



Relative importance of 13 correlates of child stunting in South Asia: Insights from nationally representative data from Afghanistan, Bangladesh, India, Nepal, and Pakistan



Rockli Kim ^{a,1}, Iván Mejía-Guevara ^{b,c,1}, Daniel J. Corsi ^d, Víctor M. Aguayo ^e, S.V. Subramanian ^{a,f,*}

^a Department of Social and Behavioral Sciences, Harvard T. H. Chan School of Public Health, Boston, MA, USA

^b Department of Biology, Stanford University, Stanford, CA, USA

^c Stanford Center for Population Health Sciences, Stanford University School of Medicine, Palo Alto, CA, USA

^d Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, ON, Canada

^e United Nations Children's Fund (UNICEF), Nutrition Section, Programme Division, New York, NY, USA

^f Harvard Center for Population & Development Studies, Cambridge, MA, USA

ARTICLE INFO

Article history:

Received 29 November 2016

Received in revised form

28 March 2017

Accepted 15 June 2017

Available online 16 June 2017

Keywords:

South Asia

Stunting

Undernutrition

Child growth

Child development

Risk factors

ABSTRACT

Optimal growth and development in early childhood is determined by a complex interplay of child, maternal, household, environmental, and socioeconomic factors that influence nutritional intake, but interventions to reduce child undernutrition sometimes target specific risk factors in isolation. In this analysis, we assess the relative importance of 13 correlates of child stunting selected based on a collective review of existing multi-factorial frameworks: complementary feeding, breastfeeding, feeding frequency, dietary diversity, maternal height, body mass index (BMI), education, age at marriage, child vaccination, access to improved drinking source and sanitation facilities, household indoor air quality, and household wealth. The analytic sample consisted of nationally representative cross-sectional surveys from the most recent Demographic and Health Surveys for Bangladesh (2014), India (2005), Nepal (2011), and Pakistan (2013), and from the National Nutrition Survey for Afghanistan (2013). In the mutually adjusted logistic regression model for 3,159 infants aged 6–8 months, short maternal stature (OR: 2.93; 95% CI: 1.93–4.46) and lack of complementary foods (OR: 1.47; 95% CI: 1.12–1.93) were associated with significantly higher risk of stunting. For 18,586 children aged 6–23 months, the strongest correlates of child stunting were: maternal height (OR: 3.37, 95% CI: 2.82–4.03), household wealth (OR: 2.25, 95% CI: 1.72–2.94), maternal BMI (OR: 1.59, 95% CI: 1.27–2.00), minimum dietary diversity (OR: 1.48, 95% CI: 1.27–1.72), maternal education (OR: 1.36, 95% CI: 1.18–1.56), and age at marriage (OR: 1.17, 95% CI: 1.05–1.30). Full vaccination and minimum dietary frequency were also found to be important for severe stunting for children of this age group. Some differences were found in the relative ordering and statistical significance of the correlates in country-specific analyses. Our findings indicate that comprehensive strategies incorporating a broader progress on socioeconomic conditions as well as investments in nutrition specific programs are needed to improve child undernutrition in South Asia.

© 2017 Published by Elsevier Ltd.

1. Introduction

In 2015, about 25% of children under five years of age in low and middle income countries (LMICs) were stunted (UNICEF, 2015). Stunting, a linear growth failure in infancy or early childhood, has

severe short- and long-term consequences. For instance, stunting is associated with increased morbidity and mortality from infections (Aguayo and Menon, 2016; Black et al., 2008), reduced stature in adulthood (Stein et al., 2010), increased risk of maternal, perinatal, and neonatal mortality (Özaltın et al., 2010), and increased risk of chronic diseases as adults (Gluckman et al., 2007). Stunting is associated with poorer cognition (Prendergast and Humphrey, 2014) and school performances in children (Martorell et al., 2010), and reduced earnings in adults (Hoddinott et al., 2013).

* Corresponding author. Harvard Center for Population & Development Studies, 9 Bow Street, Cambridge, MA 02138, USA.

E-mail address: svsubram@hsph.harvard.edu (S.V. Subramanian).

¹ Shared first authorship.

Given its public health importance, child undernutrition is analyzed and approached using several complex conceptual models and frameworks, all of which support for multi-factorial interventions with differing emphasis on the basic, underlying and immediate factors at the household, environmental, socio-economic, and cultural domains (Bhutta et al., 2008; Black et al., 2013; UNICEF, 2013). However, in many instances, interventions to prevent child undernutrition try to address a specific risk factor or a set of factors in isolation. For instance, nutrition-specific interventions that address the immediate determinants of fetal and child nutrition, including micronutrient intake and feeding practices, are likely to be implemented without addressing the social and structural factors, such as women's education, household poverty, and social exclusion (Black et al., 2013; Bryce et al., 2008; Ruel et al., 2013).

Moreover, empirical research on a selective set of risk factors on child growth and development are valuable for assessing the role of specific determinants, but do not allow an examination of the relative importance of multiple factors on children's health and nutrition outcomes (Bhutta et al., 2008). Existing studies focused on LMICs have identified child feeding practices, maternal nutrition, and household wealth as key determinants of the nutritional status for pre-school age children (Espo et al., 2002; Jones et al., 2008; Kanjilal et al., 2010; Smith and Haddad, 2015). These findings have important policy and programme implications at the national level, but the relative significance of the same set of risk factors may substantially vary when the focus is on the outcome of stunting, a measure of chronic undernutrition, as opposed to general nutritional status; the first two years of life, when most child stunting happens in LMICs, as opposed to children under age of five; and by different countries.

