Adolescent Health and Implementation Science:
Achievements, Challenges and Prospects

Report of Technical Consultation

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Center of Adolescent Health and Development-
MAMTA Health Institute for Mother and Child

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INTRODUCTION

The Context

Globally, there are about 1.2 billion adolescents aged 10-19 years forming almost 18 percent of the world's population; out of which more than 1 million die each year, mainly from preventable causes[1]. In India there are more than 243 million adolescents who account for almost 20% of the country's population[2]. Lately, there has been widespread agreement on the need to invest in adolescent health if the country's development goals are to be achieved. Although there is a growing body of scientific research that addresses the major causes of mortality, morbidity and health-related behaviours during adolescence, there is a significant gap in bridging the 'research-to-policy' and 'research-to-programme' gaps in many developing countries, including India.

The scoping consultation for the Center of Adolescent Health and Development (CoAHD) under the aegis of MAMTA - Health Institute for Mother and Child highlighted the need to better understand the existing evidence, gaps and challenges within adolescent health policies and programmes. This is particularly important within the context of the rolling out in 2014 of the ambitious National Adolescent Health Programme, *Rashtriya Kishor Swasthya Karyakram (RKSK),* by Ministry of Health and Family Welfare (MoHFW), Government of India (GoI), to address the overall health needs of adolescents, including sexual and reproductive health, nutrition, mental health, injuries and violence, substance misuse and NCDs. Implementing the Programme, however, remains a challenge, in terms of increasing coverage to reach adolescents in the remotest corners of the country, and ensuring quality through enabled systems, strengthened capacity and the allocation of adequate financial resources.

Center of Adolescent Health and Development (CoAHD): establishing a hub of excellence in Adolescent Health

MAMTA - Health Institute for Mother and Child has for the last 25 years been working on adolescent health through its strategic approaches on community action, capacity building, action research, evidence based policy advocacy, systems strengthening, networking and collaborations at national and international levels. With this backdrop, MAMTA took the initiative to establish a Center of Adolescent Health and Development (CoAHD) to support implementation research directed to policies and programmes for adolescent health, with an initial focus in India and South /South East Asia, covering thematic areas of SRH/HIV, nutrition, NCDs, mental health, violence and injuries.

The centre aims to develop a high level of human expertise which can take upon itself building/ generating robust scientific evidence for strengthening scale-up implementation and strong policy environment. CoAHD will be guided by the principles of human rights and equity, with support from national and international experts on adolescent health and development. The objectives of the CoAHD include: providing strategic information; collating, disseminating and undertaking implementation research; building capacity; developing and testing models/strategies to increase the coverage and quality of interventions to improve adolescent health.

In response to these challenges, and contributing to improve the ways that effective interventions for adolescent health are packaged and delivered, CoAHD (MAMTA) conducted a two day Technical Consultation, 12th-13th April, 2016, at New Delhi, in order to identify key implementation questions and strengthen implementation research on the key thematic areas of RKSK. This consultation was held in partnership with the Adolescent Health Division, Ministry of Health and Family Welfare (MoHFW), Government of India and the International Association for Adolescent Health (IAAH).

Objectives of Technical Consultation

The overall aim of the consultation was to catalyze greater attention to implementation science and research for developing effective adolescent health and development strategies in low-resource settings, by providing opportunities to learn from global cutting-edge researchers and public health experts. The specific objectives were to:

- Advance the collective understanding about the achievements and challenges of implementation science in relation to adolescent health policies and programmes in low and middle-income country (LMIC) contexts, with special reference to India and Rashtriya Kishor Swasthya Karyakram (RKSK)
- Outline priorities for future implementation research to support effective programmes and policies for a more comprehensive approach to adolescent health
- Strengthen future collaborations for the furtherance of an implementation research agenda for adolescent health and development

Approach

Development of the concept and agenda for the consultation: An extensive systematic literature review was undertaken to provide support for the initial scoping of the concept for the technical consultation. A core group was formed consisting of international, regional and national experts on adolescent health and development, who provided inputs into the planning of the meeting in terms of content and process. A decision was taken to summarize the evidence base interventions that respond to major health problems during adolescence. Also, consensus was build that presentations and discussions should focus more on understanding the settings where these interventions are implemented, including schools, communities, health facilities, laws/policies and the media. It was envisaged that this would provide opportunities to promote a comprehensive and integrated approach to adolescent health and identify successes, challenges and research questions relating to the scaling up of interventions directed to the strategic priority areas of RKSK, which are of critical importance in realizing the national goals of adolescent health and development[2].

Participants at the consultation: The meeting included 11 international and 58 national experts with experience in developing and implementing adolescent health and development programmes, and carrying out related research and programme evaluations and reviews. A broad range of stakeholders involved with advocacy and action for adolescent health were represented, including the Government of India (national and state levels), international and national academia, UN organizations, bi-lateral agencies, International and national non-governmental organisations (NGOs), key donors and corporate foundations.

