

REVIEW

Open Access



A synthesis of dimensions of wellbeing among adolescents and young people living with HIV from Sub-Saharan Africa for measurement in economic evaluation: a qualitative overview of reviews

Stanley Carries^{1,2*}, Juliet Nyasulu^{2,6}, Audrey Moyo^{1,5}, Eugene Lee Davids³, Willem Odendaal^{1,4} and Darshini Govindasamy^{1,7,8}

Abstract

Background Adolescents and young people living with HIV (AYPLHIV) in sub-Saharan Africa (SSA) face intersecting structural and psychosocial challenges that compromise their wellbeing, yet these realities are poorly captured by generic wellbeing measures used in economic evaluations. This overview of reviews synthesised evidence from SSA to identify key determinants of social wellbeing to inform the co-development of a contextually relevant wellbeing scale suitable for economic evaluations in the region.

Methods We searched reviews published between January 2000 and September 2023 across ten databases on EBSCOhost, Ovid, and Web of Science. The conduct and reporting of this overview followed the Preferred Reporting Items for Overviews of Reviews guidelines. Eligible reviews included quantitative, qualitative, and mixed-methods studies examining wellbeing or mental health among AYPLHIV aged 10–24 years in SSA. Review quality was assessed using the Joanna Briggs Institute Critical Appraisal Checklist. Data were synthesised thematically, mapped onto Keyes Social Wellbeing framework, and study selection presented with a PRISMA flow diagram.

Results Sixteen medium-to-high quality reviews were included. South Africa ($n = 15$) and Uganda ($n = 14$) were the most represented countries. Most reviews focused on adolescents aged 10–19 years ($n = 11$). Our analysis identified five recurring themes central to the social wellbeing of AYPLHIV: social support, acceptance and belonging, self-acceptance, aspirations and goals, and coping. These themes aligned with Keyes' Social Wellbeing model, with social support and acceptance and belonging reflecting *social integration*, and aspirations and goals reflecting *social contribution*. Key psychological wellbeing constructs identified included positive relationships, self-acceptance, purpose in life, and environmental mastery.

*Correspondence:

Stanley Carries
stanley.carries@mrc.ac.za

Full list of author information is available at the end of the article



© The Author(s) 2026. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Conclusions These domains reflect both personal experiences and structural realities yet remain underrepresented in commonly used wellbeing measures. This is a critical limitation, as economic evaluations often rely on generic instruments that fail to capture what matters most to AYPLHIV in SSA. Future research should develop a wellbeing scale that incorporates these domains, is sensitive to socioeconomic context, and can be collected alongside socioeconomic status indicators. Embedding such a measure into evaluation systems would improve the accuracy, equity, and policy relevance of economic evaluations and ensure that investments reflect AYPLHIV's lived realities.

Keywords Social wellbeing, Wellbeing, Wellbeing measures, Economic evaluations, Adolescents living with HIV, Young people living with HIV, Mental health, Stigma, HIV, Sub-Saharan Africa

Introduction

Adolescent wellbeing is increasingly recognised as a global priority, valued not only for its intrinsic importance but also for its far-reaching implications across health, development, and economic domains. Investments in adolescent wellbeing yield a “triple dividend”: improving outcomes now, enhancing future adult health and productivity, and fostering long-term intergenerational benefits [1]. Despite this growing recognition, wellbeing remains under-measured and under-valued in many regions, particularly in SSA, where adolescents face unique and compounding challenges. SSA is home to the world's youngest population [2, 3], with adolescents forming the broad base of a demographic pyramid [4]. By 2030, adolescents in Africa are projected to comprise 36% of the global adolescent population [5], presenting both a challenge and an opportunity to harness a demographic dividend through strategic investments in health, education, and psychosocial wellbeing [6–8].

AYPLHIV in SSA represent a particularly vulnerable group, with an estimated 2.98 million aged 10–19 years globally, 89% of whom reside in SSA [9]. Their wellbeing is shaped by intersecting structural and proximal challenges, including stigma [10–12], gender inequalities [13], fragmented health services [14, 15], household socio-economic disadvantage [16, 17], material deprivation such as financial precarity and food insecurity [18–20], limited access to education [14], and inadequate psychosocial and family support [13, 21]. These vulnerabilities are further compounded by family dysfunction, bullying [21], and geographic barriers to care [22]. To be meaningful for policy and economic evaluation, wellbeing measures must reflect these lived realities and the collectivist cultural context in which AYPLHIV are embedded.

Existing wellbeing frameworks (including subjective wellbeing (SWB) [23, 24], psychological wellbeing (PWB) [25, 26], and capability wellbeing (CWB) [27–33]) offer valuable insights but often originate from individualistic, high-income country contexts. These tools may not fully capture the relational, structural, and cultural dimensions of wellbeing in SSA. For example, Govindasamy et al. (2020) found that wellbeing among South African adolescents living with and without HIV was most strongly

associated with social integration and social contribution [34], underscoring the importance of collective belonging and perceived social value.

This overview of reviews builds on such evidence to identify key determinants of wellbeing for AYPLHIV in SSA, with the goal of informing the co-development of a contextually relevant wellbeing scale suitable for economic evaluations. The study adopts Keyes' Social Wellbeing (SocWB) framework [35], which includes five interrelated dimensions: *social integration*, *social contribution*, *social coherence*, *social actualisation*, and *social acceptance*. These dimensions offer a culturally resonant lens for understanding wellbeing in SSA, where collectivist norms and relational dynamics shape adolescents' experiences of support, identity, and purpose. Existing wellbeing instruments (e.g. WEMWBS, WHO-5, MHC-SF, KIDSCREEN-27/52, EPOCH, PROMIS Paediatric Wellbeing, Ryff's PWB/PWB-c, ICECAP-CYP) only partially cover these social dimensions and exhibit limited validation within SSA contexts [36]. Although interest in wellbeing measurement in the Global South is increasing, there remains a notable absence of scales specifically developed or rigorously validated for SSA populations [36]. Advancing contextually grounded measures that reflect locally relevant dimensions is essential to ensure equity in decision-making and to enable economic evaluations that capture what matters most to AYPLHIV in SSA.

Methods

This overview of reviews, conducted in accordance with the Preferred Reporting Items for Overviews of Reviews (PRIOR) guidelines, synthesises evidence at the review level to assess the determinants of wellbeing among AYPLHIV in SSA. Predefined eligibility criteria, structured quality appraisal, and thematic synthesis were applied to ensure transparency and reproducibility. The study selection and screening process is presented in a PRISMA flow diagram, detailing the identification, inclusion, and exclusion of reviews.

Eligibility criteria

We included reviews published between 2000 and September 2023, with at least 50% of study populations

residing SSA. This timeline covers key post-ART periods in SSA (i.e. from ART introduction (2000) to scaled-up ART (2011-to-present)). The post-ART period was considered more relevant to this review as the focus of current international HIV policy is on treatment for all people living with HIV [37]. Reviews were excluded if published before 2000, if less than 50% of the study population were AYPLHIV aged 10–24, or if they were not true syntheses(see Table 1). We included AYPLHIV aged 10–24 years to align with global definitions and the South African National Adolescent and Youth Health Policy, which targets this age group for health and wellbeing interventions [38]. Qualitative research in South Africa indicates that wellbeing dimensions and challenges are broadly consistent across this developmental continuum [34], supporting the use of this broader range. Furthermore, recent global analyses extend the definition of adolescence to 24 years, acknowledging ongoing neurodevelopment and comparable wellbeing trajectories throughout this period [39]. No language restrictions were applied. The review followed the PRIOR guidelines [40].

Information sources

We searched Web of Science, EBSCO Host (including MEDLINE Ultimate, CINAHL Ultimate, Psychology and Behavioural Sciences Collection, and Sociology Source Ultimate), and Ovid (APA PsycInfo, EconLit, Embase, Global Health, and Social Policy and Practice) for reviews published between 2000 and September 2023. This timeframe captures key post-ART periods in SSA, from the introduction of ART (2000) to its scale-up (2011-present).

Search strategy

The search strategy combined subject headings with search terms related to wellbeing and mental health among AYPLHIV (e.g., psychological wellbeing, subjective wellbeing, life satisfaction). To ensure comprehensive coverage of the literature, we also included terms such as “health related quality of life” and “HRQoL,” as these are frequently used interchangeably with wellbeing in adolescent and HIV research, particularly in SSA contexts. The strategy was adapted for each database (see Additional file 2).

Selection process

Search results were imported into EndNote20, de-duplicated, and screened using Rayyan Systematic Review Management Platform. We included quantitative, qualitative, and mixed methods reviews addressing psychological or subjective wellbeing and mental health among AYPLHIV (10–24 years) in SSA (countries based on World Bank classification [41]). Titles were initially screened by SC, followed by independent title and abstract screening by SC and AM using predefined criteria (Table 1), with 94% agreement. Full texts were reviewed by SC, with input from AM and DG to resolve any uncertainties. Consensus was reached on all included reviews.

