Determinants of Subjective and Psychological Wellbeing for Adolescents and Young Adults in Sub-Saharan Africa: A Systematic Review and Case Study

by

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DEDICATION

This dissertation is dedicated to my brothers, Kupakwashe and Munyaradzi, who have been my motivation to finish this paper. As you enter adolescence and young adulthood, may the results of this research help you to flourish and function effectively. I love you both deeply.

PLAGIARISM DECLARATION

I, Paidamoyo Bodzo, hereby declare that the work on which this thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university. I authorise the University to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever

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ABSTRACT

Background: Adolescents and young people make up the greatest proportion of Sub-Saharan Africa (SSA). Understanding and improving their wellbeing should be considered a priority as it is associated with improved individual and societal wellbeing. Subjective wellbeing and psychological wellbeing are the two widely researched conceptualisations of wellbeing. Research on their determinants in adolescent populations has been concentrated in the global north. Interventions designed for this context are not likely to work in SSA due to the unique challenges in SSA. The aim of this study was to review the literature on the determinants of subjective and psychological wellbeing in SSA and organise these factors according to Bronfenbrenner's socio-ecological model. As of 2021, no systematic review had synthesised the literature on the determinants of wellbeing for adolescents and young people in Sub-Saharan Africa.

Methods: This paper is a combination of a systematic review and a case study. The case study was included to triangulate the results of the systematic review in order to determine whether there are differences between the wellbeing of adolescents and young people in upper-middle-income countries and low to lower-middle-income countries in SSA. The review is based on the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement guidelines. A systematic search of the following databases was conducted: EBSCOhost, PubMed, Scopus, Google Scholar, OpenGrey and National Bureau of Economic Research (NBER). The search strategy included terminology on subjective and psychological wellbeing that is commonly used in the literature. The search strategy was guided by the literature review. For the case study, wave 5 data from the National Income Dynamic Study, which is a nationally representative longitudinal study conducted in South Africa was used. We ran a Probit regression with wellbeing as the predictor variable.

Results: In total, 7701 results were returned, and 19 articles were eligible to be included in this review. Bronfenbrenner's socio-ecological model was used to classify and characterise the determinants of wellbeing for adolescents and young people identified in the systematic review and case study. The sample size for the case study was 6987, and age was restricted to 15 and 24. The mean age of this group was 19.31 (SD=2.84). 53% were females, and 49% resided in urban areas. 65% rated their wellbeing as average and above, and 17% were depressed, according to the CES-D-10 scale. Religion, intrinsic and extrinsic aspirations, household income and/or socio-economic status, trust in relatives and age were statistically significant ($p<0.05$) predictors of wellbeing among adolescents and young adults in SSA.

Conclusion: This is the first study to systematically review and organise the determinants of wellbeing for adolescents and young adults in SSA. There is a need for multi-sectoral policies to aid in improving adolescent wellbeing. More research studies that use longitudinal data collected exclusively from adolescents and young people need to be conducted in SSA.

Table of Contents

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LIST OF ABBREVIATIONS

PWB	Psychological wellbeing
NIDS	National Income Dynamics Study
SDG	Sustainable Development Goals
SSA	Sub-Saharan Africa
SWB	Subjective wellbeing
UN	United Nations
UNAIDS	United Nations Programme on HIV and AIDS
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organisation

PART A: PROTOCOL

Determinants of subjective and psychological wellbeing among adolescents and young adults in Sub-Saharan Africa – a systematic review and case study protocol

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Introduction

Youth is best understood as a transitional period from childhood to adulthood. There is no widely accepted beginning and end for the definition of adolescence, and it is for this reason that as a category, the definition of youth is more fluid than other age groups (1). According to the United Nations (UN) "youth" or "young people" are individuals between the ages of 15 and 24 years, without prejudice to other definitions by member states (1). As of 2019, young people constituted roughly 20% of the total population of Sub-Saharan Africa (SSA), making it the continent with the highest proportion of young people in the world (2). The rapid growth of the population of young people has led to an increase in research on their health and wellbeing. Additionally, the recognition that young people cannot be classified as children nor as adults thus they need research, policies and interventions that are tailor-made for them (3).

Investing in the health and wellbeing of adolescents has the capacity to help improve future economic and social outcomes for the individual and for society at large (4). For instance, younger adolescents (15 - 19 years), particularly adolescent girls, who are healthy and educated are more likely to stay in school longer, delay marriage and childbearing, have more success in the labour market and have healthier children. This will allow people to escape poverty and improve the quality of life of their current and future families (5). Additionally, improving adolescent wellbeing is now a priority indicator in global health, in line with Sustainable Development Goal (SDG) 3 of the 2030 SDG agenda (6). SDG 3 aims "to ensure healthy lives and promote wellbeing for all at all ages". This goal underpins the health and wellbeing of all age groups, adolescents included. Additionally, the United Nations Secretary General's Global Strategy for Women's, Children's and Adolescent's Health (2016-2030) recognises that adolescents will be essential to achieving their goal of ensuring health and wellbeing for every woman, child, and adolescent within the context of the SDGs. (7). Therefore, programmes and interventions aimed at the health and wellbeing of young people have a unique opportunity to impact the trajectory of their lives.

Young adulthood is often characterised by rapid biological, emotional and social changes. It is also during this period that adolescents typically desire autonomy, especially from their parents. They also become more committed to social parts of their identity and feel a greater urge to interact with their peers (8). The changes in the patterns of behaviour and the decisions that they make during this life course can either protect their health and wellbeing, or can put their health at risk in the present moment and in the future. This can lay the foundations for the quality of life that the adolescent will have in terms of productivity, health and wellbeing and life satisfaction in their adulthood (9, 10). For example, making poor decisions related to diet, physical activity and substance abuse during this period may increase the probability of getting non-communicable diseases (NCDs) in later life (11). Therefore, achieving better health, social justice, gender equality, and other development goals requires that adolescents have the knowledge, skills, and opportunity for a healthy and productive life (2).

Wellbeing is conceptualised as thriving across multiple domains of life (12). Subjective wellbeing (SWB) and psychological wellbeing (PWB) are the two most widely researched conceptualisations of wellbeing (10). SWB encompasses how people evaluate their own lives in terms of both how they feel (affective) and what they think (cognitive). In general, people with high SWB have a combination of these three specific factors: (1) high levels of positive affective states, (2) low levels of negative affect and (3) high life satisfaction.

On the other hand, PWB emphasises positive functioning, relationships and human potential (13, 14). Ryff's multidimensional model of PWB has been widely accepted in the field of positive psychology. Her approach suggests that wellbeing is made up of six dimensions: autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life and self-acceptance (14). Each of these characteristics represents what it means to be healthy, well, and completely functional, according to Ryff and Burton (15).

The proposed systematic review and case study hopes to contribute to this topic by clearly outlining the determinants of psychological and subjective wellbeing in adolescents and young people living in Sub-Saharan Africa, and how these determinants interact with each other. The results of the proposed systematic review and case study can be used to inform the basis for effective policy and interventions. In the proposed study, youth will be defined using the UN definition as those within 15-24 year age group. However, since this period overlaps with adolescence and young adulthood, these terms will be used interchangeably as has been done elsewhere(16).

Theoretical Framework

The World Health Organisation (WHO) recognises that in order to foster positive development, adolescents require people and institutions to invest in them. This helps with the prevention of health problems among adolescents and young people and allows them to respond to them when they occur

(17). At a family level, parents and guardians have a vital responsibility to provide a safe and nurturing environment to encourage growth and development. Family and friends may also be able to recognise when an individual is suffering from mental health issues, and they can help the individual get access to counselling and health services (WHO, 2022). Schools also play an important role, and they can empower youth by ensuring that they receive health education, including comprehensive sexual and reproductive health education as well as encouraging physical activity and good nutrition. At the societal level, well-designed laws and policies can foster employment and educational possibilities while ensuring public safety and security (WHO, 2022).

The different support structures highlighted above are an adaptation of Bronfenbrenner's socio-ecological model. In the 1970s, Bronfenbrenner proposed a conceptual model for understanding human development (18). His theory is illustrated by nesting circles that place the individual in the centre, and the closer a circle is to the individual, the more influence they have on the individual (19). Therefore the microsystem (as shown in *Figure* 1) represents the strongest influences and includes the interactions and relationships of the immediate environment with the individual. The second circle from the individual is the mesosystem, which extends beyond the immediate contacts and includes individuals with whom the person has direct contact, such as their workplace, school, church, and neighbourhood. Individuals are not directly impacted by the exosystem, but they may be subject to positive or negative interaction influences. Examples of this may be the friends of the adolescent's parents – their social networks and community context (20, 21). The macrosystem includes societal, religious and cultural values and influences (21). The last level is the chronosystem which includes all the environmental changes that take place over a person's lifespan and have an impact on their development, such as significant life transitions and historical events.

This socio-ecological model will be used to understand the interplay of factors that affect PWB and SWB in adolescents, as well as systemically organise the results of the proposed systematic review and case study. This network of influences and interactions related to wellbeing needs to be well understood in order to develop appropriate policies.

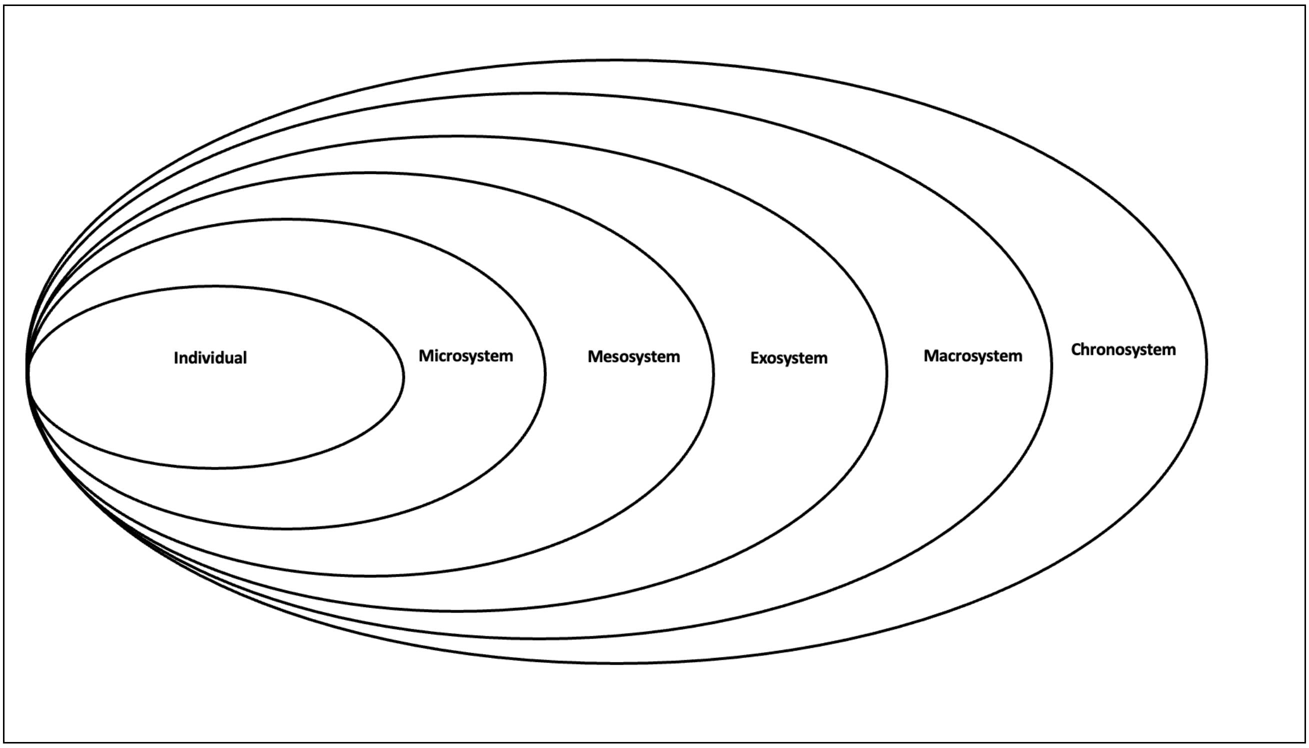

Figure 1: Bronfenbrenner's Socio-ecological model

A*dopted from Bronfenbrenner's ecological model of human development (22).*

Study Aims and Objectives

The proposed study aims to examine the determinants of subjective and psychological wellbeing among adolescents and young adults in SSA.

The proposed study seeks to:

- Conduct a comprehensive review of existing literature to identify and synthesise the determinants of subjective and psychological well-being among adolescents in SSA.
- Organise and categorise these determinants within the framework of Bronfenbrenner's socio-ecological model, which considers the various levels of influence on an individual's development.
- Employ a mixed-methods approach by triangulating the qualitative findings from the systematic review with quantitative data collected from a nationally representative cross-section of the National Income Dynamic Study (NIDS)

Methodology

The proposed study will encompass a methodological research study with two phases. The first phase will be a comprehensive systematic review of articles that are relevant to the aim of the study. Similar to this protocol, the systematic review will be guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework (23). The second phase will be a case study to triangulate the results of the systematic review using wave 5 of the NIDS data.

Methodology for the first phase: Systematic Review

Eligibility Criteria

Studies will be selected according to the criteria outlined below:

Inclusion criteria

- Quantitative studies, such as observational and cross-sectional studies
- Papers that define the target population as either between 15-24 years of age or with a mean age within the 15-24 year range
- Studies published in Sub-Saharan Africa

Exclusion criteria

- Papers that are not written in English and published before the year 2000
- Systematic reviews, research protocols and editorials

Study design

Information sources

Electronic searches will be conducted in different databases to retrieve the studies which meet the eligibility criteria specified above. The following databases will be searched for peer-reviewed journal articles: PubMed, EBSCOHost, and Scopus. For grey literature, the following databases will be searched: Open Grey, OpenDOAR, Grey Literature Report, and Google Scholar. PRIMO will also be searched for other non-published sources like dissertations and working papers.

Search strategy

The search terms used will be guided by the population, intervention, comparators, and outcome model. The same search terms across all databases will be used, and assistance with the development of the search strategy and the process of searching for relevant literature will be sought from a UCT librarian. The following keywords with truncation and Boolean operators will be used in the search strategy. The population of interest is adolescents and young adults; therefore, the following search terms will be used “adolescent(s)”, “teenagers”, “young adults”, “young people”. The outcome is wellbeing, specifically subjective and psychological wellbeing; thus, the following search terms will be used “wellbeing” and “quality of life”. The search string will be made up of different combinations of the terms given in Table 1 below:

Table 1: Proposed Search Strategy

Set		Search terms
1	**1 Adolescent and young adults**	Adolescents, adolescent girls, adolescent boys
2		Young adults
3		Teenagers
4		Young people
5		Young men, young women
6		Set 1- 5 will be combined with "OR"
7	**2 Wellbeing**	Subjective wellbeing OR Psychological well-being
8		Well-being
9		Quality of life
10		Quality-of-life
11		Set 7-10 will be combined with "OR"
		((Benin or Dahomey) OR (Burundi) OR ("Central African Republic" or Ubangi-Shari) OR Chad OR (Comoros or "Comoro Islands" or Mayotte or "Iles Comores") OR ("Democratic Republic Congo" or "Belgian Congo" or Zaire) OR Eritrea OR Ethiopia OR Gambia OR (Guinea NOT "New Guinea" NOT "Guinea Pig" or "Guinea Fowl") OR (Guinea-Bissau or "Portuguese Guinea") OR Liberia OR (Madagascar or "Malagasy Republic") OR (Malawi or Nyasaland) OR Mali OR (Mozambique or "Portuguese East Africa") OR (Niger NOT Aspergillus NOT Peptococcus NOT Schizothorax NOT Cruciferae NOT Gobius NOT Lasius NOT Agelastes NOT Melanosuchus NOT radish NOT Parastromateus NOT Orius NOT Apergillus NOT Parastromateus NOT Stomoxys) OR (Rwanda or Ruanda) OR Senegal OR "Sierra Leone" OR Somalia OR "South Sudan" OR (Tanzania or Zanzibar) OR (Togo or "Togolese Republic") OR Uganda OR (Zimbabwe or Rhodesia) OR Cameroon OR ("Cape Verde" or "Cabo Verde") OR (Congo NOT "Democratic Republic of Congo" NOT "Congo Red" NOT "Crimean-Congo") OR ("Cote d'Ivoire" or "Ivory Coast") OR (Ghana or "Gold Coast") OR Kenya OR (Lesotho or Basutoland) OR Mauritania OR Nigeria OR ("Sao tome and principe") OR (Sudan NOT "South Sudan") OR Swaziland OR (Zambia OR "Northern Rhodesia") OR Angola OR (Botswana or Bechuanaland

		or Kalahari) OR ("Equatorial Guinea" or "Spanish Guinea") OR (Gabon or "Gabonese Republic") OR (Mauritius or "Agalega Islands") OR Namibia OR "South Africa" OR Seychelles OR ("africa south of the sahara" or "Sub-Saharan Africa" or "Central Africa" or "Eastern Africa" or "Southern Africa" or "Western Africa"
12		Set 6 and 11 will be combined with "AND"

Study records

To ensure the reproducibility of the review methodology, all the steps taken in this review will be recorded systemically using Microsoft Excel.