Partnerships: The consultation was conducted in collaboration with the Adolescent Health Division, MoHFW, GoI, and the International Association for Adolescent Health (IAAH), reflecting both the national and the global perspectives for focus of the meeting. In 2014, the MoHFW launched RKSK, an innovative national health programme based on the principles of participation, rights, inclusion, gender equity and strategic partnerships. RKSK addresses six strategic priority areas: Sexual and Reproductive Health (SRH), Nutrition, Mental Health, Injuries and Violence including Domestic and Gender Based Violence, Substance Misuse and

Non-Communicable Diseases (NCDs). The technical consultation will make an important contribution to implementing RKSK. IAAH is an international non-government organization with a broad focus on adolescent health, advocating for improved health services, training, research and policy development, and organizing regional conferences and a World Congress every four years. The next Congress will take place in India in October 2017, hosted by MAMTA and the Public Health Foundation of India and the outcome of the technical consultation will feed into the planning of the World Congress.

Financial and technical support for this consultation was received from David and Lucile Packard Foundation and Azim Premji Philanthropic Initiatives and the Knowledge partner was the Bill and Melinda Gates Foundation (India). These partnerships helped immensely in the process of the technical consultation.

Overview of the Consultation: The two day technical consultation included plenary sessions, expert presentations and moderator-facilitated discussions. Structured sessions began with discussing implementation science/research in general, in order to develop a common understanding of different models for scaling-up evidence-based interventions for adolescent health and development focusing on different thematic areas and being implemented in different settings: schools, communities, health systems, laws/policies and the media. There were also a number of working group sessions which provided participants with opportunities for more and in-depth discussion in order to identify and prioritize adolescent health implementation research priorities, with a primary focus on India and RKSK. The outputs of the Working Groups were then synthesized in another plenary.

Structure of the report: This technical consultation report is comprised of four parts:

Part A describes the common understanding of implementation science/research with reference to adolescent health that was used for this specific consultation.

Part B provides an overview of evidence-based interventions in priority thematic areas of adolescent health, including key achievements, challenges and gaps.

Part C lays out effective adolescent health interventions being provided in different settings, with a focus on implications and for scale-up with quality.

Part D outlines priorities for future implementation research to support the scaling up of effective programmes and policies for improved adolescent health outcomes. This section of the report discusses the overall findings, conclusions and way forward.

PART A

What is Understood By "Implementation Science/ Research" for Adolescent Health?

This part of the report presents the common understanding of "implementation science" that was used for the technical consultation. It highlights the potential of implementation science to improve the coverage of adolescent health interventions, and the importance of data for understanding the different groups of adolescents and the different contexts in which they live and learn that will influence the scale up of the National Adolescent Health Programme (RKSK) interventions.

Implementation Science: Key messages:

- Investigates real life programmes
- Questions the way an intervention is delivered
- Helps understand system- dynamics/failures
- Priorities of IS: driven by burden of diseases, risk factors, evidence
- It is not formative research

Countries, academics and funders are realising the importance of investing in adolescents, both for the short-term benefits and for the rich long-term dividends in adulthood, and for future socio-economic development. Defining health needs and priority intervention packages for adolescent health in each country is very critical, and the availability of good data is essential for this to take place. Experts emphasized the need to take into account disability adjusted life years (DALY), the economic development of the country and the epidemiological transition when defining the health needs of adolescents in any country. India has a very large and diverse adolescent population, and as a multi-burden country[3] it is not only confronted by a spectrum of health problems but, at the same time, the patterns of diseases remarkably differ between the North and the South of the country. Hence there is critical need for implementation science to help improve the packaging and delivery of programs for different groups of adolescents in different contexts. Implementation science needs to take into account the burden of diseases, risk factors for future burden and the evidence for intervention effectiveness.

For the common understanding of all participants, the experts agreed that implementation science investigates within real-life programmes how and/or why interventions that have been shown to be potentially effective are, or are not, implemented. They further stressed that for this consultation, implementation science will (a) include questions about the ways an intervention is delivered or implemented, rather than whether that intervention is effective for improving health; and (b) investigate the understanding of system dynamics and systems failures that promote or inhibit implementation. Implementation science is not about (a) the testing of the efficacy (impact in an "ideal" context) or effectiveness (impact in a real-life programme) of an intervention, or (b) formative research to design or pilot test an intervention.

Implementation research priorities in adolescent health should be directed to questions relating to a focused package of evidence-based health interventions for adolescent health and how best they can be delivered; what does it take to implement existing adolescent health-related laws and policies effectively.

Experts stressed that for implementation of adolescent health interventions, it is pivotal to match actions to needs, both in terms of programmes and research, also consider inter-sectoral action, youth engagement in programmes and essential capacity building.

In India, there is a significant need for implementation research as RKSK is rolled out recently, exploring the multi-sectoral engagement that will be essential for effective convergence. Also experts emphasized that it is critical to stress on adolescent vulnerability across thematic areas beyond SRH/HIV such as substance use, self-harm, mental disorders and gender-based violence.

PART B

What has worked in Adolescent Health Interventions?

This section of the report provides an overview of selected examples of evidence for the efficacy and effectiveness of adolescent health interventions for different outcomes across the key thematic areas of SRH/HIV, NCDs, mental health, violence and injuries. It also covers achievements, challenges and gaps

SRH/HIV interventions that have been found to be effective in a range of different settings include:

- The CSE interventions with multiple strategies have shown considerable success in improving SRH knowledge, attitudes, communication skills and certain sexual behaviours. Example highlighted: CSE intervention in Tanzania (MEMA kwa Vijana) in school with multi-component approaches (teacher-led, peer-assisted education, youth-friendly health services, community activities) showed significant, sustained and positive impact on SRH knowledge among adolescents.
- The Youth Friendly Health Services (YFHS) integrated within health systems have also led to increase young people's knowledge, attitude and increased use of services (for example: Program Geracao Biza (PGB), in Mozambique).
- The economic empowerment programmes have shown encouraging results in improving SRH/HIV behavioural outcomes. For example, cash transfer programme in Malawi showed promising results in reducing HIV and HSV-2 infections and reducing unintended pregnancies among adolescent schoolgirls.

