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Adolescent Health Research Priorities: Report of a Technical Consultation

13th and 14th October 2015

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This publication contains the report of the Technical Consultation on Adolescent Health Research Priorities that was held in WHO Geneva on 13th and 14th October 2015 and does not necessarily represent the decisions or policies of the World Health Organization.

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1. Purpose of the meeting

The purpose of the meeting was to contribute to defining global adolescent health research priorities and the role that WHO might play in these. The meeting had a particular focus on the health of adolescents, young people, and youth in low and middle-income countries.

2. Background and Rationale

During 2015, the Department of Maternal, Newborn, Child and Adolescent Health (MCA) at WHO Headquarters in Geneva conducted an exercise to establish global research priorities in adolescent health, which used the Child Health and Nutrition Research Initiative (CHNRI) methodology. This exercise built on earlier work using a similar CHNRI methodology that established research priorities in adolescent sexual and reproductive health and HIV that was published in 2013, but extended it to cover eight additional areas: communicable diseases, health systems, injuries and violence, management of NCDs, mental health, nutrition, physical activity, and substance use.

There are approximately 1.2 billion adolescents (10-19 years) globally, roughly 90% of whom live in low and middle-income countries. The relative importance of both mortality and morbidity among adolescents is increasing as the burden of disease among young children has fallen rapidly over the past two decades. However, the importance of the health of adolescents far exceeds immediate mortality and morbidity as many risk or protective factors for future adult disease either start or are consolidated during the second decade of life. Although much is known about what should be done to improve adolescent health, research on adolescent health has tended to lag behind research in both child and adult health.

WHO convened a technical consultation with experts on 13th and 14th October 2015 to review the findings from the adolescent health research priorities exercise, which had used a modification of the Child Health and Nutrition Research Initiative (CHNRI) approach,[1] and to advise on how best to disseminate its results. This was done on Day 1 of the consultation. In addition, on Day 2, three specific research areas were discussed in more detail in groups. These are potential issues that might be taken forward by WHO. All three areas had been confirmed as being important during the research prioritization exercise. Within each research area, expert advice was sought on the most important research question that WHO should consider soliciting funds for, and the most appropriate settings and study design for each of these.

3. Specific meeting objectives

1. To review the findings from the Adolescent Health Research Priorities exercise that had been carried out by WHO using the Child Health and Nutrition Research Initiative (CHNRI) methodology, and to advise on how best to disseminate and use these findings.
2. To define three specific research questions related to adolescent health services, parenting interventions for adult carers of adolescents, and virtual (internet, social media, mobile phones, etc) interventions to promote adolescent health and wellbeing, and to advise on the most appropriate settings and study designs to answer these questions.

The concept note for the consultation is at Annex 1, and the meeting agenda at Annex 2.

4. Participants

A total of 17 external experts attended the meeting, along with members of WHO staff (see Annex 3).

5. Research Priorities Exercise

5.1 Overall issues

- Participants suggested that it would be useful to distinguish between questions that are adolescent-specific and those that are relevant across the life course. For instance, some questions may have outcomes best measured in adolescence and some questions may have outcomes best measured in adulthood, or even in the next generation. Also, some interventions may need to take place in childhood to affect adolescent outcomes.
- The proposed research questions varied substantially in specificity. Both types were thought to be useful for different purposes. For instance, some of the broad, cross-cutting questions may be of particular interest to donors, whereas some of the very specific questions may be of particular interest to researchers. The Child Health and Nutrition Research Initiative (CHNRI) methodology allows for a large group of experts to propose all types of questions, general or specific.
- It was agreed that, once the primary analysis of the scoring has been agreed (see below), the scores (and hence the rankings) themselves should not be changed. Discussion of any results that the research team found surprising could be illuminating. For example, some participants thought it surprising that the top-ranked research question related to injuries and violence was “What are the barriers and facilitators to increasing compliance with motorcycle helmet legislation?”

5.2 Specific Health Areas

- In the **communicable diseases** health area, the predominance of tuberculosis and HIV-related questions was noted. By contrast, there were very few questions related to malaria, diarrhoeal diseases, respiratory infections, or neglected tropical diseases. It was suggested that, although this may partly be due to selection bias in which experts participated, currently there is a major interest in tuberculosis in adolescents. Most routine monitoring data on tuberculosis is not age disaggregated in a way that would allow specific examination of adolescents, so additional research in this specific population is needed.
- Though gender-based violence was included in questions that were submitted in the **injuries and violence** health area, and was also included in the previous adolescent sexual and reproductive health priorities exercise, there was some concern that it may still not feature adequately, and that in the questions there was little focus on young men in relation to gender-based violence.
- Participants noted that ‘injuries’ and ‘violence’ are very different phenomena, with largely different aetiology, so it might have been better for them to have been disaggregated.
- Participants noted that cancer and palliative care were not represented in the top-ranked questions in the **non-communicable diseases** health area, though experts in these areas had been invited to participate in the exercise.
- It was also noted that in the **substance use** health area, none of the questions specifically mentioned inhalants and glue, despite these being commonly-used by adolescents in many settings. It was also suggested that, in the analysis and interpretation of the results, a distinction should be noted between illicit substances

and other, licit substances (though this may vary between countries, with alcohol being a notable example).

