

Identifying key components of a global conceptual framework for adolescent nutrition: Review, nominal group technique and youth co-design

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ABSTRACT

Background Optimal nutrition during adolescence is critical to growth and development. While several adolescent nutrition frameworks exist, a comprehensive reference framework is needed, which reflects the priorities and views of young people and guides action to improve adolescent nutrition. We believe that partnering with young people is key to enabling agency and empowering change. This collaborative project between the Global Adolescent Nutrition Network (GANN) and youth partners aimed to develop a conceptual and actionable framework for adolescent nutrition. This paper presents the methods used to identify the need for and to prioritise the key components of a new framework.

Methods A literature review was conducted to identify and summarise available frameworks for adolescent nutrition (10–19 years). GANN members (N=7) and youth partners (N=4, 18–26 years) used nominal group technique (NGT) methodology to reach consensus on: (1) key characteristics, strengths and limitations of available frameworks; (2) key characteristics of an ideal framework; (3) the best available framework and (4) the need for a new framework.

Results NGT participants listed 37 strengths and limitations of the 15 frameworks identified in the review. These were classified into three themes: theory, usability and visibility. According to NGT participants, the most important ('top') theoretical features of an ideal framework were considering all forms of malnutrition¹ and including all levels of influence in adolescent nutrition¹. Most top usability and visibility features were applicable at global, regional and country levels, and a clear structure to depict levels of influence, respectively. The Innocenti Framework was deemed the best available framework. Most of the participants (90%) agreed that a new framework was needed. Youth partners advocated for greater representation of youth voices in frameworks and programmes related to adolescents. The salient features of the new framework, reached by consensus, emphasise an action-oriented approach that provides practical guidance to improve adolescent nutrition rather than solely explaining its determinants. It will be designed to be adaptable to different contexts, ensuring its visual design,

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Nutrition during adolescence (10–19 years) influences physical, cognitive and social development with impacts on health and well-being in current and future generations. Despite current momentum on adolescent and youth-centred global health and their essential role in the Agenda for Sustainable Development, adolescents remain relatively neglected in nutrition research, policies and programmes. Adolescents' voices also remain woefully absent in the spaces where critical decisions are made about their nutrition and health needs and how to address them.

⇒ Various frameworks have been proposed to guide research, clinical practice, programming, policy and systems change for adolescent health and nutrition, often in isolation. Currently, no reference framework comprehensively captures the determinants and consequences of adolescent malnutrition in all its forms, guides evidence generation, actions and investment to improve adolescent nutrition at global, regional and national levels.

language and content are accessible and engaging for a broad range of stakeholders.

Conclusion Through a novel youth codesign process, we identified key components to inform the development of a new conceptual framework to improve adolescent nutrition. While no new framework is presented in this article and is part of ongoing work, these findings provide guidance for future efforts to create a framework that can effectively inform actions and investments in global adolescent nutrition.

BACKGROUND

Adolescent nutrition

Nutrition during adolescence (10–19 years) influences physical, cognitive and social development with impacts on health and

WHAT THIS STUDY ADDS

- ⇒ Through a novel youth codesign process, members of the Global Adolescent Nutrition Network (GANN) and youth partners reviewed existing frameworks for adolescent nutrition, reaching consensus on the need for a new evidence-based framework to inform and guide actions to improve global adolescent nutrition.
- ⇒ Using nominal group technique methodology, GANN members and youth partners identified key characteristics of an ideal framework, which will then be developed in collaboration with youth to address significant gaps identified in adolescent nutrition research, policy and programming.
- ⇒ Key to this process was the contribution of young people to enable agency and empower change.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ This study identifies the desirable features of a new framework for adolescent nutrition. It will support the development of a new framework that will enable researchers, policymakers, youth advocates and implementing partners to prioritise informed actions and investments to improve adolescent nutrition at global, regional and national levels.

well-being in current and future generations.^{1 2} The diet and physical-activity behaviours adopted during adolescence often persist through adulthood, further influencing susceptibility to non-communicable diseases in later life.³ Yet globally, adolescents experience a triple burden of undernutrition, micronutrient deficiencies and overweight/obesity, which threatens their survival, their learning and economic opportunities and their quality of life.⁴ Despite the current momentum on adolescent and youth-centred global health and their essential role in the Agenda for Sustainable Development,⁵ adolescents remain relatively neglected in nutrition research, policies and programmes.⁶ Young people's voices also remain woefully absent in the spaces where critical decisions are made about their nutrition and health needs and how to address them.

The need for a conceptual framework for adolescent nutrition

Conceptual frameworks provide a theoretical and empirical evidence base to inform our understanding of public health challenges and how to address them^{7 8} as well as to measure progress. The United States Agency for International Development recommends the use of conceptual frameworks when conducting research on adolescents,⁹ and various frameworks have been proposed to guide research, clinical practice, programming, policy and systems change for adolescent health and nutrition, often in isolation. However, there is no reference framework which comprehensively captures the determinants and consequences of adolescent malnutrition in all its forms, informs evidence generation and availability of data and guides actions and investments to improve adolescent nutrition at global, regional and national levels, as there is for maternal and child malnutrition.¹⁰

The importance of youth partnership

Recommendation 10 in the *2021 Lancet series on Adolescent Nutrition* calls for active partnership with young people to enable them to advocate for change. 'All nutrition constituents should partner with young people in advocacy for diets that are healthy, safe and sustainable'.¹¹ Yet, existing frameworks for adolescent nutrition lack an embedded youth voice. Partnerships with young people need to be meaningful, providing them opportunities to express their views and to actively influence decisions.¹² Involving young people in decisions that affect them, and holding those in power accountable for their actions is central to supporting the empowerment of young people.¹² By establishing an enabling environment for partnership through meaningful involvement and contributions of young people in the framework development process, their voices are placed at the centre of the proposed conceptual framework, enabling their agency and fostering change.

Developing a novel framework for adolescent nutrition

In a collaborative project between global youth partners from Act4Food¹³ and the Global Adolescent Nutrition Network (GANN)¹⁴—a network of global experts in adolescent nutrition from academia to United Nations (UN) agencies, governments and international non-governmental organisations (NGOs), coordinated by the Emergency Nutrition Network (ENN)—we aimed to develop a conceptual and actionable framework to address adolescent malnutrition in all its forms. The framework will address the significant gaps identified in adolescent nutrition research, policy and programming, thereby enabling policymakers, youth advocates, implementing partners and donors to develop informed actions and investments to improve adolescent nutrition and monitor progress in physical health, well-being, social development and designated funding towards adolescent nutrition programming.