Violence prevention programmes that are effective include those that address deeply entrenched social norms, which perpetuate gender inequality and violence, including:

- Sensitization and awareness raising interventions (Stop Violence against Girls interventions -SVAGS) that led to improvements in knowledge, attitudes and help seeking behaviours in Ghana, Mozambique and Kenya.
- Interventions related with gender equitable curricula in schools such as Gender Equality Movement in Schools (GEMS, India) and Raising voices (Uganda), which led to improvements in gender attitude and self-reported behaviour.
- Interventions engaging men and boys (for example, Parivartan and Young Men initiative) that resulted in gender-equitable attitudes, rejection of gender stereotypes and increased knowledge on SRH.

The presenters also identified that there are less interventions and evidence on certain adolescent health issues pertaining to mental health, injury, NCD and nutrition; however they noted these issues are increasingly gaining momentum and focus especially in LMIC's. The experts from these thematic areas presented the scant models from the review of evidences that have worked in low-resource settings in the following domains:

NCD interventions that have shown promising results include:

- Multi-component tobacco prevention and control intervention (MYTRI) in school settings that addressed interpersonal, social, contextual, and environmental factors, and have shown decrease in tobacco use among youth in two cities of India (Delhi and Chennai).

- Multi-component intervention on health and nutrition in high burden districts of six states of India (Andhra Pradesh, Gujarat, Haryana, Jharkhand, Telengana, Rajasthan, and Uttar Pradesh) that focussed on health and nutrition education and physical activity in schools resulted in reducing obesity among girls and boys.

The mental health interventions that have worked well include:

- Life skills interventions using a resilience-based approach with multiple components, predominantly school based, have shown a positive impact in improving physical, mental, educational, and social outcomes while building resilience of youth in Bihar, India.
- Cognitive behaviour therapy (CBT) - The clinical services based on CBT along with medication have found positive results, although they have mostly been carried out in high-income country settings.
- Strengthening Family programme (10-14 years) has been effective in reducing rates of substance use, delinquent behaviour and increasing academic success in high-income countries.

Achievements

Some of the achievements as noted by presenters include:

- Better and improved evidence of effective adolescent health programmes for addressing their health needs in LMICs. Most of this evidence of effective programmes/approaches exists in SRH, and growing evidence of effective/promising interventions exists in other thematic areas including violence, injuries mental health, NCDs, etc.
- Adolescent Health Interventions demonstrate significant improvements in health outcomes and specifically in the area for SRH. The thrust of last decade of adolescent health programmes have been on SRH, and the interventions have shown increase in SRH/HIV knowledge and attitude and increased use of SRH/HIV services among adolescents in low-resource settings. Experts also highlighted promising outcomes from limited programmes and evidence that exist in thematic areas of violence, NCD, etc. Some of the examples include changes to young men's and women's attitudes towards gender equality and reduced perpetration of violence by men, improvements in feelings of safety and reduced tobacco use among adolescents.

Challenges

- Shifts in behavioural and biological outcomes among adolescents have been slow due to two major reasons, firstly, many interventions are limited by a focus on (usually self-reported) knowledge and attitudinal change (rather than focusing on biological outcomes), and secondly, behaviour change takes time. For example, one of the presenters highlighted that changing deep-rooted behaviours related to violence is not only difficult and challenging but also a lengthy process.
- Reaching the unreached: Reaching out to the most vulnerable adolescents for health interventions has been a big challenge. For instance reducing adolescent birth rates among poorest/least-educated adolescents has been challenging, and less progress has been made on health issues of these groups. Experts also emphasized that the critical relevance of reaching very young adolescents (10–14 years) is imperative since less programmes are designed to create supportive social environment to address their specific health needs.

Gaps

The few gaps noted by speakers in areas for adolescent health programmes are presented below. These are few gaps that emerged from the consultation, and are not exhaustive to adolescent health programmes:

- Limited programmes and services on mental health and injuries especially in LMICs where the burden is very high.
- Less evidence on how to prevent other forms of violence (beyond heterosexual violence) such as sexual abuse of boys (especially in Asia), homophobic bullying, cyber bullying etc.
- Research in conflict and post-conflict settings for adolescent health issues is limited.

PART C

Specific Examples of Adolescent Health Interventions at Scale: Approaches, Learning and Implications

This section (Part C) demonstrates specific examples of evidence-based adolescent health interventions taken to scale in different settings: school (C1), community (C2) and health systems (C3). It presents key approaches, lessons learned and implications for scaling up adolescent health interventions, as articulated by experts in these three settings.

C1: School Settings

The presentations featured in this session demonstrated school based interventions that were taken to scale. These include: First: Tobacco control intervention conducted in schools (Delhi, Chennai) for example project MYTRI (Mobilising Youth for Tobacco Related Initiatives in India) which addressed intrapersonal, environmental and social contextual factors that led to tobacco use. Second, CSE based intervention implemented through life skills and family education in schools (Nigeria, Pakistan, and Senegal), and third, life skills based interventions (using resilience based approach) for improved mental health outcome taken to scale in schools of Bihar.

