-items that assess children's domain-based cognitive SWB, with each item representing a particular life

domain. Five items were concretely-worded items from the BMSLSS (Seligson et al., 2003), namely: family (people children live with), friends, school (life as a student), area/environment (the place where children live), and self (the way you look); and four items from the abstractly-worded PWI-SC (Cummins & Lau, 2005), namely: standard of living (things you have), personal health, personal safety, and future security. We included two extra items found to make an important contribution to children's lives; one on satisfaction with time-use (Casas et al., 2013) and another on satisfaction with freedom of choice (Rees, 2017). Response options were on an 11-point unipolar satisfaction scale ranging from "Not at all" (0) to "Totally/Completely satisfied" (10). The CW-DBSWBS has shown acceptable internal consistency (0.87) and an appropriate fit structure (Savahl et al., 2021).

The Children's Worlds Positive and Negative Affect Scale The survey also included a measure of state-level affective well-being. We constructed the Children's Worlds Positive and Negative Affect Scale (CW-PANAS) using six items drawn from Russel's Model of Core Affect. The scale comprised six items assessing three positive (happy, calm, and full of energy) and three negative (sad, stressed, and bored) affective states. For both PA and NA, these items reflect a pleasant-unpleasant, activated-deactivated, and neutral affect (see Rees 2019). Response options were on an 11-point unipolar intensity scale ranging from "Not at all" (0) to "Extremely" (10). Savahl et al. (2021) report internal consistency scores of 0.60 for the PA sub-scale, and 0.68 for the NA sub-scale.

The Children's Worlds: Psychological Well-Being Scale The Children's Worlds-Psychological Well-being Scale (CW-PWBS) was constructed from psychological well-being scales developed by Ryff (1989, 1995), Ryan and Deci (2000), and Keyes (2006) and adapted for use with children (see Rees & Savahl et al., 2020). The scale comprises six items that taps into each of the dimensions of psychological well-being (self-acceptance, positive relationships, environmental mastery, personal growth, autonomy, purpose/meaning in life). Response options were on an end-labelled 11-point unipolar agreement scale ranging from "Not at all agree" (0) to "Totally agree" (10). Rees et al. (2020) report an internal score of 0.86 for the CW-PWBS.

Single Item on Overall Life Satisfaction We included an item assessing Overall Life Satisfaction (OLS) (Cummins & Lau, 2005) on an end-labelled 0–10 scale using the following wording: How 'satisfied' are you with your life as a whole? We explained this question in detail during the administration process and advised that they could substitute 'satisfied' with 'happy'. Campbell et al. (1976) were of the first to advocate for the inclusion of this item as a means to assess overall satisfaction. Cummins and Lau (2005) further recommend the use of this single item scale as a means to ascertain convergent validity of subjective well-being scales.

Data Analytic Plan

A central co-ordinating committee managed the data, oversaw the quality, and conducted the cleaning and depuration of the final dataset. This process included the identification and exclusion of cases with a high proportion of missing data and the exclusion of cases with systematic response patterns. We weighted the final dataset based on the proportion of children per province in South Africa. Weighting is employed with population-level data to ensure that the achieved sample is representative of the target population (Kalton & Flores-Cervantes, 2003); mitigates unequal probabilities of selection, non-response, non-coverage, and sample fluctuations from known population totals (see Brick & Kalton 1996). The final cleaned dataset consisted of 7 067 participants (boys = 45.6%, girls = 54.4%) between the ages of 10- to 12-years (Mage = 10.79, SD = 1.28*)*, in Grades 4 (n = 3383) and 6 (n = 3684).

Data Analysis

We conducted the data analysis in two phases. In the first phase, we used confirmatory factor analysis (CFA), in AMOS 28, to test the fit structure and viability of the scales used to measure the constructs. Here we used a 'separate components' approach, as our goal was not to contribute to the discussion on the viability of various structural configurations. We used the full information maximum likelihood technique to manage missing data. To address non-normality of data we used the maximum likelihood estimation method with bootstrap confidence intervals (500 samples). The bootstrap procedure allows for more accurate parameter estimates and the efficient handling of standard errors in the context of non-normal data (Blunch, 2008; Enders, 2010). Following recommendations by Kline (2011), we used the Comparative Fit Index (CFI), Root Mean Squared Error of Approximation (RMSEA), and Standardised Root Mean Residual (SRMR) as fit indices to determine model fit. Scores higher than .950 for the CFI and scores below .05 for the RMSEA and SRMR were accepted as indicators of a good fit (Casas, 2017).

In this phase we also conducted multigroup confirmatory factor analysis to test the measurement invariance of the various latent constructs across the nine provinces, age, gender, geographical context, and socio-economic status. Measurement invariance is a pre-requisite for meaningful group comparisons (Millsap & Olivera-Aguilar, 2012) and is the most widely used technique to test measurement invariance across groups (Steenkamp & Baumgartner, 1998). The MGCFA comprised three sequential steps, characterised by the application of incremental constraints, wherein we assessed configural, metric, and scalar measurement invariance. We accepted the tenability of each subsequent constrained model if it met the criteria of reduced fit of < 0.01 on the CFI (Cheung & Rensvold, 2002), and < 0.015 on the SRMR and RMSEA (Chen, 2007).

In the second phase we generated descriptive statistics (mean scores and standard deviations for each of the SWB subscales and the PWB scale) using the Stata 14 (Stata Corporation LLC) programme, taking into consideration complex survey

design effects such as sample weighting and clustering. We further conducted a comparative means analysis and present the statistics across the nine provincial regions, age, gender, geographical context and socio-economic status.