Data extraction

Data were extracted into an Excel form based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) [42] and Joanna Briggs Institute (JBI) Checklist for Systematic Reviews and Research Syntheses [43] checklists. We captured review aims, study types, type of data collected, countries, populations, interventions, and wellbeing determinants (see Additional file 3).

Table 1 Inclusion and exclusion criteria

| Criteria | Inclusion criteria | Exclusion criteria |
|-----------------------------|--|---|
| Article type | <ul style="list-style-type: none"> • Only reviews (systematic, scoping, narrative, umbrella reviews, etc.) • Peer reviewed | <ul style="list-style-type: none"> • Non-reviews • Primary research • Clinical trials, medical studies • Studies based on pure life sciences • Letters, opinion pieces, editorials, case studies |
| Type of reviews | <ul style="list-style-type: none"> • Quantitative, qualitative, and mixed methods | <ul style="list-style-type: none"> • No exclusion |
| Region | <ul style="list-style-type: none"> • Reviews synthesising information from SSA as per World Bank country classification • Reviews where at least 50% of the countries included in the synthesis are in SSA | <ul style="list-style-type: none"> • Non SSA countries • Reviews where more than 50% or the articles included are outside of SSA |
| Population | <ul style="list-style-type: none"> • AYPLHIV aged 10–24 years • Syntheses where at least 50% of study population are ALYPLHIV | <ul style="list-style-type: none"> • People over 24 years old • Children younger than 10 years • Syntheses where more than 50% of population are not living with HIV |
| Period | <ul style="list-style-type: none"> • 2000 to September 2023 | <ul style="list-style-type: none"> • Reviews conducted before 2000 or that focused on populations prior 2000 |
| Phenomena of interest | <ul style="list-style-type: none"> • Subjective wellbeing (SWB), psychological wellbeing (PWB), mental health | <ul style="list-style-type: none"> • Phenomena not focusing on SWB or PWB or mental health |
| Number of included articles | <ul style="list-style-type: none"> • More than two articles | <ul style="list-style-type: none"> • Two or less articles |

JN, ELD, and DG quality-checked one-third of the data each. Discrepancies were resolved through discussions between SC, JN, ELD and DG. Original articles were consulted where clarification was needed.

Assessment of quality

SC appraised review quality using the 11 item JBI Checklist [43, 44], with independent verification by JN, ELD, and DG. The checklist was selected for its applicability across review types and its ability to assess bias [43]. Scoring followed standard guidance: items were rated *yes* (1), *no/unclear* (0), or *not applicable* (excluded from the denominator). Where criteria were only partially met, a score of 0.5 was assigned. Total scores determined overall quality, with reviews classified as high (≥ 9), medium (7–8.9), or poor (< 7) quality. We retained poor-quality reviews given their relevance. A criterion was considered poor if unmet in $\geq 25\%$ of reviews (see Additional file 4).

Synthesis

We used a mega-aggregation approach to group review-level data into themes [45]. This approach provides an overview of existing evidence [46, 47] rather than generating new theory. Themes were mapped onto Keyes' SocWB Model, as earlier research with South African young people identified this framework as better suited for capturing locally relevant aspects of wellbeing compared to alternative models [34].

Results

Study selection

The search yielded 7,056 citations; after removing duplicates, 5,105 titles and abstracts were screened. Of these, 4,942 were excluded for not being knowledge synthesis reviews, lacking relevance, or being medical/laboratory-based. Full texts of 163 reviews were assessed, with 16 meeting inclusion criteria.

Most exclusions were due to study populations not being AYPLHIV, reviews not constituting true evidence syntheses (e.g., reviews of secondary data or descriptive overviews), or insufficient SSA representation (see PRISMA flow diagram in Fig. 1).

Overall characteristics of included reviews

The 16 included reviews, published between 2015 and 2023, covered populations from 20 SSA countries. Thirteen focused solely on SSA [21, 48–59], while three included other low to middle income countries (LMICs) (China, Myanmar, Thailand) and the USA [60–62] (Table 2). South Africa ($n = 15$), Uganda ($n = 14$), Kenya ($n = 12$), and Rwanda ($n = 10$) were most represented. AYPLHIV ages ranged from 7 to 28, with most reviews focusing on ages 10–19 ($n = 6$) or 10–24 ($n = 4$). All reviews addressed dimensions of wellbeing and mental health.

Most aimed to explore mental health-related factors [21, 50, 53–55, 57, 60, 61]; others examined sexual and reproductive health [53, 56], wellbeing [49], ART adherence [48], transitioning to adult care [62], school/community challenges [51], lived experiences [52], psychosocial access barriers [58], and risk behaviours [59]. Quality appraisal using the JBI checklist demonstrated strong methodological standards across the included reviews, with most achieving medium to high quality ratings and only minimal evidence of lower quality (see Additional file 4).

Analytical themes

Five key themes were identified across reviews as indicative of wellbeing among AYPLHIV: (1) social support; (2) acceptance and belonging; (3) self-acceptance; (4) aspirations and goals; and (5) coping. These themes mapped onto two wellbeing domains in Keyes SocWB model, namely, *social integration* (social support; acceptance and belonging) and *social contribution* (aspirations and goals) (see Table 3).

Social support

Social support from caregivers, family, healthcare workers, support groups, and peers was consistently linked to AYPLHIV wellbeing. Positive parenting, caregiver support, and supervision were associated with lower depression [21, 50, 60] and fewer emotional and behavioural difficulties [21]. Caregivers also played a key role in ART adherence [48, 49, 51, 58, 59]. Family environments impacted wellbeing, particularly through lack of instrumental support [21, 51, 58, 59], food insecurity [21, 48–52, 58, 59, 62] and poverty [48, 49, 51, 52, 55], all of which were linked to poor mental health outcomes [49]. Limited transport funds also hindered ART adherence [51, 58, 59]. Other contributing factors included strained family relationships [50, 52, 57], poor family communication [53, 58, 60], and household overcrowding [50, 52, 58]. Peer support facilitated linkage to care and ART adherence [48, 51, 52, 59, 60, 62], offered emotional support, and fostered acceptance [49], contributing to better mental health [49]. Higher social support was associated with lower depressive and anxiety symptoms [50, 55, 57, 60], positive coping [49, 55], and improved ART adherence [51, 59, 60].

Acceptance and belonging

Acceptance and belonging were primarily discussed in relation to barriers to wellbeing. Stigma [21, 48–52, 55, 57–60, 62] and discrimination [51, 52, 55, 58] following HIV status disclosure led AYPLHIV to feel rejected by loved ones and society [21, 48, 49, 51, 62]. Fear of rejection and accidental disclosure worsened mental health [21, 49] and undermined ART adherence [48]. Stigma