Data management

The search process, including the search history from all electronic databases, will be recorded and organised using Microsoft Excel. The results of the literature search will be exported to and managed in Endnote X20(24), a reference management software. In Endnote, duplicate references will be identified and removed. Once the elimination of duplicates is complete, the remaining articles will be transferred to a systematic review management tool such as Rayyan or Covidence, where the process of selecting relevant articles will be carried out.

Selection process

After searching databases and transferring the results to Endnote, the next step will be to screen the articles to ensure that only articles that meet the inclusion criteria are included. The first stage of the screening process will be removing duplicates. This will be followed by a title review, then an abstract review. The final step in the screening process will be full-text screening. Throughout this screening process, adherence to the PRISMA recommendations will be maintained. In cases of uncertainty regarding whether an article should be included or excluded, resolution will be sought through discussions with the primary supervisor.

Data collection process

Once the final list of articles to be included in the review is determined, the following data will be extracted from the articles:

Table 2: Data items to be extracted from included articles

Administrative information	Study characteristics	Methodological information	Quantitative data
Lead author	Study setting	Number of participants	Key findings related to the research question of the review
Title of article	Study population	Validity and reliability of data	For quantitative studies, robustness of estimates For qualitative studies, emerging qualitative themes
Year of publication	Study intervention and outcome	Type of model used	
Article type (journal article/dissertation)	Study area		
Database searched			

Outcomes and prioritisation

The main outcome of interest is wellbeing. The premise of the review is to organise the determinants of wellbeing for Sub-Saharan African adolescents and young people according to Bronfenbrenner's socio-ecological model.

Risk of bias in individual studies

To minimise bias in the study, an appropriate tool for assessing the risk of bias will be used (25). Studies will be classified as either low risk or high risk. In the event that there is not enough information reported in a study to enable the classification of the study, it will be classified as unclear, and guidance will be sought from the primary supervisor.

Methodology for the second phase: Case Study

Data

The data that will be used for the quantitative investigation will be from the most recent wave of the NIDS, which is wave 5. NIDS is a nationally representative longitudinal study which studies the wellbeing of South Africans, the households they live in and how these change over time (26). The proposed study will only use the wave 5 dataset because wellbeing variables that are relevant for this study were not collected in all the waves. Wave 5 data was collected in 2018, and this was the last wave of the study.

Model specification

The determinants of well-being for adolescents and young people will be established using a Probit regression. This Probit model will be specified as follows:

Equation 1:

$$P(y = 1|x) = G(\beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k)$$

Where 0 <$G(z) < 1$, for all real numbers z and G is the standard normal cumulative distribution function expressed as an integral, as shown in *Equation 2* below. β_k measures the effect of the variables X_k on the outcome variable y. X_k is a vector of the dependent variables that will be included in the model.

Equation 2:

$$G(z) = \Phi(z) \equiv \int_{-\infty}^{z} \phi(z)\, dz$$

Where $\phi(z)$ is the standard normal density.

Dependent Variable: Wellbeing

The dependent variable in the model specified in the equation above is wellbeing, which will be recoded into a binary variable where 0 is below average and 1 is above average. In the NIDS dataset, respondents were asked, "On a scale of 1- 10, where 1 means very dissatisfied and 10 means very satisfied, how do you feel about your life as a whole right now?", as such this is the variable that will be used as the measurement for wellbeing. Individuals will be classified as having average and above wellbeing if the score is greater than or equal to 5 and below average if the score is below 5.

Independent Variables

1. *Age*

   The population of interest in the proposed paper is adolescents and young people (15-24). The age variable will therefore be recoded to include only this age group.

2. *Race*

   Race is a categorical variable with the following four main population groups in South Africa: Black African, Coloured, Indian/Asian, and White.

3. *Gender*

   Gender is a binary variable which will be coded as "1" Female and "0" Male.

4. *Marital status*

   This will be a categorical variable with the following categories: “Single”, “Relationship and Living Together”, “Relationship but not living together”, “Divorced/Separated”.

5. *Type of dwelling*

   The type of dwelling will be a categorical variable with the following categories: “Traditional area/chiefdom”, “Informal settlement”, “Township”, “Formal residential”, “Farm”, “Small holding”.

6. *Household size*

   The number of people living in a household is important to include in this analysis because we expect that if a household has more people, then there is more support for the adolescent or young person living in that household.

7. *Socioeconomic status*

   For this variable we will combine the availability of a piped water and electricity in the household to make an ordinal variable that measures household wealth. The variable that we create will measure household wealth and categorise them into “Low”, “Moderate”, “High”.

Data Analysis

Descriptive statistics will be used to characterise the sample. The mean and standard deviation will be used for continuous variables, while chi-squared tests of independence will be used for categorical variables to assess whether there are relationships between some of the variables. Statistical significance will be determined using a p-value < 0.05. All analyses will be conducted using Stata 15 (27).

Ethics approval

The NIDS study received ethical clearance from the University of Cape Town Commerce Faculty Ethics Committee (REC 2020/04/017) and reciprocal ethics from Stellenbosch University. Additional ethics approval was granted for Wave 5 by the Faculty of Health Sciences Human Research Ethics Committee at UCT.

Ethics approval for the proposed systematic review and case study will be sought from the University of Cape Town Faculty of Health Sciences Ethics Committee.

Dissemination

The target audience for this study encompasses individuals concerned with the health and well-being of adolescents and young people, including but not limited to researchers, policymakers, and funders. The study's findings will be shared through presentations at the Health Economics Unit at UCT and the Health System Research Unit at the South African Medical Research Council.

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PART B: LITERATURE REVIEW

Introduction

Subjective and psychological wellbeing have been shown to have several important health outcomes in adulthood (1). They have been linked to better mental health, slower disease progression, better recovery and better health behaviour (2-5). The research on adolescent wellbeing has grown recently as a result of these reported outcomes. Adolescence is a unique period in life between childhood and adulthood. There has yet to be a consensus on when adolescence starts or ends, as this has differed across cultures, contexts and countries; however, the widest acceptable range has been between 10 and 24 years of age (1).

During adolescence, biological and psychosocial changes and cognitive and identity development take place. These changes mould how adolescents think, make decisions and interact with the environment around them (6), thus having implications for the future social, economic and health outcomes of an individual (7). As they go through physical changes, adolescents also face emotional and social changes that make them more susceptible to mental health issues. In SSA, adolescents are also exposed to numerous economic challenges. Some examples of these are poverty, high rates of unemployment, rapid urbanisation and limited educational opportunities (8). High unemployment and limited education opportunities create significant challenges for young people who are part of the labour force because if they do get employed, their wages are usually low. Moreover, the competitiveness in the job market means that those who are employed have no job security and have few prospects for career progression (9, 10). In addition to having an effect on their wellbeing, these challenges also limit their future economic productivity, which in turn affects the extent to which intergenerational transmission of poverty is reduced (11). It is, therefore, essential to ensure that adolescents are well-equipped to face these challenges and increase their chances of succeeding in their personal lives and contributing to society in a meaningful way.

Since the wellbeing of adolescents is directly related to their labour market outcomes in adult life, adolescent wellbeing is considered a personal and societal good (12). Investing in adolescent health and wellbeing should be both a public health and economic goal. Ensuring that adolescents and young adults are a valuable resource, rather than an economic burden requires assisting them in developing skills and using them productively, as well as capacitating them to make good decisions while pursuing these opportunities (13). Therefore, understanding and financing the factors that contribute to the promotion of wellbeing at this age should be a priority research area, because the society's economic and social wellbeing relies on its healthy young people (14, 15).

It is against this backdrop that adolescent wellbeing has been recognised as a key public health priority and has thus been included as one of the Sustainable Development Goals (SDG 3). Even though there is no single, widely-acknowledged definition of wellbeing, it is generally accepted that it requires meeting a variety of human needs, and being able to pursue one's goals in order to thrive and feel satisfied with life (16). This literature review aims to provide an overview of the wellbeing literature, focusing on subjective wellbeing (SWB) and psychological wellbeing (PWB)– the two most commonly researched conceptualisations of wellbeing (17). Additionally, the literature highlights why it is necessary to study SWB and PWB in the context of adolescents and to provide an overview of the research on the determinants of wellbeing outside of SSA and successful interventions that have been put in place to improve subjective and psychological wellbeing in these areas.

Literature search strategy

The following databases were searched for the literature review: EBSCOhost and Google Scholar. Different combinations of the following keywords were combined to form a search strategy that was used across all the databases: subjective wellbeing, psychological wellbeing, adolescents, young people, youth, teenagers, hedonism, eudaimonism and wellbeing.

Dimensions of wellbeing

There are two constructs of wellbeing that have been researched extensively in the literature, SWB and PWB. These two concepts will be discussed in more detail below.

Subjective wellbeing

The idea of subjective wellbeing was first introduced when psychologists and other scientists began researching happiness in the 20th century. Using empirical methods, they were attempting to answer questions like "What is happiness?" and "Can it be measured?". Jahoda (18) suggested including positive states in the definitions of wellbeing. This led to a new conceptualisation of mental health. Mental health was no longer thought to be just the absence of mental illness, with happiness now being acknowledged as an important component. Between 1958 and 1969, some notable research on happiness was conducted however, it was scrutinised for not providing a proper definition of the concept (19-21).

In 1969, Bradburn discovered the independence of positive affect and negative affect. This finding was important to the ongoing research of happiness for several reasons. Firstly, it supported Jahoda's theory on mental health, and secondly, it suggested that happiness is a concept with at least two dimensions where positive affect and negative affect should instead be taken into account and assessed independently rather than being at two ends of a single continuum(19). Another advancement in SWB literature came in 1976, when Andrews and Withey's research led to the inclusion of life satisfaction as the third aspect of SWB (23).

Since then, it has been widely accepted that SWB is made up of three primary components: positive affect, negative affect, and life satisfaction. These three dimensions have been central to the literature on SWB (24). According to Diener (25), SWB is the experience of high levels of pleasant emotions and moods, low levels of negative emotions and moods and high satisfaction with one's life. These three components suggest that SWB is made up of affective and cognitive evaluations of one's life. Affective wellbeing involves feelings and emotions. For example, pleasant feelings (positive affect) like happiness and joy, and unpleasant feelings (negative affect) like sadness and worry (17). Cognitive wellbeing is concerned with how an individual evaluates how well their life is going in comparison to an ideal state of affairs. Affective wellbeing is often determined by asking people how frequently they have experienced specific emotions (17). Cognitive wellbeing is typically assessed by measuring an individual's satisfaction with life and other specific parts of their life like health and family (26, 27).

The study of SWB is vital because people have been shown to prioritise positive affect above other important things, like love and money. A survey of college students across 47 countries revealed that individuals valued happiness ahead of love and health (28). In the same study, although wealth and going to heaven were priorities, these domains were ranked below happiness. Similarly, a different survey of college students in 41 countries showed that they rated happiness and life satisfaction as important concepts. Using a 7-point Likert scale where seven was "extraordinarily important and valuable" and one was "of no importance whatsoever", they rated happiness 6.39 and life satisfaction 6.21 (29). Additionally, people from relatively unhappy societies have also been shown to value happiness to some extent (28).

In addition to individuals valuing their own SWB, high SWB has been associated with positive outcomes in many areas of life. Firstly, high SWB has been linked to better health and increased longevity (30). Several studies have illustrated how both positive and negative affect predict health outcomes in adults (31). Individuals who constantly have negative emotions are more likely to have coronary heart disease (32, 33). Moreover, individuals who experience positive affect are less likely to succumb to premature mortality (34-36). SWB also has important outcomes for mental health (2), disease progression and recovery (3), health behaviour (4), and vocational success (37). In addition to positive health outcomes, happy people seem to be more successful than their less happy peers at work and in their relationships (37). Therefore, understanding the factors that make people experience positive affect, negative affect, and life satisfaction is important because high SWB contributes to good health and effective functioning (38, 39). With all these benefits of having high SWB in adults, it is not surprising that the research on SWB in adolescents has attracted much attention during the last two decades (40).

Various personal and societal factors have also been shown to be facilitators of SWB in the literature. A review by Cunsolo (41) found that the majority of the determinants are associated with the social aspect of life in adolescents. This included relationships with family, friends, school teachers, other older people and peers from school. This is consistent with the results from a Mexican study that highlighted the importance of respectful and understanding interactions with one's parents as a predictor of SWB. Additionally, the perception of social support from family and friends was also reflected as an important predictor of life satisfaction among adolescents from Brazil (42).

Regarding personal factors, a study conducted in Sweden by Garcia (43) found that extraverted and persistent adolescents and those who exhibited conscientiousness and neuroticism strongly associated with psychological wellbeing and life satisfaction. Other internal resources like self-esteem, self-efficacy and self-awareness have also been established as important facilitators of subjective wellbeing in adolescents (44, 45). Additionally, among adolescents from California and Jewish students, it has been demonstrated that mastery, optimism, and gratitude are favourably connected with positive affect and inversely correlated with negative affect (45, 46) .

Lastly, the literature shows that females in different countries and different contexts have consistently exhibited lower levels of life satisfaction and PWB higher levels of negative affect compared to males (42, 44, 46, 47). Among all the reviewed articles, it was only in India where there no statistically significant gender differences in the PWB of adolescents (48).

The growth in SWB research has led to it being researched and adopted in various fields including economics. Measures of subjective wellbeing have been employed as empirical approximations of individual welfare (utility) in the field of economics (49). This is based on Jeremy Bentham's theory of utilitarianism which posits that humans can make decisions by evaluating which of the possible actions maximises their happiness (utility) (50). Utilitarianism has contributed to wellbeing literature by widening the scope of what is meant by pleasure to include both the presence of pleasure and the absence of pain (19). The inclusion of SWB in economics has helped to identify some national conditions that other measures are unable to. Therefore, when combined with more objective measurements, SWB adds essential information needed to assess a society (51). SWB has also been used to better understand the impact of economic growth and development on people's lives in a more comprehensive way. It has helped policymakers in some countries to think of alternative strategies of improving people's lives beyond increasing economic output (52).

Economists have often used the term quality of life interchangeably with SWB. However, this has been criticised because quality of life is often thought of as the extent to which an individual's life is desirable versus undesirable while considering additional factors like environmental factors and income (53). Subjective wellbeing, on the other hand, is based on inner or psychological experiences. Quality of life is therefore more objective than SWB because it highlights the circumstances of an individual's life rather than how they react to those circumstances.

Measuring subjective wellbeing

Due to subjective wellbeing being based on an individual's evaluation of their own life, the most commonly used method to measure it is self-report questionnaires. Numerical scores are often calculated from responses to survey questions that ask different variations of how satisfied a person is with their life. This question can be on a single-item scale, or it can be broken down into different questions that seek to understand the same thing on a multi-item scale. Sample sizes for self-report surveys have often varied from a few individuals to tens of thousands of people in international household surveys (54).

Among self-report measures, there are single-item scales and multi-item scales. Single-item measures were the earliest developed tool for measuring life satisfaction (25). The earliest known single-item measure for life satisfaction was the Gurin Scale which asked respondents how things are going these days, and the respondent had to choose among "very happy", "pretty happy" and "not too happy" (55). Although single-item measures showed moderate reliability and validity, they were strongly criticised for several reasons. Firstly, a single-item measure cannot cover all three components of subjective wellbeing (i.e. positive and negative affect and life satisfaction) and it relies on the respondent to understand and consolidate these three components in order to arrive at a single response (25). Secondly, it is not possible to estimate internal consistency for a single-item measure. Lastly, they were shown to have less reliability over time compared to multi-item scales and the scores obtained from single-item measures were often skewed towards happy categories (23). Despite all these concerns, single-item measures have been shown to be valid and reliable (25) and continue to be used today.

Alternatives to self-report measures have been explored (56). The first non-self-report measure that Sandvik, Diener (56) tested involved asking seven informants to rate the happiness of each of 136 participants using the Fordyce Scale. These reports would then be compared against each other by the experimenters in order to provide information on the situational consistency of subjective wellbeing. Secondly, in the same study, participants were given two timed tests to recall 1, as many positive life events as they could that had occurred during their lifetime, and 2, to recall as many adverse life events as possible. These 3 minutes tests would be combined to create an event memory index of SWB. Finally, the same participants were asked to choose the most self-descriptive option in a pair of affect and personality trait adjectives that had previously been matched for social desirability by raters (56). There were 54 pairs in total, and an example of one of the pairs was "happy-kind". Counts for positive and negative affect scores were obtained, and a forced choice affect balance wellbeing score was computed. After trying out all these methods, Sandvik, Diener (56) concluded that traditional self-report measures (using self-report surveys or questionnaires) had high convergent validity and using traditional wellbeing self-report scales would produce similar results using fewer resources.

The growth in SWB research has been accompanied by the development of many self-report scales to assess and measure SWB. The most common method involves asking people about their level of satisfaction or about the frequency with which they have positive feelings. These responses are often reported on numbered scales, for example, the Satisfaction With Life Scale (SWLS) (26) and the Scale of Positive and Negative Experience (SPANE) (39). The choice of which measure to use between subjective or objective or self-report or non-self-report depends on the research question and the aim of each study, and as such should be tailor-made for that specific study. However, some scales are more commonly used than others. The SWLS has shown reliability of 0.8 over time while single-item life satisfaction measures have a reliability of 0.6 (23). In addition to high reliability and validity, the SWLS has also been widely adopted because it is short and easy to administer even in large-scale studies. Due to this, it has been used in various studies across different age groups, cultures and countries, demonstrating its generalisability.