Procedure and Ethics

We obtained ethics clearance for the study from the Research Ethics Committees of the participating universities, and the nine provincial Education Departments. We held an information session with the participants from the selected schools, where we discussed the aims and objectives of the study and the nature of their involvement. During this session, we also advised the participants on their rights and the ethics principles of informed consent, confidentiality, the right to withdraw, privacy, and the use of the data. We followed an active consent process, wherein we requested consent from parents/guardians and children. The administration of the survey took place in the classroom setting and was approximately 30 minutes in duration. It followed a researcher-administered strategy, where the items on the questionnaire were read aloud to the participants by members of the research team while they were answering the questionnaire. This approach increased the ecological validity (verisimilitude) of the study.

Results

Reliability, Skewness and Kurtosis

A reliability analysis demonstrated that the measurement scales met the threshold criteria for reliability. We note somewhat lower scores for the PA and NA; this is likely a function of the low number of variables (three each). Skewness and Kurtosis fell outside the acceptable threshold ranges (Finney & DiStefano, 2006), which is typical on well-being measures. We attended to this non-normality through the application of the bootstrap method (500 samples, 95% using maximum likelihood estimation method in AMOS 28). See Table 1.

Confirmatory Factor Analysis

The results of the confirmatory factor analysis demonstrated appropriate fit for all the scales (Table 2 presents the fit statistics), with each item presenting with significant loadings on the latent constructs and meeting the aforementioned threshold criteria on the ancillary fit indices. The standardised regression weights were all significant and loaded adequately on the latent constructs. Table 3 presents the standardised regression weights of each of the latent constructs (scales). No model modification (trimming) was required to meet the criteria for appropriate fit. The fit structure of the latent constructs are presented as follows:

Table 1 Skewness and Kurtosis

	Skewness	CR	Kurtosis	CR	Cronbach
CW-SWBS					0.861
EnjoyLife	-2.646	-89.649	6.825	115.609	
LifeGoingWell	-2.104	-71.272	3.999	67.733	
HaveGoodLife	-2.338	-79.206	5.086	86.150	
LifeExcellent	1.714	58.061	84. 655	1433.943	
HappyLife	-2.774	-93.966	7.450	126.193	
Multivariate					1222.121
CW-DBSWBS					0.818
Satisfaction: people live with	-1.975	-66.899	3.362	56.949	
Satisfaction: Life as student	-2.541	-86.067	6.451	109.274	
Satisfaction: Friends	-1.697	-57.502	2.040	34.555	
Satisfaction: Neighbourhood	-1.518	-51.438	1.378	23.342	
Satisfaction: Things you have	-2.155	-73.001	4.254	72.061	
Satisfaction: Time-use	-1.739	-58.916	2.574	43.605	
Satisfaction: Safety	-2.285	-77.409	5.052	85.581	
Satisfaction: Freedom	-1.850	-62.682	2.733	46.289	
Satisfaction: Self (appearance)	-2.121	-71.853	3.938	66.707	
Satisfaction: Future	-1.573	-53.282	1.526	25.854	
Satisfaction: Health	-2.459	-83.319	5.758	97.529	
Multivariate					327.552
CW-PA					0.682
FeelingHappy	-2.600	-88.076	6.602	111.828	
FeelingCalm	-1.028	-34.828	− 0.124	-2.096	
FeelingFullEnergy	-1.886	-63.906	2.529	42.830	
CW-NA					0.661
FeelingSad	0.463	15.672	-1.216	-20.594	
FeelingStressed	0.132	4.482	-1.588	-26.901	
FeelingBored	0.021	0.720	-1.575	-26.680	
Multivariate				12.553	53.156
CW-PWBS					0.749
LikeWayAm	-2.698	-91.052	6.973	117.639	
ManageResp	-1.885	-63.598	3.032	51.144	
PeopleFriendly	-1.565	-52.806	1.746	29.453	
ChoiceTime	-1.755	-59.233	2.260	38.126	
LearningAlot	-2.354	-79.419	5.326	89.862	
PositiveFuture	-2.446	-82.527	5.454	92.010	
Multivariate				62.997	265.70

- CW-SWBS: Model 1, Fig. 1.
- CW-DBSWBS: Model 17, Fig. 2.
- CW-PANAS: Model 33, Fig. 3.
- CW-PWBS: Model 49, Fig. 4.

Multigroup Confirmatory Factor Analysis

We tested the measurement invariance of the different scales across a range of group factors including provincial region, age, gender, geographical context, and socio-economic status. We found scalar invariance tenable for scales across all subgroups. In other words, each subsequent constrained model met the criteria of reduced fit of < 0.01 on the CFI (Cheung & Rensvold, 2002), and < 0.015 on the SRMR and RMSEA (Chen, 2007). The results confirm that all four scales (latent constructs) are comparable across all the identified subgroups, by correlations, regressions, and mean scores. The various models of the associated subgroups are as follows (see Table 2):

- CW-SWBS (Models 2 to 16)
- CW-DBSWBS (Models 18 to 32)
- CW-PANAS (Models 34 to 48)
- CW-PWBS (Models 50 to 64)

Means Analysis

Using the weighted data, we conducted a means analysis for the pooled sample for the four scales. Table 4 presents the means scores and standard deviations (transformed onto a 100-point scale). The scores for the two life-satisfaction scales and positive affect were all above 80 (on a transformed 100-point scale), with an expected low negative affect score of 44.68. The context-free life satisfaction and OLS scored highest. All scores fell within the hypothesized broad range from 70 to 90.