What is novel about this framework, is its innovative codesign approach, which actively involved both youth and global experts. Specifically, youth leaders (18–26 years) from Act4Food were invited to participate in the nominal group technique (NGT) process and to contribute to designing the conceptual framework for adolescent nutrition. Act4Food is a global community that was created by and for young people to make their voices heard by global decision-makers.¹³ The Act4Food youth leaders provide strategic support and contributions to deliver the Act4Food initiative's purpose to create a fairer food system for all through collective actions and campaigns and speaking out to decision-makers. By incorporating the perspectives of youth partners in the framework codesign, our framework builds on identified strengths, fills gaps and accurately depicts the needs and priorities of adolescents, while also responding to the views of young people.

Outline

In this paper, we present the methods used to identify a need for, and prioritise key components of, a conceptual

and actionable framework to improve adolescent nutrition. First, we present findings from a review of peer-reviewed and grey literature to identify and summarise existing frameworks for adolescent nutrition (10–19 years). Second, we outline the process and outcomes of using an NGT involving highly structured meetings with global adolescent nutrition experts (GANN members) and youth partners (18–26 years) to identify strengths and limitations of the available frameworks. Finally, we present how the NGT process was utilised to reach consensus across nutrition experts and youth partners on the need for a new adolescent nutrition framework as well as to prioritise key elements, objectives and audience to inform development and design of a new conceptual framework to inform and guide actions and investments to improve global adolescent nutrition.

METHODS

Review of frameworks on adolescent nutrition

A literature review was conducted to identify and present existing frameworks for adolescent nutrition, which were appraised through an NGT.¹⁵ While our search followed a systematic approach and applied rigid selection criteria, we did not appraise and synthesise the evidence as systematic reviews traditionally do, since the search and presentation of available frameworks aimed to serve as background information for the NGT workshops. Our search was guided by The Handbook of Research Synthesis and Meta-Analysis¹⁶ and followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses 2020 statement where applicable.¹⁷

Search strategy and selection criteria

One reviewer (SE-Q) developed the search strategy by testing the keywords and databases to search. This was discussed and finalised with the coauthors (SE-Q, CAKF, AAS, SK, AME, MLR, MSR, DS, KGvZ-K, SVW). The search was conducted using two electronic bibliographic databases (Medline and Web of Science) and grey literature sources: Open Grey, WHO, UNICEF, Advancing Nutrition, FAO, Gain Health, Scaling Up Nutrition, the State of Acute Malnutrition, ENN, Gender-Transformative Framework for Nutrition, Google. The first 50 entries of the grey literature sources were screened. Searches were carried out from inception to 24 January 2023 and no restrictions on language were made. The search included the following, and their related, terms: adolescent AND nutrition AND framework. The search strategy was tailored to the specific requirements of each database. The final search strategy for the electronic bibliographic databases and the grey literature websites is presented in online supplemental material 1.

Selection and data collection process

Titles and abstracts were independently screened by two reviewers (SE-Q, AAS) to determine whether the publications potentially included a framework related to adolescent nutrition. Titles and abstracts for publications

included by either or both reviewers were then screened by a third reviewer (SVW). Two reviewers (SE-Q and AAS) then independently screened the full-text articles according to the eligibility criteria outlined below, and reasons for exclusion were documented. The eligibility criteria were discussed and defined by the coauthors (SE-Q, CAKF, AAS, SK, AME, MLR, MSR, DS, KGvZ-K, SVW). The third reviewer (SVW) appraised all included publications and discrepancies were discussed and resolved.

Eligibility criteria to assess the inclusion of frameworks on adolescent nutrition

- Framework is illustrated as a visual figure.
- Significantly modified or updated from other included frameworks.
- The main focus is on nutritional status or malnutrition in all its forms (all or either).
- Applied to adolescents (10–19 years).
- Scientific papers and reports.
- Description of the framework is provided in the text (ie, process, determinants, relationships).
- Developed for/applied to regions or globally

Eligibility criteria to assess the exclusion of frameworks on adolescent nutrition

- No visual figure.
- Repetitive of an existing framework.
- The main focus is on health or well-being.
- Applied to older (>19) individuals or children (<10) only.
- Books, conference abstracts, conference posters and protocols
- No description is provided.
- Developed with data from one country or focused on one particular country

A data extraction form was developed and reviewed by members of the coauthor group (SE-Q, CAKF, AAS, SK, AME, MLR, MSR, DS, KGvZ-K, SVW) to extract relevant information from the included frameworks. Three reviewers (SE-Q, CAKF, AAS) extracted the data. A fourth reviewer (SVW) reviewed the results of data extraction to resolve any conflicts and ensure consistency. The key information extracted from the frameworks is presented in [box 1](#).

Results were reported as data sheets displaying the key information from [box 1](#). Since the data were to be appraised by NGT participants, we prepared two sets of data sheets tailored to levels of expertise: one for experts (see online supplemental material 2) and another for youth partners (online supplemental material 3).

NGT: reaching consensus

Consensus methods aim to determine the extent to which experts or lay people agree about a given issue. These methods do not seek unanimity of opinion but rather assess the extent of agreement and resolve disagreement. In public health, they are commonly used to synthesise

Box 1 Key information extracted from the available frameworks on adolescent nutrition

Publication details

- ⇒ Author(s)/organisation.
- ⇒ Title of the publication.
- ⇒ Year of publication.
- ⇒ Type of publication (eg, original article, report).

Framework characteristics

- ⇒ Framework title.
- ⇒ Context of the framework (eg, low and middle-income countries (LMICs), South Asia region).
- ⇒ Population framework is applicable to (age range and gender).
- ⇒ Background information (history, motivation).
- ⇒ Aims of the framework (eg, developing interventions, understanding, policymaking, agenda setting).
- ⇒ Nutrition focus or forms of malnutrition included in the framework (eg, all forms, micronutrient deficiency, overweight, thinness).
- ⇒ Framework development process (eg, stakeholder consultation, from literature review).
- ⇒ Summary of the framework description.
- ⇒ Other key concepts included in the framework (eg, health, well-being, sanitation, intergenerational nutrition).