Although SWB involves a person's evaluation of their own life, which is subjective in nature, objective measures of subjective wellbeing exist too. The Human Development Index and the Index of Social Health collect information on objective indicators of wellbeing, for example, life expectancy, income and literacy rates (57). These objective variables have been used by governments and non-governmental organisations like the WHO in the development of interventions that improve wellbeing (58). The use of objective measures has been debated because decisions about what variables should be included on the list and how the relative importance of these variables is determined were not straight forward (58). In practice, a combination of subjective and objective measures of wellbeing are often used at a macro-level. For example, the estimation of gross domestic product relies on data collected from surveys and several assumptions. This makes the indicator open to measurement error and somewhat subjective (59).

Psychological wellbeing

Broadly, PWB can be described as being about lives going well. It is the combination of feeling good and functioning effectively (60), much like the definition of health (61). PWB is the presence of enabling factors, such as positive feeling, environmental mastery, and self-actualization, as well as the lack of parts of the human experience that can be crippling, such as depression, rage, and fear (62). Using this definition, PWB is thus a process of realising human potential rather than an end result or final state (63).

For PWB to be considered sustainable, it does not require individuals to feel good all the time. Life involves difficult emotions (such as disappointment, failure, and sadness), and the ability to control these negative feelings is crucial for long-term wellbeing. However, PWB is affected when negative emotions are strong or persistent and impair a person's capacity to carry out daily activities (60).

Building resources such as feelings of mastery and fostering more fulfilling relationships becomes important as having these may result in an individual viewing their life as meaningful (64).

The majority of behavioural and emotional issues first manifest during adolescence, which leads to being twice or three times more likely to have these disorders in adulthood (65, 66). Adolescence is therefore a crucial period for the prevention and treatment of many emotional and behavioural disorders. One way to overcome these mental health disorders among the youth might be to promote positive aspects of psychological functioning, for example, PWB. PWB might help to prevent and treat the emergence of emotional problems (67, 68). This is because different components of PWB have shown that it is linked to both good human functioning and positive health effects (69), global happiness (70), striving within one's achievements (71) and a stronger sense of coherence (72).

The evolution of the concept of psychological wellbeing

The six most significant contributions to the area of PWB were made by Maslow (73-76), (18), Grinker (77-79), Offer (80-82), Vaillant (83-86), Coan (1974, (87) and Shostrom (88). Their theories are also the best ways to illustrate how the concept of PWB has evolved overtime.

Maslow's work on self-actualisation was one of the earliest studies of ideal psychological health. His findings were presented in the form of personality descriptions thought to characterise self-actualising people. Self-actualisers, in Maslow's view, were those who: are more adept at recognising reality and feel more at ease in relation to it; can embrace themselves, others, and nature; and are spontaneous, have a strong sense of purpose in life and a mission to complete (i.e., are problem-centred rather than ego-centred), have a desire for privacy and the ability to remove themselves to meet this need. According to Maslow, self-actualisers are autonomous, have an ongoing appreciation for new things, have had peak or mystic experiences, possess a democratic character structure, sympathies for humanity and have deep and profound interpersonal relations, the ability to differentiate between right and wrong, between means and ends, a philosophical and non-hostile sense of humour, originality, creativity, or inventiveness, and resistance to enculturation (74). His work was, and continues to be highly respected since it laid the groundwork for other PWB theories to emerge, however it was criticised because it could not be replicated (89). The results of his study are still very much relevant in describing optimal PWB today.

Drawing from the work of Maslow(18), Jahoda (90) sought to arrive at a clearer and more meaningful understanding of the meaning of psychological health. She established six components which were thought to represent the essential components of optimal psychological health which are: attitudes toward the self; growth, development and self-actualisation, integration of personality, autonomy, perception of reality, environmental mastery (18). Although her work was regarded as significant, it fell short because the validity and reliability of these components were not empirically tested.

Between 1964 and 1974, Grinker advocated for the need to adopt a multi-determinant and theoretically broad approach. He was one of the first researchers to study ordinary people with average psychological health (78, 79, 91). From his work, Grinker obtained information on various aspects and determinants of PWB, for example, family socioeconomic background, familiarity and comfort with one's own feelings, ability to report feelings and self-image (78, 79, 91). Grinker's major achievement in this research is that he was one of the first researchers to conduct a longitudinal study of average psychological health and explore the involvement of various developmental factors (89). Grinker's study advanced Maslow's unstructured approach by making it a more structured interview designed to tap into specific areas (92).

Grinker's work inspired Offer, who improved the overall approach to studying PWB in general. His research suggested that people in the best psychological health had easily transitioned from childhood to adulthood with a feeling of purpose and self-assurance toward a fulfilling adult life (80, 82). Additionally, according to his theory, these people displayed genetic and environmental backgrounds that were not traumatic in nature - their childhood was not marked by death or serious illness in the family and their nuclear family remained intact throughout their childhood and adolescence. They demonstrated the ability to integrate experiences and use them for ongoing growth, and they were good problem solvers through an adaptable combination of reason and emotional expression. In most cases, their parents met their basic needs and promoted independence, and there was clear intergenerational respect, trust, and love (82). These individuals' actions were determined by a practical and realistic assessment of their capabilities and the environment and they were able to put off immediate gratification and persistently strive toward long-term objectives (82). They were also successful at controlling their urges to be aggressive and sexual without being overwhelmed or behaving irrationally. The most notable characteristic of these individuals was their general sense of contentment with themselves and their lives (82).

Vaillant began his work by providing a definition for PWB (83). He had previously stressed the importance of operationalising and scientifically examining PWB principles. Vaillant defined PWB as the "successful and effective adaptation to life which is seen in the way in which individuals alter themselves and the world around them based on the employment of mature levels of ego defence mechanisms". Further work done by Vaillant (85, 93) emphasised the continuum of psychological health. This approach was supported by Wright (94) and (87), Coan (95) who, in his study, strongly refuted the notion that there is a unitary dimension common to the general domain of PWB.

Drawing from the work of the theorists above and other notable researchers of positive psychology, Ryff (96) proposed six characteristics of PWB which are commonly used in today's PWB literature. PWB has been arguably best represented by her conception of these six dimensions that are autonomy, environmental mastery, personal growth, positive relationship with others, purpose in life and self-acceptance of individuals (96). Keyes, Shmotkin (97) elaborated on this model and wrote that individuals try to view themselves in a positive light while being aware of their limitations (self-acceptance), they strive to maintain meaningful relationships with others (positive relations with others), develop a sense of personal authority and self-determination in their interactions with others (autonomy), maximise their own skills and abilities to attain their goals (personal growth), they adjust their environment to meet their needs (environmental mastery) and find purpose in their work and the obstacles they face in life (purpose in life).

The importance of psychological wellbeing

Similar to SWB, PWB has been linked to improved health and greater immunity, as well as more stable and satisfying relationships (62). In adults, people with higher levels of PWB suffer fewer illnesses, are more likely to live longer and engage in healthy behaviours (98). It has been shown that many aspects of psychological health greatly influence positive life outcomes in children and adolescents. For example, having meaningful relationships with adults can protect children and adolescents from negative outcomes such as having mental health issues, becoming a member of a gang, risky sexual behaviours and substance abuse (99). In 2014, Vescovelli, Albieri (100) described the relationship between PWB, distress and prosocial behaviour in adolescents in Spain. They found that environmental mastery and personal growth had a positive effect on prosocial behaviour. Additionally, students are more likely to perform better academically when they have higher levels of PWB. This happens because positive emotions tend to encourage more creative, holistic thinking and broad attention, whereas negative emotions tend to limit attention and foster more critical, analytical thinking (101-105).

Research on the determinants of PWB among adolescents has also been conducted. Fernandes et al. (2011) found a positive relationship between school satisfaction and PWB in a sample of 698 Portuguese adolescents between the ages of 12 and 18. In this study, PWB was measured using Ryff's scales, and those with the highest levels of wellbeing were those who reported having positive relationships with others and personal growth. The area of residence of adolescents produced different results in different contexts. A study of five Eastern European countries, i.e., Belarus, Bosnia and Herzegovina (BiH), the Former Yugoslav Republic of Macedonia, Serbia and Ukraine found that a adolescents living in rural areas had higher wellbeing than those in urban areas (106). In contrast, adolescents from rural Australia had poorer PWB when compared to the general Australian population (45). In India, there were no significant differences in the levels of PWB between adolescents living in rural areas and those living in urban areas (48).

Economic status and sex have been shown to influence both PWB and SWB. Here, adolescents with better economic status had higher chances of having high wellbeing in a sample of Iranian adolescent girls. This is similar to what has been observed elsewhere in the United Kingdom and in China(107-

109). As was the case with girls being more likely to experience negative affect, adolescent girls were less likely to have high levels of PWB (47).

Measuring psychological wellbeing

Much like SWB, various self-report instruments are used in the measurement of PWB. Self-report questionnaires are the most widely used and most successful method for measuring PWB. A lot of scales have been developed to measure PWB, for example the Positive Emotion, Engagement, Relationships, Meaning and Accomplishment scale (PERMA)(110), Brief Scale of Psychological Well-being for Adolescents (111)and Flourishing Scale (112). Although many scales to measure PWB exist, Ryff's scale, which is based on her six dimensions of wellbeing has received the most attention and has been widely used (70). This is because it has shown to have good reliability and validity even with international, cross-cultural samples (113-115).

Defining wellbeing

Although there are various conceptualisations of wellbeing, like SWB and PWB, there is no universal definition of wellbeing. Even within different fields like education, neuroscience, philosophy and public health, there has yet to be a consensus on the definition of wellbeing. The use of different terms in different research fields as synonyms for wellbeing has also caused confusion among researchers who try to define wellbeing. The most common synonyms for wellbeing are quality of life, life satisfaction, welfare, needs fulfilment, living standards and happiness. However, these terms have different meanings, and it is this failure to define wellbeing that has led to the recognition and acceptance that wellbeing is a multidimensional concept and thus, several multi-dimensional conceptualisations have been proposed.

The several attempts to define wellbeing have resulted in many descriptions of wellbeing instead. Bradburn (22) attempted to define wellbeing in his work. He highlighted that "an individual will be high in psychological wellbeing in the degree to which he has an excess of positive over negative affect and will be low in wellbeing in the degree to which negative affect predominates over positive". However, this definition was criticised by Ryff because of its failure to define PWB (96). More recently, Shin and Johnson (116) attempted to define wellbeing. They posited that wellbeing can be defined as "a global assessment of a person's quality of life according to his chosen criteria". However, this definition has been criticised because defining quality of life has also been challenging and it is often been used interchangeably with wellbeing (117).

Conclusion

The study of wellbeing is complex. Significant progress has been made across different disciplines to understand it and understand its facilitators. This literature review has discussed in depth, the evolution, the definitions and the measurements of subjective and psychological wellbeing. Some of the determinants of these two concepts as well as the benefits to the individual and to society of making sure that individuals are functioning effectively. Although most of the empirical literature has focused on adults, the uniqueness of the adolescence period, and the difference in perceptions between adults and young people necessitates the need for more focused research across differing cultures and contexts so that findings from adult or child studies are not incorrectly generalised to adolescents.

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PART C: JOURNAL ARTICLE

Determinants of psychological and subjective wellbeing among adolescents and young people in Sub-Saharan Africa – a systematic review and case study

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Abstract

Background: Adolescents and young people make up the greatest proportion of Sub-Saharan Africa (SSA). Understanding and improving their wellbeing should be considered a priority as it is associated with improved individual and societal wellbeing. Subjective wellbeing and psychological wellbeing are the two widely researched conceptualisations of wellbeing. Research on their determinants in adolescent populations has been concentrated in the global north. Interventions designed for this context are not likely to work in SSA due to the unique challenges in SSA. The aim of this study was to systemically review the literature on the determinants of subjective and psychological wellbeing in SSA and organise these factors according to Bronfenbrenner's socio-ecological model. As of 2021, no systematic review had synthesised the literature on the determinants of wellbeing for adolescents and young people in Sub-Saharan Africa.

Methods: This paper is a combination of a systematic review and a case study. The case study was included to triangulate the results of the systematic review in order to determine whether there are differences between the wellbeing of adolescents and young people in upper-middle-income countries and low to lower-middle-income countries in SSA. The review is based on the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement guidelines. A systematic search of the following databases was conducted: EBSCOhost, PubMed, Scopus, Google Scholar, OpenGrey and National Bureau of Economic Research (NBER). The search strategy included terminology on subjective and psychological wellbeing that is commonly used in the literature. The search strategy was guided by the literature review. For the case study, wave 5 data from the National Income Dynamic Study, which is a nationally representative longitudinal study conducted in South Africa was used. We ran a Probit regression with wellbeing as the predictor variable.

Results: In total, 7701 results were returned, and 19 articles were eligible to be included in this review. Bronfenbrenner's socio-ecological model was used to classify and characterise the determinants of wellbeing for adolescents and young people identified in the systematic review and case study. The sample size for the case study was 6987, and age was restricted to 15 and 24. The mean age of this group was 19.31 (SD=2.84). 53% were females, and 49% resided in urban areas. 65% rated their wellbeing as average and above, and 17% were depressed, according to the CES-D-10 scale. Religion, intrinsic and extrinsic aspirations, household income and/or socio-economic status, trust in relatives and age were statistically significant ($p<0.05$) predictors of wellbeing among adolescents and young adults in SSA.

Conclusion: This is the first study to systematically review and organise the determinants of wellbeing for adolescents and young adults in SSA. There is a need for multi-sectoral policies to aid in improving adolescent wellbeing. More research studies that use longitudinal data collected exclusively from adolescents and young people need to be conducted in SSA.

Keywords: Wellbeing, Psychological Wellbeing, Subjective Wellbeing, Adolescents, Young People, Young Adults

Background

Adolescents and young people make up the greatest proportion of Sub-Saharan Africa (SSA) (1). Having a young population allows for many opportunities for economic growth and innovation, but only if these opportunities can be recognised and utilised. This opportunity for growth within the continent can only be realised if these adolescents and young people are fully empowered to realise their full potential (1). Improving their wellbeing should be considered a priority as it is associated with improved individual and societal wellbeing (2). Although there is no universal definition for the term wellbeing, it has been widely accepted that wellbeing is the combination of feeling good and functioning well, experiencing positive emotions and developing of the individual's potential. Wellbeing also requires that the individual has some control over their life, and a sense of purpose and experiencing positive relationships (3).

Wellbeing researchers have widely focused on either subjective or psychological wellbeing (4). Subjective wellbeing (SWB) is the term used to describe how individuals perceive and assess their lives as well as specific domains and activities within them. SWB is made up of three components: life satisfaction, positive affect, and negative affect. An individual that experiences high SWB is one that has high levels of positive affect, low levels of negative affect and a high degree of satisfaction with their life (5). Considerable evidence has indicated that having levels of SWB significantly improves four areas of life. Firstly, individuals who report higher levels of SWB have been shown to have better health outcomes and longevity (6, 7). Secondly, people with high subjective wellbeing are more likely to enjoy their work and earn more than those with lower levels, regardless of the type of employment (8, 9).

On the other hand, psychological wellbeing (PWB) involves fulfilling human potential by positive functioning and developing capacities and virtues (4). Ryff's multidimensional model of PWB has received the most empirical support. This model posits six dimensions of PWB: autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life and self-acceptance (10). Based on this model, people try to view themselves positively, although they are aware of their own limitations (self-acceptance), aim to establish and maintain quality interpersonal relationships (positive relations with others), develop a sense of self-determination and personal authority in thought and action (autonomy), maximise their own skills and abilities to accomplish their goals (personal growth), manage their environment to meet their needs (environmental mastery), and pursue meaningful goals and find meaning in the effort they make and the challenges they face in life (purpose in life) (11).

Similar to SWB, there has been increasing evidence that suggests that PWB is associated with better health outcomes in adults (12-14). Individuals that have high levels of wellbeing often suffer from fewer diseases, they have a higher life expectancy, and they often engage in more healthy behaviour (14). Research has also been conducted to analyse the relationship between wellbeing and mortality. Chida and Steptoe (15) found that individuals with positive PWB had lower rates of mortality in both healthy and unhealthy populations. Positive affect was also linked to lower mortality rates among patients living with HIV and those with kidney failure. Although these findings have been valuable in advancing wellbeing research, most of these studies have focused on adult populations. Specifically, 90% of the research has been focused on adolescents in high-income countries where only 10% of the adolescent population resides (16). However, the unique nature of the environment within which African youth are growing in means that the literature from the global north only provides a partial picture of what is needed to inform policies and programs geared towards African youth (17, 18).

The odds of dying during adolescence period are four times higher in SSA compared to other regions (19). Premature mortality is not only a public health burden, but it also results in lost productivity which has a negative impact on the economy. As illustrated above, improving the wellbeing of adolescents and young people may reduce their mortality and morbidity (20). Suicide, interpersonal violence, teenage pregnancies and self-harm are some of the main causes of mortality during this period (19). Adolescents and young people are also affected by non-fatal diseases and conditions that result in morbidity and the burden of disability-adjusted life years (DALYs). Among 10-24-year-olds, neuropsychiatric disorders, infectious and parasitic diseases, and unintentional injuries account for approximately 70% of DALYs (21). Premature morbidity, much like premature mortality results in decreases in labour supply, which affects the economy and, consequently, societal wellbeing. The leading causes of death and injuries highlighted above show that most of these deaths and injuries can be avoided or treated; however, adolescents and young people face barriers in accessing information and services, particularly in low-resource settings like the majority of Sub-Saharan Africa (22).