Key Approaches

- Comprehensive sexuality education is a promising approach that has been used in many countries and scaled up at the national level in countries like Nigeria, Senegal and Pakistan.
- Life skills based approach used in many countries addressing SRH and mental health. Promising components used by tobacco prevention programme (MYTRI) in India used classroom curriculum, school posters, parent postcards and peer led activism.

Lessons Learnt

- Intervention content should be evidence-based and simple and support is important particularly initially for ensuring for quality of intervention delivery.
- Time spent during teacher training is important because teachers are often not comfortable discussing topics of sexuality and gender and even less about abortions and sexual diversity.
- Development of curriculum needs to be carried out in consultation with religious leaders esp. in Muslim dominated regions
- Participatory Action Research and intervention assessments should be used

Implications for Scale up

- Ensuring programme quality and content delivery: Evidence from scale up of CSE programmes at the national level raised the challenges of maintaining programme quality and content delivery
- Reaching vulnerable adolescents: school-based programmes are generally not able to reach marginalised adolescents, for example girls who are out of school or living in extreme poverty

- Addressing cultural resistance: Ii is important to consult with experts, pilot the feasibility with teachers and conduct scale up trials that respond to cultural and religious resistance
- Active involvement with high level support of different ministries is key for scale-up

C2: Community Settings

Community based interventions that were taken from pilot to expansion in LMICs offer useful insights for further scale-up efforts. Two concrete examples that were presented: the Meri Life Meri Choice (MLMC) project addressing adolescent vulnerability to HIV/AIDS, implemented in North and Central India; and the Gender Roles, Equality and Transformation (GREAT)project implemented with very young (10-14 years) and older adolescents (15-18 years) to improve gender equality and reproductive health of adolescents (in Northern Uganda.

Key Approaches

There were various promising approaches used by the presenters in community settings, including

- Safe space approach along with a life skills based education curriculum, which was developed by MLMC. Other components that were important were monthly meetings, training workshops and behaviour change communication interventions.
- Peer mentors as a key approach was used in mobilizing communities for reaching out to the target populations. For example, youth peer led approach for child marriage prevention intervention.
- Socio-ecological system approach was used by Great Project (Uganda) to transform gender norms and attitudes and promote healthier, more equitable behaviors within each group. The approach was used to catalyze change at multiple levels targeting individuals, parents and wider community to foster dialogue and critical reflection

Lessons Learnt

- The proof of concept phase in MLMC project helped to understand what worked, what was acceptable and what was relevant for achieving the project objectives, and then refining the intervention for scale up in active partnership with state and central governments.
- The expansion and outreach of the projects can be supported through mass media and connecting with influential people and groups.

Implications for Scale up

- The interventions should be rooted in the local context. It is important to engage stakeholders in the design of the project that should be based on proven local approaches.
- Government buy-in: For a community-based project, it is important to ensure that there is government buy-in, so that they support and facilitate the scale-up activities.

C3: Health system Settings

Experts presented a growing number of health interventions that are scaled-up through the public health systems. Some of the examples that emerge include scaling of youth clinics in Estonia, nationwide scale up of Program Geracao Biza (PGB), in Mozambique, improving quality using accreditation in South Africa, scaling up of the PRACHAR (Promoting Change in Reproductive Behaviour) programme in Bihar, India, and the adolescent-friendly health services programme through the public health system in Nepal.

Key Approaches

Key approaches used for these interventions included:

- A life-course/life-cycle approach, using communication strategies aimed at different levels (individual, household/family, group, and community) and stakeholders (youth, parents, community leaders, healthcare providers).
- Trained and supported health workers along with supportive supervision and group problem solving are a crucial component of an adolescent friendly health services.

Lessons Learnt

Some of the key lessons from scale-up programmes include the following:

- Quality Trainings of Health Care Providers that involve large groups, which are not focussed and used didactic learning methods, have poor results - training programmes should be organised into smaller groups with focussed topics so that better results are achieved.
- To ensure high commitment, ownership and engagement with the government is essential, both at the state and district levels, since the actual implementation will be through the government health system - especially important for monitoring and supportive supervision.
- Normative interventions require a minimum period of 3 to 5 years of 'on the ground' implementation to change deep-rooted socio-cultural norms.
- Sex and sexuality are topics of interest/concern for adolescents; however, teachers are not comfortable discussing these topics.

Implications for Scale-up

- Phased approaches to scale-up should be pursued, beginning with a pilot programme, followed by step-wise expansion, learning lessons along the way to help refine further expansion.
- Generate acceptability/garner support for scale up by adopting strategies with stakeholders: including community sensitization and involvement of religious leaders, especially in conservative settings.
- Ensured the intervention is implemented as it was originally designed and planned. Effective interventions delivered with inadequate fidelity do not show results. Fragmented implementation of intervention, therefore, can lead to ineffective uptake of health services .

PART D

Implementation Science and Research Priority Areas: What Emerged?

This Part of the report outlines implementation research priorities that emerged in the technical consultation. Working in groups, participants identified and presented priority research areas in five settings/domains: community, schools, health systems, policies and media, and vulnerable groups.

