Background Paper 10

Monitoring progress in adolescent well-being

Author names and affiliations

- Regina Guthold, Ph.D., Maternal, Newborn, Child and Adolescent Health and Ageing Department, WHO, Geneva, Switzerland
- Holly Newby, M.A., Independent Consultant, Stockholm, Sweden
- Emmanuel Adebayo, Ph.D., Adolescent Health Unit, Institute of Child Health, University of Ibadan, Ibadan, Nigeria
- Peter S Azzopardi, Ph.D., Global Adolescent Health Group, Burnet Institute, Melbourne Australia
- Liliana Carvajal, M.Sc., Division of Data Analytics Planning and Monitoring, Data and Analytics Section, UNICEF, New York, USA; Department of Global Public Health, Karolinska Institute, Stockholm, Sweden
- Tarun Dua, M.D., Department of Mental Health and Substance Use, WHO, Switzerland
- Lucy Fagan, M.Sc., UN Major Group for Children and Youth, New York; Imperial College NHS Healthcare Trust, London, United Kingdom
- Jane Ferguson, M.S.W., M.Sc., Independent Consultant adolescent health, Geneva, Switzerland
- Howard S Friedman, Ph.D., United Nations Population Fund, New York, USA
- Ann Hagell, Ph.D., Association for Young People's Health, London, United Kingdom
- Joanna C Inchley, PhD, MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, United Kingdom
- Andrew D Marsh, Ph.D., Maternal, Newborn, Child and Adolescent Health and Ageing Department, WHO, Geneva, Switzerland
- Ann-Beth Moller, M.P.H., UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), Department

of Sexual and Reproductive Health and Research, World Health Organization, Geneva, Switzerland

- Chiara Servili, Ph.D., Department of Mental Health and Substance Use, WHO Switzerland
- Mark Van Ommeren, Ph.D., Department of Mental Health and Substance Use, WHO Switzerland
- Dakshitha Wickremarathne, M.Sc., M.D.S., Independent Consultant, Colombo, Sri Lanka
- David A Ross, BMBCh, Ph.D., Independent Consultant, Bad Herrenalb, Germany

Corresponding author

Address correspondence to: Regina Guthold, Ph.D., Maternal, Newborn, Child and Adolescent Health and Ageing Department, WHO, 20, avenue Appia, CH-1211 Geneva, Switzerland.

E-mail address: gutholdr@who.int

Keywords

Adolescent, Adolescent health, Child welfare, Global health, Measures

Abbreviations

Accelerated Action for the Health of Adolescents (AA-HA!)

Basic Psychological Need Satisfaction and Frustration Scale (BPNSNF)

Gender and Adolescence: Global Evidence (GAGE)

Global Action for Measurement of Adolescent health (GAMA)

Global School-based Student Health Survey (GSHS)

Health Behaviour in School-aged Children (HBSC)

Joint United Nations Programme on HIV/AIDS (UNAIDS)

Measurement of Mental Health among Adolescents at the Population Level (MMAP)

Multiple Indicator Cluster Surveys (MICS)

Partnership for Maternal, Newborn, and Child Health (PMNCH)

Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH)

Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS)

Sustainable Development Goals (SDGs)

United Nations (UN)

United Nations Children's Fund (UNICEF)

United Nations Educational, Scientific and Cultural Organization (UNESCO)

United Nations Population fund (UNFPA)

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Abstract

Introduction

Adolescent well-being has received increased attention in recent years, and a new definition and conceptual framework on adolescent well-being has been proposed by a United Nations H6+ Technical Working Group on Adolescent Health and Well-being and partners. However, current measurement to track progress in the improvement of adolescent well-being globally is inconsistent. The aim of this background paper is to provide an overview of available indicators proposed by measurement and accountability initiatives for monitoring adolescent well-being, and of questions included in questionnaires currently used for data collection.

Methods

We reviewed measurement and accountability initiatives, multi-topic and well-being specific questionnaires with an adolescent focus for their inclusion of well-being indicators and questions, respectively. We extracted indicators and questions assessing positive aspects of well-being and mapped them against the domains of the adolescent well-being framework including good health and optimum nutrition; connectedness, positive values, and contribution to society; safety and a supportive environment; learning, competence, education, skills, and employability; and agency and resilience. We also determined whether indicators and questions assessed objective or subjective aspects of adolescent well-being.

Results

Eleven measurement and accountability initiatives, five multi-topic and four well-being specific questionnaires with and adolescent focus met our inclusion criteria. Across the initiatives, each well-being domain was covered at least once, ranging from four initiatives covering the safety and supportive environment domain to eight covering the good health and optimum nutrition domain. Initiatives mostly proposed indicators assessing objective and specific aspects of adolescent well-being. Multi-topic questionnaires also covered all well-being domains, with agency and resilience as well as learning, competence, education, skills, and employability being the least covered. Questions in the good health and optimum nutrition domain, as well as in learning, competence, education, skills, and employability were mostly of objective nature,

while there were several subjective questions across the other domains. Well-being specific questionnaires also covered all domains, except for safety and a supportive environment. The majority of questions across these specific questionnaires were of subjective nature.