Visual figure

information, especially where scientific evidence is lacking or contradictory.¹⁵

Since we lack a reference framework which comprehensively captures the determinants and consequences of adolescent malnutrition in all its forms, we sought to reach consensus on the strengths and limitations of existing frameworks, and/or the need for a new framework using the NGT methodology. This method uses highly structured group discussions to gather information on a topic of interest, generate ideas and develop consensus.¹⁸ The NGT normally involves four steps: ‘(1) silent generation of ideas by each individual, (2) round-robin recording of ideas, (3) structured and time-limited

discussion of ideas and (4) selection and ranking of ideas (voting)’.¹⁹

The NGT provided equal opportunity for a broad group of stakeholders working on adolescent nutrition to code-sign a conceptual and actionable framework relevant to their working context. Thus, using an NGT method with a mixed stakeholder group, we aimed to reach consensus on: (1) key characteristics, strengths and limitations of the 15 available frameworks; (2) key characteristics of an ideal framework; (3) the best available framework for global adolescent nutrition and (4) the need for a new framework. If a new framework was deemed necessary, the key features to be developed would be discussed as part of the NGT process.

NGT procedures and data collection

Members of existing professional networks, the GANN and Act4Food, were invited to participate as either experts or youth partners, respectively. A formal digital invitation to participate in the NGT workshops was sent to potential participants detailing the workshop aims and NGT procedures. Participants expressed interest in the study and their commitment to the NGT activities via email. Availability of all participants was considered before setting dates and times for the workshops. All workshops were conducted in English and recorded with the permission of the participants.

A total of seven experts and four youth partners took part in the NGT discussions, with no dropouts recorded (table 1). Experts on adolescent nutrition from the GANN represented a total of seven organisations across academia, government, UN organisations and NGOs from several global regions (Europe and Central Asia, South Asia, Eastern and Southern Africa, North America). Youth partners were all members of Act4Food based in four countries (Bangladesh, Pakistan, Philippines and Zimbabwe). They actively advocate for adolescent nutrition and participate in initiatives that promote youth engagement in global nutrition policy.

Table 1 Nominal group technique participants and meeting details

	Workshop 1—experts	Workshop 1—youth partners	Workshop 2	Workshop 3
Duration of the meetings	1 hour 22 min	1 hour 08 min	1 hour 27 min	59 min
Number of participants attending	6	2	6 (4 experts and 2 youth partners)	6 (4 experts and 2 youth partners)
Number of participants absent	1	2	5 (3 experts and 2 youth partners)	5 (3 experts and 2 youth partners)
Number of facilitators and roles	2 (meeting facilitator and technical facilitator)	2 (meeting facilitator and technical facilitator)	2 (meeting facilitator and technical facilitator)	2 (meeting facilitator and technical facilitator)
Workshop date	June 2023	June 2023	July 2023	October 2023
Main purpose of the workshop	To review existing frameworks and identify their strengths and limitations,	To review existing frameworks and identify their strengths and limitations,	To assess the need for a new adolescent nutrition framework.	To discuss final ideas and missing points.

They provide strategic support and contributions to deliver the Act4Food initiative's purpose and mission, each representing their home countries. The four youth partners had a foundational understanding of nutrition through their work with Act4Food, including advocacy training and engagement in adolescent health initiatives. However, they did not necessarily have formal academic training in nutrition, which reflects the diversity of perspectives we sought to include.

To ensure that the four youth partners had an equal opportunity to be heard within the NGT process, and the power imbalance between youth and expert numbers was mitigated, a youth only workshop was run with youth partners and only two of the lead research team (CF and SE-Q).

We conducted four online NGT workshops via Zoom (virtual meeting platform), which were moderated by two members of the coauthor team (CF and SE-Q). Details of the meetings are presented in [table 1](#). Prior to attending the first workshop, participants received the data extraction sheets of the 15 available frameworks. They were asked to read the data extraction sheets and to individually outline in bullet points the strengths and limitations of the available frameworks.

The first workshops were held separately for experts and youth partners in June 2023. This allowed youth partners to build trust with workshop moderators and to feel comfortable in providing contributions among a smaller group of peers, prior to working with the larger workshop group. First, an overview of the project and a summary of the 15 available frameworks were provided. Second, participants shared a strength or a limitation from their lists in a round-robin format, which was recorded on a Zoom virtual flip chart visible to the entire group. Once all listed items had been shared, participants discussed the proposed strengths and limitations to determine clarity and importance.

Strengths and limitations identified from the 15 frameworks presented in workshop 1 were categorised into three key areas of focus: (1) theory, (2) usability and (3) visibility. A quantitative survey was produced from the ideas generated in workshop 1 with questions categorised according to the key focal areas. All participants were asked, prior to attending the second workshop, to complete two online surveys via Qualtrics. In survey 1, participants were provided with multiple choice options and required to select their most important ('top') 5 for theory-related ideas, top 2 for usability-related ideas and top 1 for visibility-related ideas of an ideal framework. In survey 2, all 15 frameworks were provided in an online multiple-choice structure and participants were required to select their top three frameworks from those included that they considered 'best practice' or 'best representation' for a global adolescent nutrition framework. An open-ended question around 'why' they selected their 'top' framework followed the multichoice section.

The second workshop was held in July 2023 and brought together experts and youth partners. The findings from

the two online surveys were presented to the participants, allowing for a discussion on some of the features that were highly ranked by the group. Finally, participants voted in an online survey 3 via SurveyMonkey and Menti-meter, responding 'yes' or 'no' to the question 'do we need a new framework on adolescent nutrition?'.

The third workshop was held with experts and youth partners in October 2023. A summary of the methodology and the findings from the surveys and discussions was presented, allowing room for discussion on final ideas and missing points before developing a conceptual framework prototype. Participatory activities were captured using Jamboard by Google. NGT participants who could not attend the workshops online due to competing commitments were required to watch the workshop recordings, complete the surveys and provide structured feedback on the above activities related to the 15 frameworks included in the review.

Data analysis

Qualitative data from workshop transcripts, flipcharts and the Jamboard were analysed using conceptual content analysis. In conceptual content analysis, a concept is selected for examination, and its presence in the text is quantified and analysed.²⁰ This involves coding the text into manageable categories through a process of selective reduction, focusing on specific terms (explicit or implicit) and patterns relevant to the research question. For this study, qualitative data were organised and interpreted using an interactive process of data reduction in which meaningful sections of explicit data were coded into manageable content categories by two researchers (SE-Q and SVW).

