

Methodological Implications of Longitudinal Studies in Public Health Research: Examples from Jimma Longitudinal Family Survey of Youth

Tefera Belachew¹

State of the art public health evidence is a critical element for health policy and program development. The implication and level of use of the evidence for policy and program however depends among other things on the study design. Randomized control trial (RCT) is widely recognized as a gold standard while under circumstances when this is not feasible, longitudinal study is the best design in the line. Meta-analysis and/or synthesis is another useful design that helps to evaluate and synthesize observational studies in generating more concrete evidence for policy and program use. The purpose of this editorial is to encourage authors to consider study designs that may contribute to policies and programs. The Jimma University's experience in communicating findings of a longitudinal study was employed to illustrate implications of one of such study designs.

Despite the fact that Ethiopia has a youthful population, studies on adolescents using study designs mentioned above are very scanty leading to inadequate policy dialogue and limited coverage of services of adolescent health and nutrition programs. Jimma longitudinal family survey of youth (JLFSY) was carried out through the collaboration between the Jimma and Brown Universities. The study involved 2100 adolescents from urban, semi-urban and rural areas of Jimma Zone. Wide range of issues including: food security, nutrition, reproductive health, mental health, life expectation and education of adolescents spanning wide range of sectors were covered. The study was initiated in 2005 when the global food crisis started hiking, and data collection, analysis and use of it has continued through 2015. The study has generated an ample opportunity to look at the consequences of food insecurity on the wellbeing of adolescents over a long range of time.

In the context of increased food price, adolescents in the urban low and middle income households, especially girls were victims of the negative repercussion of food insecurity (1), implying that food security interventions should target urban low income households (net buyers of food) to reduce the level of chronic food insecurity and its negative effects. Due to the decline in food resources, the food-based coping strategies were observed to have negative effect on the dietary intakes of adolescent girls (2). The study has generated evidences justifying food security interventions should consider gender as a key variable to narrow the gap in health between boys and girls.

Food insecurity is not only negatively associated with poor physical health (3), mental health (4) physical growth and morbidity of adolescents, but also interferes with their intellectual development, school attendance and academic performance. Results from JLFSY showed that food insecurity is associated with higher school absenteeism and lower educational attainment (5), delayed age at menarche (6) and inadequate linear growth (7) of adolescents over the follow up period.

The JLFSY used a number of innovations including the nonverbal response card which provides an effective method for reducing social desirability bias when soliciting responses to sensitive questions in the context of an interviewer-administered survey (8-9). The findings suggest that undesirable behaviours are underreported by youth in interviewer-administered surveys that use conventional verbal responses (8). *“The nonverbal response-card method yields less biased estimates of risky adolescent sexual behaviour and perceived access to condoms than those derived from conventional face-to-face interviewer-administered surveys”*(9), which is effective, user-friendly and affordable alternative.

¹Professor of Nutrition, Jimma University, E-mail: teferabelachew@gmail.com

Development of policy briefs from scientific findings of JLFSY, including translation of the policy implication into local languages in an example of an effort to bridge the evidence – policy gap. A randomized controlled ‘radio trial’ using broadcasting of serial radio drama and findings of the JLFSY through community radio resulted in an improved egalitarian attitude of adolescents about gender.

In conclusion, evidence from JLFY indicates a negative effect of food insecurity on adolescent wellbeing and gives a new insight on the way evidence for decision making could be generated and communicated to key stakeholders including the general community. Multi-disciplinary and trans disciplinary long term follow studies, randomised control trials and meta-analysis/synthesis should be the main mantra of public health research for more powerful contributions to public polices, strategies and programs to respond to the upcoming health challenges.

References:

1. Belachew T, Lindstrom D, Gebremariam A, Lachat C, Huybregts L, Kolsteren P. Predictors of chronic Food Insecurity among adolescents in southwest Ethiopia. *BMC Public Health* 2012, 12:604.
2. Belachew T, Lindstrom D, Gebremariam A, Hogan D, Lachat C, Huybregts L, Kolsteren P. Food insecurity, food based coping strategies and suboptimal dietary practices. *PLoS One*. 2013;8(3):e57643. doi: 10.1371/journal.pone.0057643.
3. Belachew T, Hadley C, Lindstrom D, Getachew Y, Gebremariam A, Woldemichael K, Lachat C, Kolsteren P. Gender differences in food insecurity and morbidity among adolescents in southwest Ethiopia. *Pediatrics*, Jan 2011: e397-404.
4. Jebena MG, Lindstrom D, Belachew T, Hadley C, Lachat C, Verstraeten R, De Cock N, Kolsteren P. Food Insecurity and Common Mental Disorders among Ethiopian Youth: Structural Equation Modeling. *PLoS One*. 2016 Nov 15;11(11):e0165931. doi: 10.1371/journal.pone.0165931. eCollection 2016.
5. Belachew T, Hadley C, Lindstrom D, Gebremariam A, Lachat C, Kolsteren P. Food insecurity, school absenteeism and educational attainment of adolescents in southwest Ethiopia: longitudinal study. *Nutr J*. 2011, 10:29.
6. Belachew T, Hadley C, Lindstrom D, Getachew Y, Duchateau L, Kolsteren P. Food insecurity and age at Menarche among girls in Southwest Ethiopia. *Reproductive Biology and Endocrinology*, 2011; 9:125.
7. Belachew T, Lindstrom D, Hadley C, Gebremariam A, Kasahun W, Kolsteren P. Food insecurity and linear growth of adolescents in Jimma Zone, Southwest Ethiopia. *Nutr J*. 2013 May 2;12:55. doi: 10.1186/1475-2891-12-55.
8. Lindstrom DP¹, Hattori MK, Belachew T, Tessema F. Lifting the curtain on the conditions of sexual initiation among youth in Ethiopia. *J Adolesc Health*. 2012 Jun; 50(6):614-20. doi: 10.1016/j.jadohealth.2011.10.253. Epub 2012 Feb 14.
9. Lindstrom DP, Belachew T, Hadley C, Hattori MK, Hogan D, Tessema F. Nonmarital sex and condom knowledge among Ethiopian young people: improved estimates using a nonverbal response card. *Stud Fam Plann*. 2010 Dec;41(4):251-62.