Improving health and wellbeing is therefore not only for the adolescent to live a meaningful and purposeful life, but it also benefits society as a whole. The literature on health and wellbeing for adolescents and young people (15-24) has been growing substantially over the last two decades, however, to the best of our knowledge, there have not been any reviews synthesising the literature on the various determinants of wellbeing in Sub-Saharan Africa. The purpose of this paper is therefore to explore the determinants of wellbeing in adolescents and young people in Sub-Saharan Africa. This will be done first by finding out what literature has been published on the topic and second by systemically organising these different factors according to Bronfenbrenner's socio-ecological model. Lastly, the paper will triangulate the results using a quantitative analysis within the South African context.

The definitions of adolescents and young people vary across the literature. Both the United Nations and WHO define adolescents as individuals between the ages of 10-19, with early adolescence being from 10-14 and late adolescence from 15-19. However, there is no consensus on the definition of youth or young people in the literature and even among international organisations (23-26). A poll by the Society for Adolescent Health and Medicine to their international members found that adolescent and/or youth or young people designations used interchangeably to describe individuals whose ages range from 15 to 24 years, in some cases this extended to 30 or 40 years (27). Due to this, this paper uses the term adolescents and/or young people to refer to those aged 15-24. These terms are also used interchangeably with youth in the rest of this paper.

The rest of this paper is organised as follows: the following section provides the theoretical framework on which this paper is based. This is followed by the methods and results sections of the systematic review of the literature. A quantitative secondary data analysis case study to triangulate the results from the systematic review comes after this. The discussion section combines the results of the systematic review and the case study, and finally, the paper concludes.

Theoretical framework

Bronfenbrenner's socio-ecological model (SEM) was initially introduced as a conceptual model for understanding human development in the 1970s. It was later formalised as a theory where the initial theory was illustrated by nested circles (28-30). According to this model, the closer a system is to the individual, the stronger the influence on the individual (31). SEMs recognise individuals as being rooted within larger social systems, and they also highlight the interactive characteristics of individuals and environments that underlie health outcomes (32). Bronfenbrenner (28) organised the different contexts that contribute to a child's development into nested levels (see Figure 2). He emphasised the importance of analysing children in these nests when attempting to understand their development. He also highlighted the inevitable interactions between these nests and the influence that these nests had on each other. The nested levels include individual characteristics, interpersonal influences, societal influences, cultural influences and the chronosystem.

Individual factors (also known as the microsystem) pertain to the characteristics and qualities of the person at the centre of the model. This includes the individual’s personal attributes, experiences, and development. These factors can influence the choices and behaviours of the individual. Interpersonal characteristics (also known as the mesosystem) cover the formal and informal social support to the individual. They involve the immediate social environments that directly interact with the individual. This level includes family, friends, peers, and other close relationships. Societal factors (also known as the exosystem) represent the broader social systems that indirectly affect an individual. This level includes institutions, organisations, and structures in society that can influence a person's life. Cultural factors (also known as the macrosystem) refer to the overarching cultural values, beliefs, norms, and practices that shape the society in which an individual lives. Culture influences an individual's identity, values, and worldview. It also plays a role in determining what is considered acceptable or taboo behaviour (28). The chronosystem was not initially one of the main systems but was added to account for the role of time and historical context. It is within this factor that public policy falls under. Public policy covers the laws made at a national, provincial and local community level that may affect the development of the young person (33). Examples of these factors are given in Figure 2 below:

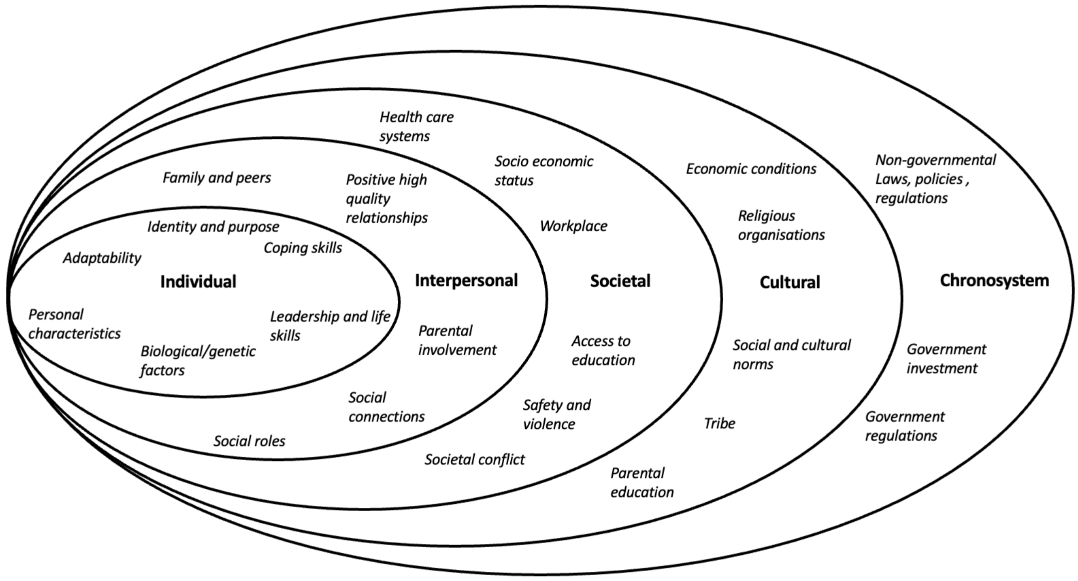


Figure 2: Adapted socio-ecological model *(34)*

Methods for the systematic review

Eligibility criteria

Quantitative studies were eligible for inclusion. Randomised control trials, cluster randomised trials, crossover trials and factorial trials were excluded. Both published and unpublished studies conducted in Sub-Saharan Africa and written in English were included. We limited our search to studies that were published between 2000 and January 2021. Other forms of literature like systematic or scoping reviews, editorials, protocols, reports, and qualitative studies were excluded. We included studies that focused on males and females (or both) between the ages of 15 and 24 or whose mean age fell within this range. Due to the descriptive nature of this review, no interventions were considered.

Search strategy

This review is based on the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) statement guidelines (35). The search strategy was developed with the help of librarians from the University of Cape Town (UCT) with expertise in systematic reviews. The search strategy is shown in *Table 1* below*:*

Table 1: Search strategy

Wellbeing OR well-being OR well being OR social wellbeing OR autonomy OR self-acceptance OR purpose in life OR environmental mastery OR positive relationships OR personal growth OR belonging OR social connectedness OR social belonging OR subjective wellbeing OR life satisfaction OR flourishing OR happiness Or positive affect OR negative affect
AND
Youth OR young people OR teenagers OR young adulthood OR adolescents OR adolescence
AND
((Benin or Dahomey) OR (Burundi) OR ("Central African Republic" or Ubangi-Shari) OR Chad OR (Comoros or "Comoro Islands" or Mayotte or "Iles Comores") OR ("Democratic Republic Congo" or "Belgian Congo" or Zaire) OR Eritrea OR Ethiopia OR Gambia OR (Guinea NOT "New Guinea" NOT "Guinea Pig" or "Guinea Fowl") OR (Guinea-Bissau or "Portuguese Guinea") OR Liberia OR (Madagascar or "Malagasy Republic") OR (Malawi or Nyasaland) OR Mali OR (Mozambique or "Portuguese East Africa") OR (Niger NOT Aspergillus NOT Peptococcus NOT Schizothorax NOT Cruciferae NOT Gobius NOT Lasius NOT Agelastes NOT Melanosuchus NOT radish NOT Parastromateus NOT Orius NOT Apergillus NOT Parastromateus NOT Stomoxys) OR (Rwanda or Ruanda) OR Senegal OR "Sierra Leone" OR Somalia OR "South Sudan" OR (Tanzania or Zanzibar) OR (Togo or "Togolese Republic") OR Uganda OR (Zimbabwe or Rhodesia) OR Cameroon OR ("Cape Verde" or "Cabo Verde") OR (Congo NOT "Democratic Republic of Congo" NOT "Congo Red" NOT "Crimean-Congo") OR ("Cote d'Ivoire" or "Ivory Coast") OR (Ghana or "Gold Coast") OR Kenya OR (Lesotho or Basutoland) OR Mauritania OR Nigeria OR ("Sao tome and principe") OR (Sudan NOT "South Sudan") OR Swaziland OR (Zambia OR "Northern Rhodesia") OR Angola OR (Botswana or Bechuanaland or Kalahari) OR ("Equatorial Guinea" or "Spanish Guinea") OR (Gabon or "Gabonese Republic") OR (Mauritius or "Agalega Islands") OR Namibia OR "South Africa" OR Seychelles OR ("africa south of the sahara" or "Sub-Saharan Africa" or "Central Africa" or "Eastern Africa" or "Southern Africa" or "Western Africa"

Search methods for identification of studies

The following scientific databases were systematically searched for relevant studies: EBSCOhost, PubMed, Scopus, Google Scholar, Open Grey, and NBER. The search strategy was developed with the help of a UCT Librarian who assisted with the use of Boolean and Medical Subject Heading (MeSH) operators. The search strategy was modified (as needed) for each database that was searched due to the inherent differences among these platforms. We also reviewed the websites of research institutions like the UNAIDS, UNICEF and WHO. Database searches were conducted between January 2021 and March 2021.

Types of outcome measure

The primary outcome measure was wellbeing, specifically the two widely researched dimensions of wellbeing i.e., psychological and subjective. For PWB, we looked at the six dimensions established by Carol Ryff (10): autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance. For SWB, we considered life satisfaction, flourishing, positive and negative affect and happiness which are the measures that have been proposed in the literature (36).

Data extraction

Papers that were extracted from the above-mentioned databases were collated and duplicates were removed using Endnote reference management software (37). After removing duplicates, the remaining articles were exported to Rayyan QCRI, a free web-based systematic review software (38). Screening was done in a three-stage process: title screening, abstract screening, and full-text screening. Key information that was deemed relevant to the aim of the review was systematically extracted and tabulated in Microsoft Excel for ease of comparison of results between studies. Data were extracted on baseline characteristics as illustrated in Table 2 (See Appendices).

Quality appraisal

The Meta Quality Appraisal Tool (MetaQat) (39) was used for quality appraisal of studies that had been selected as eligible to be included in the review. The MetaQat has been designed specifically for public health evidence and broadly assesses relevancy, reliability, validity, and applicability. Each question was assigned a numerical value, and the combined score of these questions was 24. Studies whose overall score was below 20 were rated as fair, and above 20 were rated as good.

Results

The electronic database search retrieved 7701 records. Of these, 2156 duplicates were identified and removed using Endnote. 49 papers were identified for full-text screening. 19 articles were identified as eligible to be included in this review. Of these, 17 are journal articles and 2 are dissertations (Figure 3)

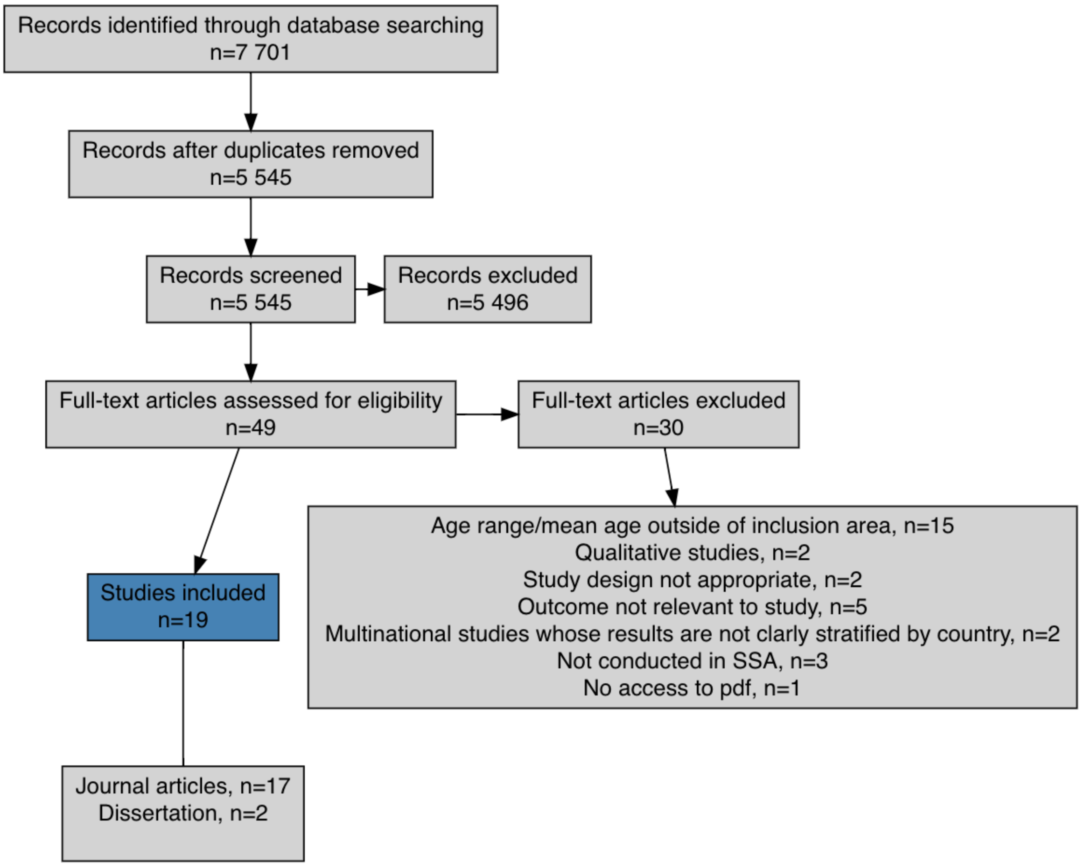


Figure 3: PRISMA Flow Diagram (Adapted from Page, Moher (35))

Reasons for exclusion included inappropriate age range (15/30) – in most cases, the participants were below the age of 15, or the mean age of the study participants was not in the desired age range of 15-24. Five of the studies were excluded because the outcome was not relevant to the study, three were excluded because the studies were on populations that are outside of SSA, two were excluded because they were multinational studies and the results were not clearly stratified by country, two were qualitative studies two of the studies had study designs not appropriate for this review. One study was excluded because we could not access the text, and all efforts to get a copy from the corresponding author did not yield any results.

Participants

Participants in the included studies were between 15 and 24 years old. In the majority of the studies, participants were recruited from a range of junior and high schools (n=15) and existing longitudinal studies (n=4).

Sample characteristics

Selection of participants to be included in a study was done using either purposive (n=2) or convenience sampling (n=4), random sampling (6), cluster sampling (3), or stratified sampling (2) to select participants that were recruited for the study. One study recruited from an existing longitudinal study and the remaining two studies did not specify how the participants were recruited.

Study design and study location

The majority of the studies were of cross-sectional study design (n = 16). 3 of the studies were longitudinal studies. Study locations included South Africa (n = 8), Nigeria (n = 1), Ghana (n = 4), Ethiopia (n = 1), Mozambique (n = 1), Kenya (n = 2) and Zambia (n = 1). One of the studies was a multinational study of Ghana, Nigeria and Angola. Most of the participants were from urban areas (n = 10).

Overview of outcome measures

The outcome measure was wellbeing. Due to the varying conceptualisations of wellbeing (as per the search strategy), we included only studies whose outcome(s) were linked to SWB or PWB. Different studies used different conceptualisations of both PWB and SWB as highlighted in Table 1 in the Appendices.

Systematic Review Results

The themes from the included papers were organised according to Bronfenbrenner's socio-ecological model (34). The results from the included papers are shown in Table 2 (see Appendices) and discussed in the next section.

Individual characteristics

Sex

Females were more likely to have poor SWB and PWB. In South Africa, Manyema, Norris (40) found females to be more psychologically distressed than males (AOR 2.73; 95%CI 1.98-3.77) This result is also supported by Addae (41) who found that male adolescents generally had a higher sense of belonging (OR= 1.549; 95%CI = 1.210–1.983) compared to female adolescents. Results from Angola ($\beta = 1.19$; SE 0.48) and Ghana ($\beta = 0.99$; SE 0.32) showed that females were more likely to have lower psychological wellbeing than males (42). In Kenya, female adolescents had significantly higher scores for poor mental health compared to their male peers ($F(1, 286) = 6.57$, $p < 0.011$)(43).

Age

In terms of age, Dannerbeck and Muriuki (44) showed that older Kenyan (OR – 5.856) adolescents were more likely to report poorer wellbeing than younger adolescents. Similarly, Holder, Coleman (45) showed that the age of adolescents in Zambia was weakly and negatively correlated with happiness ($r = -0.092$) and life satisfaction ($r = 0.112$). In Nigeria, young adults older than 18 years were more likely to have poorer wellbeing ($\beta = 2.79$; SE =1.11)(42). Young adolescents in Ghana had higher odds of having high PWB than older adolescents (OR = 1.662; 95% CI = 1.168– 2.367)(41)

Race

Results from an ANOVA test indicated that there is a statistically significant effect for population group[1] on PWB ($F (4,1088) = 3.611$), although the difference in mean scores was small (46).

BMI

Young adults and adolescents that were overweight (OR = 2.0; 95% CI = 1.2 – 3.3) or underweight (OR = 2.8; 95% CI = 1.1 – 7.5) according to their perceived or actual BMI had a high chance of having poor PWB because they were subject to bullying/ teasing by their peers (47).