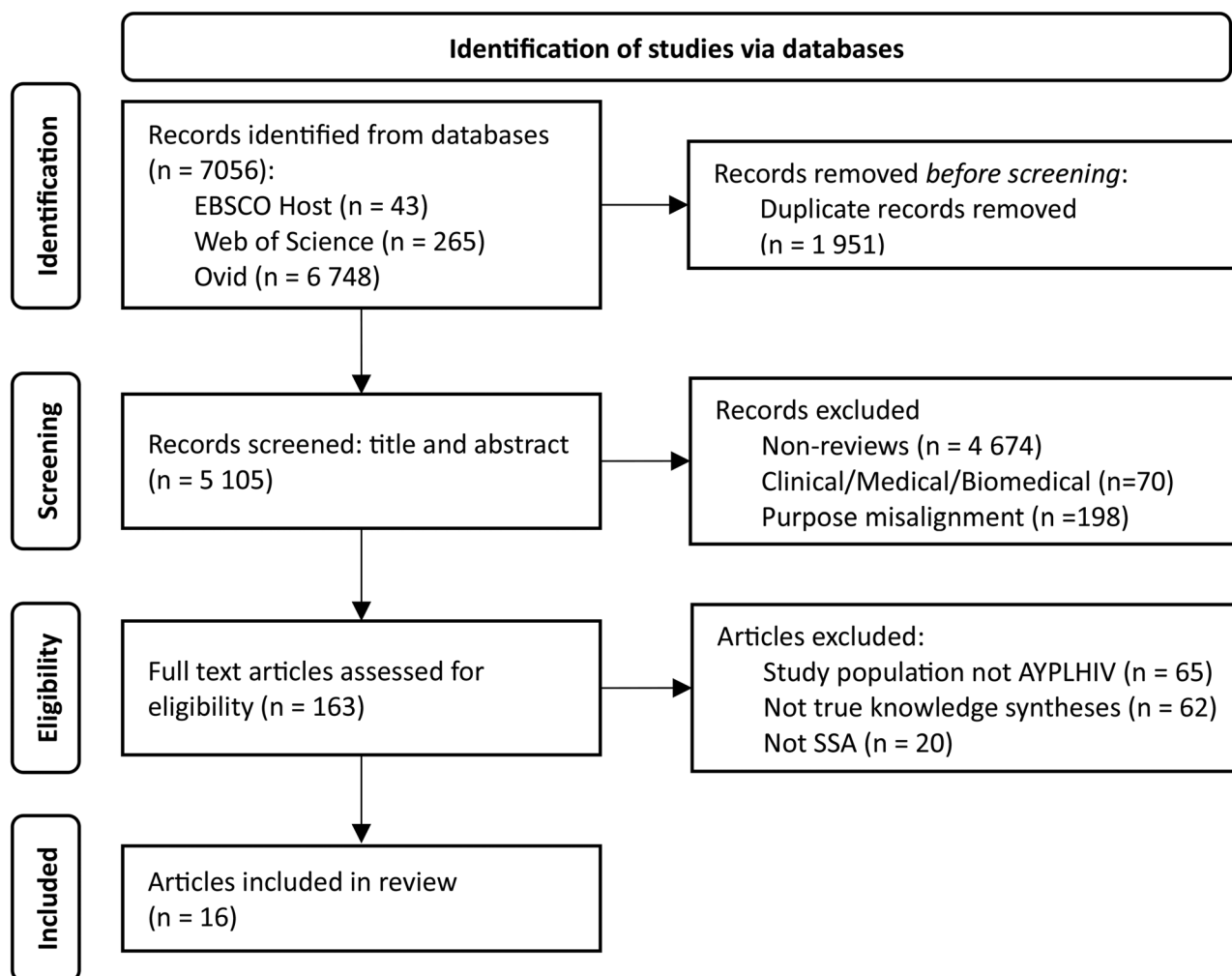


Fig. 1 PRISMA flow diagram of review selection process

also discouraged care-seeking outside HIV clinics [61, 63] and hindered transition to adult care [21, 62]. Conversely, support from caregivers, families, health workers, and peers enhanced AYPLHIV's sense of acceptance and belonging [49, 55].

Self-acceptance

Self-acceptance was one of the most frequently reported themes [21, 48–50, 52–54, 56, 57, 60–62], and often centred on self-concept (i.e. self-image, identity, esteem, awareness, worth, and physical appearance) and was largely shaped by internalised stigma. Reviews highlighted how awareness of HIV status harmed self-image [21, 62], which in turn affected ART adherence [48] and mental health [21, 34]. HIV-related stigma was linked to diminished self-worth [49], while positive self-image was associated with fewer emotional and behavioural difficulties [21] and reduced depressive symptoms [21, 50, 57]. Self-esteem improved with connectedness, personal worth, and a positive self-view [54]. Interventions

to promote self-acceptance included family economic strengthening [60, 61], financial empowerment [64], group-based adolescent programmes [60, 61], and community-based approaches [53, 61].

Aspirations and goals

This theme captured AYPLHIV's hopes for the future [21, 49, 51, 54–56], self-efficacy [50, 52, 54, 57, 58, 60], and educational goals [21, 49, 50, 52, 57, 58]. Aspirations were linked to better mental wellbeing [21, 54] and a desire for respect and success in their communities [51]. Education was seen as a pathway to purpose and social value [49], but stigma, discrimination, and poverty undermined these ambitions [49, 55]. Poverty also limited educational attainment and career prospects [49]. Self-efficacy strengthened resilience and was associated with fewer depressive symptoms [50, 57], but was reduced by orphanhood, household violence, and stigma [60].

Table 2 Characteristics of included reviews

| Author | Aim / objectives | Review type | Types of studies/data of included articles | Countries of original studies | Number of studies included | Description of Interventions / phenomena of interest | Adolescent and young people characteristics (total number & [age range] in years) |
|--|--|-------------------|---|---|----------------------------|--|---|
| Ammon, N., et al., 2018 [48] | To identify factors that enable and impede ART adherence among adolescents living with HIV (ALHIV) in sub-Saharan Africa (SSA). | Systematic review | Qualitative, mixed methods and quantitative | Congo (Democratic Republic), Ghana, Kenya, Rwanda, South Africa, Uganda, Zambia, and Zimbabwe. | 11 | Factors affecting ART adherence among ALHIV in SSA | <i>n</i> = 3199 [10–19] |
| Bhana, A., et al., 2020 [60] | To address what has worked and what has not worked to support the mental health of ALHIV or affected by HIV in low and middle-income contexts | Systematic review | Quantitative | China, Ethiopia, Kenya, Myanmar, Rwanda, South Africa, Uganda and Thailand. | 16 | Family-level and group-based interventions | <i>n</i> = 4133 [10–24] |
| Bhana, A., et al., 2021 [61] | To explore current evidence-based mental health interventions for adolescents and young adults living with HIV (AYALH) or affected by HIV (AYAALH) to inform evidence-based interventions for this population. | Scoping review | Any research study design | Rwanda, Uganda, Tanzania, Kenya, South Africa, Zimbabwe, China, Myanmar, Thailand, and USA | 13 | Evidence-based mental health interventions | <i>n</i> = 2474 [10–24] |
| Da-hourou, D. L., et al., 2017 [62] | To identify specific needs and challenges of HIV-infected adolescents and youth as they transition to adult HIV care in sub-Saharan Africa, and to describe existing models of care for transition and outcomes. | Narrative review | Quantitative and qualitative | Botswana, Burkina Faso, Burundi, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Rwanda, South Africa, Swaziland, Tanzania, Uganda, USA, and Zimbabwe | 20 [#] | Barriers, facilitators, expectations and needs associated with transitioning to adult HIV care: the provider's and adolescent's points of view | <i>n</i> > 3333 [15–28] |
| Des-sauvagie, A. S., et al., 2020 [21] | To summarise the existing evidence on the prevalence of mental health problems among ALHIV in SSA and to explore associated sociodemographic, health-related, and community factors. | Systematic review | Quantitative | Kenya, Malawi, Namibia, Rwanda, South Africa, South Nigeria, Uganda, and Zambia | 14 | Prevalence of mental health challenges among ALHIV | <i>n</i> ~ 3391 [10–19] |
| Govindasamy, D., et al., 2020 [49] | To identify key dimensions of wellbeing and aligned wellbeing measures among young people living with HIV (YPLHIV) in SSA | Systematic review | Mixed-methods | Botswana, Ethiopia, Kenya, Malawi, Namibia, Nigeria, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe | 40 | Wellbeing dimensions among young people living with HIV | <i>n</i> = 4169 [15–24] |
| Haines, C., et al., 2019 [50] | To synthesise existing research about depression in HIV-infected youth in Southern Africa by addressing factors associated with depression in HIV-infected youth and to explore interventions that have been implemented to reduce depression among this population? | Systematic review | Quantitative | Malawi, South Africa, Swaziland, and Zambia | 13 | Factors associated with depression in HIV-infected youth and interventions to reduce depression | <i>n</i> = 3573 [9–19] |

Table 2 (continued)

| Author | Aim / objectives | Review type | Types of studies/data of included articles | Countries of original studies | Number of studies included | Description of Interventions / phenomena of interest | Adolescent and young people characteristics (total number & [age range] in years) |
|------------------------------------|---|----------------------|---|---|----------------------------|--|---|
| Kimera, E., et al., 2019 [51] | To review evidence on challenges that youth living with HIV/AIDS (YLWHA) experience in schools and larger community, and to explore available support and interventions available for YLWHA in schools and the larger community. | Systematic review | Qualitative | Kenya, Rwanda, Tanzania, and Uganda | 16 | Challenges faced by YLWHA or support available in schools or communities to enhance the wellbeing of YLWHA | n = 809 [12–19] |
| Mhungu, A., et al., 2023 [52] | To explore available evidence and map key concepts concerning the everyday life experiences of adolescent girls and young women (AGYW) living with (or affected by) HIV in SSA in the context of patriarchal culture? | Scoping review | Qualitative, quantitative and mixed-methods | Botswana, Ghana, Kenya, Malawi, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe | 40 | AGYW lived experiences | n range* = 5–1519 [15–24] |
| Musindo, O., et al., 2023 [53] | To identify whether and how interventions targeting adolescent sexual and reproductive health and rights (SRHR) and HIV with a focus on pregnant and parenting adolescents in SSA include mental health components and how these components and their outcomes have been reported in the literature | Scoping review | Quantitative | DRC, Kenya, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe | 27 | Interventions focusing on HIV and SRHR that contain mental health and psychosocial aspects to them | n range* = 7–44,888 [7–25] |
| Orth, Z. and B. Van Wyk, 2022 [54] | To conceptualize mental wellness among ALHIV in the African context and consider the critical components for measuring mental wellness [state and behaviour] in ALHIV. | Integrative review | Qualitative, Quantitative and mixed-methods | South Africa and Uganda | 17 | Definition or explanation of the identified mental wellness concepts and behaviour | n range = 5–702 [10–19] |
| Poku, O. B., et al., 2023 [55] | To characterize published literature assessing relationships between mental health problems and engagement in each step of the HIV care continuum for ALHIV in SSA. | Scoping review | Qualitative and quantitative | Ghana, Kenya, Malawi, Namibia, Nigeria, Rwanda, South Africa, Uganda, Zambia, and Zimbabwe | 34 | ALHIV's mental health problems at multiple steps along the HIV care continuum in sub-Saharan Africa | n ~ 8670 [10–19] |
| Pretorius, L., et al., 2015 [56] | To understand the scope and impact of interventions targeting YPLHIV to improve SRH-related outcomes in SSA | Comprehensive review | Quantitative, qualitative and mixed methods | DRC, South Africa, Uganda, and Zimbabwe | 6 | Interventions targeting YPLWH to improve SRH-related outcomes in SSA | n ~ 855 [10–24] |
| Too, E. K., et al., 2021 [57] | To summarize the available evidence on the prevalence and factors associated with common mental disorders (CMDs) among YPLHIV from SSA. | Systematic review | Quantitative | DRC, Ethiopia, Kenya, Malawi, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Zambia | 31 | Prevalence and factors associated with CMDs among YLWH aged 10 to 24 years | n = 9935 [10–24] |