Conclusion

The measurement landscape of adolescent well-being is inconsistent and incomplete in many areas. Indicators proposed by measurement and accountability initiatives were mostly of objective nature and specific to certain aspects of adolescent-well-being. On the other hand, some questionnaires, particularly those with a specific well-being focus, more frequently included subjective questions. The identification of core indicators for measurement of each well-being domain and the development of a comprehensive monitoring framework will be important next steps towards improved monitoring of adolescent well-being. Measurement of the core indicators by relevant data collection tools should then be ensured, so that they deliver the most relevant information for subsequent action to improve adolescent well-being.

Introduction

The global adolescent population is critical to achieving many of the Sustainable Development Goals (SDGs) and other global targets.[1] To ensure adolescents can realize their right to survive and thrive throughout the life-course, several initiatives have called for reformulating and revitalizing the narrative around global child and adolescent health beyond the traditional focus on decreasing the mortality and disease burden.[2,3]

In response, a new definition and conceptual framework of adolescent well-being has been proposed by the United Nations (UN) H6+ Technical Working Group on Adolescent Health and Well-Being and partners, including five domains: Good health and optimum nutrition; connectedness, positive values, and contribution to society; safety and a supportive environment; learning, competence, education, skills, and employability; and agency and resilience.[4]

To track progress towards improvements in these domains and in overall adolescent well-being, this conceptual framework needs to be operationalised with indicators for comprehensive and consistent measurement delivering high-quality data. Given the currently inconsistent measurement landscape of adolescent health and well-being with many measurement efforts occurring independently and little coordination between stakeholders, this work will require long-term commintments.[5] However, it can build on work underway by the Global Action for Measurement of Adolescent health (GAMA) Advisory Group, although GAMA's focus is primarily on health.

GAMA is a group of 16 international adolescent health experts, established in 2018 by the World Health Organization (WHO) in collaboration with UNAIDS, UNESCO, UNFPA, UNICEF, UN Women, the World Bank Group, and the World Food Programme, to harmonize measurement efforts and improve quality and coverage of data on adolescent health.[6] One of GAMA's primary goals is to identify priority indicators for the measurement of adolescent health for convergence of data collection and reporting efforts, and to promote and implement harmonized guidance for the measurement of these indicators.[7] In GAMA's measurement

framework, adolescent well-being is represented as one of six domains as illustrated in Figure 1.[4,7]

GAMA adolescent health measurement domains	Adolescent well-being framework domains
Environmental, social, cultural, economic, educational determinants	1. Good health and optimum nutrition 2. Connectedness, positive values and contribution to society 3. Safety and a supportive environment 4. Learning, competence, education, skills and employability 5. Agency and resilience
Health behaviours and risks	
Policies, programmes, laws	
Systems performance and interventions	
Well-being	
Health outcomes and conditions	

Figure 1. The GAMA measurement framework and the adolescent well-being framework.

As a first step towards identifying priority indicators, GAMA experts systematically selected a number of core and expanded measurement areas for adolescent health,[7] followed by a mapping of over 400 indicators pertaining to these areas across 16 measurement initiatives. The mapping revealed substantial overlap in some areas and important gaps in others.[8]

GAMA's mapping included indicators relevant to some aspects of adolescent well-being (for example, in the areas of education and adolescent health protective laws), but it did not include a systematic assessment of the adolescent well-being measurement landscape.

Building on GAMA's compilation of over 400 adolescent health indicators, this background paper provides an overview of available indicators proposed for monitoring adolescent well-being and of questions included in questionnaires currently used for data collection. Understanding the current adolescent well-being measurement landscape will be an important first step towards more consistent and targeted measurement. Our three specific objectives were (1) to provide a summary of well-being indicators included in current measurement and accountability initiatives with an adolescent focus; (2) to assess what dimensions of well-being are currently measured in multi-topic adolescent questionnaires; and (3) to assess how well the five domains of the adolescent well-being framework are being covered by well-being specific questionnaires. Notably, our focus was on the outcome – the state of well-being – as we

considered this to be a fundamental first step in operationalizing the adolescent well-being framework domains from which a broader monitoring framework could be built.

Methods

Overview

We conducted a non-systematic review of measurement and accountability initiatives and questionnaires with an adolescent (10-19 years) focus[9], building on a previous mapping of the GAMA Advisory Group.[7] We extracted indicators and questions pertaining to adolescent well-being, and mapped them against the domains of the conceptual framework for adolescent well-being of the UN H6+ Technical Working Group on Adolescent Health and Well-Being. In line with the framework, we included indicators and questions relating to subjective and objective well-being, and classified them accordingly. Thereby, subjective constructs emphasize personal experiences and individual fulfillment, and objective approaches define well-being in terms of material resources or social attributes including, for example education.[4]

We focused our approach on outcome measures related to the well-being of the individual adolescent while only touching upon measurement of processes, such as the adoption and implementation of policies or interventions to improve adolescent well-being. Furthermore, to move beyond considering health and well-being as the absence of disease and death,[10] and to put more emphasis on strengthening the resources of adolescents, we limited our extraction of indicators and questions to those reflecting a positive state in relation to the well-being domains, avoiding those that were formulated in a negative way (panel 1). More details on specific inclusion criteria are provided below.