Therefore, we use the most recent nationally representative

data from Afghanistan, Bangladesh, India, Nepal and Pakistan (home to over 95% of stunted children in South Asia) to investigate the relative and joint importance of a set of 13 correlates of stunting and severe stunting in infants and young children aged 6–23 months old. A comprehensive set of 13 correlates was selected based on a collective review of the existing multi-factorial frameworks that consider risk factors ranging from child's feeding practices (complementary feeding, breastfeeding, feeding frequency, dietary diversity) to maternal and household socioeconomic indicators (maternal height, body mass index, education, age at marriage, child vaccination, household access to improved drinking source and sanitation facilities, household indoor air quality, and household wealth). We focus on the critical “window of opportunity” – from conception through the first two years of life – during which linear growth faltering is most sensitive to environmentally modifiable factors (Black et al., 2008). In addition to the pooled estimates for South Asia, we provide country-specific analyses to aid national policies and programmes in averting child stunting.

2. Methods

2.1. Survey data

Data for Afghanistan (2013) come from the National Nutrition Survey (NNS), and data for Bangladesh (2014), India (2005), Nepal (2011), and Pakistan (2013) come from the latest Demographic and Health Survey (DHS). Both NNS and DHS are nationally representative household surveys that collect detailed health and nutrition information from children and their mothers following a stratified two-stage survey design. Survey weights are included to make estimates representative at the national and regional levels

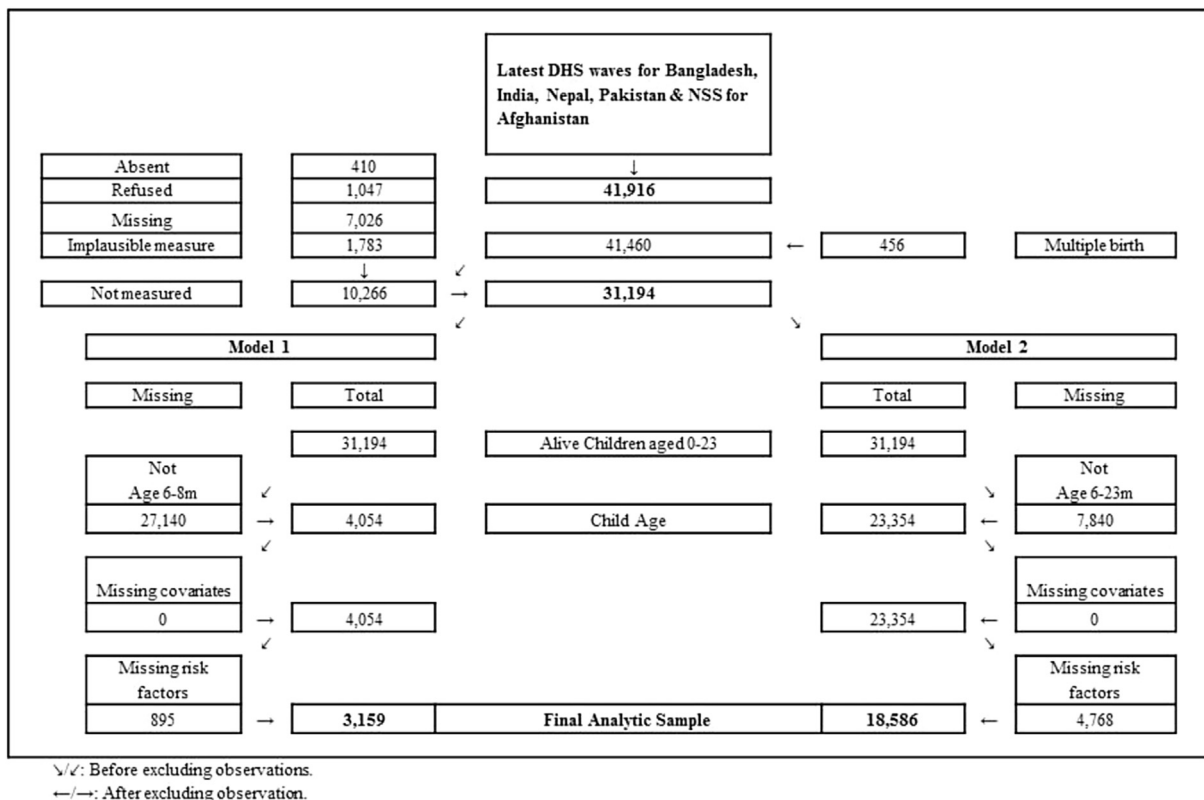


Fig. 1. Final analytic sample for stunting and severe stunting analyses for infants aged 6–8 months (Model 1) and children aged 6–23 months (Model 2) in South Asia.

Download English Version:

<https://daneshyari.com/en/article/5046471>

Download Persian Version:

<https://daneshyari.com/article/5046471>

[Daneshyari.com](https://daneshyari.com)