Data from transcripts and flip charts of both workshop 1 (one with experts and one with youth partners) were analysed to collate and merge strengths and limitations into ideas. A master list combined all strengths and limitations from both groups, identified ideas that overlapped between groups and merged overlapping ideas. These were further categorised using qualitative content analysis, resulting in three main categories or concepts that were created from discussions: theory ideas (evidence-based, comprehensive representation of factors to cover the research question/topic), usability ideas (clearly defines how, where and for whom the framework can be used) and visual ideas (visual elements that make the framework easy to read, understand and use).

Quantitative data generated from surveys 1 and 2 were exported into Excel spreadsheets. Descriptive analysis of the survey data was conducted in Qualtrics and Excel. Categorical data were summarised as counts (n) and percentages of each category. Cross-tabulations % were used to describe any relationships between categorical variables. For survey 3, we calculated the percentage agreement of 'yes' responses from participants to the question 'do we need a new framework on adolescent nutrition?' using Mentimeter and SurveyMonkey. An acceptable level of consensus was set at >70% participant

agreement.¹⁵ Finally, qualitative data were compared with the quantitative scores from the surveys to contextualise and position group priorities. Quantitative and qualitative findings were compared between youth partners and experts to ensure differences between groups were captured and considered in the framework development.

Ethical clearance was not sought for this study. The methodical search and presentation of available resources did not include human subjects and was thus exempt from ethical review. Since the NGT workshops took the form of stakeholder engagement with professional co-collaborators and coauthors of the paper who participated for the purpose of sharing information and reaching consensus around framework development, the process did not require ethical clearance.²¹ In the formal digital invitation detailing the study goals and NGT procedures, the terms of participation were explained, and it was understood that involvement would include coauthorship and participation in the NGT group producing publishable data. Youth partners are all over 18 years of age and professional members of Act4Food. Patients and the public were not involved in the design, or conduct, or reporting or dissemination plans of our research.

RESULTS

Results of the review

Search findings

The search located 3942 records from databases and 243 records from grey literature (online supplemental figure 1). Deduplication resulted in a total of 3334 records that were screened. Title and abstract screening resulted in the exclusion of 3281 records. Out of the 53 full-text records assessed for eligibility, 40 did not meet the inclusion criteria. Two publications were identified by NGT participants and were assessed for eligibility. A total of 15 frameworks on adolescent nutrition met the inclusion criteria of this review.

Characteristics of the included conceptual frameworks

Information on the publication details (title, author, year and type), framework characteristics (title, location, target population, background, aims, nutrition focus, framework development process, description summary and other key concepts) and visual figure is provided for the 15 eligible frameworks on adolescent nutrition in online supplemental materials 2 and 3. A summary table including these 15 conceptual frameworks is found in online supplemental table 1. This review includes frameworks extracted from five reports, three original articles, three reviews, two guidelines and two comments. Most of the eligible evidence (14/15) was published in the last 8 years. One framework (the oldest) was published in 2005. Regarding geographical location of the frameworks, 11 were global, 2 did not mention the location, 1 targeted LMICs and 1 was specific to Africa. The nutrition focus varied across frameworks, featuring all forms of malnutrition in four frameworks, overweight/obesity

in four, growth and nutritional status in three, the food environment in three and girls' nutrition in one. Finally, 11 of the frameworks were applied to programming, 7 to research, 3 to policy and 2 to clinical practice, some of the frameworks falling into more than one domain.

NGT results

NGT discussions: strengths and limitations of the available frameworks

During the first workshop, NGT participants shared and discussed the strengths and limitations of the 15 available frameworks identified from the review. Using a deductive (top-down) approach in the conceptual content analysis, a list of 37 ideas were extracted from the first workshop discussions on the strengths and limitations: 24 theory-related, 9 usability-related and 4 visual-related (see table 2).

Qualitative analysis from workshop 1 revealed further nuances of the above list of ideas. Frameworks that were specific to a group of adolescents (eg, school-going adolescents, adolescent girls) or considered the geographical setting were valued positively by youth partners as these frameworks recognise that adolescents are not a homogeneous group. However, both experts and youth partners pointed out that this could also be a limitation as some frameworks exclude many other groups of adolescents and contexts. The lack of variety representing different adolescent groups in the current frameworks was highlighted: *A gap that I see is a framework that applies to all the range of adolescents and diversity, boys, girls, unmarried, married, in school, out school, 10 years old, 19 years old, that a bit of a gap that I see, a framework that applies to that range of development* (Expert 1).

There was a general acknowledgement that the food systems depicted in the frameworks were not adolescent friendly. For example, current frameworks barely consider how adolescents navigate those food systems, how they make choices and their exposure to marketing or mixed messages on healthy/unhealthy food. Experts went beyond the food system during the workshop discussion. The presence of different systems such as health, education or social protection and their linkages to each other and to adolescent nutrition were found to be missing in the available frameworks.

A common perception among experts and youth partners was the lack of engagement with adolescents in the presented frameworks. One youth partner advocated for the representation of adolescent voices in the frameworks or in the programmes guided by them. Youth partners expressed that adolescents are not being heard. Cultural and geographical context was perceived as barrier for adolescent participation and consultation: *in North America or Europe, adolescents are able to speak out more freely but in some countries in Africa or Asia, adolescents have to go through a hierarchical system to speak the issues that we have. Culturally we are not mandated to speak about these issues to adults around. Even these issues affect us, you cannot*

Table 2 Ideas from the strengths and limitations of the available frameworks discussed by the NGT group during workshop 1

Theory-related	Usability-related	Visual-related
1. Considers intergenerational impacts of nutrition 2. Considers all forms of malnutrition rather than a single manifestation (eg, obesity) 3. Considers adolescents in emergency settings 4. Considers the role of gender 5. Framework takes a positive approach (improved nutrition as an outcome instead of malnutrition) 6. Includes all levels of influence in adolescent nutrition for example, from most immediate at individual level to most distant at macro level policy (eg, complex social, economic, cultural, political, legislation, biological, environmental, behavioural and policy factors) 7. Considers out-of-school adolescents 8. Includes parents and teachers as key influencers of adolescent nutrition 9. Based on current empirical evidence 10. Understandable to the full target audience (eg, adolescents, clinicians, researchers, policy-makers) 11. Includes an embedded youth voice 12. Considers the food system 13. Framework context clearly defined, for example, global, regional or national level 14. Incorporates factors and/or intervention strategies across all environments in which adolescents exist, for example, school setting, rural/urban/slum community 15. Considers micronutrient deficiencies 16. Recognises the heterogeneity of adolescents and applicable across all groups of adolescents, for example, age, life stage, gender, religion, location/setting. 17. Considers influence/level of adolescent media/digital engagement 18. Framework is adaptable to all contexts for example, clinical, programmatic and location 19. Considers influence of adolescent pregnancy and parenting 20. Considers the role of adolescents in income generation for their household and livelihood. 21. Considers health behaviours 22. Considers mental health 23. Includes clinical interventions for malnutrition 24. Good balance between determinants and/or consequences and interventions	1. Clarity on the aims of the framework 2. Clarity on the direction of association between factors (association vs causality) 3. Applicable at global, regional and country level 4. Clearly defined target group (eg, age, gender) 5. Framework interventions/strategies define effective, scalable and sustainable approaches for implementation 6. Clear and informative title 7. Framework accompanied by sufficient written and visual explanation 8. Clear linkages/arrow directions 9. Balanced amount of detail and explanation	1. Visually attractive 2. Use of icons where applicable 3. Clear structure to depict levels of influence 4. Smart colour coding
NGT, nominal group technique.		

