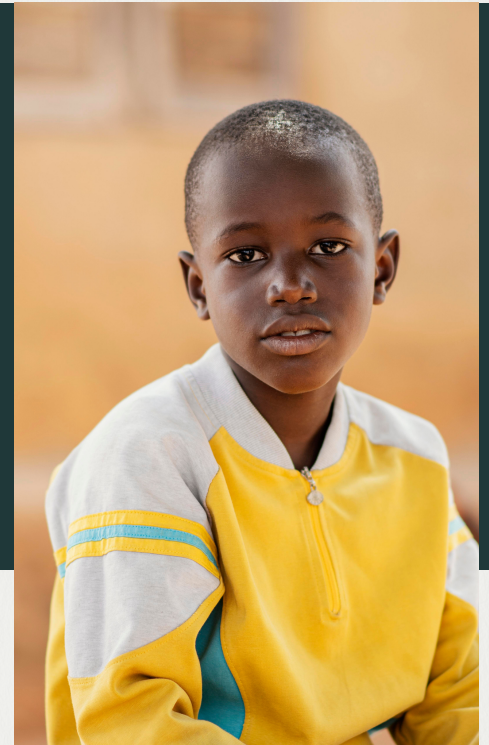


Non-Communicable Diseases (NCDs) among Adolescents in Low- and Middle-Income Countries (LMICs)

A NEED TO RETHINK OUR APPROACH

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The urgent need for a comprehensive approach to address NCDs in LMICs

NCDs, which were once thought to only impact older individuals in high-income countries, are now affecting a growing number of young people and adolescents in LMICs. Despite increased global attention on NCDs, little progress has been made in addressing them in LMICs, particularly among adolescents. As the next generation of adults, parents, and leaders, adolescents offer a triple dividend of benefits by ensuring their present wellbeing, enhancing their future prospects, and improving outcomes for generation to come. Therefore, there is a need for more attention to be given to NCDs and NCD-related behaviors among adolescents, potentially through a more comprehensive approach.

NCDs are chronic, non-transmissible diseases that persist for an extended period of time and are caused by a combination of genetic, physiological, environmental, and behavioral factors. The main types of NCDs, also identified as the “5x5” by the United Nations (UN), are cardiovascular diseases, cancers, chronic respiratory diseases, diabetes, and mental health conditions. Other NCDs include eye health problems, oral health diseases, chronic kidney disease, and thyroid issues. These diseases are now the leading cause of illness and death worldwide, and disproportionately affect people in



LMICs, where 77% of NCD deaths occur. As a result, NCDs have become a key focus of the global public health agenda and are an important aspect of the Sustainable Development Goals (SDGs) [1].

From diet to air quality: Understanding the modifiable risk factors of NCDs

NCDs are largely preventable and are mainly driven by five modifiable risk factors, including tobacco use, excessive alcohol consumption, unhealthy diets, physical inactivity, and air pollution. Unhealthy diets and physical inactivity play a significant role in the development of NCDs through various pathways. Consuming red and processed meats, saturated and trans fats, and high sodium intakes, for instance, increases the risk of developing cardiovascular disease. Similarly, high intake of energy-dense, highly processed foods contributes to overweight and obesity, which are linked to a variety of NCDs. On the other hand, consuming fruits and vegetables can prevent cardiovascular disease and protect against various cancers.



Undernutrition is also associated with the development of NCDs, such as obesity and cardiometabolic diseases in children of undernourished mothers during pregnancy [2]. Physical inactivity is also linked to the development of overweight and obesity, high blood pressure, high cholesterol, type 2 diabetes, and depression.

Adolescent health and NCDs: A global concern

Although NCDs are often thought of as a "lifestyle illness", and the youth population is commonly viewed as healthy, there has been limited effort to assess the health of adolescents in relation to NCDs. However, recent data suggests that people under the age of 70 are also at risk and that adolescents experience a significant burden of NCDs. In LMICs, NCDs disproportionately affect adults over 30, but are linked to risk behaviors established during adolescence. Therefore, behavioral changes during adolescence offer an opportunity for disease prevention and health promotion [3].