Table 2 (continued)

| Author | Aim / objectives | Review type | Types of studies/data of included articles | Countries of original studies | Number of studies included | Description of Interventions / phenomena of interest | Adolescent and young people characteristics (total number & [age range] in years) |
|--|---|-------------------|---|--|----------------------------|--|---|
| Variava, T. and J. Watermeyer, 2023 [58] | To identify, synthesize, and discuss the psychosocial factors that affect ALHIV who are accessing HIV treatment services in South Africa. | Systematic review | Qualitative and quantitative | South Africa | 18 | Psychosocial factors which affect ALHIV accessing HIV treatment services in South Africa | n = 9776 [10–19] |
| Zgambo, M., et al., 2018 [59] | To identify risky health behaviours and their associated factors among ALHIV in SSA. | Systematic review | Qualitative, quantitative and mixed methods | Botswana, Côte d'Ivoire, Ghana, Kenya, Malawi, Nigeria, South Africa, Uganda, Zambia, and Zimbabwe | 36 | Risky health behaviours and their associated factors among ALHIV in sub-Saharan Africa | n = 10 152 [10–19] |

#11 full-text articles, 7 conference abstracts and two unpublished studies; * Number of participants varied across methodologies, hence ranges shown

Table 3 Key themes shaping wellbeing among AYPLHIV mapped onto Keyes' social wellbeing model

| Keyes Social Well-being Domains | Themes | Themes and thematic elements |
|---------------------------------|-----------------------------------|---|
| 1: Social Integration | o <i>Social support</i> | •caregiver support •family support •family connectedness •family communication •financial support •household dynamics (single caregiver, living with relatives, lack of privacy at home, location of home, getting same things as other children in home, feeling safe at home, getting praised at home, household density) •peer support groups •psychosocial support •service provider support •partner support •social network support •information and advice •emotional support •community support •someone to talk to |
| | o <i>Acceptance and belonging</i> | •acceptance by others •being welcomed •validation •social protection •feeling comforted •feeling to belong •having a safe place in the community •experience of a romantic relationship •feeling valued by family and friends •social interaction •fitting in •feeling normal •stigma |
| | o <i>Self-acceptance</i> | •self image •self identity •self-esteem •self-awareness •self-worth •physical appearance |
| 2. Social contribution | o <i>Aspirations and goals</i> | •self-efficacy •control of future •educational aspirations •hopes and dreams •future outlook and goals •desire to live longer •self-motivation •marriage •having own family •sense of purpose •social value •employment aspirations |
| | o <i>Coping</i> | •resignation •religion and faith •seeking distraction •self-motivation •rationalization •positive thinking •having goals for the future •supportive family members and friends • psychosocial support programs |

Coping

AYPLHIV coped with HIV through family and peer support [49, 54, 55], spirituality [49, 51, 55], and broader social support [55]. Some also relied on negative strategies, including secrecy, lying, isolation, resignation, and distraction-seeking [51, 52, 55, 60]. Supportive family and friends remained key sources of strength in fostering positive coping [54, 55].

Discussion

This overview of reviews synthesised regional evidence on the determinants of social wellbeing for AYPLHIV in SSA. Five interrelated themes emerged, namely social support, acceptance and belonging, self-acceptance, aspirations and goals, and coping. Each theme reflects dimensions of social wellbeing that are underrepresented in existing measurement tools used in economic evaluations. These themes are shaped by a broader structural context characterised by poverty, stigma, gender norms, and limited access to services, which must be considered

when developing context-sensitive wellbeing measures. To situate these findings conceptually, our synthesis indicates that Keyes' SocWB domains of *social integration* and *social contribution* predominate in SSA evidence, whereas other domains are rarely observed (Table 3). This conceptual alignment with prior regional research, including work by Govindasamy et al. [34], reinforces the salience of these domains for young people's wellbeing. In parallel, a recent review highlights that most wellbeing scales (e.g., Warwick-Edinburgh Mental Wellbeing Scale [WEMWBS], WHO-5 Wellbeing Index, and Mental Health Continuum-Short Form [MHC-SF]) have been developed and validated in Western contexts, prioritizing hedonic and eudaimonic constructs over relational and structural determinants [36]. This gap underscores the need for SSA-specific measures that capture the social realities shaping AYPLHIV wellbeing.

Social support

Social support was one of the most frequently reported determinants of social wellbeing in our review. Among AYPLHIV, support from caregivers, peers, and health professionals provided essential emotional, informational, and practical resources, contributing to improved ART adherence, mental health, and self-worth [20, 65–68]. Regional studies consistently emphasise the role of caregiver and community support in fostering social connectedness and reducing psychological distress [69, 70]. However, access to social support is often constrained by poverty, caregiver loss, gender inequities, and under-resourced services [10, 65]. Limited digital access and social exclusion further restrict peer connection, with evidence showing that high connectivity costs, low digital literacy, and inadequate infrastructure in SSA exacerbate isolation and hinder participation in online peer networks [71, 72].

In current wellbeing measures, relational domains are partially covered (e.g., WEMWBS, WHO-5, ICE-CAP-CYP); however granular SSA determinants such as household dynamics and density, privacy and safety at home, instrumental support (including transport to public health facilities), and community protection are typically under-specified. This risks undervaluing interventions that strengthen caregiver capacity, peer networks, and community-level supports. Aligning with Keyes' *social integration*, these supports are decisive for AYPLHIV (Table 3), but most instruments still focus narrowly on peer connectedness and hedonic/eudaimonic states, reflecting limited non-Western validation [36].

Longitudinal qualitative research conducted with adolescents living with HIV in South Africa and Uganda found that social support was deeply relational and shaped by moral expectations and stigma within clinical and familial contexts, influencing both adherence and self-worth [73]. Additional evidence from Uganda and Zimbabwe highlights how young adolescents living with HIV often internalise narrow narratives of illness shaped by clinical discourse and past experiences, which in turn affect their ability to perceive and engage with supportive relationships [74]. Recognising these relational and structural dimensions is essential not only for improving psychosocial outcomes among AYPLHIV but also for accurately valuing interventions in economic evaluations. Current tools often overlook the nuanced determinants of social support in SSA, such as caregiver capacity, community protection, and instrumental resources, leading to potential underestimation of their impact. Developing context-specific wellbeing measures that capture these dimensions for AYPLHIV will enable more equitable resource allocation and ensure that interventions addressing social support are appropriately prioritized in cost-effectiveness analyses.

Acceptance and belonging

Acceptance and a sense of belonging were consistently identified as core dimensions of social wellbeing. AYPLHIV sought acceptance from family, peers, intimate partners, and broader communities, which fostered feelings of value, inclusion, and motivation [20, 75]. These relational dynamics were positively associated with mental health, treatment engagement, and overall wellbeing [76–78]. Yet stigma and discrimination remain pervasive barriers to social inclusion. Qualitative studies document frequent experiences of exclusion, verbal abuse, and negative community attitudes linked to HIV status [79, 80], contributing to poor mental health and reduced ART adherence [81–84].

Acceptance and belonging are central to Keyes' *social integration*, but our SSA findings reveal they are profoundly shaped by stigma, discrimination, and the need for validation and safety within families and communities (Table 3). Commonly used wellbeing measures (e.g., WEMWBS and WHO-5) rarely explicitly capture stigma, exclusion, or discrimination; KIDSCREEN domains (peers and social support; school environment) offer some coverage but do not directly assess stigma exposure or community protection. As noted in Zhang et al. [36], conceptual ambiguity and limited non-Western validation further restrict relevance for SSA. There is a pressing need for SSA-specific instruments that incorporate stigma-sensitive domains and community inclusion, ensuring that interventions promoting dignity, inclusion, and social cohesion are fully recognised.

Consistent with these findings, a global Delphi study involving researchers and practitioners across SSA and other LMICs reached consensus on the importance of addressing intersectional stigma and promoting community-led inclusion strategies as societal enablers of HIV wellbeing [85]. Young people in Uganda and Zimbabwe described feeling 'different' and morally judged due to their HIV status, which shaped their sense of belonging and limited their ability to form trusting relationships with peers and adults [74]. Embedding items on stigma experiences, validation, and safe community spaces within social wellbeing measures would better reflect intervention impact in SSA contexts [79, 80]. Addressing these dimensions is also crucial for ensuring that interventions promoting inclusion and dignity are adequately considered in economic evaluations through context-specific measures.

