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Physical activity, time use and diet in the nutrition transition of adolescents in rural India and Nepal

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Abstract

Early pregnancy, food insecurity, enlistment into paid and unpaid work for household subsistence can increase the vulnerability of rural adolescents and have adverse effect on their nutrition and health through unmet energy needs. As a result of rural transformation, the lifestyles of adolescents are changing in terms of the types of activities they undertake and how they allocate their time – towards less energy-intensive activities. This change is in addition to the evolving trend towards increasing consumption of ultra-processed foods. But the effects of these adjustments in food insecure contexts is unclear. The implication of this knowledge gap is the absence of data to guide interventions aiming to protect young people against all forms of malnutrition. This study assesses physical activity, time use and diet in relation to nutritional outcomes for adolescents in India and Nepal. We use quantile regression in compositional data analysis methods – to assess the relationship between nutritional outcomes and the composition of daily time allocated to sedentary, light, moderate and vigorous activity. In addition, we assess the relationship of nutritional outcomes with the composition of diet involving ultra-processed and non-ultra-processed foods. The situation that adolescents in developing countries are facing is that of increasing sedentary lifestyles through technology and infrastructures. Although these are avenues where physical activity is reducing, results shows that there is still substantial physical labour under which adolescents continue to perform. The substitution of non-ultra-processed food by ultra-processed food improves energy adequacy but likely presents a burden of unhealthy diet. That physical activity and diet effect varies across the spectrum of nutrition status implies that addressing malnutrition among rural adolescents will require different kinds of interventions – some targeted at the lower ends of the nutrition status and a different set for the upper end of the nutrition status. Nutrition interventions providing food support should be encouraged to sustainably reduce undernutrition through the provision of energy and nutrient adequate food items. In addition to interventions, nutrition transition may also present a useful contribution to nutritional outcomes and this knowledge should guide the type of food items distributed or subsidised to rural households.

Keywords: Adolescents, India and Nepal, nutrition transition, nutritional outcomes, compositional data analysis methods, time use, physical activity