NCDs are a significant cause of death among adolescents, particularly in LMICs. In 2019, around 20% of deaths among individuals aged 10-19 worldwide were attributed to NCDs. Adolescents in LMICs confront rising rates of cardiovascular disease, hypertension, diabetes, chronic respiratory conditions, cancers, and chronic anemia, as well as mental health issues like conduct, anxiety, and depressive disorders [4]. Risk factors such as alcohol consumption and tobacco use remain high among adolescents, particularly among those aged 15-19, with rates being higher among boys than girls. Additionally, insufficient physical activity is widespread across all regions of the world, with over 80% of adolescents aged 11-17 not achieving the recommended levels of physical activity for both boys and girls. Lastly, malnutrition and overweight/obesity are prevalent among adolescents, with the highest prevalence occurring in Latin America, the Caribbean, and the Eastern Mediterranean region [5].

5 Ways to Better Address Non-Communicable Diseases (NCDs) Among Adolescents in LMICs

1 Increase and improve global and intersectoral partnerships

These partnerships are needed to better address the gaps and complexity surrounding NCDs, and to develop programs and policies supporting both disease prevention and health promotion.



2 Utilize a human-centered design approach

This ensures that adolescents and other stakeholders are empowered by becoming an active part of the decision making and implementation processes. Additionally, it ensures that programs and policies are truly sustainable and locally relevant.

3 Establish and support data surveillance systems

This will address the current gaps in data collection and longitudinal surveillance regarding NCDs, especially among adolescents in LMICs, and will ensure better program effectiveness.



4 Implement multicomponent programs and policies

Implement locally-relevant multicomponent nutrition and physical activity programs through various platforms, adopt regulations that address risk factors for NCDs, and offer uniform access to treatment and education in all sectors.

5 Consider utilizing technology

With the recent uptake in technology and social media by adolescents globally and in many LMICs, consider leveraging the various technology-related strategies for program and policy implementation, if feasible.



The challenges for addressing NCDs in adolescents

NCDs hinder adolescents' health, nutrition, education, and negatively impact their emotional and mental well-being, peer relationships, learning, and recreational opportunities. This is particularly true for adolescents in LMICs due to their high susceptibility to various socio-economic, demographic, and environmental factors. Therefore, urgent action is needed to address the various factors that contribute to the development of NCDs and the adoption of NCD-related behaviors, particularly with regard to nutrition and physical activity. While there is growing global momentum towards implementing NCD-specific policies and legislation, several gaps and challenges remain.

The gap between scientific knowledge and its practical application, commonly referred to as the "know-do" gap, hinders progress towards achieving the 2011 UN High-Level Meeting's targets for tackling non-communicable diseases (NCDs). Additionally, there are gaps in systemic data collection and longitudinal surveillance, and, for this reason, a large portion of NCD data, including data for adolescents in LMICs, is based on modelling. Finally, the implementation and impact data of programs that address NCDs are limited [6].

To effectively tackle these challenges, a collaborative approach is necessary between researchers, practitioners, policymakers, and global leaders. This will enable the development of programs and policies that address disease prevention and health promotion. Strengthening surveillance systems to ensure continuous data collection and program effectiveness is critical. Additionally, adopting a human-centered design approach can empower adolescents, making them active participants in program development and implementation. This ensures that programs and policies are sustainable, easy to implement, and locally relevant. Other proposed solutions include implementing multi-component nutrition and physical activity programs through various platforms, such as schools and communities, and adopting locally relevant regulations and policies addressing NCD risk factors, and ensuring uniform access to treatment and education across all sectors. Finally, leveraging technology and media strategies among adolescents in LMICs, when feasible, can play a significant role in addressing these issues [6].



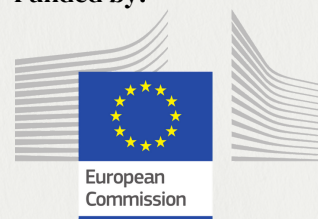
In conclusion, further research, investment, and comprehensive intervention are needed to prevent NCDs and NCDs-related behaviors, such as diet and physical activity, among adolescents in LMICs.

This can be achieved by fostering cooperation between countries and implementing a multisectoral, locally relevant, and human-centered design approach.

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