Self-acceptance

Self-acceptance, which includes self-image, self-worth, and acceptance of HIV status, was widely reported as a critical component of social wellbeing. This dimension intersects with agency and resilience, which are essential for young people's ability to engage meaningfully with

their social environments [76, 77, 86]. Regional studies highlight how dissatisfaction with physical appearance and internalised stigma negatively affect self-esteem and social participation [87, 88], compounded by cultural expectations and gender norms. Interventions that address stigma and promote body appreciation have been linked to improved self-esteem and reductions in depressive symptoms [89, 90]. A strong sense of self-worth also supports ART adherence and social engagement [91, 92].

Self-acceptance is best framed in Ryff's PWB model, rather than Keyes' SocWB framework. In SSA, it is socially mediated by stigma, gender norms, and moralised adherence expectations. Measures such as Ryff's PWB and Psychological Wellbeing for children (PWB-c) capture self-acceptance and positive relations but seldom address internalised stigma, body image in HIV, or the moral framing of adherence in low-resource settings. Many existing scales continue to prioritise hedonic and eudaimonic aspects of wellbeing over these important contextual determinants [36]. Longitudinal evidence from South Africa and Uganda shows that internalised stigma and moral framing of adherence can erode self-worth, particularly when clinical expectations clash with adolescents' lived realities [73]. In-depth interviews with adolescents in Zimbabwe and Uganda revealed that many struggled to reconcile their HIV status with a positive self-image, often internalising narratives of shame and abnormality shaped by early illness experiences and adult messaging [74]. Positioning self-acceptance as a core wellbeing domain is essential for interventions that aim to strengthen confidence, reduce internalised stigma, and support identity development among AYPLHIV. Yet, most existing measures overlook these contextual determinants, risking incomplete valuation of programmes that foster resilience and long-term engagement. Incorporating self-acceptance into context-specific tools will ensure economic evaluations more accurately reflect the contribution of interventions that address these deeply relational and structural dimensions.

Aspirations and goals

Aspirations, particularly those related to education, employment, and independence, featured prominently as determinants of social wellbeing. Education was consistently viewed as a pathway to achieving life goals and contributing to family and community welfare [34, 93]. Fostering aspirations enhances life satisfaction and supports adaptive coping and social engagement [94–97]. However, poverty, gender norms, interrupted schooling, and social exclusion often limit adolescents' ability to realise their aspirations [98]. This mismatch between ambitions and available opportunities can lead to frustration and poorer psychosocial outcomes.

Aspirations and goals align most closely with Keyes' *social contribution*, which encompasses purpose, social value, and the ability to contribute to one's community (Table 3). Existing measures such as ICECAP-CYP (aspiration; identity/choice) and EPOCH (perseverance, optimism) touch on purpose and future orientation, but rarely assess feasibility, specifically how poverty, interrupted schooling, transport costs, and exclusion constrain goal attainment. Instruments that foreground hedonic/eudaimonic aspects [36] risk overlooking the structural barriers shaping trajectory. Economic evaluations that fail to account for these constraints may undervalue interventions that support empowerment, education, and financial inclusion. Regional evidence indicates that education functions as a pathway for social value and future contribution [34, 93], yet poverty, interrupted schooling, and exclusion constrain attainment [98]. Youth in Ethiopia pursued educational and career goals despite structural barriers, using purpose and future orientation as buffers against adversity [99]. Including items on feasibility and opportunity access would allow evaluations to capture agency and empowerment gains alongside optimism [94, 95]. Aspirations and goals underpin purpose and future orientation for AYPLHIV, yet structural barriers often limit their realisation. Current wellbeing measures rarely consider these constraints, risking undervaluation of interventions that expand educational access and pathways to independence. Context-specific tools that capture opportunity and agency would enable economic evaluations to reflect long-term empowerment alongside health outcomes.

Coping

Coping strategies used to manage stigma, illness, and daily stressors emerged as a critical dimension of social wellbeing. In this review, coping did not align with Keyes' wellbeing domains but rather represented a set of adaptive responses to social isolation and adversity. AYPLHIV often relied on family, peers, and spirituality to navigate psychological and social challenges [34, 100]. Positive coping mechanisms, such as cognitive reframing and seeking social support, were associated with improved emotional wellbeing and ART adherence [101, 102], while maladaptive strategies like secrecy and withdrawal were linked to loneliness and reduced adherence. The capacity to cope was frequently undermined by food insecurity, housing instability, and limited access to psychosocial services.

Several wellbeing scales include domains that partially reflect coping or related constructs. EPOCH covers perseverance and optimism; KIDSCREEN 27/52 include psychological wellbeing and autonomy and parent relations; MHC SF captures emotional wellbeing and positive functioning; and PROMIS Paediatric Wellbeing assesses

positive affect and peer relationships. However, these tools rarely address structural deprivation, stigma, faith-based coping, resignation, or programmatic psychosocial support, which were strategies prominent in this review. As a result, they risk underestimating coping capacity in SSA contexts.

Building on this, a systematic review of stigma-related challenges among children and adolescents living with HIV across SSA found that coping was often compromised by disclosure-related anxiety, feelings of abnormality, and social exclusion, highlighting the need for age-specific and context-sensitive interventions [103]. Findings from Ethiopia suggest that youth who maintained a sense of purpose and future orientation were better able to navigate adversity, using aspirations as a psychological buffer against structural hardship [99]. Measurement should therefore link coping capacity to material deprivation, service access, and stigma exposure, ensuring that economic evaluations capture the contribution of interventions that strengthen resilience and reduce stress, and support psychosocial wellbeing [100, 101].

Strengths and limitations

Key strengths of this review include: (1) inclusion of mixed-methods, quantitative, and qualitative reviews, which enabled a broad synthesis of diverse evidence on AYPLHIV wellbeing in SSA; (2) use of an expansive, multidisciplinary definition of wellbeing in the search strategy, allowing for the inclusion of literature from health, psychology, sociology, and economics; (3) quality appraisal using standard guidelines, which enhances the credibility of the findings; and (4) regional focus on SSA, ensuring contextual relevance and attention to structural and cultural influences on wellbeing.

This review was subject to the following limitations: firstly, despite efforts to extract relevant data, selective reporting cannot be ruled out, although this risk was mitigated through iterative consultation and consensus-building. Secondly, restricting the search to peer-reviewed literature may have excluded valuable insights from grey literature, particularly in resource-constrained settings. Thirdly, several included reviews did not appraise the quality of primary studies, limiting confidence in some findings. Fourthly, generalisability is constrained, as most evidence came from a few SSA countries, leaving some regions underrepresented. Both rural and peri-urban settings were included, but their relative representation was unclear, and while the focus was on adolescents aged 10–24 years, some studies included participants outside this range, complicating interpretation.

Finally, while some social wellbeing domains identified in this review, such as *social integration* and *social*

contribution, may be relevant to broader adolescent populations, our synthesis and recommendations are specifically focused on AYPLHIV in SSA. The unique challenges faced by this group, including stigma, disclosure, and health-related adversity, are not fully addressed by generic wellbeing measures. As such, the generalisability of our findings to other populations may be limited, and our recommendations are intended to inform the development of a condition-specific wellbeing measure tailored to the realities of AYPLHIV in SSA. However, the process and conceptual framework used in this review could inform the adaptation or development of wellbeing measures for other groups experiencing similar structural and relational challenges in SSA or comparable settings. Despite these limitations, this review offers contextually relevant insights for AYPLHIV and highlights priorities for future research and measurement development in this population.

Conclusion

This synthesis identified five key dimensions: social support, acceptance and belonging, self-acceptance, aspirations and goals, and coping, all of which are central to the social wellbeing of AYPLHIV in SSA. These domains reflect both personal experiences and structural realities, yet remain underrepresented in commonly used wellbeing measures. This presents a significant limitation, as economic evaluations often rely on generic instruments that fail to capture these context-specific elements. As a result, interventions that could meaningfully improve social wellbeing may be systematically undervalued. To address this gap, future research should prioritise the development of a wellbeing measure tailored to AYPLHIV in SSA, grounded in social wellbeing. This process should involve qualitative exploration, Delphi consensus-building, and psychometric validation to ensure cultural and contextual relevance. Longitudinal and mixed-methods studies can further strengthen the evidence base by quantifying how these dimensions influence health and economic outcomes over time. Policy frameworks should support the integration of such measures into routine evaluation systems and prioritise investments in interventions that enhance caregiver support, reduce stigma, and promote education and inclusion. By taking these steps, economic evaluations will more accurately reflect equity considerations and ensure that the true value of programs supporting AYPLHIV is recognised in decision-making and resource allocation.