Community settings

- Strengthening the capacity of health care providers/frontline workers (ASHAs/ANMs) on health subjects (beyond mother and child health) including topics of violence, injuries, mental health and NCDs.
- Engagement with families especially for out of school adolescents since parents are generally not aware of the availability of services or ways to address adolescent's needs.

School setting

- Pre-requisites for the selection of nodal trainer/teachers and the characteristics of quality training.
- Strategies to ensure that parent teacher associations are existing and functional, since family members are perceived to have a critical influence on adolescents' behaviour change and decision-making.

Health Facility setting

- Strengthening the capacity of health care providers (in-service and pre-service training) to provide good quality adolescent friendly health services (AFHS) at all levels.
- Improving demand generation for utilization of AFHS services by adolescents.
- Establishing effective linkages and inter-departmental coordination for better implementation.

Policy and Media

- Identifying ways to better enforce and implement policies and laws and changing people's perceptions and behaviours.
- Role of media to promote better health habits and health products among adolescents.

Vulnerable groups (including high risk groups)

- The research areas prioritized for vulnerable groups were related with identifying and reaching out to vulnerable groups.
- Addressing different health needs of vulnerable groups.
- Enhancing capacities of service providers to respond more effectively to the needs of vulnerable adolescents.

DISCUSSION

The overall findings of this consultation are discussed and collated with the pre-consultation literature reviewed and the discussions that emerged from the sessions.

Implementation science and its relevance in Adolescent health

Although the evidence for effective programs for adolescent health has improved, the understanding and research on how effective interventions can be delivered at scale or in public health system framework is still limited. Hence this technical consultation was conducted to delineate implementation science and research priorities in the context of adolescent health. Implementation science is a relatively new field of research and needs better clarity. A common understanding of implementation science was construed for this technical consultation. It was highlighted that implementation science is about how and/or why interventions that have shown to be potentially effective and learn both about success and failures, with a view to taking them to scale. According to the guideline by WHO[4], implementation research is crucial in addressing the challenge of how to take proven interventions and implement them in the real world, providing a basis for the context-specific, evidence-informed decision-making that is needed to make what is possible in theory a reality in practice. It was highlighted in the consultation that we need to focus on providing solutions. Also, this technical consultation will support in furtherance of Global Strategy for Women's, Children's and Adolescents' Health (2016-2030) agenda in India and other LMICs.

The technical consultation illustrated various adolescent health interventions that have worked well to improve adolescent health outcomes especially in low resource settings. Examples were shared of interventions that have worked well in areas especially for SRH, and a few from violence, NCD, mental health etc.

SRH: For improving sexual and reproductive health outcomes, approaches such as comprehensive sexuality education (CSE), youth Friendly health services integrated within health systems; cash transfer programmes were found to be effective when well designed and well implemented. However, a review documented that interventions such as CSE and youth-friendly services are often poorly implemented and lack fidelity to the elements of the interventions. These approaches are only effective for improving adolescent SRH knowledge, attitudes, and behaviours when well implemented[5]. Also, cash transfer interventions are effective in improving SRH and HIV outcomes in some contexts, however, their impact on knowledge remains unclear[6].

Violence: There is poor quality of evidence for the effectiveness of interventions for preventing intimate partner violence (IPV) and sexual violence (SV) in adolescents. Interventions based on gender curricula based interventions and engaging boys and men in promoting gender equitable norms were highlighted as examples for violence prevention. There is promising evidence of combined livelihood (microfinance, vocational training etc.) and participatory training for women has decreased violence in LMICs. Also, improved legislation alone has not shown to reduce IPV and SV at community level, and there is a need for system-wide changes (such as trainings to respond appropriately to IPV, outreach activities by community health workers or nurses, building referral networks and improving the safety of public transport and infrastructure) to improve the enforcement of laws[7]. Interventions for improving adolescent IPV outcomes such as 'dating violence programmes' and 'parenting programmes with children and adolescents subjected to maltreatment' have found to be effective in high-income settings as they are resource intensive[8].

Mental Health: With increasing burden of mental health disorders in LMICs and dearth of evidence based interventions on their prevention in adolescents is the biggest challenge. Few of the promising interventions that have been adapted in LMICs from high income countries are universal depression prevention programme (which includes cognitive behavioural and interpersonal interventions), classroom based psychosocial intervention (CBI) (which includes life skills and resilience interventions), and strengthening family programmes have demonstrated strong to moderate evidence[9]. Cognitive-behavioural therapies (CBT) for adolescent depression have emerged as a well-established treatment for depression in children and adolescents however effectiveness of this as a preventive strategy for depression or anxiety had mixed findings[3,10]. School-based life skills resilience intervention was discussed in detail in this consultation and has reported to have potential to scale-up in low resource settings. Adolescent-specific suicide prevention strategies such as universal school-based interventions and gatekeeper training programmes on help-seeking behavior have shown mixed results[3]. Health practitioner training in risk assessment for suicide has shown some evidence across all ages and has potential to work well for adolescents[11].

NCDs: For reducing NCD risk, examples of approaches such as life-course approach, physical activity promotion programme and media campaigns were highlighted, although enough evidence of these approaches is limited. An example of multi-component tobacco prevention and control intervention programme among adolescents in India (MYTRI) was discussed in this consultation. Regulatory or statutory enforcement interventions show the most benefit in the prevention of tobacco and harmful use of alcohol although the majority of this evidence is from high-income countries[3].