...speak when adults are around, or adults won't speak for you (Youth partner 1).

In general, all frameworks were easily understood by NGT participants. However, the experts observed unclear directions, levels of influence and objectives of some of the frameworks, which was identified as a limitation. In addition, a youth partner noticed that while she is experienced in the topic of adolescent nutrition, the available frameworks may not be so simple for other adolescents who are less familiar with the topic. Technical and clinical frameworks such as frameworks 3 and 4 were identified as potentially difficult to understand by adolescents, which could create a barrier between experts and other audiences. Nonetheless, a youth partner identified these technical and clinical frameworks as favourable/desirable: *if it is technical, it gives more credibility to adolescent nutrition. I*

understand why such issues are dumbed down and that is for making it understandable to young people. But when you engage with parliamentarians and decision-makers, if you present the dumped down version, they won't take it seriously because it is coming from a 16-year-old. However, if we have scientific and clinical evidence to back up your claims or if you use scientific jargon, then it has impact on them and credibility. We may be tempted to dumb it down to suit young people but then it waters it down (youth partner 2).

NGT discussions: top features of the ideal framework

Prior to attending the second workshop, participants selected their top five theory, two usability and one visibility-related ideas in the online survey 1. This survey was completed by n=11 participants (youth partners=4 and experts=7).

Theory-related ideas

The two theory components, which most (73%, n=8) participants selected in their top five elements included: *considers all forms of malnutrition rather than a single manifestation (eg, obesity)* and *includes all levels of influence in adolescent nutrition for example, from most immediate at individual level to most distant at macro level policy (eg, complex social, economic, cultural, political, legislation, biological, environmental, behavioural and policy factors)*. Followed by 45%, n=5 of participants who indicated that *Considers the role of gender* was an important theoretical component to include. Multiple elements were then ranked following the identified top three components. See [table 3](#) for additional theoretical items ranked following the top three.

No participants ranked the element *Considers micro-nutrient deficiencies*, *Considers influence/level of adolescent media/digital engagement*, *Considers influence of adolescent pregnancy and parenting*, *Considers the role of adolescents in income generation for their household and livelihood*, *Considers mental health* and *Includes clinical interventions for malnutrition* in their top five.

When comparing differences between what experts and youth partners ranked in their top five theory ideas, the largest differences were related to inclusion of a youth voice (3 experts vs 0 youth) and the audience that the framework is inclusive of. Youth partners were more likely to select marginalised adolescent groups in their top five theory ideas, for example, *Considers adolescents in emergency settings* (4 of youth v 0 experts ranked in the top five) and who they saw as key stakeholders *Inclusion of parents and teachers as key influencers of adolescent nutrition* (1 youth v 0 experts ranked in the top five) rather than the need for a youth voice. Despite advocating for greater representation of youth voices during the NGT workshops, youth members prioritised additional key theory elements in their survey responses. These included marginalised populations, as the nature of the NGT process already implied the framework would have a youth voice embedded. Youth partners also prioritised *Considers intergenerational impacts of nutrition* (2 youth vs 1 expert), bringing lived experience with this priority. Expert priorities were focused on technical aspects such as *Based on current empirical evidence* (2 experts v 0 youth) and *Framework is adaptable to all contexts for example, clinical, programmatic and location* (2 experts v 0 youth).

Usability-related ideas

When asked to rank their top two elements from workshop 1 to consider in determining how the framework will be used, just over half (54.5%, n=6) of participants identified the need for the framework to be *Applicable at a global, regional and country level*. Just under half the participants, then selected in their top two elements, the need for a framework to aid *interventions/strategies define effective, scalable and sustainable approaches for implementation* (45.5%, n=5). *Clarity on the aims of the framework* and for the *framework accompanied by sufficient written and visual explanation* were then considered in the top two important

elements for usability by 36.4% (n=4) participants. The title was considered least important by participants (0%), see [table 3](#).

When looking at differences between youth and expert participants, all youth partners (n=4) saw the need for the framework to be *Applicable at global, regional and country level*, whereas only two experts considered this important. Experts prioritised *Clarity on the aims of the framework* (0 youth), *framework interventions/strategies define effective, scalable and sustainable approaches for implementation* (n=4 expert vs n=1 youth rep) and *Framework accompanied by sufficient written and visual explanation* (n=3 expert vs n=1 youth rep). Youth partners prioritised the need for a *balanced amount of detail and explanation* and *clear linkages/arrow directions* (n=4 youth vs 0% expert). See [table 3](#).

Visibility-related ideas

When asked to select their top element from workshop 1 to consider in determining the visual features of the framework, for over half of the participants (54.5%, n=6) their top priority was a *clear structure to depict levels of influence*. A clear structure was followed by the need for the framework to be *visually attractive* (27.3%, n=3). Only one participant indicated that *smart colour coding* or the *use of icons where applicable* was a top visual feature.

Between experts and youth partners, the main difference in what was ranked as an important aspect for visibility related to the use of icons—this was seen as a priority by one of the youth partners but by none of the experts. Experts saw the need for a visually attractive framework, but this was not a priority for youth partners (three experts vs 0 youth), see [table 3](#).