Adverse Childhood Experiences (ACEs)

Adolescents that had a high level of ACEs were 7.6 times (95%CI = 1.90 – 30.94) more likely to have psychological distress. ACEs include abuse, neglect or household dysfunction (40).

Substance Use

Excessive alcohol and drug abuse were also shown to significantly affect psychological and subjective wellbeing among South African adolescents (48). Drug use was shown to have a negative ($F (16,1407) = 4.44$, $p = 0.04$) effect on one's life satisfaction while excessive alcohol use ($F (16,1405) = 5.21$, $p = 0.02$) and drug use ($F (16,1405) = 7.03$, $p = 0.008$) were shown to negatively affect PWB although the effect sizes were small, 0.004 and 0.006 respectively.

Aspirations

Intrinsic goals and aspirations positively ($\beta = 0.27$) predicted positive affect (SWB) in a South African sample (49).

Coping

Different coping styles had different effects on different dimensions of wellbeing. Melato, van Eeden (50) showed that coping self-efficacy ($R^2=0.89$, $p <= 0.00$) predicted psychological intrapersonal wellbeing more than the social or interpersonal wellbeing ($R^2 = 0.36$, $p <= 0.00$). Similarly, a different

[1] The four population groups in South Africa are White, Black African, Indian/Asian and Coloured.

study found that a sample of adolescents based in Gauteng showed that coping self-efficacy was a significant predictor of psychosocial wellbeing ($F (1, 1091) = 125.35$, $p < 0.05$).

Hope

Being hopeful was shown to be associated with higher levels of psychosocial wellbeing among South African adolescents by Guse and Vermaak (46) ($R^2 = 0.328$) and January (51) ($R^2 = 0.327$) respectfully. These results mean that despite the contextual challenges faced by many South African adolescents, they are able to cope relatively well and hold relatively high levels of hope (51).

Gratitude

The effects of different types of gratitude on SWB were also explored. A weak positive relationship between state gratitude and life satisfaction and a moderate positive relationship between trait gratitude and life satisfaction was observed (52). Trait gratitude was also shown to have a strong $F(8, 787)= 28.83$, $p = 0.00$) relationship with SWB (during adolescence however state gratitude had a weak ($F(8, 787)= 4.08$, $p = 0.00$) relationship with SWB (52).

Spirituality

Spirituality significantly accounted for additional variance in happiness (change in $R^2 = 0.019$) and life satisfaction (change in $R^2 = 0.053$) in Zambia (45).

Level of education

In a Kenyan sample, adolescents with the highest level of education were less likely to have poor wellbeing (OR = 0.658) (44).

Mother's occupation

Mother's occupation was an important predictor of PWB. Adolescents whose mothers were in a skilled occupation category were less likely to have clinically significant psychological problems than those with mothers in the unskilled category (53).

Interpersonal characteristics

Relationship status

A sample of Kenyan adolescents showed that those who were married were more likely (OR = 12.515) to report poor wellbeing than those who were not married (44). Similarly, in Ghana, married adolescents were more vulnerable to low levels (OR = 0.395; 95% CI 0.184 – 0.848) of PWB (41). In this study, family sense of belonging and family autonomy and control, which are indicators of young people's PWB were used as proxies for PWB. Adolescents in a relationship were less likely to have psychological distress compared to single people (AOR = 0.66; 95% CI = 0.49 -0.91).

Parental involvement

Parental migration and the caregiving arrangement were important predictors of wellbeing. Two of the studies had contrasting results in relation to the effect of parental migration on wellbeing. A longitudinal study of Ghanaian adolescents showed that parents living abroad does not necessarily cause poorer wellbeing (54), while a multinational study of Ghana, Angola and Nigeria concluded that the wellbeing of adolescents separated from their parents due to migration is negatively affected (42). Cebotari, Mazzucato (54) demonstrated that, when compared to children living with both parents, children with parents who had made migrated internationally were more likely to have higher levels of health (β=2.17), life satisfaction (β=2.02), and happiness (β=2.84). In contrast children with parents who had migrated internally from Angola (β = 1.81, SE = 0.58) or internationally from Ghana (β =0.74, SE =0.37), Angola (β =3.49, SE =0.70) and Nigeria (β =1.21, SE =0.48) had poorer PWB than children who live with both parents (42).

When children living in transnational families changed caregivers one or more times, their PWB worsened in Ghana (β = 1.14, SE = 0.49), Angola (β = 5.52, SE = 1.04) and Nigeria (β = 1.95, SE = 0.63) compared to that of children living with both parents and those who have never changed caregivers (42). The results of these studies suggest that children who resided in homes marked by instability of care were more likely to report poorer levels of wellbeing, except in Angola, where adolescents with divorced or separated parents were less likely to have psychological problems than children whose parents are together (β = -2.85, SE = 0.94).

Family composition

Adolescents in certain family compositions showed better wellbeing outcomes than their counterparts living with both parents. Living with both parents in one household was shown to protect adolescents against low PWB (OR 1.514; 95% CI 1.139 – 2.012) compared to coming from single-parent households (41). Children who lived in divorced families with both parents living abroad were less likely to report higher levels of life satisfaction (β = -1.02) or happiness (β =-1.20) (54). Additionally, children with parents who had never been married (β = 1.93, SE = 0.70), had divorced/separated (β = 1.37, SE = 0.61) were more likely to have lower PWB in Ghana and Nigeria (β =4.00, SE=1.31) regardless of whether they lived in a family where parents had migrated (42).

Family functionality

In rural Nigeria, family functionality was a significant predictor of mental health problems (53). The likelihood of respondents from dysfunctional households having clinically significant mental health issues was 2.2 times higher than the likelihood of respondents from functional families (53).

Peer support

Peer support or positive friendship experiences were significant predictors of PWB in several papers (55, 56). Seidu, Amu (55) showed that having close friends resulted in a young Mozambicans being less likely to have an idea to- (AOR = 0.694; 95% CI 0.496 – 0.971), plan to- (AOR = 0.625; 95% CI 0.455 – 0.860) and attempt to (AOR = 0.529; 95% CI 0.384 – 0.729) commit suicide. Additionally, adolescents that had been bullied were more likely (AOR = 1.461; 95% CI 1.139 – 1.873) to have attempted suicide (55). Those that had been physically attacked were more likely to have poor PWB in that they were more likely to have suicidal ideas (AOR = 1.463; 95% CI 1.115 – 1.921), suicidal plans (AOR = 1.328; 95% CI 1.020 – 1.728) and suicidal attempts (AOR = 1.701; 95% CI 1.306 – 2.215). Suicide ideation, planning and attempt are indicators of poor PWB. Moreover, having school sense of belonging significantly predicted life satisfaction (β = 0.040, SE = 0.017) for Ghanaian adolescents.

Adolescent/child-headed households

The number of child-headed households has increased in Sub-Saharan Africa over the last few years (57, 58). In their study, Dannerbeck and Muriuki (44) investigated the effect of adolescent-headed households on wellbeing. Adolescent-headed households were strongly associated with poorer (β=0.3659) wellbeing outcomes.

Societal characteristics

Perceived connection to neighbourhood

Adolescent females in Johannesburg were less likely (AOR = 0.90; 95%CI =0.83 – 0.96) to consider suicide when they felt connected to their neighbourhood (56).

Socioeconomic Status

Socioeconomic status was also an important predictor of wellbeing. In Kenya, adolescents from wealthier households were 21% less likely to report poor wellbeing (44). Having high socioeconomic status in Ghana resulted in adolescents being more likely ((β = 0.136, SE = 0.037) to have high life satisfaction (58). Adolescents from low affluence households had lower odds of having high PWB (41)

Cultural characteristics

Religious Activities

Church attendance predicted a small, significant amount of variance in happiness (sr^2_{FS} = 0.008). Religiousness also predicted for happiness (changes in R^2 = 0.01) and life satisfaction (change in R^2 = 0.009; (F (2,879) > 4.12)).

Tribe

Along tribal lines, Visser and Routledge (48) showed that Setswana and Sepedi speakers had higher life satisfaction than English speakers in South Africa.

Although we observed the results in the systematic review, it is important to highlight the contextual differences of these countries in terms of the political, cultural and economic factors. Cultural factors in SSA, for example, language and ethnic diversity, religion, traditions and values significantly influence the well-being of adolescents and young people. The presence of diverse languages and cultures in Ghana, Nigeria, Ethiopia, and Kenya can enrich the lives of young people but also present challenges as they navigate multiple identities (59). In contrast, Uganda, Angola, and Zambia also possess ethnic diversity but may have more dominant ethnic groups, potentially affecting social dynamics (60). Traditional customs and values vary across these nations, with some communities upholding strong patriarchal norms that impact gender roles and opportunities for young individuals.

Religion plays a vital role in shaping cultural norms and values. In Nigeria, Islam is prominent, while Christianity prevails in Ghana, Uganda, Kenya, and Ethiopia. Religious beliefs guide ethical decision-making and worldviews for young people (61). Political factors, including political stability and government policies, differ among these countries, influencing opportunities for youth (62). Ghana and Kenya have relatively stable political environments, contributing to better prospects for young people, while Nigeria, Ethiopia, Uganda, Angola, and Zambia have experienced varying degrees of political instability, leading to economic challenges and insecurity.

Government policies on education, healthcare, and social services can significantly impact youth well-being, resulting in disparities in access to quality services. The extent of youth participation in politics and decision-making processes varies, with some countries offering more opportunities for youth involvement. Economic factors also shape the well-being of young individuals (63). Ghana and Kenya benefit from relatively stronger economies, translating into better educational and employment opportunities. In contrast, Nigeria, Ethiopia, Uganda, Angola, and Zambia face economic challenges, including high youth unemployment rates, causing financial stress and instability for the youth.

Disparities in education access are evident, with rural-urban divides in many of these countries. Efforts, such as those in Ethiopia, have been made to expand educational access. Additionally, disparities in healthcare access, particularly in rural areas, impact the overall health and well-being of young people. Poverty and income inequality further affect the well-being of adolescents and young individuals, restricting their access to basic needs and personal development opportunities.

In summary, the interplay of cultural, political, and economic factors across these nations significantly affects the well-being of adolescents and young people, with disparities in language, ethnic diversity, religion, traditions, political stability, economic development, access to education and healthcare, youth participation, and poverty and inequality shaping their life experiences.

Case Study

Methods

The following section is a case study using secondary data from NIDS that aims to triangulate the results of the systematic review within the South African context.

Research design

Quantitative methods were used to analyse the relationship between wellbeing and various predictors that were determined using the results of the systematic review. The study design is a cross-sectional research design.

Data

NIDS wave 5 data was used for the case study. NIDS is a broadly nationally representative panel survey of South African individuals. The first wave of this longitudinal study was collected in 2008, and the last wave, wave 5 in 2017. A total of 39,400 individuals from 10,800 households were successfully interviewed for wave 5. Of these, 6987 are adolescents and young people (between 15-24 years of age), and this forms our sample for this case study.

Outcome variable

Life satisfaction variable (Using a scale of 1-10 where 1 means very dissatisfied and 10 means very satisfied, how do you feel about your life as a whole right now?) in the NIDS dataset was used as the outcome variable. The validity and reliability of single-item life satisfaction measures has been established (64, 65). We used this life satisfaction as a proxy of positive PWB as has been done previously (66, 67). Existing literature has shown a strong correlation between life satisfaction and PWB especially young people (11, 68-70). The outcome variable was recoded into a binary variable where 1 is "average and above" wellbeing if the response was greater than or equal to 5 and 0 is "below average" wellbeing.

Data analysis procedures

Guided by the results of the systematic review, we analysed the individual and household characteristics of the sample, followed by a Probit regression analysis of predictors of wellbeing among adolescents and young people (socio-demographic and household characteristics, family, and community characteristics). A Probit model was appropriate for this study because the outcome variable is binary. The specification of the Probit model is shown below:

Equation 1:

$$P(y = 1|x) = G(\beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k)$$

Where $0 < G(z) < 1$, for all real numbers z and G is the standard normal cumulative distribution function expressed as an integral as shown in equation 2 below. β_k measures the effect of the variables X_k on the outcome variable y. X_k is a vector of the dependent variables that will be included in the model.

Equation 2:

$$G(z) = \Phi(z) \equiv \int_{-\infty}^{z} \phi(z)\, dz$$

Where $\phi(z)$ id the standard normal density.

Probability weights were used in order to obtain consistent estimators of the model parameters and to protect, to a certain degree, against the misspecification of a model (71). We conducted a t-test to test for differences between psychological wellbeing of 15–19-year-olds and the 20–24-year-olds. On average, young adults (20-24) tend to have lower psychological being compared to adolescents (15-19). We also used the Variance Inflation Factor (VIF) to detect multicollinearity in the independent variables and all the average values were less than

Results

The total sample size (n = 6987) was made up of 53% females and 47% males. The age of participants was limited between 15 and 24 to reflect the population of interest for this case-study, which is adolescents and young adults. The mean age of the sample was 19.3 years (SD = 2.84). The majority of the sample was Black (85%), unmarried (96%), the majority of respondents had high school as their highest level of education, 49% of these sample resided in urban areas and only 41% lived in households with basic needs. Basic needs were defined as having access to electricity, a flush toilet and piped water inside the dwelling. 90% considered religious activities as important in their lives.

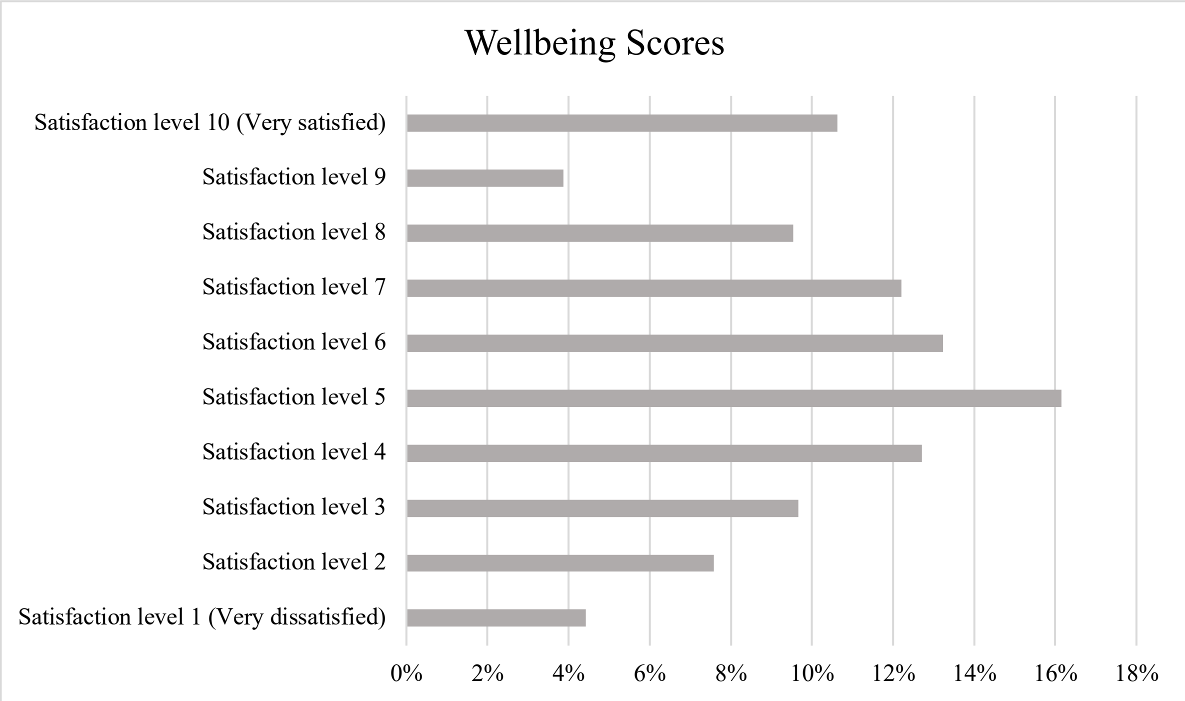


Figure 4 Distribution of wellbeing

Results from the Probit regression are presented in

Table 4**Error! Reference source not found.**. Coloured (β =0.075; SE = 0.034) and White (β = 0.124; SE = 0.048) adolescents had a higher probability (of having above average PWB compared to Black Africans. Adolescents and young people with excellent perceived health status (β = 0.110; SE = 0.057) were more likely to have above average PWB compared to those with fair/good perceived health status. Having positive long-term aspirations (β = 0.077; SE = 0.021) was associated with being more likely to have above average PWB. Having higher household income (β = 0.064; SE = 0.009) was associated with being more likely to have above average PWB. Having more people living in a household (β = -0.009; SE = 0.003) was associated with lower levels of wellbeing. Adolescents and young people who said that they trusted their relatives a lot (β =0.066; SE = 0.035) were more likely to have above average PWB to those that did not trust their relatives at all. Adolescents that said that religious activities were important to them (β = 0.058; SE = 0.028) were more likely to have above average PWB compared to those who did not value religious activities. Living in a trustworthy community (β =-0.070; SE =0.021) was associated with being less likely to have above average PWB.