Panel 1. Adolescent well-being: the negative and the positive

Many of the most commonly used adolescent indicators and related questions refer to risk behaviours and poor outcomes, such as use of tobacco, alcohol and drugs; high-risk sex; experience of physical and sexual violence; bullying; early childbearing; not being in education, employment or training; and cause of death. The absence of risk behaviours and poor outcomes is one component of adolescent well-being and therefore needs to be included in comprehensive measurement, but the state of being well goes far beyond.

In this paper, we chose to put the emphasis on the positive, on strengthening the internal and external resources of adolescents. We restricted our search to positive indicators and questions measuring adolescent well-being that will provide information whether adolescents are thriving and achieving their full potential.

Inclusion criteria for initiatives, broad and well-being specific questionnaires

We reviewed measurement and accountability initiatives with a focus on adolescents (hereafter referred to as 'initiatives') for their inclusion of well-being indicators, and multi-topic and well-being specific questionnaires for their inclusion of questions on adolescent well-being. Inclusion criteria were as follows:

Initiatives had to be multi-country, include a universal focus on all adolescents, and propose indicators related to adolescents, youth, the school-age population, or all or part of the adolescent age group (10-19 years).

Multi-topic questionnaires had to include standardized measures used across multiple countries, address at least one of the well-being domains alongside other topics, and be designed for the general adolescent population, youth, or the school-age population.

Well-being specific questionnaires had to be standardized, be used across multiple countries, and be designed for the general adolescent population, youth, or the school-age population. In this paper, we included only well-being specific questionnaires that addressed at least two of the well-being domains. Other background papers for the consultations on adolescent well-being that specifically focus on only one well-being domain discuss single-domain questionnaires related to the respective domain.

Inclusion and classification of indicators and questions

Indicators from the reviewed initiatives were included if they pertained to any domain of the adolescent well-being framework, referring to the definitional information of each domain including specific subdomains. We only included those indicators that reflected a positive state in relation to the domain, avoiding those that were formulated in a negative way (panel 1). For example, we included indicators around adolescents reporting that they talk to someone when they have a problem or worry, while we did not include indicators related to the experience of bullying.

Similarly, from the multi-topic and well-being specific questionnaires, we extracted questions capturing a positive state across any of the adolescent well-being framework domains, such as self-rated health as opposed to injuries or morbidities. We also included questions that we considered being able to be tabulated in a positive way in addition to a negative way, for example, the number of meals during the previous day.

We classified extracted indicators and questions by well-being framework domain. Indicators and questions that did not fit into a specific domain but instead seemed to capture adolescent well-being in a more non-specific, overall way were classified as "additional". We also assessed whether an indicator or question were of subjective or objective nature. In doing so, we considered measurement of subjective well-being to be referring to cognitive judgements and affective experiences such as relationship satisfaction,[11] while measurement of objective well-being refers to observable dimensions such as health behaviours, wealth, or manifest aspects of the safety of the environment.[4,12]

Results

We identified eleven initiatives, five multi-topic questionnaires, and four well-being specific questionnaires meeting our inclusion criteria, as presented in Panel 2.

Panel 2. Measurement and accountability initiatives, multi-topic and well-being specific questionnaires with a focus on adolescents including well-being indicators and questions.

Measurement and accountability initiatives

- Adolescent Country Tracker[13]
- Core Indicators for Adolescent Health: A Regional Guide (EMRO)[14]
- Countdown to 2030[15]
- Global Reference List of Health Indicators for Adolescents (aged 10-19 years)[16]
- Global Strategy for Women's, Children's, and Adolescents' Health (2016-2030)[17]
- INSPIRE[18]
- Lancet Commission on adolescent health and well-being[19]
- Measurement of Mental Health among Adolescents at the Population Level (MMAP)[20]
- Measuring the Education Sector response to HIV and AIDS: guidelines for the construction and use of core indicators[21]
- Monitoring and Evaluation Guidance for School Health Programmes[22]
- Sustainable Development Goals/Adolescents 2030[23,24]

Multi-topic questionnaires

- Gender and Adolescence: Global Evidence (GAGE)[25]
- Multiple Indicator Cluster Surveys (MICS)[26]
- Search Institute Developmental Assets Profile Survey[27]
- Global School-based Student Health Survey (GSHS)[28]
- Health Behaviour in School-aged Children (HBSC) [29]

Well-being specific questionnaires

- Basic Psychological Need Satisfaction and Frustration Scale (BPNSNF)[30]
- Global Youth Development Index (Commonwealth)[31]
- Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS)[32]
- Stirling Wellbeing Scale[33]

Well-being indicators included in measurement and accountability initiatives with a focus on adolescents

Across the eleven initiatives we reviewed, the vast majority of indicators pertaining to one of the well-being domains referred to a risk, disease, or death, did not reflect a positive state in relation to the domain, and were therefore not included in our extraction. The positively formulated indicators we included are provided in Table 1. Of the eleven initiatives we reviewed, eight included at least one positive indicator assessing any aspect of the adolescent's individual well-being related to the good health and optimum nutrition domain. This was the

case for four initiatives in relation to both the connectedness, positive values, and contribution to society domain, and the safety and a supportive environment domain, and for six initiatives in relation to the learning, competence, education, skills, and employability domain as well as the agency and resilience domain.