Abbreviations

| | |
|---------|--|
| AGYW | Adolescent girls and young women |
| ALHIV | Adolescents living with HIV |
| ART | Antiretroviral therapy |
| AYPLHIV | Adolescents and young people living with HIV |
| CAB | Caregiver advisory board |
| CMDs | Common mental disorders |

| | |
|------------|--|
| CWB | Capability wellbeing |
| DRC | Democratic Republic of Congo |
| HRQoL | Health-related quality of life |
| ICECAP-CYP | ICEpop CAPability measure for Children and Young People |
| JBI | Joanna Briggs Institute |
| LMICs | Low- and middle-income countries |
| MHC-SF | Mental Health Continuum-Short Form |
| PRIOR | Preferred Reporting Items for Overviews of Reviews |
| PRISMA | Preferred Reporting Items for Systematic reviews and Meta-Analyses |
| PWB | Psychological wellbeing |
| PWbC | Psychological Wellbeing for children |
| SSA | Sub-Saharan Africa |
| SocWB | Social wellbeing |
| SRHR | Sexual and reproductive health and rights |
| SWB | Subjective wellbeing |
| WHO-5 | World Health Organization-Five Wellbeing Index |
| WEMWBS | Warwick-Edinburgh Mental Wellbeing Scale |
| YPLHIV | Young people living with HIV |
| YLWHA | Youth living with HIV/AIDS |

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12955-026-02487-y>.

Supplementary Material 1

Supplementary Material 2

Supplementary Material 3

Supplementary Material 4

Acknowledgements

We thank Dr. Natasha Langdown, Information Specialist at the SAMRC, for her support in developing the search strategy, as well as colleagues at the SAMRC's HSRU and SAPRIN Conference delegates for their constructive feedback. We are grateful to the participants in the Caregiver Wellbeing Plus trial, the caregiver advisory board (CAB) and their children, and the HSRU Youth Health Economics field staff, whose contributions informed the conceptualization of this review. We also acknowledge the KwaZulu-Natal Department of Health for their support.

Author contributions

SC acted as main author and first reviewer, contributing to all aspects of the design, protocol, search strategy, screening, data extraction and manuscript writing. DG made substantial contribution to the overview of reviews protocol design. AM completed independent abstract and full-text screening. DG, ELD and JN reviewed full text articles for eligibility and performed independent data extraction of included reviews. DG, ELD and JN reviewed the final manuscript draft. WO made substantial contributions to the overview of reviews data analysis.

Funding

The lead Researcher (SC) was partially supported as a Doctoral Fellow by funding from the South African Medical Research Council (SAMRC) through the South African Population Research Infrastructure Network (SAPRIN) under the SAPRIN nodal PhD fellowships from funding received from the Department of Science, Technology and Innovation (DSTI). The content hereof is the sole responsibility of the authors and does not necessarily represent the official views of the SAMRC or the funders. This work was further supported by the IDRC-CDRI (Women Rise Grant – Grant number 110018–001) and the Health Systems Research Unit (HSRU) seed fund. In addition to the lead author, DG and AM were also funded by the SAMRC, and DG is also funded by the SAMRC/Wits Centre for Health Economics and Decision Science - PRICELESS SA. (Grant number 23108).

Data availability

The data extraction tables used and/or analysed during the overview of reviews are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

¹Health Systems Research Unit, South African Medical Research Council, Durban, South Africa

²Division of Health Systems and Public Health, Department of Global Health, Stellenbosch University, Tygerberg, South Africa

³Department of Psychology, Faculty of Humanities, University of Pretoria, Pretoria, South Africa

⁴Department of Psychiatry, Stellenbosch University, Tygerberg 7505, South Africa

⁵Division of Epidemiology and Biostatistics, Department of Global Health, Stellenbosch University, Tygerberg, South Africa

⁶Department of Health Systems Strengthening, AFRIQUIP, Johannesburg, South Africa

⁷SAMRC/WITS Centre for Health Economics and Decision Science - PRICELESS SA, A Division of Wits Health Consortium, University of the Witwatersrand, Johannesburg, South Africa

⁸Wits School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa

Received: 3 September 2025 / Accepted: 26 January 2026

Published online: 04 February 2026

References

- Baird S, Choonara S, Azzopardi PS, Banati P, Bessant J, Biermann O, Capon A, Claeson M, Collins PY, De Wet-Billings N, et al. A call to action: the second Lancet commission on adolescent health and wellbeing. *Lancet*. 2025;405(10493):1945–2022.
- Young People's Potential., the Key to Africa's Sustainable Development [<https://www.un.org/ohrlls/news/young-people%25E2%2580%2599s-potential-key-africa%25E2%2580%2599s-sustainable-development>].
- Rocca C, Schultes I. Africa's youth: action needed now to support the continent's greatest asset. Mo Ibrahim Foundation. 2020;8.
- Bodweig C, Holmemo C, Namara S, Chase RS. A ladder of opportunity: unlocking jobs for today's African youth. In., vol. 2025: Africa Can End Poverty: Exploring Africa's economic challenges and opportunities; 2025.
- UNICEF: Generation 2030 Africa 2.0: Prioritizing Investments in Children to Reap the Demographic Dividend. 2017.[accessed 2018 May 22]. In.; 2017.
- World Bank: Africa's Moment: The Promise of a Demographic Dividend. Africa Human Capital Heads of State Summit. July 2023. In.; 2023.
- Layard R. Wellbeing as the goal of policy. *LSE Public Policy Rev*. 2021.
- Layard R, De Neve J-E. Wellbeing: Cambridge University Press; 2023.
- UNICEF. Global and regional trends: Key HIV epidemiology indicators for children and adolescents aged 0–19. In.; 2025.
- Livingston V, Jackson-Nevels B, Reddy VV. Social, cultural, and economic determinants of well-being. *Encyclopedia*. 2022;2(3):1183–99.
- Patton GC, Sawyer SM, Santelli JS, Ross DA, Affi R, Allen NB, Arora M, Azzopardi P, Baldwin W, Bonell C. Our future: a lancet commission on adolescent health and wellbeing. *Lancet*. 2016;387(10036):2423–78.
- Pantelic M, Boyes M, Cluver L, Thabeng M. They say HIV is a punishment from god or from ancestors': Cross-Cultural adaptation and psychometric assessment of an HIV stigma scale for South African adolescents living with HIV (ALHIV-SS). *Child Indic Res*. 2018;11(1):207–23.
- Enane LA, Apondi E, Toromo J, Bosma C, Ngeresa A, Nyandiko W, Vreeman RC. A problem shared is half solved—a qualitative assessment of barriers and facilitators to adolescent retention in HIV care in Western Kenya. *AIDS Care*. 2020;32(1):104–12.
- Sherr L, Cluver LD, Betancourt TS, Kellerman SE, Richter LM, Desmond C. Evidence of impact: health, psychological and social effects of adult HIV on children. *AIDS*. 2014;28:S251–9.