Table 3 Sample Characteristics

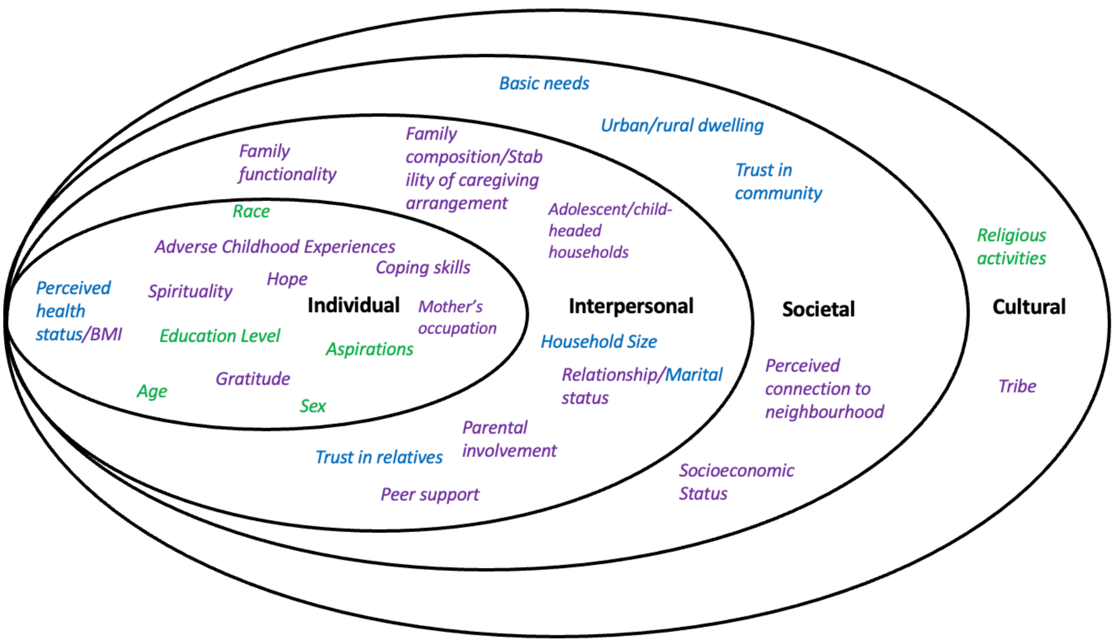
	Wellbeing		
	Below Average	**Above average**	**Total**
	n (%)	**n (%)**	**n (%)**
Age			
Young adolescents (15 - 19)	1215 (32.96)	2471 (67.04)	3686 (52.76)
Older adolescents (20 – 24)	175 (35.60)	2126 (64.40)	3301 (47.24)
Sex			
Male	1123 (34.37)	2144 (65.63)	3267 (46.81)
Female	1265 (34.08)	2447 (65.92)	3712 (53.19)
Race			
African	2,183 (36.68)	3768 (63.32)	5951 (85,17)
Coloured	172 (20.55)	665 (79.45)	837 (11.98)
Asian/Indian	13 (18.31)	58 (81.69)	71 (1.02)
White	22 (17.19)	106 (82.81)	128 (1.83)
Highest Education Level Completed			
Primary	253 (37,43)	423 (62,57)	676(9.68)
High school	1,583 (34.65)	2,986 (65.35)	4569 (65.40)
Matric	455 (32.78)	933 (67.22)	1388(19.87)
Beyond matric	86 (26.88)	234 (73.12)	320(4.58)
No schooling	13 (39.39)	20 (60.61)	33(0.47)
Area of residence			
Rural/ Tribal	1363 (38.39)	2187 (61.61)	3550 (50.81)
Urban	1027 (29.88)	2410 (70.12)	3437 (49.19)

	Wellbeing		
	Below Average n (%)	**Above average** n (%)	**Total** n (%)
Marital Status			
Married	91 (27.00)	246 (73)	337 (4.82)
Not married	2 299 (34.57)	4351 (65.43)	6650 (95.18)
Partner in Household			
Partner is part of household	79 (25.57)	230(74.43)	309(4.42)
Partner is not part of household	280(35.09)	518(64.91)	798(11.42)
No partner	2031(34.54)	3849(65.46)	5880(84.16)
Basic Needs			
Household has access to basic needs	823 (28.32)	2,083 (71.68)	2906 (41.59)
Household does not have access to basic needs	1,567 (38.40)	2,514 (61.60)	4081 (58.41)
Importance of religious activities			
Important	2062 (33.33)	4125 (66.67)	6187 (89.54)
Unimportant	303 (41.91)	420(58.09)	723 (10.46)
Perceived health status			
Excellent-Good	2300(33.96)	4472 (66.04)	6772(96.99)
Fair- poor	90 (42.86)	120 (57.14)	210 (3.01)
Trust in relatives			
A lot	1087(3065)	2460(69.35)	3547 (50.99)
Somewhat	1076(37.54)	1790(62.46)	2866 (41.20)

	Wellbeing		
	Below Average n (%)	**Above average** n (%)	**Total** n (%)
Not at all	216(39.78)	327(60.22)	543 (7.81)
Trust in stranger			
Very/fairly likely	571(43.22)	750 (56.78)	1321(19.77)
Not likely	1701(31.73)	3660(68.27)	5361(80.23)
Depression (CESD10)			
Not depressed	1757 (30.60)	3984 (69.4)	5741 (82.17)
Depressed	633 (50.80)	613 (49.20)	1246 (17.83)
Household Income			7959.53(11386.87)*
Household Size			5.97(3.59)*

* Mean (SD)

The combined determinants of wellbeing from both the case study and systematic review are summarised using Bronfenbrenner's model as shown below:



Note: Purple – determinants from systematic review; Blue - determinants from case study, Green – determinants that appear in both the case study and systematic review

Figure 5: Combined determinants of wellbeing from the results of the systematic review and case study

Discussion

The aim of this study was to find and systematically organise the determinants of psychological and subjective wellbeing in adolescents and young people in Sub-Saharan Africa and to triangulate the results of the review using a nationally representative dataset of South Africa. This is relevant given the current efforts to achieve the Sustainable Development Goals (SDGs), particularly SDG 3 which aims to ensure healthy lives and promote wellbeing for all, at all ages. South Africa was selected for the purpose of triangulation due to its status as an upper-middle-income country, in contrast to the majority of countries identified from the systematic review, which fall within the low to lower-middle-income categories, with the exception of South Africa itself. Among the upper-middle-income countries in Sub-Saharan Africa, South Africa was specifically chosen because of its robust data collection and research infrastructure. This allowed for a more comprehensive examination of the factors influencing the well-being of adolescents in the context of an upper-middle-income nation within the region.

The findings of both the review and the case study showed that household income (a component of socioeconomic status), religion, positive aspirations and trust in the community were significant predictors of wellbeing. In the review and in the case study, having high socioeconomic status or coming from a high-income household resulted in higher SWB and PWB (41, 44, 58). This result is not surprising because belonging to a high SES household allows an individual to access considerable resources that can improve their quality of life. Additionally, financial security gives people more choices and more opportunities (72). For example, high income allows individuals to have stable households and the ability to afford quality healthcare services and educational opportunities (73, 74). Although, the combination of having electricity, piped water and flush toilet did not have a statistically significant effect in the case study, the direction of the effect was as expected as individuals who come from households with these resources often have higher socio-economic status, and as discussed above those that have easier access to these resources to have better wellbeing.

Aspirations were also an important predictor of wellbeing in both the case study and the review (49). The paper from the review highlighted the importance of intrinsic goals and aspirations while the case study highlighted the importance of extrinsic goals in determining wellbeing. Intrinsic goals consist of personal growth, relationship and community while extrinsic goals focus more on goals that value wealth, fame and image (75, 76). Having positive intrinsic aspirations can increase an individual's sense of purpose, and this may motivate them to work on achieving these future goals as opposed to focusing on the past (77). As adolescents focus on achieving these goals, they may feel a sense of growth and accomplishment which contributes to their SWB and PWB. In contrast, existing studies, which have mostly been conducted on adult populations, have shown that individuals that value extrinsic goals, specifically, financial success, over intrinsic goals had poorer PWB (78, 79). However, two surveys on adolescents and young people in the United States recently highlighted that they value extrinsic goals over intrinsic goals. Specifically, they ranked being rich and becoming famous as the most important life goals, more important than helping people in need and being leaders in the community (80). Although contexts differ, this result could be true for adolescents in South Africa, as an upper middle-income country, and this would explain our result of extrinsic goals being significant a determinant of wellbeing among this age group.

Age was a significant predictor of wellbeing in both the review and the case study. Several papers (41, 42, 44, 45) in the review highlighted that as adolescents grow older, they are more likely to have poorer wellbeing compared to younger adolescents. As adolescents grow older in SSA, they start to understand a bit more of the context in which they live and their place in it. The pressure of adhering to societal norms and expectations when it comes to employment and to a certain extent, relationships and this may result in them being stressed and anxious. This is an important concern in SSA because many adolescents are faced with high unemployment, poverty and lack of access to educational opportunities. The challenges that younger adolescents (15–19-year-olds) face are different to those faced by 20–24-year-olds, therefore it is necessary to make sure that interventions for adolescents are tailored for each age group for effective results.

The role of religion in predicting wellbeing was highlighted in both the review (45) and the case study. It is important to note though that in the review, it was church attendance that was statistically significant, but religion itself was not considered important. However, in the case study, the respondents that regarded religion as important had a higher chance of having higher wellbeing. Church attendance which is known in the literature as explicit religiosity and implicit religiosity which is a sense of religious identity irrespective of participation (81), have both been shown to provide a sense of life purpose and meaning in a group of British adolescents (82). Church attendance, in particular, offers adolescents another opportunity to receive social support from a religious community, which can lead to higher positive affect and life satisfaction (83, 84). Integrating religious activities into the larger community therefore becomes an important part of providing support to adolescents and youth. Religious institutions should be made aware of the role that they play in determining adolescent wellbeing and they should take steps to make themselves visible, present and active in community initiatives that aim to support adolescents and youth.

The review also showed that adolescents and young adults having a sense of community (49) and perceived connection to the neighbourhood (56) were important predictors of wellbeing . In contrast, according to our case study, perceived trust in the community had a significant negative effect on wellbeing. Specifically, individuals that were very/fairly likely to trust their community were less likely to have higher wellbeing compared to those that were not likely to trust their community. This result could be explained by the presence of other factors or variables that affect wellbeing in high trust communities, in a similar way that some countries, like Finland and Norway, are regarded as some of the "happiest countries" but have some of the highest suicide rates (85).

Several variables were not statistically significant in the case study, but the direction of the marginal effect was similar to that observed in the review, notably, sex, level of education and having access to basic needs i.e., a flush toilet, piped water and electricity. The review findings show that female adolescents generally have lower levels of both PWB and SWB compared to male adolescents (40, 42, 43). There are several reasons why girls in SSA have lower wellbeing than boys the same age that have been established in the literature. For example, social norms favour males over females and the duty of care and the domestic burden is often left for girls and women.

As a result of this, they are less likely to be formally employed and if they are, they often earn lower wages (86). Level of education was a significant predictor of wellbeing in Kenya (44), as highlighted in the review findings. The case study shows that those that had education levels beyond matric were more likely to have better wellbeing compared to those with just matric, although this result was not significant. Similarly, those with levels of education lower than matric and those with no education at all were less likely to have higher wellbeing levels than those with matric. Although these results are not statistically significant in the case study, the economic significance cannot be ignored. Having higher levels of education can improve one's wellbeing because they are more employable and therefore can start earning an income. Existing literature has shown that the returns to an additional year of education has returns of approximately 47% (87). This is important because the relationship between income and SWB has been established, where it has been found that income enhances SWB only in so far as it assists people meet their necessities. Having an income can also give these adolescents and young people autonomy, which is a positive predictor of wellbeing according to the review results.

Individuals that were very/fairly likely to trust strangers were less likely to have higher wellbeing than those who were not very likely to trust strangers. This result is contrary to what was observed in a study on trust and subjective wellbeing using data from the Gallup World Poll, which showed that individuals that feel that they live in a trustworthy environment have much higher levels of wellbeing (88).

Table 4 Probit regression results showing the predictors of wellbeing

Variables	Wellbeing β (SE)
Age	-0.0068**(0.05)
Sex *(Ref = Male)*	
Female	-0.015 (0.018)
Race *(Ref = African)*	
Coloured	0.074** (0.034)
Asian/Indian	-0.078 (0.087)
White	0.122*** (0.048)
Perceived Health Status *(Ref = Poor-Fair)*	
Excellent-Good	0.110* (0.057)
Long term extrinsic aspirations *Ref = Negative aspiration*	
Positive aspiration	0.075*** (0.021)
Importance of religion *Ref = Unimportant*	
Important	0.058** (0.028)
Highest level of education *(Ref = Matric)*	
Primary	-0.030 (0.036)
High school	-0.051** (0.022)
Beyond matric	0.01(0.041)
No schooling	-0.117(0.131)
Marital status *(Ref: Unmarried)*	
Married	0.028 (0.044)
Area of residence *(Ref = Rural)*	
Urban	0.031 (0.023)
Basic needs (*Ref = No)*	
Yes	0.036(0.025)
Log of household income	0.064*** (0.009)
Household size	-0.009*** (0.003)
Trust relatives *(Ref = Not at all)*	
Somewhat	0.020 (0.036)
A lot	0.066* (0.035)
Trust strangers *(Ref = Not likely)*	
Very/fairly likely	-0.070*** (0.021)
Observations	6477

*** p<0.01, ** p<0.05, * p<0.1

The determinants of psychological and subjective wellbeing from both the review and case study show that the provision of services to improve adolescent wellbeing is not limited to the health sector. The community and the church have a role to play in the efforts to improve adolescent wellbeing. Lastly, per Bronfenbrenner's model, it is known that policy has a direct effect on the development of adolescents and young people (89), yet the results of the systematic review did not retrieve a single article that highlights policy as a determinant of either psychological or subjective wellbeing. This highlights the need for more studies that highlight the effects of social and economic policy on wellbeing.

Limitations

The review and case study have some limitations. Most studies that were included in the review were cross-sectional in nature. It is therefore impossible to claim causal relationships between variables. Although multiple databases were searched, there is possible study selection bias given that only studies published in the English language were considered for inclusion. Our search was also limited to studies that were published between 2000 and 2021. This could, therefore, have excluded relevant literature published before 2000. Most studies that we found were conducted in urban areas. Consequently, the determinants of wellbeing that we highlighted here may not be the same in rural areas and for non-school attending adolescents and young people. Although every effort was made to ensure that our search terms were exhaustive, it is also possible that the combination of words used in the search strategy may not have encompassed all the literature. It became apparent during data analysis of the selected studies that there may be some wellbeing synonyms that we did not consider, and this could have potentially affected the number of studies identified in the search. Additionally, the NIDS dataset that was used for the case study was not collected specifically for adolescents. There were a lot of missing values for some crucial variables and not all relevant variables were included in the dataset. The socio-ecological model which was used to guide this paper also has several limitations. Firstly, although the model helps us to understand the interacting systems that shape human development, it does not account for individuals' agency and the choices they make that can impact their development. The model also tends to emphasise the role of external factors in human development, but it fails to account for internal processes such as emotions and cognition that play a significant role in development.

Conclusion

This study utilised a systematic review and case study to organise the determinants of wellbeing among adolescents (15-24 years) in SSA. The literature highlights the importance of individual, interpersonal, community and societal factors as predictors of wellbeing during this developmental stage. The findings show the importance of religion, household income, and adolescents having positive aspirations. The differences in sex and age categories as factors that influence wellbeing were also highlighted. Consolidating the literature on the determinants of adolescent wellbeing is an important step in working towards the development of appropriate policies to improve their health and wellbeing, as well as to contribute towards economic growth and overall societal wellbeing. These determinants highlight the need for a coordinated effort between multiple sectors to ensure that quality resources are made available, affordable, and acceptable to all adolescents in order to improve their wellbeing.