Nutrition: Although, there are many interventions targeting nutrition-related problems that often affect adolescents but the effectiveness of such programmes is almost absent. Effectiveness of policy response for combating under-nutrition, taking examples from National Programme of nutritional support in India was discussed in the consultation. Micronutrient and protein energy supplementation and fortification of food with iron and iodine, economic empowerment, kitchen gardens programme, delaying pregnancy and nutrition counselling and education for pregnant and lactating women are some of the promising approaches to improve under-nutrition among adolescents[3].

Injuries: Increasing burden of road injuries among adolescents is another major concern. Safe system approach which includes mechanisms for safer travel, education and information supporting road users and strict enforcement of road laws and rules was given as an example in this consultation for preventing road injuries among adolescents. Interventions at policy, regulatory, educational and technological aspects in high-income countries have reduced burden of disease[12].

Overall, it became evident from these different examples that adolescent health interventions that have worked well have few similarities and key features that made them work. Experts underscored that most of these interventions have implemented a package of interventions and used (i) multi-sectoral approaches that are comprehensive (engaging multiple stakeholders mostly targeting individuals, families, community) and integrated (with already ongoing health intervention programmes); (ii) strong legislative response as an essential component; and (c) expose participants to quality content through multiple interventions of a longer duration. Most of these examples of adolescent interventions, however, were presented from Asia and Africa region.

Areas that need strengthening/attention: Adolescent Health

With the growing evidence and knowledge of what works for adolescent health in different thematic areas, the experts highlighted key challenges for adolescent health community to focus their attention on:

- **Achieving Behavioural outcomes:** they have been slower to achieve in relation to knowledge and attitudinal shifts. Also there are limited studies that evaluated behaviour change outcomes.
- **Reaching the unreached:** Adolescents who are not part of educational settings, often the most

marginalized or vulnerable, are not being reached by adolescent health programmes. It was highlighted that adolescents who are most affected by HIV (sex workers, MSM, TGs) face multiple vulnerabilities, social stigma, and discrimination, and have limited access to services and programmes, and minimal inclusion in national strategic plans.

- **Investing in very young adolescents (10-14 years):** Most programmes focus on older adolescents, and have not looked into the needs of very young adolescents. Experts advocated for investing in interventions addressing specific health needs of very young adolescents. They identified role of policy-makers, donors, programme designers, researchers and evaluators to address this gap.
- **Effective evidence of approaches for thematic areas such as violence, mental disorders, NCDs, nutrition and injuries:** Rigorous interventions and evaluations are needed for adolescent vulnerabilities across thematic areas beyond SRH such as addressing violence, mental disorders, NCDs, nutrition and injuries.
- **Research/programme initiatives in conflict and post-conflict settings** that focus on adolescent health.

Taking Adolescent Health Interventions to Scale

Key approaches: Adolescent health interventions that were taken to scale demonstrated promising/key approaches that were implemented for improving a range of adolescent health and development outcomes.

School settings: School setting has a great potential as it presents an opportunity to intervene at the right age when choices and behaviours are getting developed. Most school-based interventions in LMICs have been limited to thematic areas such as NCDs (example: MYTRI project in India for tobacco prevention) and nutrition (example: Micronutrient supplementation: Vitamin A and iron, Indonesia). In the recent past, curriculum based approaches such as CSE integrated with other interventions have shown to improve adolescent SRH knowledge, attitudes, and behaviours (example: Tanzania: MEMA kwaVijana study). Resilience and life skill based approach have shown significant positive effects on students' mental health and wellbeing in terms of improved self-esteem, motivation and self-efficacy (example: Resilience based life skill approach in Bihar, India). School based interventions have reported strong evidence for improved emotional and behavioural well-being of children living in conflict areas[9]. Some of school based approaches in high income countries for preventing violence (example: dating violence programmes, USA), and knowledge and attitude towards suicide (Universal interventions programmes, USA[13]) may have potential to be replicated in LMIC settings.

Community settings: Community plays an important role in determining the behaviour, norms and values of adolescents. Effective interventions at community level such as "GREAT" project in Uganda to foster equitable behaviour and reduce violence, MLMC, India to enhance SRH knowledge have been discussed in detail in this consultation. Approaches such as cash transfer and microfinance (example: Malawai to reduce HIV and STI prevalence[14], IMAGE study, South Africa to reduce IPV[7] and SV and in Latin America to improve nutritional health status15), peer-led and male engagement (example: Yari-Dosti programme, India to reduce violence[7]), parental engagement (example: parenting programmes to prevent violence, Hong Kong[8]), gatekeeper training programmes (example: Suicide prevention programme, USA[3]) and community mobilization (example: community kitchen gardens in Peru to enhance iron absorption[16]) have shown potential to improve adolescent health. These community-based programmes have reported significant evidence from both high income as well as low and middle-income countries across all thematic areas except NCDs.

Health system settings: Strengthening health care services response and utilization is critical for the health of adolescents. Youth friendly services (example: The Geração Biz Programme, Mozambigue to improve SRH outcomes) and engagement of frontline health functionaries (PRACHAR Phase III, India to promote HTSP) were discussed in length in this consultation. Few other interventions like training health practitioners for risk assessment of mental disorders, trauma care and enhanced skills of healthcare providers have potential to make positive impact on utilization of services and adolescent heath[3].