In the good health and optimum nutrition domain, most indicators across the eleven initiatives were focused around sexual and reproductive health, HIV, physical activity, dietary behaviours, and one around the utilization of health services by adolescents. Most of these indicators assessed either health behaviours or knowledge, with no indicator across the initiatives assessing subjective health or nutrition as perceived by adolescents.

Our review of initiatives showed that in the connectedness, positive values, and contribution to society domain, several initiatives included an indicator about adolescent's parents´/guardians´ understanding their problems. Other indicators in this domain included adolescents having somebody to talk to, being taken seriously, as well as adolescent participation.

The safety and supportive environment domain was the one with the least indicator coverage across the initiatives and included indicators around parents/guardians knowing what adolescents do in their free time, one indicator around social support, and one on gender equity.

In the learning, competence, education, skills, and employability domain, indicators assessed school enrolment, completion, literacy, and employment rates, as well as specific skills such as information and communications technology skills, with no subjective indicator assessing, for example, feeling competent or sufficiently skilled to perform certain tasks.

In the agency and resilience domain, the indicators included in several initiatives covered adolescent's informed or free decisions in relation to sexual and reproductive health. Other indicators in this domain included the sense of self-worth, experience of individual decision-making, reception of emotional/psychosocial support, and being aware of one's rights.

Across the initiatives we reviewed, and across well-being domains, most of the indicators used in current initiatives assessed objective aspects of adolescent well-being focusing on specific aspects within a domain, rather than covering the domain fully.

Table 1. Adolescent measurement and accountability initiatives including well-being indicators*, by well-being domain.

Domain / Initiative	Good health and optimum nutrition	Connectedness, positive values, and contribution to society	Safety and a supportive environment	Learning, competence, education, skills, and employability	Agency and resilience
Adolescent Country Tracker		• *Experience of being taken seriously/being listened to*** • *Opportunity to challenge injustice*** • *Experience of public participation***		• Completion rate for lower and upper secondary education • Youth literacy rate • Information and communication technology skills	• *Sense of self-worth*** • *Experience of individual decision-making***
Core Indicators for Adolescent Health: A Regional Guide (EMRO)	• % adolescents accumulating at least 60 minutes of physical activity daily • Utilization rate of adolescent health services/intervention by adolescents • % adolescents consuming at least five servings of fruits and vegetables daily			• Adolescent school enrolment • Adolescent literacy rate • Employment rate of adolescents	
Countdown to 2030	• Demand for family planning satisfied with modern methods • Family planning for adolescents without spousal or parental consent				
Global Reference List of Health Indicators for Adolescents	• Condom use at most recent sex among adolescents • Demand for family planning satisfied with modern methods • HIV testing among adolescents	• *% adolescents who report that their parents or guardians understand their problems or worries most or all of the time*	• *% adolescents who report that their parents or guardians really know what they are doing in their free time most or all of the time*		
Global Strategy for Women's, Children's, and Adolescents' Health	• % women aged 15-49 years who have their need for family planning satisfied with modern methods • % of those aged 15-24 years with basic knowledge about sexual and reproductive health services and rights			• % children and young people (in schools): (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics	• *% women aged 15-49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care*

Note: Indicators capturing *subjective* well-being are in italics.

*Indicator wording adopted from original initiative

**Indicators for these areas are under development

Domain / Initiative	Good health and optimum nutrition	Connectedness, positive values, and contribution to society	Safety and a supportive environment	Learning, competence, education, skills, and employability	Agency and resilience
INSPIRE		• *% adolescents aged 13–17 years who report that their parents or guardians understood their problems and worries most or all of the time*	• *% adolescents aged 13–17 years who report that their parents or guardians really know what they were doing with their free time most or all of the time*		• *% of currently partnered females aged 15–49 years who participate (alone or jointly) in all three of the following decisions: their own health care, making large purchases, and visits to family, relatives and friends*
Lancet Commission on adolescent health and well-being				• Completion of 12 or more years of education in 20–24 year-olds	
Measurement of Mental Health among Adolescents at the Population Level (MMAP)	• *%* adolescents with symptoms of depression and/or anxiety reporting contact with health professional or counsellor for mental health care	• *% adolescents who report they talk to someone, either most or all of the time, when they have a problem or worry* • *% adolescents who report that their parents/ guardians understand their problems or worries most or all of the time*			
Measuring the Education Sector response to HIV and AIDS: guidelines for the construction and use of core indicators	• % students, aged 10-24 years, who demonstrate desired levels of knowledge and reject major misconceptions about HIV and AIDS • % women and men aged 15-49 years who had more than one partner in the past 12 months who used a condom during their last sexual intercourse		• % orphaned and vulnerable children aged 5-17 years who received social support, excluding bursary support, through schools in the previous academic year	• Current school attendance among orphans and non-orphans aged 10-14 years • % orphaned and vulnerable children, aged 5-17 years, who received bursary support, including school fee exemption, through schools in the previous academic year	• % orphaned and vulnerable children aged 5-17 years who received emotional/psychological support through schools in the previous academic year