Table 5 presents the mean scores (standard deviations) of the four scales for the pooled sample and subgroups. Given the tenability of scalar invariance for the scales across the various subgroups, we conducted a one-way Anova (across provincial regions and socio-economic status groups) and a t-test (across age, gender, and geographical context), presented below.

Cognitive Life Satisfaction (Children's Worlds Subjective Well-Being Scale) Across provincial region, one-way ANOVA demonstrated significant mean differences [F=13.064; df=8; $p < .001$; $\eta^2 = 0.015$; and 95% CI = (0.009, 0.020)], with the Limpopo Province presenting with the highest mean score across province. Across socio-economic status, the low SES group presented with the highest mean score, but with a low effect size [F=9.552; df=8; $p < .001$; $\eta^2 = 0.003$; and 95% CI = (0.001, 0.006)].

Across age, gender, and geographical context, a means analysis demonstrated significant mean differences for age and geographical context. The effect sizes are as follows:

Table 2 Fit indexes for confirmatory factor models

Model Bootstrap, ML, 95% CI, Resamples = 500	Chi-square	df	p-value	CFI	RMSEA	SRMR
1. CW-SWBS	12.732	5	0.026	0.999	0.015 (0.005-0.025)	0.0059
2. CW-SWBS Configural Province	216.349	45	0.00	0.987	0.024 (0.020-0.027)	0.0178
3. CW-SWBS Metric Province	333.648	77	0.00	0.981	0.022 (0.020-0.024)	0.0219
4.CW-SWBS Scalar Province	404.510	109	0.00	0.978	0.020 (0.018-0.022)	0.0223
5. CW-SWBS Configural Age	71.800	10	0.00	0.995	0.030 (0.024-0.037)	0.0134
6. CW-SWBS Metric Age	78.917	14	0.00	0.995	0.026 (0.021-0.032)	0.0142
7. CW-SWBS Scalar Age	88.290	18	0.00	0.995	0.024 (0.019-0.029)	0.0141
8. CW-SWBS Configural Gender	39.207	10	0.00	0.998	0.021 (0.014-0.028)	0.0115
9. CW-SWBS Metric Gender	58.029	14	0.00	0.997	021 (0.014-0.028)	0.0115
10. CW-SWBS Scalar Gender	64.093	18	0.00	0.996	019 (0.014-0.025)	0.0115
11. CW-SWBS Configural Geographical Context	20.859	10	0.022	0.999	013 (0.005-0.020)	0.0059
12. CW-SWBS Metric Geographical Context	38.104	14	0.001	0.998	0.016 (0.010-0.022)	0.0059
13. CW-SWBS Scalar Geographical Context	47.764	18	0.00	0.998	0.015 (0.010-0.021)	0.0074
14. CW-SWBS Configural SES	52.144	15	0.00	0.997	019 (0.014-0.025)	0.0073
15. CW-SWBS Metric SES	94.092	23	0.00	0.995	021 (0.017-0.026)	0.0109
16. CW-SWBS Scalar SES	137.580	31	0.00	0.992	021 (0.014-0.028)	0.0113
17. CW-DBSWBS	618.192	44	0.000	0.959	0.044 (0.041-0.047)	0.0279
18. CW-DSWBS Configural Province	1509.769	396	0.000	0.925	0.020 (0.019-0.021)	0.0469
19. CW-DSWBS Metric Province	1783.761	476	0.000	0.922	0.020 (0.019-0.021)	0.0557
20. CW-DSWBS Scalar Province	2244.522	556	0.000	0.913	0.044 (0.041-0.047)	0.0552
21. CW-DSWBS Configural Age	690.621	88	0.000	0.957	0.032 (0.029-0.034)	0.0329
22. CW-DSWBS Metric Age	710.253	98	0.000	0.957	030 (0.028-0.032)	0.0342
23. CW-DSWBS Scalar Age	857.622	108	0.000	0.947	032 (0.030-0.034)	0.0345
24. CW-DSWBS Configural Gender	734.368	88	0.000	0.954	032 (0.029-0.034)	0.0316
25. CW-DSWBS Metric Gender	750.359	98	0.000	0.954	033 (0.031-0.035)	0.0331
26. CW-DSWBS Scalar Gender	854.286	108	0.000	0.947	032 (0.030-0.034)	0.0332
27. CW-DSWBS Configural Geographical Context	727.140	88	0.000	0.955	032 (0.030-0.035)	0.0283
28. CW-DSWBS Metric Geographical Context	797.707	98	0.000	0.951	032 (0.030-0.034)	0.0319
29. CW-DSWBS Scalar Geographical Context	1056.938	108	0.000	0.944	033 (0.031-0.035)	0.0318
30. CW-DSWBS Configural SES	835.637	132	0.000	0.951	028 (0.026-0.030)	0.0311
31. CW-DSWBS Metric SES	955.996	152	0.000	0.945	028 (0.026-0.029)	0.0334
32. CW-DSWBS Scalar SES	1200.719	172	0.000	0.939	029 (0.028-0.031)	0.0332

Table 2 (continued)