Additional Files (See Appendix)

Table 1: Baseline characteristics of included studies

Table 2: Systematic review results

Abbreviations

SWB: Subjective wellbeing; PWB: Psychological wellbeing; SSA: Sub-Saharan Africa; NIDS: National Income Dynamics Study; WHO: World Health Organisation

Competing interests

The authors declare that they have no competing interests

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PART D: APPENDICES

Appendix A

Table 1: Baseline characteristics of included studies

Author, year	Title of study	Aim of study	Country	Setting (urban/rural)	Source of participants	Outcome definition	Outcome measurement	Total participated	Age (Mean and SD/median and IQ)	Female (%)
Amenyah, 2016	Body size ideals, beliefs and dissatisfaction in Ghanaian adolescents: Sociodemographic determinants and interrelations	1. To determine the Ideal body size (IBS) and its sociodemographic determinants in this population. 2. Beliefs on causal factors of weight status (e.g., lifestyle and genetics)	Ghana	Urban	Secondary schools	Psychological wellbeing	BMI	370	15 -18 (65.9 %) 11 – 14 (34.1 %)	53%

		were explored as IBS 3. The association of this IBS with dissatisfaction and actual measured body size was tested to know whether an extreme IBS might induce decreased wellbeing and weight problems.								
Melato, 2017	Coping self-efficacy and psychosocial well-being of marginalised South African youth	To investigate coping self-efficacy and aspects of psychosocial well-being amongst youth from marginalis	South Africa	Peri-urban	From a healthcare programme	Psychosocial well-being (mental health)	Mental Health Continuum Short-Form (MHC-SF: Keyes, 2005),	794	Range 18-30 years, 67% aged 18-30	46%

		ed backgrounds								
Nwachukwu, 2021	Family Characteristics and Mental Health Status of Secondary School Students in a Rural Community in Southwest Nigeria	To determine the association between family characteristics and the mental health status of in-school adolescents in a rural community in Southwestern Nigeria.	Nigeria	Rural	Schools	Mental health status	Strength and Difficulties questionnaire	279	Mean 15.3, SD = 2	59.1%
Guse, 2011	Hope, Psychosocial Well-Being and Socio-economic Status Among a Group of South	To determine and compare the degree of hope and psychosocial well-being among	South Africa	Urban	Schools in Gauteng	1. Hope is defined as "goal-directed thinking in which people perceive that they	1. Children's Hope Scale (CHS) 2. Mental Health Continuum- Short Form	1169	Mean 15.1, SD= 1,08	50,98 %

	African Adolescents	adolescents from different population groups. To determine the relationship between psychosocial well-being and hope among these adolescents, and establish the possible moderating effect of socioeconomic status on the relationship between hope and psychosocial well-being				can produce routes to desired goals (pathways thinking) and the requisite motivation to use those routes (agency thinking)" 2. Mental health is viewed as being composed of emotional, social, and psychological well-being. For purposes of this	(MHC-SF)			

						study these facets are collectively referred to as psychosocial well-being.				
Mazzucato, 2015	International parental migration and the psychological well-being of children in Ghana, Nigeria, and Angola	To investigate whether being in a transnational family influences the psychological well-being of children and, if so, whether different characteristics of transnational families are associated with	Ghana, Nigeria, Angola	Urban	junior and senior secondary, public and private, and high- and low-quality schools	Psychological wellbeing	Total Difficulties Score (TDS)	1. Ghana: N= 2760 2. Nigeria: N= 2168 3. Angola: N=2243	Range 11-21	Not given

		different outcomes.								
Bireda, 2017	Perceived parental involvement and well-being among Ethiopian adolescents	To determine the effect of parental academic socialisation on the well-being of adolescents	Ethiopia	Urban	High Schools	Depressive symptoms	Centre for Epidemiologic Studies Depression Scale (CES-D)	Grade 9: 163 Grade 10:176 Grade 11:230 Grade 12: 240	Mean 16.8, SD=1,58	47,10 %
Addae, 2020	Socioeconomic and demographic determinants of familial social capital inequalities: a cross-sectional study of young people in sub-Saharan African context	To examine the interplay among socioeconomic status, social capital, and the health and wellbeing of Ghanaian young people	Ghana	Not given	Junior and Senior Schools	Familial social capital with two sub-domains i.e., "sense of belonging (identity and safety with their environment), autonom	1.FSB was measured by four questions; 'how much do you feel your family understands you?'; 'how much do you feel you and your family have fun together?';	2068	Range 13-18, Mean 16.25	52.2%

						y and control (perceptions of power to influence decisions)”	‘to what extent do you feel your family pays attention to you?’ and ‘how much do you feel safe at home?’ 2. FAS and FC were measured using scales adopted from Marbelle & Grolnick’s 18-item parental autonomy and 9-item control scales, respectively.				

Manyema, 2018	Stress begets stress: the association of adverse childhood experiences with psychological distress in the presence of adult life stress	(1) To describe the prevalence of Adverse Childhood Experiences (ACEs) and Psychological Distress (PD) in a young adult South African sample, (2) to examine the association between individual ACEs and PD and (3) to assess the cumulative effect of ACEs on PD, while accounting for the effect of adult stress on this	South Africa	Urban townships	Recruited from the Birth to 20 (Bt20) study	Psychological distress	General Health Questionnaire 28 (GHQ-28)	1223	Range: 22-23	51%

		relationship.								
Visser, 2007	Substance abuse and psychological well-being of South African adolescents	a) To describe the extent of substance abuse among school-going adolescents in Tshwane (b) to relate indicators of psychological well-being to substance abuse.	South Africa	Urban	Schools	Psychological wellbeing	22 items from the Bar-On Emotional Quotient Inventory (EQ-I)	1918	Range 12-19	56%
Seidu, 2020	Suicidal behaviours among in-school adolescents in Mozambique: Cross-sectional evidence of the	To examine suicidal behaviours and their predictors among in-school adolescents in	Mozambique	Not given	Schools	suicidal ideation, suicidal plan and suicidal attempts	The item, “during the past 12 months, did you ever seriously consider attempting suicide?” was used	1918	13-17	Not given

	prevalence and predictors using the Global School-Based Health Survey data	Mozambique					to measure suicidal ideation while suicidal plan was measured with the question, “during the past 12 months, did you make a plan about how you would attempt suicide?” The responses for suicidal ideation and suicidal plan were categorised as “yes” (1) or “no” (0). Suicidal attempt was measured			

							with the question "during the past 12 months, how many times did you actually attempt suicide?" The responses for these questions were "0", "1", "2 or 3", "4 or 5", and "6 or more times". The responses were, however, recoded as no attempt (0) and one or more attempts (1) for analysis.				

Cheng, 2014	The Association Between Social Support and Mental Health Among Vulnerable Adolescents in Five Cities: Findings from the Study of the Well-Being of Adolescents in Vulnerable Environments	a) To estimate and compare vulnerable youth in different countries with respect to their mental health and social support (b) To examine the relationship between social support from multiple important sources and mental health in this population.	South Africa	Urban	Recruited from the Wellbeing of Adolescents in Vulnerable Environments Study	mental health (perception of hope for the future, depression, PTSD, suicidal ideation)	1. The hope measure consisted of three items that asked respondent about the extent to which they believed “good things will happen” and “the future will turn out well” and they “felt excited about future.” Each item ranged from 0 to 2 and the range of scale scores is from 0 to 6, and the higher the score, the more positive	497	Males 16,5, SD=0,3 Females 16,7, SD=0,22)	48,6%

							the hopes for the future 2. Centre for Epidemiological Studies Depression Scale 3. Post-Traumatic Stress Disorder (PTSD) Checklist-Civilian version (PCL-C, 17 items) 4. The suicidal thoughts, plans, and attempts measures were binary variables based on questions, “Have you ever seriously thought about			

							attempting suicide?" "During the past 12 months, did you make a plan about how you would attempt suicide?" and "During the past 12 months, did you ever attempt suicide?			
Holder, 2016	Well-Being's Relation to Religiosity and Spirituality in Children and Adolescents in Zambia	To help develop a cross-cultural understanding of happiness, spirituality, and religious practice in children	Zambia	Urban and rural	Schools	Happiness and Life satisfaction	1. Faces Scale 2. Subjective happiness scale 3. Student Life Satisfaction Scale	902	13-19 years	51.4%

Cebotari, 2018	A Longitudinal Analysis of Well-Being of Ghanaian Children in Transnational Families	The aim of this study is to estimate the effects of different forms of transnational family life on child well-being over time	Ghana	Urban	Schools	self-rated health, life satisfaction, happiness, and school enjoyment.	Children were asked to indicate on a scale from 1 to 5 how they rate their own health, how satisfied they are with their life, how happy they consider themselves, and if they generally enjoy school. Higher scores on the scale reflect better well-being outcomes	Of the 985, 405 took part at two waves and 350 took part at all three waves. This study includes only children who were present in at least two rounds of the survey	Mean 15.61, SD =2,01	47.53
Abubakar, 2013	Attachment and psychologi	To evaluate the relationshi	Kenya	Urban	Schools	Psychological	1. Brief Multidimensional	296	With disabilities	With disabil

	cal wellbeing among adolescents with and without disabilities in Kenya: The mediating role of identity formation	p between attachment to parents, peers, identity formation and wellbeing among adolescents with visual and physical impairments in Kenya				wellbeing	Students' Life Satisfaction (BMSLS) - for positive PWB 2. General Health Questionnaire-12 (Higher scores indicate poorer mental health)		(Mean = 17.52, SD = 1.56) Without disabilities (Mean = 16.43, SD = 1.75)	ities: 47% Without disabilities: 44%
Dannerbeck, 2007	The impact of household type on adolescent women's well-being in Kenya	To examine the health status of Kenyan adolescent women – and to explore how the type of household head impacts on their health status.	Kenya	Urban and rural	2003 Kenya Demographic and Health Survey (KDHS) (Central Bureau of Statistics (CBS)	Well-being of adolescent young women, as impacted by (1) household type (2) gender (3) health status	14 item self-reported questionnaire	455	Range= 15-24	54%

Addae, 2020	The mediating role of social capital in the relationship between socioeconomic status and adolescent wellbeing: evidence from Ghana	To investigate the potential for social capital to mediate the SES wellbeing relationship of adolescents by providing. 2.To provide evidence on how SES and social capital relate to different dimensions of adolescents' wellbeing in different social contexts for targeted policy recommendations.	Ghana	Peri urban, rural	15 schools (8 Senior and 7 Junior High Schools)	life satisfaction and happiness.	1.Cantril ladder scale 2.World-Value Survey 2010–2012	2068	Range = 13-18 years, mean 16.25, SD=1.492	52.2%

Davids, 2016	Adolescent goals and aspirations in search of psychological well-being: from the perspective of self-determination theory	To establish the relationships between goals and aspirations, mental health behaviour (interpersonal relations, stress management, and spiritual growth), and psychological well-being (measured by positive affect).	South Africa	Rural	Public schools	PWB	Self-report questionnaire made up of four sections, namely, (1) a demographic details section, (2) the Aspirations Index, (3) Positive and Negative Affect Schedule, and (4) Health-Promoting Lifestyle Profile II Questionnaire	457	Mean 16.31, SD = 0.45	53.8%
January, 2010	Hope and coping self-efficacy as predictors of psychosocial well-being	To determine the extent to which hope and coping self-efficacy predicted	South Africa	Urban	High schools	PWB	The Mental Health Continuum-Short Form (MHC-SF)	1173	Mean 15, SD = 1.08	51%

	among adolescents in Gauteng	psychosocial wellbeing									
Croxford, 2011	Gratitude and subjective well-being in a group of adolescents	To establish the relationship between gratitude and SWB among adolescents	South Africa	Urban	High school	SWB	1.Satisfaction With Life Scale (SWLS), 2. Multidimensional Students' Life Satisfaction Scale (MSLSS), 3.Affectometer 2 (Short Form) (AFM)	812	(Mean = 16, SD = 0.91)	52.09%	

Appendix B

Table 2: Results for Systematic Review

Author, year	**Statistical analysis**	**Outcome variable**	**Level of significance**	**Multivariate analysis (only significant variables were included)**
Amenyah, 2016	Ordinal regression	Peers make fun of body	0.05	**Actual BMI** Underweight (OR = 2.8, 95% CI 1.1 – 7.5; p = 0.036) Overweight/obese (OR = 2.0; 95% CI 1.2 – 3.3; p = 0.012) **Self-reported BMI** Underweight (OR = 2.3, 95% CI 1.3– 4.2; p = 0.007) Overweight/obese (OR = 1.8; 95% CI 1.0 – 3.2; p = 0.035) **Ideal Body Size** Overweight: (OR = 1.6; 95% CI 1.0 – 2.6; p = 0.047)
Melato, 2017	Structural Equation Modelling	Psychological well-being	0.05	**Coping self-efficacy scale (CSES)** (β= 0.481, p $\leq$ 0.00) **Depression, Anxiety and Stress Scale (DASS)** (β = -0.24; p $\leq$ 0.00)

Nwachukwu, 2021	Logistic regression model	Mental Health Status	0.05	Dysfunctional Families: (OR 2.219; 95% CI 1.267–3.885) Mothers in skilled occupation: (OR 0.392; 95% CI 0.159–0.995)
Guse, 2011	Moderated Multiple Regression Analysis	Psychosocial wellbeing	0.05	Hope accounted for a significant variance in psychosocial well-being: (R^2 = .326, $F(1, 1084) = 524.01$, $p < .05$).
Mazzucato, 2015	Stepwise hierarchical analysis	Psychological wellbeing	0.05	**Nigeria** Parent(s) away internationally: (β= 1.13, p < 0,05) Children living transnationally: changed caregiver >=1: (β= 1.95, SE= 0.63, p < 0,01) Age 18 > years (ref <= 14years): (β= 2.79, SE = 1.11, p < 0,001) Child is ethnic minority: (β= -1.57, SE = 0.41, p < 0,05) Age parents 40-49 (ref <= 39 years): (β= 1.69, SE = 0.73, p < 0,05) Age parents >=50 (ref <= 39 years): (β= 1.49, SE = 0.74, p < 0,05) Parents never married/together (ref parents are married/together): (β=

				4.00, SE = 1.31, p < 0,01) No. of siblings living with the child: (β= 0.19, SE = 0.08, p < 0,05) Current Living conditions: same (ref: better): (β= 1.09, SE = 0.36, p < 0,01) Current Living conditions: worse (ref: better): (β= 2.72, SE = 1.04, p < 0,01) No. of people in the house /no. of rooms in the house: (β= 0,39, SE = 0.18, p < 0,05) **Angola** Parent(s) away internationally: (β= 4.10, p < 0,001) Children living transnationally: never changed caregiver: (β= 3.92, SE= 0.99, p < 0,001) Children living transnationally: changed caregiver >=1: (β= 5,52, SE= 1,04, p < 0,001) Child is girl: (β= 1,19, SE= 0.48, p < 0,05) Education parents: secondary (ref: no/primary): (β= 1.86, SE= 0.93, p < 0.05) Parents divorced/separated(ref parents are married/together): (β= 2.85, SE = 0.94, p < 0,01) Current Living conditions - worse (ref: better): (β= 3.46, SE = 1.24, p < 0,01)

				Ghana Live with both parents: changed caregiver >=1 (ref: live with both parents: never changed caregiver): (β= 1.11, SE= 0.49, p < 0,05) Children living transnationally: changed caregiver >= 1 (ref: live with both parents: never changed caregiver): (β= 1.14, SE= 0.49, p < 0,05) Age 18 > years (ref <= 14years): (β= 1.00, SE = 0.48, p < 0,05) Child is girl: (β= 0.99, SE = 0.32, p < 0,01) Child is Ethnic minority: (β=0.98, SE = 0.37, p < 0,01) Parents divorced/separated (ref parents are married/together): (β= 2,85, SE = 0,94, p < 0,01) Current Living conditions: worse (ref: better): (β= 3,46, SE = 1.24,
Bireda, 2017	OLS regression	Adolescent wellbeing (self-esteem scores, school adjustment problem scores, depression scores)	0.05	**Maternal involvement** Substance use scores: β = -0.504, t (807) = -16.58, p < 0.001; Self-esteem scores: β = 0.689, t (807) = 26.97, p < 0.001;

				School adjustment problem scores: $\beta = -0.738$, $t(807) = -31.09$, $p < 0.001$; Depression scores: $\beta = -0.645$, $t(807) = -24.01$, $p < 0.001$ **Paternal involvement** Substance use scores: $\beta = -0.554$, $t(807) = -18.92$, $p < 0.001$; Self-esteem scores: $\beta = 0.738$, $t(807) = 31.05$, $p < 0.001$; School adjustment problem scores: $\beta = -0.805$, $t(807) = -38.50$, $p < 0.001$; Depression scores: $\beta = -0.711$, $t(807) = -28.73$, $p < 0.001$

Addae, 2020	Multinomial logistic regression	Family Sense of Belonging (FSB), Family Autonomy Support (FAC), Family Control (FC) - as proxies for PWB	0.05	**Family Sense of Belonging** Low affluence households (OR = 0.373; 95%CI: 0.271–0.513) Males (OR = 1.549; 95%CI: 1.210–1.983) Young adolescents (OR = 1.662; 95%CI:1.168–2.367) The odd of secondary school adolescents to possess high FSB than basic school adolescents were about 232% higher (OR = 3.323; 95% CI: 2.322–4.757). **Family Autonomy Support** Low affluence households (OR =0.387; 95%CI: 0.270–0.556) Males FAS (OR = 1.705; 95%CI: 1.272–2.284) **Family Control** Low affluence households (OR = 1.673; 95%CI: 1.187–2.359)

				Males (OR = 0.624; 95%CI: 0.474–0.822) Young adolescents (OR = 1.596; 95%CI:1.168–2.367)
Manyema, 2018	Hierarchical regression analyses	Psychological distress	0.05	Emotional neglect (ref: no): (OR =1.99; 95% CI: 1.34–2.93). Physical neglect (ref: no): (OR = 1.64; 95% CI: 1.00-2.69). Mental illness (ref: no): (OR = 2.25; 95% CI: 1.45–3.51). Marital status - relationship (ref: single): (OR = 0.64; 95% CI: 0.50–0.87) Female: (OR = 2.73; 95% CI: 1.98–3.77). SES: (OR = 0.90; 95% CI: 0.84-0.97). Stressful events -low (ref: no): (OR = 1.67; 95% CI: 1.14-2.45). Stressful events -high (ref: no):

				(OR = 1.80; 95% CI: 1.05-3.08).
Visser, 2007	ANOVA	Psychological wellbeing	0.05	**PWB** Excessive alcohol use: partial eta squared 0.004 = small effect size) Drug use: partial eta squared 0.006 = small effect size **Life satisfaction** English speaker (partial eta squared =0.017 small effect size) Drug use (partial eta squared = 0.004 = small effect size)
Seidu, 2020	Suicidal ideation, suicidal plan, suicidal attempt	Multivariate logistic regression	0.05	**Suicidal ideation** Close friends: AOR=0.694 , 95%CI=0.496-0.Suicidal plan Close friends: AOR =0.625 , 95%CI=0.455-0.860 Anxiety AOR =1.507 , 95%CI=1.077-2.108 Attacked AOR = 1.328, 95%CI=1.020-1.728 Injured AOR = 1.643, 95%CI=1.285-2.101 Peer support AOR = 0.743, 95%CI=0.572-0.966 **Suicidal attempt** Close friends AOR = 0.529, 95%CI=0.384-0.729 Anxiety AOR = 1.740,

				95%CI=1.228-2.467 Tobacco use AOR = 2.162, 95%CI=1.170-3.994 Attacked AOR =1.701, 95%CI=1.306-2.215 Injured AOR = 1.659, 95%CI=1.288-2.137 Bullied AOR =1.461 , 95%CI=1.139-1.873 Anxiety: AOR =1.616 , 95%CI=1.148-2.275 Experienced hunger: AOR =1.321 , 95%CI=1.029-1.697 Attacked: AOR =1.463 , 95%CI=1.115-1.921 Injured: AOR =1.319, 95%CI=1.024-1.700 Peer support: AOR =0.704 , 95%CI=0.538-0.920
Cheng, 2014	Mental health problems (Perception of hope for the future, Depressive symptoms, PTSD, Suicidal thoughts)	Logistic regression model	0.05	**Depression symptoms (males)** Caring male adult in home AOR= 0.88, 95%CI=0.84-0.91 Caring female adult in home AOR= 1.07, 95%CI=1.02-1.13 **Depression symptoms (females)** Caring female adult in home AOR= 0.85, 95%CI=0.80-0.90 Perceived connection to

				neighbourhood AOR= 92,95%CI=0.86-0.98 **Post-traumatic stress symptoms(females)** Perceived connection to neighbourhood AOR= 0.84, 95%CI=0.78-0.91 **Suicidal thought (females)** Caring female adult in home AOR= 0.90, 95%CI=0.82-0.98 Peer support AOR= 1.12, 95%CI=1.09-1.18 Perceived connection to neighbourhood AOR= 0.90, 95%CI=0.83-0.96
Holder, 2016	Hierarchical regression	Subjective well-being	0.0167	**Happiness using the 3-item subjective happiness scale** How often do you attend church? $sr^2 = 0.009$, $p <= .0167$. **Happiness using the faces scale** How often do you attend church? $sr^2 = 0.008$, $p <= .0167$. I consider myself a spiritual person: $sr^2 = 0.008$, $p <= .0167$.