Domain / Initiative	Good health and optimum nutrition	Connectedness, positive values, and contribution to society	Safety and a supportive environment	Learning, competence, education, skills, and employability	Agency and resilience
Monitoring and Evaluation Guidance for School Health Programmes	• % students who demonstrate good hygiene practices and who are encouraging others to do the same • % students participating in at least 60 minutes of physical activity per day during the past 7 days • % students aged 10 to 24 years, who demonstrate desired knowledge-levels and reject major misconceptions about HIV transmission • % students who know specific facts about nutrition and healthy life styles related to a balanced diet and how to ensure safe consumption of food and water • % students who usually ate fruit three or more times per day during the past 30 days • % students who usually ate vegetables three or more times per day during the past 30 days • % students who report having improved their diet and lifestyle		• Gender equity: ratio of girls to boys in school attendance (access to education)		• % students who are aware of their rights to safety and protection, and to educational continuity, and their responsibilities in protecting the environment and reducing risk • % students who know how to tell someone they do not want to have sexual intercourse with them
Sustainable Development Goals/Adolescents 2030	• % 15 years old girls who received the recommended doses of human papillomavirus (HPV) vaccine • % females aged 15–49 years who have their need for family planning satisfied with modern methods			• Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months • Completion rate for primary, lower and upper secondary education • % youth and adults with information and communications technology (ICT) skills • % population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills • % children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics	• *% females aged 15–49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care*

Well-being questions included in multi-topic questionnaires

Table 2 provides an overview of well-being questions included in multi-topic questionnaires designed for adolescents, youth, or the school-age population. Of the five questionnaires we reviewed, all included questions assessing good health and optimum nutrition, as well as safety and a supportive environment. Four of the five questionnaires included questions around the connectedness, positive values, and contribution to society domain and the learning, competence, education, skills, and employability domain, and three included questions on agency and resilience.

In the good health and optimum nutrition domain, most questions covered health behaviours such as physical activity and diet, and anthropometrics, with only GAGE[25] and HBSC[29] including questions assessing self-rated health and self-esteem.

Questions in connectedness, positive values, and contribution to society included number of friends (covered by three questionnaires), and participation in clubs. Several subjective questions in this domain were included in the school surveys GSHS[28] and HBSC,[29] namely assessing relationships with parents, family and friends, as well as in the Search Institute Developmental Assets Profile Survey[27] around friends, family, neighbors, community and clubs.

In the safety and a supportive environment domain, several questions related to subjective feelings of safety, trust, and perceived helpfulness of others. The HBSC[29] also included questions about the feeling of being accepted by teachers and others, and the Search Institute Developmental Assets Profile Survey[27] questions included support from parents, teachers, other adults, as well as rules at home and at school.

Most questions in the learning, competence, education, skills, and employability domain were objective questions about work, school attendance and completion, literacy rate and other specific skills. However, the Search Institute Developmental Assets Profile Survey[27] also included subjective questions such as enjoying reading or learning, or caring about school, and the HBSC[29] included a question on feeling about school.

GAGE[25] as well as the Search Institute Developmental Assets Profile Survey[27] included questions about agency and resilience related to subjective feelings, such as perceptions about being in

control over your own life, feeling good about the future, or feeling comfortable expressing an opinion, while the GSHS[28] included questions around learning of life skills.

Beyond the domain-specific indicators, both the MICS and the HBSC included a life satisfaction indicator. Furthermore, the MICS included additional indicators on happiness and on perception of a better (improving) life.

Across the multi-topic questionnaires we reviewed, questions in the good health and optimum nutrition domain were mostly of objective nature. This was also the case in the learning, competence, education, skills, and employability domain, with the exception of the Search Institute Developmental Assets Profile Survey.[27] Questions across the other domains were more likely to be of subjective nature, as were the additional, non-domain-specific questions.

Table 2. Multi-topic questionnaires including questions assessing adolescent well-being, by well-being domain.