Model Bootstrap, ML, 95% CI, Resamples = 500	Chi-square	df	p-value	CFI	RMSEA	SRMR
33. CW-PANAS	242.971	8	0.000	0.941	0.060 (0.058-0.073)	0.0440
34. CW-PANAS Configural Province	380.519	72	0.000	0.927	0.025 (0.023-0.027)	0.0416
35. CW-PANAS Metric Province	445,509	104	0.000	0.919	0.025 (0.023-0.027)	0.0432
36. CW-PANAS Scalar Province	635,512	136	0.000	0.912	0.023 (0.021-0.025)	0.0429
37. CW-PANAS Configural Age	227.444	16	0.000	0.947	0.044 (0.039-0.049)	0.0437
38. CW-PANAS Metric Age	259,339	20	0.000	0.940	0.042 (0.037-0.046)	0.0474
39. CW-PANAS Scalar Age	346.120	24	0.000	0.931	0.044 (0.040-0.048)	0.0478
40. CW-PANAS Configural Gender	261.039	16	0.000	0.938	0.047 (0.042-0.052)	0.0446
41. CW-PANAS Metric Gender	266.635	20	0.000	0.938	042 (0.038-0.047)	0.0449
42. CW-PANAS Scalar Gender	274.081	24	0.000	0.937	039 (0.035-0.043)	0.0448
43. CW-PANAS Configural Geographical Context	298.543	16	0.000	0.931	051 (0.046-0.056)	0.0419
44. CW-PANAS Metric Geographical Context	314.404	20	0.000	0.928	046 (0.042-0.051)	0.0430
45. CW-PANAS Scalar Geographical Context	391.577	24	0.000	0.920	047 (0.043-0.052)	0.0429
46. CW-PANAS Configural SES	240.031	24	0.000	0.936	040 (0.035-0.044)	0.0472
47. CW-PANAS Metric SES	253.416	32	0.000	0.935	035 (0.031-0.039)	0.0473
48. CW-PANAS Scalar SES	322.929	40	0.000	0.926	035 (0.032-0.039)	0.0473
49. CW-PWBS	22.863	9	0.007	0.998	0.015 (0.007-0.023)	0.0085
50. CW-PWBS Configural Province	187.720	81	0.000	0.986	0.014 (0.011-0.017)	0.0170
51. CW-PWBS Metric Province	295.701	121	0.000	0.977	0.015 (0.012-0.017)	0.0247
52. CW-PWBS Scalar Province	409.158	161	0.000	0.967	0.015 (0.013-0.017)	0.0247
53. CW-PWBS Configural Age	62.006	18	0.000	0.994	0.019 (0.014-0.024)	0.0067
54. CW-PWBS Metric Age	77.006	23	0.000	0.993	0.019 (0.014-0.023)	0.0122
55. CW-PWBS Scalar Age	110.774	28	0.000	0.989	0.021 (0.017-0.025)	0.0125
56. CW-PWBS Configural Gender	39.038	18	0.003	0.997	0.013 (0.007-0.019)	0.0094
57. CW-PWBS Metric Gender	48.358	23	0.002	0.997	0.013 (0.008-0.018)	0.0120
58. CW-PWBS Scalar Gender	53.953	28	0.002	0.996	0.012 (0.007-0.016)	0.0119
59. CW-PWBS Configural Geographical Context	42.129	18	0.001	0.997	014 (0.009-0.020)	0.0112
60. CW-PWBS Metric Geographical Context	62.162	23	0.000	0.995	016 (0.011-0.021)	0.0144
61. CW-PWBS Scalar Geographical Context	112.371	28	0.000	0.989	021 (0.017-0.025)	0.0146
62. CW-PWBS Configural SES	70.455	27	0.000	0.994	015 (0.011-0.020)	0.0114
63. CW-PWBS Metric SES	108.492	37	0.000	0.990	017 (0.013-0.021)	0.0148
64. CW-PWBS Scalar SES	128.618	47	0.000	0.989	016 (0.013-0.019)	0.0147

*Not tenable

Age: [t = 3.218; df = 6884; $p < .001$; Cohen's d = 0.078; and 95% CI = (0.030, 0.125)]

Domain-Based Life Satisfaction (Children's Worlds Domain-Based Subjective Well-Being Scale) Across provincial region, one-way ANOVA demonstrated significant mean differences [F = 14.575; df = 8; $p < .001$; $\eta^2 = 0.017$; and 95% CI = (0.010, 0.022)], with the Limpopo Province presenting with the highest mean score across province. Across socio-economic status the low SES group presented with the highest mean score, but with a lower significant effect size [F = 5.636; df = ; $p < .004$; $\eta^2 = 0.002$; and 95% CI = (0.000, 0.004)].

Across age, gender, and geographical context, a means analysis demonstrated significant mean differences for age, with the 10-year-olds presenting with a significantly higher mean score than the 12-year-olds. We found no significant difference across gender and geographical context. The effect sizes are as follows:

Age: [t = 5.734; df = 6884; $p < .001$; Cohen's d = 0.138; and 95% CI = (. 091, 0.186)]

Positive Affect Across provincial region, one-way ANOVA demonstrated significant mean differences [F = 9.248; df = 8; $p < .001$; $\eta^2 = 0.011$; and 95% CI = (0.005, 0.015)]. The mean scores ranged from 7.48 (Free State Province) to 8.55 (Western Cape Province). We found no significant mean differences across SES [F = 0.383; df = 2; $p < .682$; $\eta^2 = 0.000$; and 95% CI = (0.000, 0.001)].

Across age, gender, and geographical context, a means analysis demonstrated significant mean differences for age and geographical context. The 10-year-olds presented with a significantly higher mean score than the 12-year-olds; and the urban significantly higher than the rural. We found no significant difference across gender. The effect sizes are as follows:

Age: [t = 2.166; df = 6884; $p < .030$; Cohen's d = 0.077; and 95% CI = (0.077, 0.146)]
Geographical context: [t = 2.032; df = 6884; $p < .042$; Cohen's d = 0.049; and 95% CI = (0.002, 0.096)].