- In the **adolescent health: policy, health and social systems** area, it was noted that there was much thematic overlap with health systems and policy questions in the mental health area, with such questions mainly relating to integration of health packages.

5.3 Strengths and Limitations

- Key strengths of the methodology used were noted. These include the transparent process for identifying experts; the large and diverse group of experts who were invited to submit and then score questions; and the wide range of areas relevant to adolescent health that were included.
- On the other hand, some of the submitted questions related to more than one question type (e.g. both "intervention: development" and "intervention: delivery"). Where this occurred, the question was only included in one "type".
- It was noted that some of the submitted questions were, in fact, sub-questions of other more generic questions, and there might have been scope for further editing of some of these questions before the scoring stage.
- Gaps or low representation of some diseases that are responsible for a significant burden of disease either in adolescents or where preventive interventions might be important during adolescence, such as cancer, malaria, diarrhoeal diseases, respiratory infections, neglected tropical diseases, and epilepsy, may have been at least partly due to selection bias in the experts who submitted questions and who scored the questions. This may have occurred despite efforts to include experts in these fields.
- Related to this, participants commented that rankings may reinforce pre-existing biases and established structures in funding and interest (for instance, TB and HIV have the most research and funding among communicable diseases).
- Participants advocated that caution should be used in interpreting the ranking of research priorities, and small differences in the ranking should be de-emphasized. For example, all of the highly-ranked questions should be considered important. However, it was accepted that it would not be possible to avoid threshold effects completely as the large number of questions would require some discussion of the top ten or top five questions, for example. This will be mitigated somewhat by making an online annex available that has the scores for all the questions, and by some of the "horizontal" analyses planned (see below).
- A further suggestion was to consider reporting the scores by percentiles (e.g. top 10%); however, there will always be some arbitrary cut-off.
- It was noted that the selection of the specific health areas would, inevitably, lead to issues of "merging/lumping" (such as combining injuries and violence) and "separation/splitting" (such as the separation of mental health and substance use, or of nutrition and physical activity). This may have led to lower representation of questions in areas that had been merged and greater representation in areas that had been separated. However, it was noted that separation into health areas, rather than asking all the experts to suggest questions in any area of adolescent health was useful.
- It was suggested that some of the criteria that were scored were problematic. Specifically:
    - The usefulness of the clarity criterion was questioned. Many participants felt that it was unfair to penalise questions where the question had not been phrased as well as others.
    - The answerability scoring criterion ("Can the question generate important new knowledge in an ethical way?") had three components: 1) important 2) new and 3) ethical.

- It was noted that an error had occurred in the wording of the equity criterion for the scoring of intervention and health and social systems research questions. For all the types of question, the experts were asked to score "Would the answer to this question help to identify inequities (e.g. in disease burden, access to and/or utilization of services)?" The words "identify inequities" should have only applied to description type of questions, and should have been changed to "reduce inequities" for the other types of questions.

- There was a suggestion that in future exercises it would be good to consider a criterion for "innovation/novelty" that would be scored, but others thought that this should already be considered in all of the criteria.
- It was also noted that there was no criterion for scoring fundability. For instance, "Is this question likely to be fundable?" However, it was noted that the submitted questions were not actually project proposals, and that one of the purposes of a prioritization exercise is to influence the fundability of research questions are considered a high priority.
- It was observed that the CHNRI process does not have a specific step to validate whether or not research questions have, in fact, already been answered. However, the assumption in the process is that the experts who are being asked to score the questions should know this.

5.4 Suggestions for Further Analyses

- Participants suggested several options for further analysis. Either at the consultation or soon after it, the research group decided to accept the following three suggestions:
    1. Rather than weight all criteria equally, it was suggested to use the weighting system recommended by CHNRI stakeholders as described in Kapiri et al 2007, after removing the clarity criterion. This CHNRI-suggested weighting will be used as the primary analysis. However, the team will also report how this affects the Research Priority Scores and the rankings relative to the weighting system that was used in the preliminary analyses prepared for the meeting (where all five criteria, including clarity, were given equal weight).
    2. An additional analysis will be the ranking of questions by research type (i.e. top "intervention: discovery" questions). The results of this analysis will be reported in an online annex.
    3. The scores will be analysed by themes (e.g. developmental stage, risk behaviours) and by platforms (e.g. family, community, schools, clinics, policy, mass media, virtual, etc.) to look for trends horizontally across health areas.
- In addition, some participants discussed the possibility of analysing results of the scores submitted by researchers vs. non-researchers, by high-income countries of residence versus low- or middle-income countries of residence, and by region where the experts worked. After the consultation, the decision was made not to do these sub-analyses because information that would be required for these sub-analyses were not available. Demographic information (such as researcher vs. non-researcher, nationality, and country of work) was only collected for experts who submitted questions and not for those who scored questions. Although there was overlap in those who submitted and scored questions, the groups were not identical so there would be missing demographic data for experts who scored the questions. Using multiple imputation to allow for this would be possible.
- There was also discussion about whether or not to compare scores across all the health areas included in the current exercise, and potentially also to add the areas covered in the previous adolescent sexual and reproductive health exercise. The consensus among the group was not to do this. This was for both technical reasons (different scorers, slightly different criteria) but also in order to avoid appearing to pit one health area against another.