Domain / Multi-topic questionnaire	Good health and optimum nutrition	Connectedness, positive values, and contribution to society	Safety and a supportive environment	Learning, competence, education, skills, and employability	Agency and resilience	Additional (nonspecific) items
Gender and Adolescence: Global Evidence (GAGE)	• *Self-rated health* • *Self-esteem (Rosenberg scale)* • Number of meals yesterday • Dietary diversity • Anthropometrics • *Full of energy*	• *Number of female/male friends who are not members of your household, that you trust, and with whom you can talk about feelings and personal matters, or call for help* • Participation in different sorts of clubs • *Assumes the best about people*	• *Feeling safe traveling to and from school* • *Feeling safe at school* • *Most people who live in this village/neighborhood can be trusted* • *Most people who live in this village/neighborhood are willing to help if you need it*	• Paid work, including type, hours and days • School attendance and completion • Worked for money in the last 12 months • *Original, comes up with new ideas*	• *Feeling you can speak up in class when you have a comment or question* • *Feeling of control over own life* • *Feeling comfortable expressing an opinion to or disagreeing with people in your age group, such as siblings and friends* • *Feeling comfortable expressing an opinion to or disagreeing with people who are much older than you, such as parents and the elderly* • *Empowerment scale on "having a say" in the family (six questions)* • *Taken action with others about a serious problem affecting the community in the last 12 months* • *Emotionally stable, not easily upset* • *I am confident that I could deal efficiently with unexpected events* • *Reliable, can always be counted on* • *I can always manage to solve difficult problems if I try hard enough* • *If someone opposes me, I can find the means and ways to get what I want* • *It is easy for me to stick to my aims and accomplish my goals* • *Thanks to my resourcefulness, I know how to handle unforeseen situations* • *I can solve most problems if I invest the necessary effort.* • *I can remain calm when facing difficulties because I can rely on my coping abilities* • *When I am confronted with a problem, I can usually find several solutions* • *If I am in trouble, I can usually think of a solution* • *I can usually handle whatever comes my way.*	

Domain / Multi-topic questionnaire	Good health and optimum nutrition	Connectedness, positive values, and contribution to society	Safety and a supportive environment	Learning, competence, education, skills, and employability	Agency and resilience	Additional (nonspecific) items
Multiple Indicator Cluster Surveys (MICS)	• Condom use at last sex among people with multiple sexual partnerships • Sexually active young people tested for HIV and know the results • Comprehensive knowledge about HIV prevention among youth		• *Feeling safe walking alone in your neighborhood after dark* • Menstrual hygiene management • Availability of books at home	• Completion rate of secondary school • Literacy rate • Children with foundational reading and number skills • Information and communication technology skills		• *Overall life satisfaction index* • *Happiness* • *Perception of a better life (retrospective and prospective)*
Search Institute Developmental Assets Profile Survey	• *Developing good health habits*	• *Build friendships with other people* • *Seek advice from my parents* • *Included in family tasks and decisions* • *Spending quality time at home with my parent(s)* • *Friends who set good examples for me* • *A family that gives me love and support* • *Parent(s) good at talking with me about things* • *Feel valued and appreciated by others* • *Good neighbors who care about me* • *Think it is important to help other people* • *Resolve conflicts without anyone getting hurt* • *Tell the truth even when it is not easy* • *Encouraged to help others* • *Developing respect for other people* • *Express my feelings in proper ways* • *Accept people who are different from me* • *Sensitive to the needs and feelings of others* • *Helping to make my community a better place* • *Involved in a religious group or activity* • *Involved in a sport, club, or other group* • *Serving others in my community* • *Trying to help solve social problems* • *Given useful roles and responsibilities*	• *A school that gives students clear rules* • *Support from adults other than my parents* • *A family that provides me with clear rules* • *Neighbors who help watch out for me* • *A school that enforces rules fairly* • *Avoid things that are dangerous or unhealthy* • *Stay away from tobacco, alcohol, and other drugs* • *Feel safe and secure at home* • *Feel safe at school* • *A safe neighborhood* • *A family that knows where I am and what I am doing* • *Encouraged to try things that might be good for me* • *A school that cares about kids and encourages them*	• *Enjoy reading or being read to* • *Care about school* • *Do my homework* • *Enjoy learning* • *Actively engaged in learning new things* • *Eager to do well in school and other activities* • *Teachers who urge me to develop and achieve* • *Parent(s) who urge me to do well in school* • *Adults who are good role models for me* • *Parent(s) who try to help me succeed*	• *Stand up for what I believe in* • *Feel in control of my life and future* • *Feel good about myself* • *Deal with frustration in positive ways* • *Overcome challenges in positive ways* • *Plan ahead and make good choices* • *Resist bad influences* • *Take responsibility for what I do* • *Feel good about my future* • *Developing a sense of purpose in my life*	

Domain / Multi-topic questionnaire	Good health and optimum nutrition	Connectedness, positive values, and contribution to society	Safety and a supportive environment	Learning, competence, education, skills, and employability	Agency and resilience	Additional (nonspecific) items
Global School-based Student Health Survey (GSHS)	• Oral health (daily teeth brushing, describing health of your teeth, last visit at the dentist) • Daily physical activity • Active travel to and from school • Hours of sleep • Handwashing practices • Daily fruit and vegetable consumption • Frequency of breakfast • Anthropometrics • Learning in school about health-related things	• *Parents or guardians understanding your problems or worries* • Number of close friends • *Relationship with parents*	• *Parents or guardians really knowing what you do with your free time* • *Most of the students in my school are kind and helpful*		• Learning about protecting yourself • Learning about anger management and handling stress in healthy ways	
Health Behaviour in School-aged Children (HBSC)	• *Self-rated health* • Oral health (daily teeth brushing) • Daily physical activity • Daily vigorous physical activity • Weekly fruit and vegetable consumption • Frequency of breakfast • Breakfast/dinner with mother/father • Anthropometrics	• *Ease in talking with parents about things that really bother you* • *In the family: important things are talked about; when I speak someone listens; we ask questions when we don't understand each other; when there is a misunderstanding we talk it over until it's clear* • *My family: really tries to help me; get emotional help and support; I can talk about my problems in my family; my family is willing to help me make decisions* • *My friends: really try to help me; I can count on my friends when things go wrong; I have friends with whom I can share my joys and sorrows; I can talk about my problems with my friends*	• *Students in my class enjoy being together* • *Most of the students in my class are kind and helpful* • *Other students accept me as I am* • *Teachers accept me as I am* • *Teachers care about me as a person* • *I feel a lot of trust in my teachers*	• *Feeling about school at present*		• *Life satisfaction ladder*

Note: Items capturing *subjective* well-being are in italics.