During workshop 2, NGT participants discussed the results from [table 3](#), emphasising and reviewing the idea of *considers intergenerational impacts of nutrition*. Several experts proposed substituting ‘intergenerational’ with ‘life-course’ to emphasise an adolescent-centred approach. This shift would prioritise improving outcomes for adolescents in their own right, rather than framing nutrition benefits solely in terms of intergenerational impacts. As one expert explained: *I would change the wording to the life course...[being] about that individual adolescent and what it means for them throughout their life, but not necessarily doing it for someone else's benefit* (expert 2). This perspective does not exclude other life stages but places greater emphasis on adolescent nutrition, highlighting its impact both on adolescents themselves and, if they choose to become parents, on the next generation. While the experts preferred the term ‘life-course’ for its adolescent-centred focus, they also recognised that ‘intergenerational’ may resonate more strongly with donors.

Youth partners were of the view that the current efforts to end malnutrition may not benefit this adolescence generation but only future generations: *I may be stunted, I might be obese, but I don't want my child to be stunted or obese. So that's what I'm working towards* (Youth partner 3). Youth partners had a good understanding of intergenerational consequences of malnutrition and were willing to be the

Table 3 Workshop 2, survey 1: theoretical, usability and visibility components generated in workshop 1 and ranked by importance in workshop 2

Theoretical components	Total % (n=11)	Youth partner (n=4)	Expert (n=7)
Considers all forms of malnutrition rather than a single manifestation (eg, obesity)	72.7 (8)	3	5
Includes all levels of influence in adolescent nutrition for example, from most immediate at individual level to most distant at macro level policy (eg, complex social, economic, cultural, political, legislation, biological, environmental, behavioural and policy factors)	72.7 (8)	4	4
Considers the role of gender	45.5 (5)	2	3
Framework takes a positive approach (improved nutrition as an outcome instead of malnutrition)	36.4 (4)	0	4
Considers the food system	36.4 (4)	1	3
Good balance between determinants and/or consequences and interventions	36.4 (4)	1	3
Considers intergenerational impacts of nutrition	27.3 (3)	2	1
Includes an embedded youth voice	27.3 (3)	0	3
Incorporates factors and/or intervention strategies across all environments in which adolescents exist, for example, school setting, rural/urban/slum community	27.3 (3)	2	1
Considers adolescents in emergency settings	18.2 (2)	2	0
Based on current empirical evidence	18.2 (2)	0	2
Framework context clearly defined, for example, global, regional or national level	18.2 (2)	1	1
Recognises the heterogeneity of adolescents and applicable across all groups of adolescents, for example, age, life stage, gender, religion, location/setting.	18.2 (2)	0	2
Framework is adaptable to all contexts for example, clinical, programmatic and location	18.29 (2)	0	2
Includes parents and teachers as key influencers of adolescent nutrition	9.1 (1)	1	0
Understandable to the full target audience (eg, adolescents, clinicians, researchers, policy-makers)	9.1 (1)	1	0
Considers health behaviours	9.1 (1)	0	1
Considers out-of-school adolescents	0	0	0
Considers micronutrient deficiencies	0	0	0
Considers influence/level of adolescent media/digital engagement	0	0	0
Considers influence of adolescent pregnancy and parenting	0	0	0
Considers the role of adolescents in income generation for their household and livelihood.	0	0	0
Considers mental health	0	0	0
Includes clinical interventions for malnutrition	0	0	0
Usability components			
Applicable at global, regional and country level	54.5 (6)	4	2
Framework interventions/strategies define effective, scalable and sustainable approaches for implementation	45.5 (5)	1	4
Clarity on the aims of the framework	36.4 (4)	3	1
Framework accompanied by sufficient written and visual explanation	36.4 (4)	3	1
Clearly defined target group (eg, age, gender)	18.2 (2)	1	1
Balanced amount of detail and explanation	18.2 (2)	2	0
Clarity on the direction of association between factors (association vs causality)	9.1 (1)	1	0
Clear linkages/arrow directions	9.1 (1)	0	1
Clear and informative title	0	0	0
Visibility components			
Clear structure to depict levels of influence	54.5 (6)	3	3
Visually attractive	27.3 (3)	0	3
Smart colour coding	9.1 (1)	0	1
Use of icons where applicable	9.1 (1)	1	0

Table 4 Workshop 2, survey 2: top-ranked existing frameworks

Top framework	Total % (n=11)	Youth partner (n=4)	Expert (n=7)
Framework 5: The Innocenti Framework for food systems and children's and adolescents' diets 2020 ²²	54.5 (6)	4	2
Framework 6: Framework of interventions and determinants of adolescent nutrition 2018 ²⁴	45.5 (5)	0	5
Framework 15: A conceptual framework for adolescent growth and nutrition 2022 ⁴⁶	36.4 (4)	1	3
Framework 11: Conceptual Framework for Adolescent Girls' Nutrition 2018 ⁴⁷	36.4 (4)	1	3
Framework 2: The African Urban Food Environments Framework 2021 ²³	27.3 (3)	3	0
Framework 10: Strategic framework for UNICEF programming for the prevention of all forms of malnutrition in middle childhood and adolescence 2021 ⁴	27.3 (3)	0	3
Framework 3: Structured framework on the nutritional management of overweight and obesity in children and adolescents 2019 ²⁵	27.3 (3)	2	1
Framework 7: Creating enabling environments for overweight prevention 2022 ³⁵	18.2 (2)	1	1
Framework 8: FAO's school food and nutrition framework 2019 ⁴⁸	9.1 (1)	1	0
Framework 12: Elements of global standards for health promoting schools and their relevance for tackling drivers of the global epidemic of malnutrition 2022 ³⁰	9.1 (1)	1	0
Framework 13: Comprehensive framework for adolescent health 2018 ⁴⁹	9.1 (1)	1	0
Framework 1: Conceptual Framework for the Relationships of Weight Stigma, Overweight/Obesity, Perceptions of Weight Status and Risk Behaviours 2015 ³⁶	0	0	0
Framework 4: Adolescent Obesity Modelling: A Framework of Socio-Economic Analysis on Public Health 2021 ²⁶	0	0	0
Framework 9: UNICEF Conceptual Framework on the Determinants of Maternal and Child Nutrition, 2020. A framework for the prevention of malnutrition in all its forms 2020 ³¹	0	0	0
Framework 14: A conceptual framework of nutritional problems and causal factors in adolescence 2005 ³²	0	0	0

actors to drive change. Both youth partners and experts recognised that inequities exist and while ensuring girls' nutritional needs are met is key to breaking the intergenerational cycle of malnutrition and their health should be equally important to their infant's health, adolescent boys must not be forgotten in a framework on adolescent nutrition, which is gender responsive and/or considers a feminist perspective. Considering the context was perceived as very important for youth partners. This is reflected as a top idea for the theory (*includes all levels of influence on adolescent nutrition*) and usability (*applicable at global, regional and country level*) categories from the survey (table 3).