5.5 Dissemination

- Participants agreed that the project should be disseminated in the following ways:
    - Through making this report of the consultation available on the WHO website.
    - Through preparing an article for submission to an international journal.
    - Through preparing a summary brief of the results (2-4 pages highlighting the top-ranked research priority questions).
    - Through presentations at international conferences such as at the International Association for Adolescent Health (IAAH) conference, the Society for Adolescent Health and Medicine (SAHM) Annual Meeting, the Society for Research on Adolescence (SRA) Annual Meeting, and by using these networks to disseminate the findings in other ways.
    - Participants also suggested that strategies should be explored to specifically reach universities/researchers in low- and middle-income countries, young people, programme managers, national science councils, national medical associations, and junior doctor networks.
    - A final avenue for dissemination included presenting the results for the donor and policy community, and particularly for funding agencies.
- It was stressed that reports of the findings should specifically relate the findings to the Sustainable Development Goals and the Global Strategy for Women's, Children's, and Adolescents' Health.
- Countries and regions should be encouraged to conduct similar research prioritization exercises, though these might be most useful if they focus primarily on description and, especially, intervention delivery questions.

6. Three specific research topics

- On the second day of the consultation, after a preliminary discussion of suggestions that had been made by WHO, participants divided themselves into three groups to discuss three specific research topics:
    1. What **parenting intervention(s)** for adult carers of high-risk adolescents should be tested in a multi-country study in LMICs?
    2. What novel **adolescent health services** intervention(s) should be tested in a multi-country study in LMICs?
    3. What interventions to promote adolescent health and wellbeing delivered through **virtual** channels (internet, social media, mobile phones, etc.) should be tested in a multi-country study in LMICs?
- The groups were asked to apply the following **criteria for selection** of the specific study question they would propose:
    1. The study question addresses one of the questions that was rated a high priority in the research prioritization exercise
    2. The study is unlikely to be done unless WHO helps to raise money and coordinate the study
    3. The question requires a multi-country study
    4. The study is likely to have a substantial impact on programmes globally (or at least in low and middle-income countries)
    5. The question is likely to be answerable in LMICs (e.g. There is the potential to do this type of research in LMICs)
- The **task** given to each group was:
  Given the priorities identified in the research priority setting exercise, and the criteria above:
    - What **one** multi-country research study in the group's topic area (see above) should WHO aim to raise funds for and then coordinate?
    - Why is this question a top priority for adolescent health research?
    - Why should this study be coordinated by WHO rather than by another

organization?
- How best should this question be addressed (study design, type of setting, target group, outcomes, intervention (if any)?
- Roughly what might it cost (for the intervention (if any); for the evaluation)?
- Why should a research funder support it?

6.1 Parenting interventions

The group were:
External participants: Margit Averdijk, Anne Buvé, Jane Ferguson (Facilitator), Mark Jordans, Mahmood Nazar Mohammed, Vikram Patel, Danny Wight (Rapporteur)
WHO participants: Chiara Servili

- What one multi-country research study should WHO aim to raise funds for and then coordinate?
  - The group suggested the following question: What are the components of a universal (i.e. both with the adolescent themself and with their adult kin) intervention with families that include at least one adolescent aged 10-14 years, and how can they be delivered with potential for scale across diverse low and middle-income countries, in order to improve the adolescents' emotional health, health related behaviours, and social functioning?
- Why is this question a top priority for adolescent health research?
  - There is strong observational evidence of associations between parenting practices and multiple health-related outcomes in early adolescence, and that parents remain very influential for young adolescents.
  - There is also strong evidence from high-income countries that interventions with the parents of young children can improve adolescent health (and other social outcomes), and can be highly cost-effective in the long-term.
  - However, there have been few studies evaluating the effectiveness of interventions with parents of adolescents, even in high-income countries, and very few studies of any parenting interventions in low-income countries.
  - Parenting interventions have the potential to break the cycle of intergenerational transfer of disadvantage.
- Why should this study be coordinated by WHO rather than by another organization?
  - The research would build on existing work within the Organization on helping parents in developing countries improve adolescents' health[2], interventions to prevent violence and injuries, and to improve mental health, and the current Global Early Adolescent Study.
  - The question would require a programme of research with several,