Well-being questions included in well-being specific questionnaires

Of the four well-being specific questionnaires we reviewed that were designed for adolescents, youth, or the school-age population, all included questions assessing connectedness, positive values, and contribution to society. Three of the questionnaires included questions on learning, competence, education, skills, and employability, as well as on agency and resilience, and two included questions assessing good health and optimum nutrition. No well-being specific questionnaire included questions on safety and a supportive environment (Table 3).

In the domain good health and optimum nutrition, questions included mostly subjective feelings such as being relaxed, calm, or cheerful, getting on well with people, and enjoying life.

Questions in connectedness, positive values and contribution to society included feelings of being close to others, being liked by others, and being cared for, as well as being able to express political views and participate in society.

While the well-being specific questionnaires we reviewed included a few objective questions in the learning, competence, education, skills, and employability domain, such as school enrolment or literacy, three questionnaires included subjective questions around being good at some things or at difficult tasks.[30,33]

All questions of the well-being specific questionnaires we reviewed in the agency and resilience domain were of subjective nature, including, for example, feelings of having choices, being satisfied, being able to achieve goals, or to deal with problems well. Additionally, the Short Warwick-Edinburgh Mental Wellbeing Scale included an item on feeling optimistic about the future.

Across the four questionnaires, the majority of questions were of subjective nature.

Table 3. Well-being specific questionnaires assessing adolescent well-being, by well-being domains.

Domain / Well-being specific questionnaire	Good health and optimum nutrition	Connectedness, positive values, and contribution to society	Safety and a supportive environment	Learning, competence, education, skills, and employability	Agency and resilience	Additional (nonspecific) items
Basic Psychological Need Satisfaction and Frustration Scale (BPNSNF)		• *I feel close to the people I care about* • *I feel close to and connected with the people who are important to me* • *I have warm feelings towards the people I spend time with* • *The people that I like, also like me*		• *I can do things well* • *I am good at what I do* • *I am good at difficult tasks*	• *I feel free to choose which activities I do* • *I do the things I do because I really want to do them* • *I choose to do the things I do because I want to do them* • *I can achieve my goals*	
Global Youth Development Index		• *Expressing political views* • *Civic participation: volunteered time and helped a stranger*		• Enrolment in secondary education • Ability to read and write with understanding a short simple statement on everyday life • Five + years' experience using the internet		
Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS)	• *Feeling relaxed*	• *Feeling close to other people*		• *Thinking clearly*	• *Being able to make up your own mind about things* • *Dealing with problems well* • *Feeling useful*	• *Feeling optimistic about the future*
Stirling Wellbeing Scale	• *Feeling calm* • *Feeling cheerful about things* • *Feeling relaxed* • *Being in a good mood* • *Getting on well with people* • *Enjoying what each new day brings*	• *Thinking lots of people care for you*		• *Feeling that you are good at some things*	• *Thinking good things will happen in your life* • *Thinking there are many things that you can be proud of*	

Note: Items capturing *subjective* well-being are in italics.

Discussion and conclusion

This paper aimed to provide an overview of the adolescent well-being measurement landscape. We reviewed available indicators proposed for monitoring adolescent well-being, and questions included in multi-topic and well-being specific questionnaires currently used for data collection.

In our review of initiatives, we extracted recommended indicators pertaining to any domain of adolescent well-being focusing on the outcome, or the state of positive well-being. In doing so, we focused our efforts exclusively on indicators formulated in a positive way, avoiding those indicators referring to risks or negative aspects of well-being, in order to move beyond considering health and well-being as the absence of disease and death,[10] and to put more emphasis on strengthening the internal and external resources of adolescents.

Interestingly, we found that the vast majority of indicators currently recommended across adolescent initiatives relate to the lack of something or to negative behaviours, risks, mortality, disease or other negative outcomes, while few focus on positive aspects. Among the indicators formulated positively, we found that most were objective and focused on specific aspects such as specific behaviours, knowledge about specific topics, or literacy rates. The Adolescent Country Tracker[13] was one initiative including several subjective indicators, such as the adolescent´s sense of self-worth and experience of individual decision making, most of which are, however, still under development and therefore data on these indicators are not available. Other initiatives including some indicators on subjective adolescent well-being are the Global Reference List of Health Indicators for Adolescents,[16] INSPIRE,[18] and MMAP,[20] all including indicators based on adolescents reporting that their parents or guardians understood their problems and worries, and reporting that their parents or guardians really knew what they were doing with their free time. While these indicators certainly capture some useful information, they provide limited insight into adolescent's perceptions of their own well-being. One of the first steps towards improved measurement of adolescent well-being could be the inclusion of indicators on subjective well-being from the perspective of adolescents themselves in relevant initiatives. This could start, for example, with measures of perceived social support among adolescents, an important component in the prevention and treatment of mental health problems, as evidenced in a recent study.[34]