Law/Policy level: The role of policy has significant impact on improving adolescent health outcomes. It was noted in the consultation that the impact of laws and policies may not be seen in the short term. Legislative response, taxation and implementation of policies have shown evidence[3] of effectiveness in preventing health risks among adolescents such as violence (example: laws for women protection from violence and coercion), alcohol and tobacco consumption (example: limit sale to underage and taxation on the products), injuries (example: enforcement on helmet wearing), NCD and nutrition (example: taxation of high-sugar and high-fat diet) and SRH (example: increasing legal age of marriage). In the consultation examples on the nutrition policy in US were highlighted to show positive effects of physical education in schools in reducing risk of obesity, however such shifts were observed only after 5 years and not in short term. Another example was highlighted from India, where the government policies and programmes related to child marriage (Conditional Cash Transfer) reported positive shifts in educational outcomes, however, it also demonstrated restrictive impact in shifting deeply entrenched gender norms affecting child marriage.

The findings of this consultation reiterated key research areas (parent level intervention, comprehensive forms of training of teachers, male member's involvement and need-based health services) to be strengthen in light of implementation science that were also highlighted in the research priorities of earlier consultation[17].

Horizontal and Vertical Scale Up

Experts presented a growing number of evidence based health interventions that have been scaled-up from small and short-lived projects in LMICs. Examples of vertical (institutionalization through policy, legislative, legal and budgetary changes) and horizontal scale-up (expanding coverage across people and space) were showcased. Example: The case of nationwide scale-up of Program Geracao Biza (PGB), in Mozambique, a multi-component initiative to integrate YFHS within the national health system was highlighted among many examples. It reflected both vertical (components of PGB integrated into national policies) and horizontal scaling up (phased expansion to additional provinces) of complementary set of interventions for improving sexual and reproductive health of adolescents.

Key Learning from Scale-up Efforts

Learning from the scaled-up interventions was presented that revolved around issues of fidelity, acceptability, equity (reaching to the most vulnerable) and government ownership.

Key messages:

- Key Approaches (scale-up): CSE, life-skills, resilience-based, youth-friendly health services.
- Example of Horizontal and vertical scale up (Program GeracaoBiza-PGB)

Lessons learned (Scale-up efforts):

- Fidelity
- Government ownership
- Phasing up
- Rooting intervention in local context
- Community buy-in
- Ensuring equity

Fidelity: One of the key lessons learned in the scale-up of interventions is the fidelity aspect i.e. the degree to which an intervention was implemented as it was originally designed. One of the key challenges while scaling up programme is to ensure quality of programme delivery and intensity/dosage of delivery. High quality (includes need based content, skills, education, and develops responsive attitudes) and continuous trainings that are focused and imparted in smaller groups are very important in addition to improving knowledge and skills. One of the challenges of scaling up is the increased coverage vs. the quality. Example: the scaled-up programmes in multiple countries (Nepal, Africa region) on sexuality education highlighted/recommended that more time should be imparted for teacher training to address their key challenges in discussion around issues of gender and sexuality. Therefore, minimum standards of quality and contents are important to be established at the start-up.

Government ownership: Ensuring government ownership was one recurrent concern that came strongly across scale-up efforts. Example: The Udaan programme in Jharkhand exemplifies sustained engagement efforts with multi-stakeholders from health and education departments to ensure their ownership and accountability.

Phasing up: Another key lesson learned was to scale programmes in a phased up manner to ensure step wise expansion. Example: The MLMC project implemented by MAMTA had a proof of concept phase to tailor the scaled-up version, while it also helped ensuring quality and government ownership.

Rooting intervention in Local Context: Another strong key area that was reinforced in community settings was about rooting the intervention in the local context. Example GREAT project (Uganda) emphasised engaging stakeholders in participatory design phase.

Community buy-in: Generating acceptability and garnering support from the community especially religious leaders in conservative areas to address religious/ socio-cultural resistance. Example programmes on CSE in LMICs (India and Nigeria).

Ensuring equity while scaling-up programme is a key challenge that needs to be taken into account. In one of the scaled-up interventions, the reach was less among the most vulnerable groups. Similarly reaching adolescent key population for participation and access to services is a challenge.

In addition to the above, having clear policies and implementation guidelines along with simple and well-defined intervention content was an essential learning for scale-up. The role of monitoring and evaluation needs to be reinforced to enable learning on intervention components that may require further strengthening during the scale-up of adolescent health interventions.

Charting out Future Implementation Research Priorities

The consultation also highlighted implementation research priority areas pertinent for strengthening implementation and scale-up of the Adolescent Health Programme in India (in light of RKSK). The key research questions that emerged for each of the setting were related with 1: Recruitment, retention and capacity building of key implementers of the programme (peer leaders, teachers, health care providers), role of family and parents was empathized across different settings (parent teacher meetings, family and community outreach), 2: Inter-sectoral coordination between different departments, 3: Quality service delivery, and 4: Emphasis on reaching out and addressing needs of vulnerable and at risk groups was reinforced.

CONCLUSION

The technical consultation contributed in improved understanding of implementation science/research in the context of adolescent health programmes and policies in LMIC settings. The consultation highlighted the evidence-based adolescent health interventions across key thematic areas, the critical need for implementation science to improve the packaging and delivery of adolescent health programmes and solutions and challenges for scaling up of programmes in schools, health and community settings with quality. The consultation highlighted that the most effective intervention programmes are multi-component and involve engagement of multi-stakeholders.