15. Govender K, Nyamaruze P, Cowden RG, Pillay Y, Bekker L-G. Children and young women in Eastern and Southern Africa are key to meeting 2030 HIV targets: time to accelerate action. *Lancet HIV*. 2023;10(5):e343–50.
16. Young HM, Bell JF, Whitney RL, Ridberg RA, Reed SC, Vitaliano PP. Social determinants of health: underreported heterogeneity in systematic reviews of caregiver interventions. *Gerontologist*. 2020;60(Supplement1):S14–28.
17. Emengo VN, Williams MS, Odusanya R, Uwemedimo OT, Martinez J, Pekmezaris R, Kim EJ. Qualitative program evaluation of social determinants of health screening and referral program. *PLoS ONE*. 2020;15(12):e0242964.
18. Dush JL. Adolescent food insecurity: A review of contextual and behavioral factors. *Public Health Nurs*. 2020;37(3):327–38.
19. Brathwaite R, Ssewamala FM, Neilands TB, Nabunya P, Byansi W, Damulira C. Development and external validation of a risk calculator to predict internalising symptoms among Ugandan youths affected by HIV. *Psychiatry Res*. 2021;302:114028.
20. Chem ED, Ferry A, Seeley J, Weiss HA, Simms V. Health-related needs reported by adolescents living with HIV and receiving antiretroviral therapy in Sub-Saharan Africa: a systematic literature review. *J Int AIDS Soc*. 2022;25(8).
21. Dessauvage AS, Jörns-Presentati A, Napp AK, Stein DJ, Jonker D, Breet E, Charles W, Swart RL, Lahti M, Suliman S, et al. The prevalence of mental health problems in sub-Saharan adolescents living with HIV: a systematic review. *Global Mental Health*. 2020;7:e29.
22. Small J, Aldwin C, Kowal P, Chatterji S. Aging and HIV-related caregiving in Sub-Saharan Africa: A social ecological approach. *Gerontologist*. 2019;59(3):e223–40.
23. Kennes A, Peeters S, Janssens M, Reijnders J, Lataster J, Jacobs N. Psycho-metric evaluation of the mental health Continuum-Short form (MHC-SF) for Dutch adolescents. *J Child Fam Stud*. 2020;29(11):3276–86.
24. Diener E, Pressman SD, Hunter J, Delgado-Gil-Chase D. If, Why, and when subjective Well-Being influences Health, and future needed research. *Appl Psychology: Health Well-Being*. 2017;9(2):133–67.
25. Ryff CD. Psychological Well-Being revisited: advances in the science and practice of Eudaimonia. *Psychother Psychosom*. 2014;83(1):10–28.
26. Ryff CD, Keyes CLM. The structure of psychological well-being revisited. *J Personal Soc Psychol*. 1995;69(4):719.
27. Coast J, Flynn TN, Natarajan L, Sproston K, Lewis J, Louviere JJ, Peters TJ. Valuing the ICECAP capability index for older people. *Soc Sci Med*. 2008;67(5):874–82.
28. Coast J, Kinghorn P, Mitchell P. The development of capability measures in health economics: opportunities, challenges and progress. *Patient*. 2015;8(2):119–26.
29. Mitchell PM, Roberts TE, Barton PM, Coast J. Assessing sufficient capability: A new approach to economic evaluation. *Soc Sci Med*. 2015;139:71–9.
30. Mitchell PM, Roberts TE, Barton PM, Coast J. Applications of the capability approach in the health field: a literature review. *Soc Indic Res*. 2017;133(1):345–71.
31. Greco G. Setting the weights: the women's capabilities index for Malawi. *Soc Indic Res*. 2018;135(2):457–78.
32. Greco G, Skordis-Worrall J, Mills A. Development, validity, and reliability of the women's capabilities index. *J Hum Dev Capabilities*. 2018;19(3):271–88.
33. Husbands S, Mitchell PM, Kinghorn P, Byford S, Breheny K, Bailey C, Anand P, Peters TJ, Floredin I, Coast J. The development of a capability wellbeing measure in economic evaluation for children and young people aged 11–15. *Soc Sci Med*. 2024;360:117311.
34. Govindasamy D, Ferrari G, Maruping K, Bodzo P, Mathews C, Seeley J. A qualitative enquiry into the meaning and experiences of wellbeing among young people living with and without HIV in KwaZulu-Natal, South Africa. *Soc Sci Med*. 2020;258:113103.
35. Keyes CLM. Social well-being. *Social Psychol Q*. 1998;61:121–40.
36. Zhang W, Balloo K, Hosein A, Medland E. A scoping review of well-being measures: conceptualisation and scales for overall well-being. *BMC Psychol*. 2024;12(1):585.
37. Global AIDS. Update-seizing the moment-tackling entrenched inequalities to end epidemics [https://www.unaids.org/sites/default/files/media_asset/2020_global-aids-report_en.pdf].
38. National Department of Health: National Adolescent and Youth Health Policy. 2017. In: National Department of Health Pretoria; 2017.
39. Marquez J, Taylor L, Boyle L, Zhou W, De Neve J. Child and adolescent well-being: Global trends, challenges and opportunities. 2024.
40. Gates M, Gates A, Pieper D, Fernandes RM, Tricco AC, Moher D, Brennan SE, Li T, Pollock M, Lunny C. Reporting guideline for overviews of reviews of health-care interventions: development of the PRIOR statement. *BMJ*. 2022;378.
41. World Bank Country and Lending Groups: Country classification [<https://data.helppdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>].
42. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021;372.
43. Aromataris E, Munn Z. *JBI manual for evidence synthesis*. Joanna Briggs Institute; 2020.
44. Aromataris E, Fernandez RS, Godfrey C, Holly C, Khalil H, Tungpukom P. *Methodology for JBI umbrella reviews*. 2014.
45. Hendricks L, Eshun-Wilson I, Rohwer A. A mega-aggregation framework synthesis of the barriers and facilitators to linkage, adherence to ART and retention in care among people living with HIV. *Syst Reviews*. 2021;10(1):1–28.
46. Hannes K, Petry K, Heyvaert M. The meta-aggregative approach to qualitative evidence synthesis: a worked example on experiences of pupils with special educational needs in inclusive education. *Int J Res Method Educ*. 2018;41(3):291–305.
47. Hannes K, Lockwood C. Pragmatism as the philosophical foundation for the Joanna Briggs meta-aggregative approach to qualitative evidence synthesis. *J Adv Nurs*. 2011;67(7):1632–42.
48. Ammon N, Mason S, Corkery JM. Factors impacting antiretroviral therapy adherence among human immunodeficiency virus-positive adolescents in Sub-Saharan Africa: a systematic review. *Public Health*. 2018;157:20–31.
49. Govindasamy D, Seeley J, Olaru ID, Wiyeh A, Mathews C, Ferrari G. Informing the measurement of wellbeing among young people living with HIV in sub-Saharan Africa for policy evaluations: A mixed-methods systematic review. *Health Qual Life Outcomes*. 2020;18:120.
50. Haines C, Loades ME, Coetzee BJ, Higson-Sweeney N. Which HIV-infected youth are at risk of developing depression and what treatments help? A systematic review focusing on Southern Africa. *Int J Adolesc Med Health*. 2019;33(5).
51. Kimera E, Vindevogel S, De Maeyer J, Reynaert D, Engelen AM, Nuwaha F, Rubaihayo J, Bilsen J. Challenges and support for quality of life of youths living with HIV/AIDS in schools and larger community in East Africa: a systematic review. *Syst Rev*. 2019;8.
52. Mhundu A. Adolescent girls and young women's experiences of living with HIV in the context of patriarchal culture in Sub-Saharan Africa: A scoping review. *AIDS Behav*. 2023;27(5):1365–79.
53. Musindo O, Jafry S, Nyamiobio J, Becker KD, Gellatly R, Maloy C, Lozano-Ruiz A, Romero-Gonzalez B, Kola L, Merali Z, et al. Mental health and psychosocial interventions integrating sexual and reproductive rights and health, and HIV care and prevention for adolescents and young people (10–24 years) in Sub-Saharan Africa: a systematic scoping review. *EClinicalMedicine*. 2023;57:101835.
54. Orth Z, Van Wyk B. Rethinking mental health wellness among adolescents living with HIV in the African context: an integrative review of mental wellness components. *Front Psychol*. 2022;13.
55. Poku OB, West NS, Eschliman EL, Dangerfield DT, Bass J, Kennedy CE, Murray SM. Mental health problems across the HIV care continuum for adolescents living with HIV in Sub-Saharan Africa: A scoping review. *AIDS Behav*. 2023;27(8):2548–65.
56. Pretorius L, Gibbs A, Crankshaw T, Willan S. Interventions targeting sexual and reproductive health and rights outcomes of young people living with HIV: a comprehensive review of current interventions from sub-Saharan Africa. [Review]. *Glob Health Action*. 2015;8:2015.
57. Too EK, Abubakar A, Nasambu C, Koot HM, Cuijpers P, Newton C, Nyongesa MK. Prevalence and factors associated with common mental disorders in young people living with HIV in Sub-Saharan Africa: a systematic review. *J Int AIDS Soc*. 2021;24.
58. Variava T, Watermeyer J. A systematic review exploring the psychosocial factors affecting adolescent access to HIV treatment services. *Adolescents*. 2023;3(1):10–40.
59. Zgambo M, Kalembo FW, Mbakaya BC. Risky behaviours and their correlates among adolescents living with HIV in Sub-Saharan Africa: a systematic review. *Reprod Health*. 2018;15.
60. Bhana A, Abas MA, Kelly J, van Pinxteren M, Mudekunye LA, Pantelic M. Mental health interventions for adolescents living with HIV or affected by HIV in low- and middle-income countries: systematic review. *BJPsych Open*. 2020;6:e104.
61. Bhana A, Kreniske P, Pather A, Abas MA, Mellins CA. Interventions to address the mental health of adolescents and young adults living with or affected by HIV: state of the evidence. *J Int AIDS Soc*. 2021;24(S2).