While subjective indicators were underrepresented across the adolescent initiatives we reviewed, this was less the case in terms of the representation of subjective questions in the multi-topic questionnaires assessed in our review. However, across the multi-topic questionnaires, coverage of the different domains was variable. For example, questions in the good health and optimum nutrition domain were mostly of objective nature, with the exception of one question around self-rated health in GAGE[25] and HBSC[29]. Self-rated health in adolescence has been shown to be a powerful predictor for a number of outcomes, including, for instance, multi-illness or prescribed medication in adulthood[35,36]. While subjective questions were more commonly used across the connectedness, positive values, and contribution to society domain, as well as the safety and a supportive environment domain, no single question was used in more than one questionnaire, indicating inconsistency in measuring these well-being domains. Beyond the domain-specific questions, however, the inclusion of life-satisfaction in two of the questionnaires provides an overall measure of self-perceived well-being that may be considered as a possible overarching tracer, but research would need to further assess validity and reliability of such a measure.

The same was true for the well-being specific questionnaires we reviewed, where we identified many questions that aimed to capture subjective aspects of the different domains of adolescent well-being, but no single question was used in more than one specific questionnaire. To advance measurement across well-being domains, future research should investigate which questions best capture each domain, including through targeted literature reviews, qualitative interviews with adolescents, or field studies on the validity of various questions. Subsequently, measurement of these questions would need to be harmonized across tools.

Our findings need to be interpreted in light of several limitations. First, our review was not systematic, which may have led to us missing relevant initiatives or questionnaires, and therefore potentially biased our findings. However, we believe that our review still provides a helpful introduction to and overview of the current adolescent well-being measurement landscape. Second, we took a narrow approach in focusing only on the measurement of positive aspects of adolescent well-being. While the measurement picture might have been more complete by including negative aspects as well, we purposefully took this approach to

shift towards holistic well-being rather than "ill-being", risk, disease and death. Third, we have exclusively extracted adolescent-specific indicators and questions used at multi-country level, and not considered national indicators and questions such as those developed by Canada[37] or the United Kingdom,[38] or those designed for other age groups that may be relevant to adolescent well-being. While we might have missed some information with this approach, it helped focus our work on our target age group. However, going forward, it might be useful to review work being done for other age groups, particularly children and young adults, and at national level, to further inform adolescent well-being measurement efforts. Fourth, in our extraction of indicators, we sometimes had to make subjective decisions in cases where indicators or questions could be interpreted both positively or negatively. For example, an indicator around the number of meals per day could be interpreted positively (adequate energy intake) or negatively (too few or too many meals). In these cases, we took a rather inclusive approach, which may have led to inclusion of indicators or questions some may interpret as assessing negative aspects of well-being. Fifth, the classification of indicators and questions under a specific domain might have been subjective in some cases. While our classification was guided by the description of well-being domains and subdomains in Ross et al.'s paper[4] as much as possible, some of our decisions might still be debatable. For example, we classified the indicator "% women aged 15-49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care" in the domain agency and resilience due to the decision-making aspect that Ross et al.[4] outline when defining each domain, however, there could also be arguments for classifying this indicator in the good health and optimum nutrition domain. Sixth, we did not include indicators or questions assessing inputs or processes, such as the implementation of policies or programmes aiming at improving adolescent well-being as we felt that a clear operationalization of adolescent well-being itself is a prerequisite for the development of a broader monitoring framework. To get a complete picture of adolescent well-being measurement, future work should be expanded to these types of indicators and questions.

The current review and analysis of the adolescent well-being measurement landscape is a first step towards improved adolescent well-being measurement. There are a number of

subsequent steps that will need to follow. First, our review could potentially be broadened by including the inverse of negative indicators where possible, as well as process indicators. It could also be further informed by work done for other age groups, and at national level. Second, core indicators to measure each of the domains of the well-being framework will need to be selected, and potentially, new indicators for domains not well covered by existing ones will need to be developed. The work by the GAMA Advisory Group currently underway provides an excellent platform for taking this forward and will ensure consistent approaches. Third, identified indicators will then need to be validated as necessary, and preferred data sources identified, followed by potential adjustments of data collection tools, including those presented in our review. Finally, based on this, a comprehensive global monitoring framework needs to be developed and agreed to support implementation of effective policy and programmes aiming at improving adolescent well-being.

This large body of work, along with the numerous deficits and inconsistencies around adolescent well-being measurement highlighted in this review underscores the necessity for having a global level, multi-stakeholder initiative to address adolescent well-being measurement in a comprehensive way. Only a concerted effort resulting in a consensus around adolescent well-being measurement will provide all stakeholders at country, regional and global levels with a robust and consistent way forward to effectively act upon the most relevant data and ultimately improve the well-being of all adolescents.

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