NGT discussions: top available frameworks

When participants were asked to identify their top existing framework and why, framework 5, *The Innocenti Framework for food systems and children's and adolescents' diets 2020*²² was voted 'top' framework by 54% (n=6) of NGT participants (table 4). Short answer responses indicated that the framework was chosen due to its consideration of food systems and environments that modify nutrition habits. All youth partners selected this as their 'top' framework (n=4 youth) due to the use and appeal of icons in the framework. From a visibility aspect, this framework was also considered visually attractive and colourful. Youth partners (n=3) rather saw the importance of framework

2 *The African Urban Food Environments Framework 2021*,²³ with a critical focus on food environments.

Framework 6 *Framework of interventions and determinants of adolescent nutrition*²⁴ was highly considered by experts alone (n=5 experts, n=0 youth) due to its holistic approach to adolescent nutrition including diet, behaviours and social determinants while taking a positive approach and acknowledging the heterogeneity of adolescents. Half of the experts (n=3) viewed framework 10 *Strategic framework for UNICEF programming for the prevention of all forms of malnutrition in middle childhood and adolescence 2021*⁴ for the positive approach while having a clear target audience and structure.

NGT discussions: need for a new framework

From the 11 NGT members, one did not vote. Nine out of 10 NGT members voted 'yes' for the need to develop a new framework. The participant who voted against was an expert. Thus, at 90%, participant agreement was above the threshold determined a priori (70%) for reaching a consensus on moving forward with the development of a new conceptual framework on adolescent nutrition.

NGT participants reported that a new framework should include not only food systems but other systems such as health, education and social protection as well as wider determinants such as climate, political and economic to create a better environment for adolescents.

The framework should be evidence-based, applicable to all contexts, cover all forms of malnutrition taking a positive approach (ie, aiming to improve adolescent nutrition, rather than address malnutrition) and include actions to advocate for optimal adolescent nutrition. The design should be visually attractive and self-explanatory (no need for a narrative description). Both youth partners and experts highlighted the importance of building a new framework that resonates with diverse audiences. Particularly, a framework that could be understood and owned by adolescents. However, several experts acknowledged that the NGT group does not represent all relevant voices/audiences and advised to be aware of our own biases when developing the new framework.

As the group was asked to prioritise or select the top features of an ideal framework, they expressed that all the ideas brought up in the list and during the discussions were essential to include in the new framework, prioritising the most important ideas while ensuring a balance between key elements and not trying to be everything for everyone. It was also suggested to combine the top available frameworks as a platform for development of the new framework.

NGT discussion: objectives and key audiences of the new conceptual framework

After reviewing the limitations of the available frameworks, establishing the top features of an ideal framework and reaching consensus on the need for a new framework in workshops 1 and 2, the group decided that further discussion was required to determine the objectives and target audiences of the new framework.

Thus, the NGT participants appraised objectives and audiences for the new framework during workshop 3. These are listed below:

Objectives

- ▶ To guide and accelerate/prioritise action and investment to improve adolescent nutrition.
- ▶ To be used as a tool for advocacy and decision-making and to empower adolescents to develop greater agency.
- ▶ To inform monitoring and tracking of progress towards achieving optimal adolescent nutrition.

Audiences

- ▶ Donors
- ▶ Country governments and policymakers
- ▶ Partner organisations (UN agencies, NGOs, youth organisations, private sector, civil society).
- ▶ Youth leaders and change-makers.
- ▶ Academic institutions and researchers.

Reflected in the above list, *action* was key for the NGT participants when formulating the objectives of the new framework: *I think in thinking of the intention of this framework, it's not to explain what are the determinants and causes of adolescent nutrition. It's about action, I think that's the key for me. So, I think it does go back. It's not just explaining adolescent*

nutrition, [it is] how we move forward (expert 3). The group emphasised the dynamic interplay between the objectives of the framework and its intended audiences. They noted that the objectives define whom the framework is designed for as well as that the target audiences shape the framework's objectives. Similarly, the group highlighted that the targeted audiences significantly influence the framework's presentation. This includes its visual design, which must appeal to and resonate with the intended users; the language used, which needs to be accessible and appropriate for the audience's level of expertise; and the selection of content, which should focus on actions applicable to different contexts. Experts in the group stressed the importance of including a wide range of audiences, avoiding a narrow focus on academic circles. They highlighted that some existing frameworks serve primarily as explanatory mapping exercises, resonating only with technical nutrition experts and failing to engage with a broad audience.

DISCUSSION

This study used a combination of methods (literature review and NGT) to identify available frameworks on adolescent nutrition and reach consensus on the need for developing a new framework to address adolescent malnutrition in all its forms. Through collaboration between global youth partners and a group of experts on adolescent nutrition from the GANN, we ensured meaningful participation by youth partners throughout the process and provided an embedded platform for both experts and youth partners to acquire knowledge, skills and build a sense of active agency to help create change together (UNICEF 2018). The review identified and summarised 15 frameworks on adolescent nutrition, which were presented to the NGT participants for their examination. The participants listed strengths and limitations of these frameworks while prioritising the features of an ideal framework. The findings from the NGT surveys and discussions reflected the lack of a reference framework on adolescent nutrition, which is fit-for-purpose. Thus, after voting for their top available frameworks, 90% agreed on the need to develop a new conceptual framework to guide actions and investments to improve adolescent nutrition and monitor progress.

The review revealed that only a few of the available frameworks^{23 25 26} detailed the development process and methodology used (see online supplemental material 2). Existing frameworks also fail to engage a broad range of stakeholders. We used two systematic methods that can lead to replicable outcomes as well as comprehensively reported all the steps followed in this paper. The application of the NGT method allowed this work to go beyond a mere explanatory concept mapping of the existing frameworks, by obtaining structured and in-depth insights into the preferred features of a framework from key stakeholders. The authors intend to develop a new framework for adolescent nutrition based

on the findings of this study. This framework will incorporate the strengths of existing frameworks, address identified gaps and adequately reflect the needs and priorities of adolescents. It will also integrate the perspectives of young people and other key stakeholders, ensuring it is actionable and relevant across diverse contexts.