Negative Affect One-way ANOVA demonstrated significant mean differences across province [F = 5.375; df = 8; $p < .001$; $\eta^2 = 0.006$; and 95% CI = (0.002, 0.009)]; the mean scores ranged from 4.12 (Free State Province) to 4.79 (Northern Cape Province). We also found significant mean differences across SES [F = 11.974; df = 2; $p < .001$; $\eta^2 = 0.003$; and 95% CI = (0.001, 0.007)], with the low SES group presenting with the higher mean score.

The 10-year-olds presented with a significantly higher mean score than the 12-year-olds; and the rural significantly higher than the urban. We found no significant difference across gender. The effect sizes are as follows:

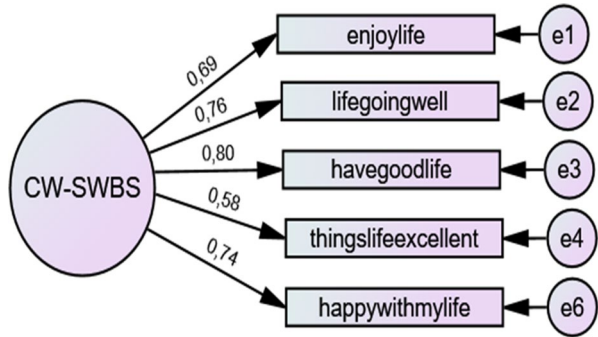**Fig. 1** Children's Worlds Subjective Well-Being Scale

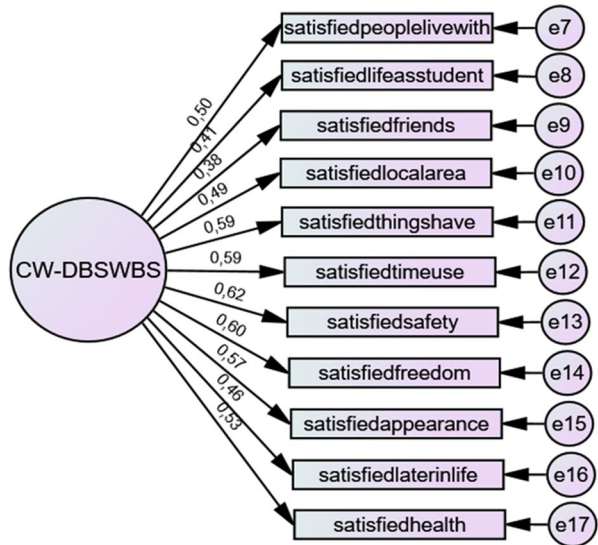**Fig. 2** Children's Worlds Domain Based Subjective Well-Being Scale

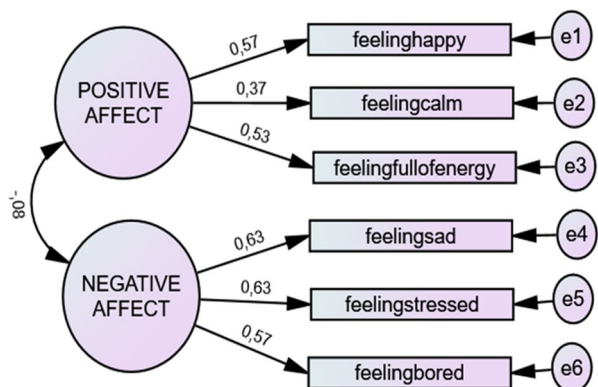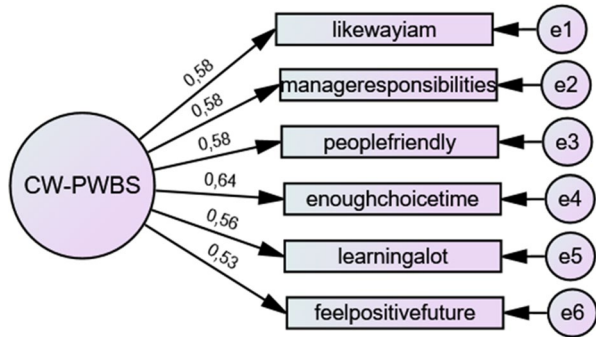**Fig. 3** Children's Worlds Scale of Positive and Negative Affect

Age: [t=6.985; df=6884; *p*<.000; Cohen's d=0.169; and 95% CI = (0.121, 0.216)]
Geographical context: [t = -7.931; df=6884; *p*<.000; Cohen's d=−0.191; and 95% CI = (-0.239, −0.144)].

Psychological Well-Being (Children's Worlds Psychological Well-Being Scale) Across provincial region, one-way ANOVA demonstrated significant mean differences [F=11.245; df=8; *p*<.001; η^2=0.013; and 95% CI = (0.007, 0.018)], with the Limpopo Province presenting with the highest mean score across province. Across socio-economic status the low-middle SES group presented with the highest mean score, but with a low effect size [F=4.451; df=8; *p*<.012; η^2=0.001; and 95% CI = (0.000, 0.003)].

Across age and geographical context, a means analysis demonstrated no significant mean differences, while across gender, girls presented with a significant higher mean score than boys. The effect sizes are as follows:

Gender: [t = -2.394; df=6781; *p*<.017; Cohen's d=−0.058; and 95% CI = (-0.106, −0.011)]

Overall Life Satisfaction Across provincial region, one-way ANOVA demonstrated significant mean differences [F=10.937; df=8; *p*<.001; η2=0.013; and 95% CI = (0.007, 0.017)], with the Limpopo Province presenting with the highest mean score across province. Across SES, we observed no significant mean differences.

Across age and gender we found no significant mean differences; while across geographical context the rural presented with a significantly higher mean score [t = -3.408; df=6841; *p*<.001; Cohen's d=−0.082; and 95% CI = (-0.130, −0.035)].