62. Dahourou DL, Gautier-Lafaye C, Teasdale CA, Renner L, Yotebieng M, Desmonde S, Ayaya S, Davies M-A, Leroy V. Transition from paediatric to adult care of adolescents living with HIV in Sub-Saharan Africa: challenges, youth-friendly models, and outcomes. *J Int AIDS Soc.* 2017;20.
63. Dada D, Abu-Ba'are GR, Turner D, Mashoud IW, Owusu-Dampare F, Apreku A, Ni Z, Djijadeu P, Aidoo-Frimpong G, Zigah EY. Scoping review of HIV-related intersectional stigma among sexual and gender minorities in sub-Saharan Africa. *BMJ Open.* 2024;14(2):e078794.
64. Haycox A, Noble E. What is health economics. London, UK: Hayward Medical Communications; 2009.
65. Sidamo NB, Kerbo AA, Wado YD, Koyira MM, Gidebo KD. Factors associated with perceived social support among adolescents in Gamo Zone, Southern Ethiopia: a community-based cross-sectional study. *Front Psychiatry.* 2024;15:1429886.
66. Nyoni T, Nabunya P, Ssewamala FM. Perceived social support and psychological wellbeing of children orphaned by HIV/AIDS in Southwestern Uganda. *Vulnerable Child Youth Stud.* 2019;14(4):351–63.
67. Barenbaum E, Smith T. Social support as a protective factor for children impacted by HIV/AIDS across varying living environments in Southern Africa. *AIDS Care.* 2016;28(Suppl 2sup2):92–9.
68. Mark D, Hrapcak S, Ameyan W, Lovich R, Ronan A, Schmitz K, Hatane L. Peer support for adolescents and young people living with HIV in Sub-Saharan Africa: emerging insights and a methodological agenda. *Curr HIV/AIDS Rep.* 2019;16(6):467–74.
69. West N, Schwartz S, Mudavanhu M, Hanrahan C, France H, Nel J, Mutunga L, Bernhardt S, Bassett J, Van Rie A. Mental health in South African adolescents living with HIV. *AIDS Care.* 2019;31(1):117–24.
70. Olashore AA, Paruk S, Tshume O, Chiliza B. Depression and suicidal behavior among adolescents living with HIV in Botswana: a cross-sectional study. *Child Adolesc Psychiatry Mental Health.* 2022;16(1):62.
71. Mwansa G, Ngandu MR, Mkwambi Z. Bridging the digital divide: exploring the challenges and solutions for digital exclusion in rural South Africa. *Discover Global Soc.* 2025;3(1):54.
72. Okonkwo S. Digital inclusion in Africa: bridging the divide. Available SSRN 5151540 2025.
73. Bernays S, Papparini S, Seeley J, Rhodes T. Not taking it will just be like a sin: young people living with HIV and the stigmatization of less-than-perfect adherence to antiretroviral therapy. *Med Anthropol.* 2017;36(5):485–99.
74. Bernays S, Seeley J, Rhodes T, Mupambireyi Z. What am I living with? Growing up with HIV in Uganda and Zimbabwe. *Child Health Well-being: Policy Debates Lived Experience.* 2015;37:98–111.
75. Hlophe LD. Barriers and facilitators to anti-retroviral therapy adherence among adolescents aged 10 to 19 years living with HIV in Sub-Saharan Africa: A mixed-methods systematic review and meta-analysis. *PLoS ONE.* 2023;18(5):0276411–0276411.
76. Clark H, Ghebreyesus TA, Albrechtsen A-B, Alcocer J, Alden E, Azoulay A, Billingsley S, Blum RW, Bhushan R, Byanyima W, et al. Uniting for adolescents in COVID-19 and beyond. *BMJ.* 2021;372:n719.
77. Ross D, Hinton R, Melles-Brewer M, Engel D, Zeck W, Fagan L, Herat J, Phaladi G, Imbago Jacome D, Anyona P, et al. Adolescent well-being: A definition and conceptual framework. *J Adolesc Health.* 2020;67.
78. Mohan A, Kostecky SM, Sivakumar A, Khalil M, Clark H. Improving adolescent wellbeing is an urgent global priority. *BMJ.* 2022;379:o2551.
79. Rich C, Mavhu W, France NF, Munatsi V, Byrne E, Willis N, Nolan A. Exploring the beliefs, experiences and impacts of HIV-related self-stigma amongst adolescents and young adults living with HIV in Harare, Zimbabwe: A qualitative study. *PLoS ONE.* 2022;17(5):e0268498.
80. Faidas M, Stockton MA, Mphonda SM, Sansbury G, Hedrick H, Devadas J, Phanga T, Rueggesser L, Kramer J, Mortensen H, et al. Stigma and discrimination faced by adolescents living with HIV and experiencing depression in Malawi. *BMC Global Public Health.* 2024;2(1):39.
81. Kip EC, Udedi M, Kulisewa K, Go VF, Gaynes BN. Stigma and mental health challenges among adolescents living with HIV in selected adolescent-specific antiretroviral therapy clinics in Zomba District, Malawi. *BMC Pediatr.* 2022;22(1):1–12.
82. Inman EM, Nkala-Dlamini B, Violari A, Kidman R. HIV Stigma, Health, and violence: A longitudinal study among adolescent boys with HIV in Soweto, South Africa. *AIDS Behav.* 2024;28(10):3197–204.
83. Ngwenya N, Smith T, Shahmanesh M, Psaros C, Munikwa C, Nkosi K, Seeley J. Social categorisation and social identification: the mediating role of social isolation and loneliness in adolescents living with HIV. *Int J Behav Med.* 2024;31(3):459–67.
84. Dzinamarira T, Moyo E. Adolescents and young people in Sub-Saharan Africa: overcoming challenges and seizing opportunities to achieve HIV epidemic control. *Front Public Health.* 2024;12:1321068.
85. Molesworth K, Nkosi S, Camacho S, Caswell G, Salem S, Baral S, Kamarulzaman A, Sprague L, Stackpool-Moore L. Consensus on addressing HIV-related stigma and achieving the societal enabler targets using an adapted Delphi process. *BMJ Open.* 2025;15(8):e092516.
86. Dambi JM, Cowan FM, Martin F, Sibanda S, Simms V, Willis N, Bernays S, Mavhu W. Conceptualisation and psychometric evaluation of positive psychological outcome measures used in adolescents and young adults living with HIV: a mixed scoping and systematic review protocol. *BMJ Open.* 2022;12(9):e066129.
87. Nyamaruze P, Govender K. I like the way I am, but I feel like I could get a little bit bigger: perceptions of body image among adolescents and youth living with HIV in Durban, South Africa. *PLoS ONE.* 2020;15(1):e0227583.
88. Agyemang EO, Dapaah JM, Osei FA, Appiah SCY, Mensah NK, Odoo SF, Owusu-Ansah M, Martyn-Dickens C. Self-Esteem assessment among adolescents living with HIV and seeking healthcare at Komfo Anokye teaching Hospital-Kumasi, Ghana. *J Int Assoc Provid AIDS Care.* 2020;19:2325958220976828.
89. Small E, Nikolova SP, Nyoni T, Zhou Y, Okumu M, Lipsey KL, Westmore M, Thomas L. Examining HIV-stigma interventions among youth living in sub-Saharan Africa: a systematic review of the evidence. *Vulnerable Child Youth Stud.* 2024;19(1):172–97.
90. Small LA, Huynh AK, Parchment TM. The association between self-esteem, stigma, and mental health among South African youth living with HIV: the need for integrated HIV care services. *AIDS Care.* 2022;34(1):86–94.
91. Lockwood NM, Lypen K, Shalabi F, Kumar M, Ngugi E, Harper GW. 'Know that You are not Alone.' Influences of social support on youth newly diagnosed with HIV in Kibera, Kenya: a qualitative study informing intervention development. *Int J Environ Res Public Health.* 2019;16(5).
92. Lypen KD, Lockwood NM, Shalabi F, Harper GW, Ngugi E. When we are together I feel at home. Types and sources of social support among youth newly diagnosed with HIV in Kenya: implications for intervention. *Afr J AIDS Research: AJAR.* 2015;14(3):275–84.
93. Bakeera-Kitaka S. Exploring the health and wellbeing of adolescents living with HIV as they grow into adulthood: unique challenges in a low resource setting. University of Antwerp; 2020.
94. Bodzo P. Determinants of wellbeing in adolescents and young adults? A systematic review and case study. University of Cape Town; 2025.
95. Proctor C. Child and Adolescent Life Satisfaction. In: *Encyclopedia of Quality of Life and Well-Being Research.* edn. Edited by Maggino F. Cham: Springer International Publishing; 2023, pp. 737–746.
96. Proctor C. Child and adolescent life satisfaction. *Encyclopedia of quality of life and well-being research.* edn.: Springer; 2024, pp. 737–46.
97. Proctor C, Linley PA. Life satisfaction in youth. In: *Increasing psychological well-being in clinical and educational settings: Interventions and cultural contexts.* 2014:199–215.
98. Kimera E, Vindevogel S, Reynaert D, Justice KM, Rubaihayo J, De Maeyer J, Engelen A-M, Musanje K, Bilsen J. Experiences and effects of HIV-related stigma among youth living with HIV/AIDS in Western Uganda: A photovoice study. *PLoS ONE.* 2020;15(4):e0232359.
99. Wedajo HG. I wanted a different life for myself: aspirations and agency of economically disadvantaged youth in Ethiopia. *Prospects.* 2024;54(3):709–22.
100. Mutwa PR, Van Nuij JI, Asiimwe-Kateera B, Kestelyn E, Vyankandondera J, Pool R, Ruhirimbura J, Kanakuze C, Reiss P, Geelen S. Living situation affects adherence to combination antiretroviral therapy in HIV-infected adolescents in Rwanda: a qualitative study. *PLoS ONE.* 2013;8(4):e60073.
101. Ramaiya MK, Sullivan KA, O'Donnell K, Cunningham CK, Shayo AM, Mmbaga BT, Dow DE. A qualitative exploration of the mental health and psychosocial contexts of HIV-Positive adolescents in Tanzania. *PLoS ONE.* 2016;11(11):e0165936.
102. Adegoke CO, Steyn MG. Yoruba culture and the resilience of HIV-positive adolescent girls in Nigeria. *Cult Health Sex.* 2018;20(11):1287–98.

103. Robinson A, Cooney A, Fassbender C, McGovern DP. Examining the relationship between HIV-Related stigma and the health and wellbeing of children and adolescents living with HIV: A systematic review. *AIDS Behav.* 2023;27(9):3133–49.

Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.