This project enabled the NGT participants to elicit diverse priorities reflecting their individual adolescent nutrition knowledge and experiences. The theory-related ideas selected as the most important for the NGT participants were *considering all forms of malnutrition, including all levels of influence in adolescent nutrition and considering the role of gender*. This prioritisation was underpinned by several reasons. Despite growing evidence on the burden of multiple forms of malnutrition in the adolescent population,^{27–29} only four of the available frameworks focused on all forms of malnutrition.^{4 30–32} Many of the NGT participants expressed the importance of representing gender in a framework on adolescent nutrition as dietary patterns are heavily influenced by gender disparity and norms.³³ In addition, adolescent girls are at greater risk of malnutrition due to the increased nutritional needs associated with menstruation, pregnancy and lactation.³⁴ Yet, gender was not captured in 5 of the 15 available frameworks.^{25 30 32 35 36} *Including all levels of influence* was also in the top theory ideal features coinciding with *clear structure to depict levels of influence* from the top visibility features of an ideal framework. As reflected during the NGT workshops, participants negatively perceived unclear directions and layers. In the usability category, the top feature of an ideal framework was to be *applicable at global, regional and country level*. The existing frameworks seem to align with this preferred feature as 10 out of 15 were applicable globally. It is worth noting that while some features were prioritised over others, all features were regarded as important and relevant by participants during the NGT workshops. Finally, the experts and youth partners suggested the aims and key audiences of the new conceptual framework which, along with the list of ideal features, will be ultimately considered when building the new conceptual framework.

Although the NGT is traditionally conducted in person, involves ranking the top five ideas using recording cards, and does not require prior preparation from participants, various research projects have developed and applied modifications to this process.^{15 37} Adapting NGT to online formats has gained popularity in recent years due to travelling constraints, limited resources, lack of diversity and burden of logistics.^{38–41} We used an online format to engage with a wider range of experts and youth partners not being limited to one geographical location. Using a virtual platform for the NGT meetings usually leads to other adaptations such as preparing the participants before the session by informing them about the research procedures and giving them time to reflect on their views or research question.^{37 40} Our NGT participants received preliminary ‘homework’ prior to workshops 1 and 2, thereby saving time and reducing the

likelihood of ‘Zoom fatigue’.^{38 42} Another adaptation to the online format is the voting/ranking phase. Typically, each participant selects five ideas and ranks them (on index cards) from most important to least important. After participants rank their responses in order of priority, the moderator collates the marks awarded to the statements chosen by the participants, to produce a hierarchy of identified statements.^{37 43} However, voting frequency calculated for the top ideas can also estimate their popularity.^{38 40} Using online voting tools (Qualtrics, SurveyMonkey, Mentimeter) allowed for a faster process of counting to share the results with the participants for further discussion.

The NGT method was an ideal approach for the second and third workshops, allowing both youth partners and experts to participate equally while minimising the impact of group dynamics and the influence of greater technical knowledge, which was more prominent in the first workshop when youth and experts were placed in separate groups. Using a combination of the whole group and subgroups throughout the NGT process could elicit deeper discussions and thereby better outcomes.^{38 42} Nevertheless, the structured nature of the NGT method should prevent individuals or subgroups from dominating the discussion.^{15 18 44}

Along with the unique NGT process used in the development of the framework was the novel partnership with youth partners, and nutrition experts from organisations across academia, government, UN organisations and NGOs. The inclusion of both youth partners and nutrition experts allowed for a deeper and more nuanced understanding of lived experience, research, policy and nutrition programming needs. Young people have an unequivocal understanding of their own needs and the challenges they face to consume a healthy diet.⁴⁵ Hearing from youth partners about their lived experiences and priorities throughout the NGT process has allowed for the framework development to be better informed around how youth partners can engage with the framework and empower change in their communities. Active participation in discussions enabled youth partners to emphasise the importance of the framework extending beyond the causes and consequences of adolescent malnutrition. They also highlighted the need to incorporate advocacy opportunities for all adolescents. The opportunity to partner with youth partners throughout codesign process of the framework development not only allows young people to express their views but also influence a key foundation to future nutrition policy and advocacy, but their engagement in active participation allows for skill acquisition in research methods.

The findings of this study underscore the importance of creating a new framework rather than simply revising existing ones. The novel youth codesign process will inform the development of a new conceptual framework to guide actions to improve global adolescent nutrition. A newly developed framework, as envisioned by this study, could address significant gaps identified in adolescent

nutrition research, policy, advocacy and programming. It will enable policymakers, youth advocates and implementing partners to develop informed actions to improve adolescent nutrition and monitor progress.

Ultimately, this novel approach to framework development has the potential to serve as a model for designing frameworks in other areas of public health. By actively involving diverse stakeholders, including those directly affected by the issues being addressed, this method ensures that frameworks are more relevant, actionable and aligned with the needs of target populations.

Limitations and strengths

This study has some limitations that should be noted. Our NGT group does not represent all key actors identified during workshop 3 as key target audiences for the new framework, potentially leading to a biased emphasis on the views of the agencies our participants represent. In addition, not all participants were present during the online workshops but gave comprehensive and structured feedback after catching up with the recordings of the workshops. This limited their ability to participate in the in-depth discussions during the workshops, although they could still meaningfully contribute to the content. Although the online workshops did not last longer than 1 hour and a half, participants may have lost interest in the discussion or struggled with concentration since there were no breaks.

Power imbalances were managed by an experienced facilitator who considered all participants' views equally and balanced the interventions between participants, minimising dominance effects. While NGT outcomes are usually reported using quantitative data only,¹⁸ we analysed and presented qualitative data, which provided context and rationale for the generated and prioritised ideas. We also compared youth partners and experts' findings quantitatively and qualitatively elucidating the reasons for divergence.

CONCLUSIONS

Through the novel use of an NGT method with an embedded youth participation process, members of the GANN and youth partners reviewed available frameworks for adolescent nutrition, reaching consensus on the need for a new evidence-based framework to inform and guide actions to improve global adolescent nutrition. Review of existing frameworks through the NGT process determined the need for a framework that captures determinants and consequences of all forms of adolescent malnutrition, guides evidence generation, advocacy and investment to improve adolescent nutrition. Furthermore, using NGT methodology, GANN members and youth partners identified key characteristics of an ideal framework, which will enable the development of a conceptual and actionable framework for adolescent nutrition. The forthcoming framework aims to facilitate policymakers, youth advocates and implementing partners to focus

research and data collection efforts, to develop informed actions and investments to improve adolescent nutrition at global, regional and national levels and to monitor progress. Key to this process was the contribution by young people to enable agency and empower change.

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