Geographical context: [t=4.670; df=6884; *p*<.001; Cohen's d=−0.113; and 95% CI = (-0.160, −0.065)]

Table 3 Standardised regression weights for the bifactor model

Parameter			Estimate	Lower	Upper	P
CW-SWBS						
enjoylife	<---	CWSWBS	0.690	0.662	0.719	0.003
lifegoingwell	<---	CWSWBS	0.765	0.741	0.787	0.003
havegoodlife	<---	CWSWBS	0.799	0.778	0.820	0.004
thingslifeexcellent	<---	CWSWBS	0.584	0.495	0.636	0.012
happywithmylife	<---	CWSWBS	0.745	0.717	0.776	0.003
CW-DBSWBS						
satispeoplelivewith	<---	DOMAINSWB	0.504	0.470	0.533	0.005
satislifestudent	<---	DOMAINSWB	0.413	0.380	0.445	0.004
satisfriend	<---	DOMAINSWB	0.383	0.351	0.411	0.005
satislocalarea	<---	DOMAINSWB	0.491	0.467	0.517	0.003
satisthingshave	<---	DOMAINSWB	0.591	0.562	0.618	0.005
satistimeuse	<---	DOMAINSWB	0.586	0.557	0.610	0.009
satissafety	<---	DOMAINSWB	0.619	0.592	0.649	0.003
satisfreedom	<---	DOMAINSWB	0.600	0.573	0.626	0.004
satisappearance	<---	DOMAINSWB	0.573	0.544	0.600	0.005
satislaterinlife	<---	DOMAINSWB	0.457	0.428	0.484	0.005
satishealth	<---	DOMAINSWB	0.526	0.494	0.556	0.003
CW-PANAS						
feelinghappy	<---	PositiveAffect	0.568	0.506	0.636	0.003
feelingcalm	<---	PositiveAffect	0.370	0.327	0.416	0.004
feelingfullofenergy	<---	PositiveAffect	0.530	0.469	0.587	0.004
feelingsad	<---	NegativeAffect	0.633	0.601	0.664	0.004
feelingstressed	<---	NegativeAffect	0.630	0.598	0.656	0.008
feelingbored	<---	NegativeAffect	0.572	0.542	0.597	0.006
CW-PWBS						
likewayIam	<---	PsychWellBeing	0.583	0.552	0.610	0.007
manageresponsibilities	<---	PsychWellBeing	0.580	0.542	0.609	0.009
peoplefriendly	<---	PsychWellBeing	0.584	0.557	0.612	0.004
enoughchoicetime	<---	PsychWellBeing	0.635	0.606	0.661	0.004
learningalot	<---	PsychWellBeing	0.556	0.529	0.587	0.003
feelpositivefuture	<---	PsychWellBeing	0.532	0.498	0.562	0.004

Discussion

In this study we aimed to determine the SWB and PWB of children in South Africa. More specifically we aimed to provide an analysis of children's SWB (including context-free cognitive life-satisfaction, domain-based cognitive life-satisfaction, and positive and negative affect) and PWB across the nine provincial regions, age (10- to 12-years-old), gender (boys and girls), geographical context (urban and rural), and socio-economic status (low, lower-middle, middle). The study is the first to report

Table 4 Means scores for scales

Scale	Mean*	SD
Cognitive LS	87.73	1.78
Domain-Based LS	85.82	1.39
PA	82.48	1.90
NA	44.68	2.96
PWB	86.06	1.60
OLS	88.50	2.27

*Mean scores on a 100-point scale

on SWB using the separate components model in South Africa, and the first to provide a national account of children's SWB and PWB. Using confirmatory factor analysis, we found an appropriate fit for all the scales for the pooled sample, with all items presenting with significant loadings on the target latent construct. This means that all the scales met the threshold for appropriate structural validity, and the scales are valid measures of the subjective and psychological well-being constructs.

Given that we used a randomised population-based sample, the mean scores represent normative scores, and are generalizable to the population of 10- to 12-year-old children in South Africa. SWB scores are usually reported as a composite score transformed into 100-point scales. Using this approach, the scores in the current study fall within the range (70–80) previously reported by Casas et al. (2013). Earlier research conducted in South Africa, albeit with a provincial sample (see Savahl et al., 2017a, b), reported mean SWB scores of 81.30, with 82.64 for the context-free and domain-based latent constructs and 86.00 for the OLS.

We used multigroup confirmatory factor analysis to test the measurement invariance across province, age, gender, geographical context, and socio-economic status. We found scalar measurement invariance tenable for all scales across all the subgroups. This means that the scores on the scales across the various subgroups are comparable across correlations, regression coefficients, and mean scores. A means analysis revealed significant differences across provinces for all scales, with the Limpopo Province scoring highest across the two life satisfaction scales. We found significant mean differences across SES for all scales, albeit with lower effect sizes. For age, all but PWB and OLS presented with significant mean differences. Across gender, we only found significant mean differences for PWB. While the overall mean scores present with some variability, the only score that presents as somewhat of an outlier (scoring toward the lower-end of the standardised range of western samples) is the positive affect mean score for the Free State Province.

Given the use of a randomised population-based sample, the mean scores on the individual instruments for the pooled sample and the sub-groups represents normative scores and are generalisable to the population of 10- to 12-year-old children attending public schools in South Africa.