				Life Satisfaction Age: $sr^2 = 0.007$, $p <= .0167$. Gender: $sr^2 = 0.010$, $p <= .0167$. Grade: $sr^2 = 0.016$, $p <= .0167$. I consider myself a spiritual person: sr^2 0.022, $p <= .0167$.
Cebotari, 2018	Fixed effects model	Child well-being	0.05	**Parental migration and child wellbeing** **Life satisfaction** Both parents away internationally (ref: both parents resident, non-migrant): β=2.02, SE=0.80 Living conditions are better when compared to other children: β= 0.19, SE= 0.06 Distant relationship with the caregiver β=-0.26, SE=0.09 Both parents away internationallyXDivorce β=-1.42, SE=0.64 Both parents away internationallyXchanged caregiver more than once β=0.84, SE=0.27 **Happiness** Mother away internationally β=2.43, SE=0.85 Mother away internally β= 2.08, SE=0.85 Both parents away internationally β=2.84,

				SE=1.04 Living conditions are better when compared to other children β= 0.22, SE=0.06 Distant relationship with the caregiver β= 0.26, SE=0.09 Mother Away Internationally XFemale β=-1.45, SE=0.40 Mother away internallyXdivorce β= -0.76, SE=0.31 Both parents away internationallyXDivorce β=-1.49, SE=0.39 Both parents away internationallyXchanged caregiver more than once β=-0.93 SE=0.35 **Caregiver and child wellbeing** **Life satisfaction** Living conditions are better when compared with other children: β=0.18, SE=0.07 Distant relationship with the caregiver β=-025, SE=0.09 One Parent Caregiver, the Other Parent Away InternallyXFemale β=0.70, SE=0.32 Uncle or Aunt Caregiver, Parent Away Internationally X Divorce β=-1.02, SE=0.54 Uncle or Aunt Caregiver, Parent Away Internationally X Changed Caregiver ≥ 1 β=-

				0.71, SE= 0.30 **Happiness** Living conditions are better when compared to other children β=0.20, SE=0.07 Distant relationship with the caregiver β=-0.23, SE=0.09 Uncle or Aunt Caregiver, Parent Away Internationally X Divorce β=-1.20, SE=0.59
Abubakar, 2013	MANCOVA	Psychological wellbeing	0.05	Wilks' lambda showed a significant main effect of maternal education ($F(1, 281) = 2.47, p < .024$), gender ($F(1, 281) = 2.42, p < .026$), disability ($F(1, 281) = 7.74, p < .001$), and a disability with gender interaction ($F(1, 281) = 3.81, p < .001$). Gender showed an effect on measures of positive and negative well-being. Females had significantly higher scores

				on poor mental health: F (1, 286) = 6.57, p < .011) **Life satisfaction** Female adolescents had significantly lower scores compared to male counterparts: F (1, 286) = 10.47, p < .001). A significant disability by gender interaction was observed on a disability-gender-age interaction: F (1, 286) = 8.32, p < .001)
Dannerbeck, 2007	Logistic regression	Self-reported incidence of sickness as a proxy for wellbeing	0.05	Adolescent headed household: OR =1.442, p<0.01 Age (ref=15-19): OR: 5.856, p< 0.001 Marital status (ref: not married): OR = 12.515, p <0.001 Highest educational level: OR = 0.658, p<0.01 Wealth index: OR= 0.790, p< 0.001
Addae, 2020	Multivariate regression model	Life satisfaction & happiness	0.05	**Life satisfaction** 1. Socioeconomic status: β= 0.136, SE= 0.037 2. Family sense of belonging: β=0.159, SE=0.019 3. School sense of belonging: β=0.040, SE= 0.017

				4. Family autonomy support: β=0.054, SE= 0.009 5. Family control: β=-0.095, SE= 0.017 **Happiness** 2. Family sense of belonging: β=0.056, SE=0.006 3. School sense of belonging: β=0.014, SE= 0.006 4. Family autonomy support: β=0.020, SE= 0.003 5. Family control: β=-0.015, SE= 0.006
Davids, 2016	Hierarchical multiple regression analyses	SWB- positive and negative affect	0.05	**Positive affect** Intrinsic goals β=0.27, SE = 0.08
January, 2010	Multiple Regression Analysis	Psychosocial wellbeing	0.05	**Hope and coping self-efficacy** R^2 = 0.396 Change in R^2 from model with only hope as the predictor variable: 0.069 $F(1, 1091) = 125.35$; $p < 0.05$
Croxford, 2011	Multivariate ANOVA	Subjective wellbeing	0.05	**State gratitude on combined SWB variables** $F(8,787) = 4.08$; $p = 0.00$

				Trait gratitude F (8, 787) = 28.83; p=0.00

Appendix C: HREC Ethics Approval

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

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Groote Schuur Hospital
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Website: www.health.uct.ac.za/fhs/research/humanethics/forms

15 August 2022

HREC REF: 460/2022

Dr O Alaba
Division of Health Economics
Public Health & Family Medicine
Email: Olufunke.alaba@uct.ac.za
Student: Bdzpan001@myuct.ac.za

Dear Dr Alaba

PROJECT TITLE : A SYSTEMATIC REVIEW OF THE DETERMINANTS OF ADOLESCENTS AND YOUNG ADULTS IN SUB-SAHARAN AFRICA AND CASE STUDY OF THE DETERMINANTS OF WELLBEING FOR ADOLESCENTS AND YOUNG ADULTS DURING THE COVID-19 IN SOUTH AFRICA-
(MASTERS CANDIDATE-MISS PAIDAMOYO BODZO)

Thank you for response letter, addressing the issues raised by the Faculty of Health Sciences Human Research Ethics Committee (HREC).

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30 August 2023.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

The HREC acknowledge that the student: Miss Paidamoyo Bodza will also be involved in this study.

Please quote the HREC REF 460/2022 in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, FACULTY OF HEALTH SCIENCES HUMAN RESEARCH ETHICS COMMITTEE

HREC.REF460.2022

PART E: POLICY BRIEF

From Struggles to Success: Nurturing Wellbeing in Sub-Saharan African Adolescents

Introduction

An estimated 1.5 million adolescents between the ages of 10 and 24 died in 2020, mostly from preventable or treatable causes (1). In Sub-Saharan Africa, one in every three people is an adolescent, thus they make up the largest proportion of the total population in the region (2). It is estimated that the adolescent population will continue to increase until at least 2050 (3). The growth in the population offers Sub-Saharan countries a unique opportunity to improve economic growth and reduce poverty (4). This is because adolescents and young people that are in good health and wellbeing can stay in school for longer, delay childbearing and have better chances of success in the labour market. They can also help to end intergenerational poverty cycles because they are able to cope with personal and societal challenges. Adolescents also form the foundation of their value and belief systems as well as their personality during this period. This has an effect on the future choices they make and on their ability to make sound decisions (5). Strengthening efforts to make this population group healthy is therefore beneficial to both the individual and the society.

Investment in adolescent health and wellbeing is essential to achieving the Sustainable Development Goals (SDG), specifically SDG 3 which is broadly focused on ensuring healthy lives and promoting wellbeing at **all** ages.

About the study

We conducted a systematic review of the determinants of psychological and subjective wellbeing in adolescents and young people in Sub-Saharan Africa. To triangulate the results of the review, we included a case study on the determinants of wellbeing in South African adolescents.

> ***Defining Triangulation***
>
> Triangulation is a method used to increase the credibility and validity of research findings. By combining methods in a study through triangulation, one can eliminate the biases that arise from using a single method.

The study systematically reviewed quantitative papers published between 2000 and 2020 for the determinants of psychological and subjective wellbeing in adolescents and young people in Sub-

Saharan Africa. The results from the included studies and the results from the case study were organised according to the socioecological model which shows how different individual, interpersonal (relationships), community and societal characteristics have an effect on the wellbeing of adolescents and young people.

Socio-ecological model

"A socio-ecological model is a framework that is used in research to help understand the complex between individual, social and environmental factors that influence human health and wellbeing"

Methods

For the systematic review, the search for articles was conducted in six different electronic databases, and 7701 articles were retrieved. After duplicates were removed, we screened these articles first by title, then by abstract, and finally by full text using a pre-defined inclusion and exclusion criteria. We included only articles written in English, published between 2000 and 2020, articles published about countries in Sub-Saharan Africa and of adolescents and young people between the ages of 15 and 24. The selection process was carried out by three independent reviewers. Once appropriate articles had been selected, data extraction was conducted using a template that had been developed in Microsoft Excel. Data analysis for the review was also conducted in Microsoft Excel. This method of extracting information from studies is called a systematic review.

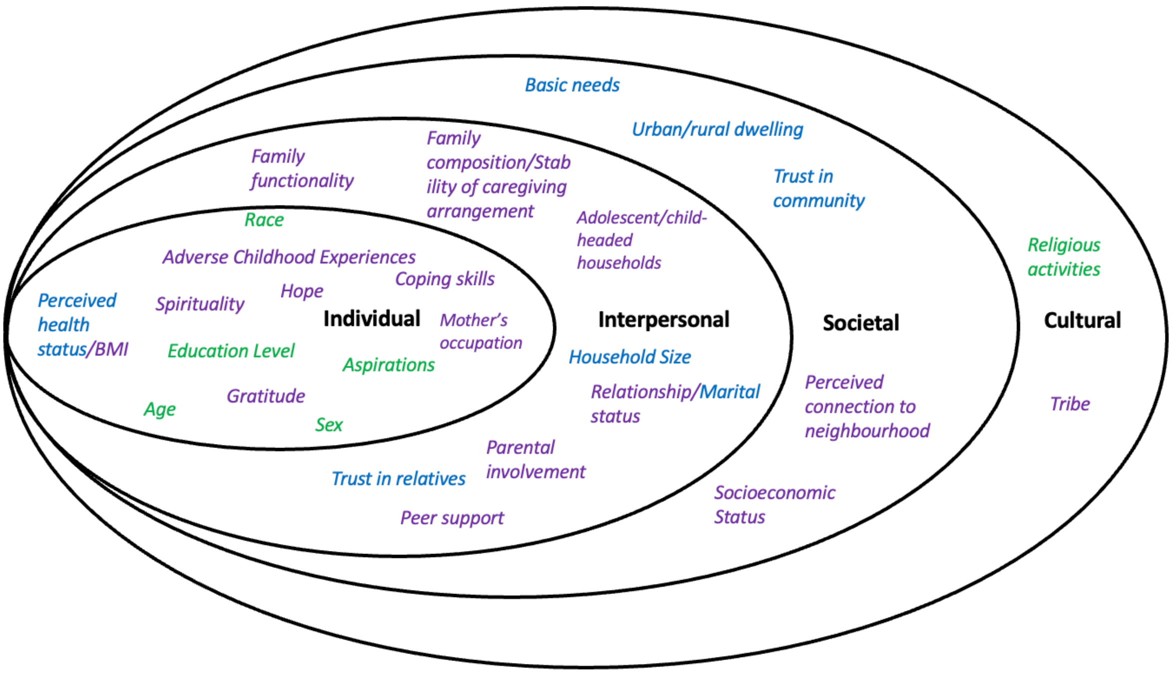
For the case study, we ran a Probit regression with wellbeing as the dependent variable using wave 5 of the National Income Dynamics Study. The analysis was based on a sample size of 6987 and it comprised only of individuals between the ages of 15 and 24.

Key Findings

19 articles were included in the systematic review. Of these, 17 were published journal articles, and 2 were dissertations. Study locations include South Africa (8), Nigeria (1), Ghana (4), Ethiopia (1), Mozambique (1), Kenya (2), Zambia (1) and one was a multinational study of Ghana, Nigeria, and Angola.

The determinants of wellbeing among adolescents and young adults that were extracted from the included articles in the review and from the case study are shown in Figure 1. According to this model, the closer a circle is to the individual, the stronger the influence on the individual. At the core of this model is the "Individual" circle, which includes an individual's personal characteristics, such as age, gender, and health status. These traits play a vital role in shaping their experiences and choices. Moving outward, the "Microsystem/Interpersonal" represents the immediate social environment, which encompasses family, friends, and colleagues. The "Mesosystem/Societal" focuses on the connections between different microsystems, like how a child's school interacts with their family to influence their education. The "Exosystem/Cultural" widens the scope to include external influences, such as religious activities. The "Macrosystem" encompasses broader cultural and societal factors, such as cultural norms and government policies, which can have a profound influence on a person's development and wellbeing. Although the macrosystem, and the chronosystem, which represents the dimension of time and how it influences a person's development, our results did not reveal any factors belonging to these groups that were relevant determinants of wellbeing in adolescents and young people. Understanding these interconnected circles helps policymakers and practitioners create holistic interventions that consider all these levels of influence.

Figure 1: Determinants of wellbeing for adolescents and young people



Note: Purple – determinants from systematic review; Blue - determinants from case study, Green – determinants that appear in both the case study and systematic review

Results from the systematic review and the case study highlight four important things:

1. The role of socioeconomic status on the wellbeing of adolescents. Individuals from high socio-economic status or high-income households are more likely to have higher wellbeing than those from low socio-economic or low-income households
2. Religion plays an important part in adolescent wellbeing. Individuals that regarded church attendance or religiosity as important were more likely to experience higher levels of wellbeing
3. Adolescent girls consistently report poor levels of wellbeing compared to their male counterparts.
4. Family support or having trust in one's relatives is important

Although there are a lot of policies that affect wellbeing in adolescents, the papers included in the review did not highlight any of these policies. This reveals a paucity of research done on adolescents' and young people's wellbeing in sub-Saharan Africa.

Conclusion

Improving the wellbeing of adolescents and young people is more than just the role of the health sector. A multisectoral approach is needed for more well-rounded results. The restrictions that were enforced in different countries as a way of curbing the COVID-19 pandemic had a negative effect on wellbeing of a lot of different populations, including teenagers and young adults. This has resulted in an increase in the prevalence and incidence of poor wellbeing among adolescents, which puts the future of the continent at risk. There is therefore an urgent need to implement interventions aimed at improving the wellbeing of adolescents as well as the provision of services that are available, affordable, acceptable and of good quality.

Policy recommendations

- Formulate and implement multisectoral public health policies that seek to understand and tackle the challenges associated with improving adolescent wellbeing, targeting all levels highlighted above, i.e., individual, relationships, community, and society.
- Encourage and involve religious organisations in adolescent-related activities.
- Fund the collection of longitudinal adolescent health and wellbeing data in order to improve the quality of adolescent wellbeing research

Policy implications

- If individual countries within Sub-Saharan Africa do not focus on improving implementation strategies, then we will continue to have policies that only exist on paper. Adolescents and young adults will continue to succumb to avoidable deaths and morbidity. The incidence of mental health issues will continue to increase, and any hopes for a thriving Sub-Saharan Africa in future must be abandoned. Policies must therefore be evaluated and adjusted accordingly.
- If individual countries do not allocate funds towards the collection of high-quality young people-focused data, then research studies will continue to rely on either child or adult datasets which may under or overestimate the challenges and opportunities faced by this group. This will lead to the development of policies that are not as effective, which may have a high opportunity cost.

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