The consultation was an initiative that worked towards bridging the gap between knowledge/evidence and action to drive the adolescent health agenda in the country. It made a contribution to defining/establishing priorities for future implementation research for the largest national adolescent health programme (RKSK) in India. It facilitated government support, multi-stakeholder engagements for catalysing implementation research for strengthening and scale-up of RKSK in India.

The conclusions drawn reflect the findings from the two day discussions held during the consultation. Further this consultation also resulted in outlining the future priority research questions for implementation research in adolescent health. These questions culminated from key gap areas identified through presentations, group work exercise, and the literature reviewed during pre-consultation on adolescent health interventions.

The priority research questions (are not exclusively implementation research questions) that emerged from the technical consultation are as follows:

1. What needs to be done to implement adolescent related laws and policies effectively that have an impact on adolescent health outcomes?
2. How does engagement with boys and young men in school and community settings reduce violence and improve gender equitable norms and attitudes?
3. What do we need to do differently to enhance the capacities of health care functionaries to provide need-based health services for adolescents, including vulnerable adolescents?
4. How do parenting interventions when put together with existing National Health Programmes in LMICs reduce the vulnerabilities of adolescents and improve health related behaviours?

These research priorities are a stepping stone towards charting out implementation research agenda. These 'priority areas' will be taken up for possible collaboration and partnerships with state and national government in India, academia, UN organisations, NGOs, and national and international academic institutions.

As a result of this consultation, CoAHD aims to strengthen its focus on inadequately addressed adolescent health issues including mental health, violence/injuries, substance misuse and nutrition. As emphasized by experts, we should continue to focus our efforts in reaching out to the unreached/vulnerable groups including very young adolescents and adolescent key populations in low-resource settings with emphasis on India and other regions of Asia and Africa.

The technical consultation has also been instrumental in setting the stage for building partnerships and formulating the agenda for the 11th IAAH World Congress on Adolescent Health that will take place in New Delhi 27-29th October 2017, that is being co-hosted by MAMTA-CoAHD and the Public Health Foundation of India (PHFI) in partnership with MoHFW, Government of India.

REFERENCES

1. UN. Department of Economic and Social Affairs, Population Division. World population prospects: the 2015 revision. New York: United Nations Department of Economic and Social Affairs, 2015.
2. Strategy Handbook. Rashtriya Kishor Swasthya Karyakram. Adolescent Health Division Ministry of Health and Family Welfare Government of India.
3. Patton GC, Sawyer SM, Santelli JS, Ross DA, Afifi R, Allen NB, Arora M, Azzopardi P, Baldwin W, Bonell C, Kakuma R. Our future: a Lancet commission on adolescent health and wellbeing. The Lancet. 2016 May 9.
4. Peters DH, Tran NT, Adam T. Implementation research in health: a practical guide. Alliance for Health Policy and Systems Research. Geneva: World Health Organization; 2013
5. Chandra-Mouli V, Lane C, Wong S. What does not work in adolescent sexual and reproductive health: A review of evidence on interventions commonly accepted as best practices. Global Health: Science and Practice. 2015 Sep 10;3(3):333-40.
6. Pettifor A, Macphail C, Nguyen N, Rosenberg M. Can money prevent the spread of HIV? A review of cash payments for HIV prevention. AIDS Behav 2012;16:1729e38
7. Ellsberg M, Arango DJ, Morton M, et al. Prevention of violence against women and girls: what does the evidence say? Lancet 2015; 385: 1555–66.
8. Lundgren R, Amin A. Addressing intimate partner violence and sexual violence among adolescents: Emerging evidence of effectiveness. Journal of Adolescent Health. 2015 Jan 31;56(1):S42-50.
9. Barry MM, Clarke AM, Jenkins R, Patel V. A systematic review of the effectiveness of mental health promotion Interventions for young people in low and middle income countries. BMC Public Health. 2013 Sep 11;13(1):1.
10. Fazel M, Hoagwood K, Stephan S, Ford T. Mental health interventions in schools in high-income countries. The Lancet Psychiatry. 2014 Oct 31;1(5):377-87.
11. Mann JJ, Apter A, Bertolote J, et al. Suicide prevention strategies: a systematic review. JAMA 2005; 294: 2064–74.
12. WHO. Global Status Report on Road Safety 2013: Supporting A Decade of Action. Geneva, Switzerland: World Health Organization, 2013.
13. Robinson J, Cox G, Malone A, et al. A systematic review of school-based interventions aimed at preventing, treating, and responding to suicide-related behavior in young people. Crisis 2013; 34: 164–82.
14. Baird SJ, Garfein RS, McIntosh CT, Özler B. Effect of a cash transfer programme for schooling on prevalence of HIV and herpes simplex type 2 in Malawi: a cluster randomised trial. The Lancet. 2012 Apr 13;379(9823):1320-9.
15. Van den Bold M, Quisumbing AR, Gillespie S. Women's empowerment and nutrition: an evidence review. Poverty, Health, and Nutrition Division of the International Food Policy Research Institute (IFPRI), Washington, DC. 2013
16. World Bank. From agriculture to nutrition: pathways, synergies and outcomes. Washington, DC: World Bank, 2007.
17. World Health Organization. Adolescent health research priorities: report of a technical consultation, 13th and 14th October 2015, Geneva, Switzerland.

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