Table 5 Mean Scores (standard deviations) of the individual scales

	Cognitive LS	Domain LS	Positive Affect	Negative Affect	Psycho-logical Well-Being	Overall Life Satis-faction
Province						
Eastern Cape	8.69 (1.80)	8.60 (1.29)	8.29 (1.81)	4.73 (2.83)	8.73 (1.43)	8.90 (2.11)
North West	8.83 (1.80)	8.66 (1.37)	*8.36* (1.87)	4.12 (3.08)	8.72 (1.61)	9.02 (2.24)
Western Cape	8.90 (1.71)	8.67 (1.22)	8.55 (1.73)	4.62 (2.94)	8.78 (1.43)	9.04 (2.09)
Northern Cape	8.30 (1.92)	8.23 (1.45)	8.02 (1.94)	*4.79* (2.94)	8.40 (1.65)	8.63 (2.23)
Free State	8.70 (1.85)	8.19 (1.51)	7.48 (2.11)	4.43 (3.02)	8.56 (1.61)	8.47 (2.71)
Mpuma-langa	8.48 (2.05)	8.39 (1.52)	8.06 (1.96)	4.23 (2.65)	8.45 (1.61)	8.60 (2.31)
Limpopo	*9.15* (1.47)	*8.88* (1.37)	8.26 (1.96)	4.71 (3.19)	*8.83* (1.59)	9.20 (1.96)
Gauteng	8.57 (2.01)	8.51 (1.34)	8.29 (1.93)	4.17 (2.83)	8.55 (1.75)	8.44 (2.75)
KwaZulu-Natal	8.78 (1.66)	8.58 (1.38)	8.22 (1.85)	4.43 (2.96)	8.33 (1.60)	8.86 (2.12)
Age					NS	NS
10-years	8.85 (1.73)	8.68 (1.38)	8.33 (1.96)	4.73 (3.14)	8.65 (1.62)	8.93 (2.32)
12-years	8.71 (1.83)	8.49 (1.38)	8.18 (1.84)	4.24 (2.76)	8.57 (1.58)	8.86 (2.15)
Gender	NS	NS	NS	NS		NS
Boys	8.78 (1.76)	8.58 (1.40)	8.25 (1.92)	4.52 (3.04)	8.56 (1.64)	8.83 (2.34)
Girls	8.76 (1.80)	8.59 (1.37)	8.24 (1.88)	4.42 (2.89)	8.65 (1.57)	8.87 (2.21)
Geographical Context		NS			NS	
Urban	8.68 (1.88)	8.56 (1.37)	8.29 (1.86)	4.20 (2.83)	8.62 (1.58)	8.76 (2.33)
Rural	8.88 (1.67)	8.61 (1.40)	8.20 (1.94)	4.76 (3.07)	8.59 (1.62)	8.95 (2.20)
Socio-economic Status						NS
Low	8.84 (1.71)	8.56 (1.40)	8.23 (1.92)	4.59 (3.02)	8.57 (1.63)	8.88 (2.26)
Lower-Middle	8.69 (2.01)	8.81 (1.25)	8.30 (1.83)	4.17 (2.88)	8.75 (1.49)	8.98 (2.11)
Middle	8.63 (1.91)	8.60 (1.37)	8.27 (1.84)	4.22 (2.79)	8.67 (1.54)	8.76 (2.32)
Total	8.77 (1.78)	8.58 (1.38)	8.25 (1.90)	4.47 (2.96)	8.61 (1.60)	8.85 (2.27)

NS = Not significant

We poignantly note that the composite scores for the SWB and PWB scales show a general trend towards high levels of well-being. However, it is axiomatic that these scores are incongruent to objective indicators of well-being, which point to a range of adverse childhood realities. The negative skew, articulated as the 'life optimism bias', is a typical feature of well-being and quality of life measures in the adult literature. Cummins (1995) for example noted the tendency for scores on SWB measures to be negatively skewed. As far back as the 1960's (Cummins, 1995), this

phenomenon was explained as being related to socially acceptable understandings of happiness. If happiness is highly regarded in a specific culture or context, then individuals are more inclined to respond in a positive way. Around the same time, Boucher and Osgood (1969) proposed the 'Polyanna' hypothesis to explain individuals' preferences to select items on the positive spectrum. Others such as Zapf (1984) put forward the notion of the 'satisfaction paradox', which refers to the state of reporting high levels of satisfaction with one's quality of life in the context of objectively unsatisfactory living conditions (in Neff & Olsen, 2007). Headey and Wearing (19881992), on the other hand, suggest that it could be associated with the desire to maintain the integrity of the self (as cited in Cummins 1995). Taken together, Cummins (1995) concludes that the higher scores in subjective quality of life data is ubiquitous, and can be explained by a variety of psychological mechanisms. He proposes the Homeostasis Theory of well-being as a theoretical framework to explain the phenomenon. The theory propounds that, akin to the homeostatic maintenance of body temperature, well-being is "actively controlled and maintained by automatic neurological and psychological processes" (p. 636). Homeostasis, therefore, aims to deliver a normal positive sense of well-being, considered to be generalised and indiscriminate, and abstract (Cummins, 2014). The homeostatic system has a genetically determined set-point range of SWB, which is unique for each person. The homeostasis mechanism controls and protects this set-point range.

Beyond the hedonic/affective discussion, Cummins (2010) demonstrates that the affective component plays a central role in the SWB conceptual model; it generates a profound and stable positive mood, referred to as homeostatically protected mood (HPMood). This concept is supported in research with children (see Cummins, 2014). HPMood suggests that each person has a genetically generated level of HPMood that provides a unique level of engendered positivity. This level constitutes an individual difference between people and represents their unique 'set-point'; this is the level of well-being which homeostasis seeks to maintain and defend. Research on children's well-being have demonstrated that normal 'set-point' ranges can be determined (see Casas, 2017). This means that scores that fall outside of these ranges are potentially abnormal. Given the normative scores generated in the current study, we now have rich data on baseline subjective and psychological well-being levels, which can be used to determine the variability of well-being across children in diverse cohorts in South Africa. This represents the most important contribution of the study.

Conclusion

This is the first study to use a nationally representative sample to measure children's subjective and psychological well-being in South Africa. Given the use of a randomised sample, and the attainment of an appropriate fit structure for the well-being instruments, the mean score represents normative scores of 10- to 12-year-old children attending public schools in South Africa. Applied researchers can confidently use these scales to measure and compare children's SWB and PWB across different contexts and settings. The results from the study suggest that children in South Africa present with high levels of subjective (context-free, domain-based,

and positive affect) and psychological well-being, and low levels of negative affect. These findings are significant if one considers the adverse social conditions and constrained socio-economic contextual realities associated with growing up in South Africa. This misalignment poses a risk as it may diminish the potential contribution of self-reported well-being. It may also create a false sense of achievement and curtail the impetus of policy initiatives and service delivery.

We recommend a cautious interpretation and heed the assertion by Dawes et al. (1989, p. 631–632) that "the past emphasis on children's vulnerability will be replaced with an overemphasis on children's resilience […] leading us to underestimate the very real instances of psychological distress that occur in contexts of violence." Similarly, Savahl et al. (2015) caution against a misdirected pre-occupation with the concept of resilience as a panacea for adverse childhood experiences in South Africa.

We note the cross-sectional nature of the study as a limitation that limits causal inferences. We recommend research investment in longitudinal studies, which would facilitate an understanding of children's well-being over time. It could also potentially reveal the nature of causal relations between contextual factors impacting on children's well-being. Given that the study only presents the well-being scores; we recommend that future research explore the determinants and correlates of well-being. In the context of South Africa, previous research has identified aspects such as children's: safety, social relationships, the school climate and experience, community level factors, the home and family, bullying, material deprivation, time-use, freedom of choice, and hope, as significantly contributing to variations in children's well-being (see Rees et al., 2020; Rees, 2017; Savahl, 2020). The data for the current study were collected prior to the outbreak of the COVID-19 pandemic. The impact of such major life events on children's lives and well-being warrants further research. Future research should, therefore, explore children's well-being in the context of COVID-19, both within individual country contexts, but also across countries and contexts.

On a practical level, the findings suggest that some children, even in the context of constrained social contexts and adverse childhood experiences, may still present with acceptable levels of well-being, maintained by the homeostatic system. However, we need to be mindful that these children may be at risk, as a breach of the homeostatic threshold may result in adverse psychological outcomes. Practitioners, teachers, and especially policymakers need to be aware that even though children may present with reasonably high levels of well-being, they may be experiencing harsh living conditions and are at risk for negative psycho-social outcomes. To further stabilize and improve these psychosocial outcomes, we recommend that practitioners and policymakers advance a bottom-up approach which engenders a focus on improving specific aspects of children's lives (such as social relationships, the school experience, safety, autonomy etc.). The bottom-up approach, premised on the acknowledgement of children's agentic capacity and autonomy and the empowerment and active participation of children, offers a viable framework to enhance children's well-being. The fact that children were closely involved in the development of the scales and instruments is testament to the critical role that participatory methodologies can play in

generating high quality data. Further, leveraging child participation methodologies in the translation of evidence into social policies and the translation of social policies into effective practices and programmes to improve children's lives and well-being is crucial.

We conclude by considering the impact of the study's findings for applied researchers, with a specific focus on the applicability of normative data on children's SWB and PWB generated by the study.

First, normative data provides a benchmark or baseline against which children's SWB and PWB can be meaningfully compared. It allows researchers, and policymakers to systematically monitor the well-being of children, and facilitates the identification areas of concern or aspects of children's lives where intervention may be needed.

Second, normative data can identify disparities in children's SWB and PWB across different demographic groups, such as geographical regions, gender, age, socioeconomic status, or cultural backgrounds. These disparities can be leveraged to develop targeted interventions and policies aimed at reducing inequalities and improving children's well-being for specific populations. Normative data can elucidate the factors that contribute to these disparities and facilitate programmes to address them effectively.

Third, normative data can fulfil a programme evaluation function to assess and evaluate the effectiveness of interventions or programs designed to improve children's well-being. Researchers and practitioners can use this information to identify strategies and approaches that have the maximum benefit, offer suggestions for amendments, improvements, or scaling of the programmes.

Fourth, normative data can assist policymakers in setting realistic goals and targets, and for developing evidence-based strategies to promote children's well-being across different domains.

Fifth, normative data can be used as a means to advance civic advocacy and social policy development. It provides objective evidence about the well-being of children, which can be leveraged to raise awareness, assign resources, and advocate for policy changes that foreground children's well-being. Further, it can provide valuable information that can inform programmes and policies that support children's overall well-being.

Sixth, normative data can contribute to the conceptual and theoretical advancement in child well-being studies. It helps shed light on the social determinants of children's well-being, elucidates the contemporary and intergenerational sociohistorical processes driving interactions with children's well-being, increase understandings of well-being trends over time, and facilitates a closer alignment between theory and policy.

Author Contributions SS was the lead author and principal investigator of the larger study. SS conceptualised the study, wrote the background and rationale, wrote the literature review, wrote the method, conducted the analysis, wrote the discussion and conclusion. SA is the principal investigator of the larger study. SA conceptualised the study with SS, wrote parts of the background and literature review with SS

Declarations

Ethics Statement Ethics Approval was granted by the Humanities and Social Sciences Research Ethics Committee of the University of the Western Cape; Ethics clearance number: HS17/2/1.

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