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# URBAN KNOWLEDGE SHARING EVENT

INTERVENTIONS TO TACKLE MALNUTRITION AND ITS RISK  
FACTORS IN CHILDREN LIVING IN SLUMS — A SCOPING  
REVIEW



# RATIONALE

By 2030, slum populations of less developed countries = **two billion people**

Children living in slums are malnourished **GAM: 12.6%**  
**Yangon=> Caseload of malnourished children is enormous**

Malnourished children => **lower chances of survival** than well-nourished ones and have higher risk of morbidity



# PARAMETERS OF THE REVIEW

**Type of studies:** RCT, CB/ AS, ITS, qualitative studies

**Participants:** Children from birth to adolescence (<18 years old) included.

**Year of publication:** From 1980 to 2013.

**Location:** urban slums, peri urban slums in LMIC countries. Urban areas considered as poor.

**Type of intervention:** intervention that has an impact on children's nutritional status.

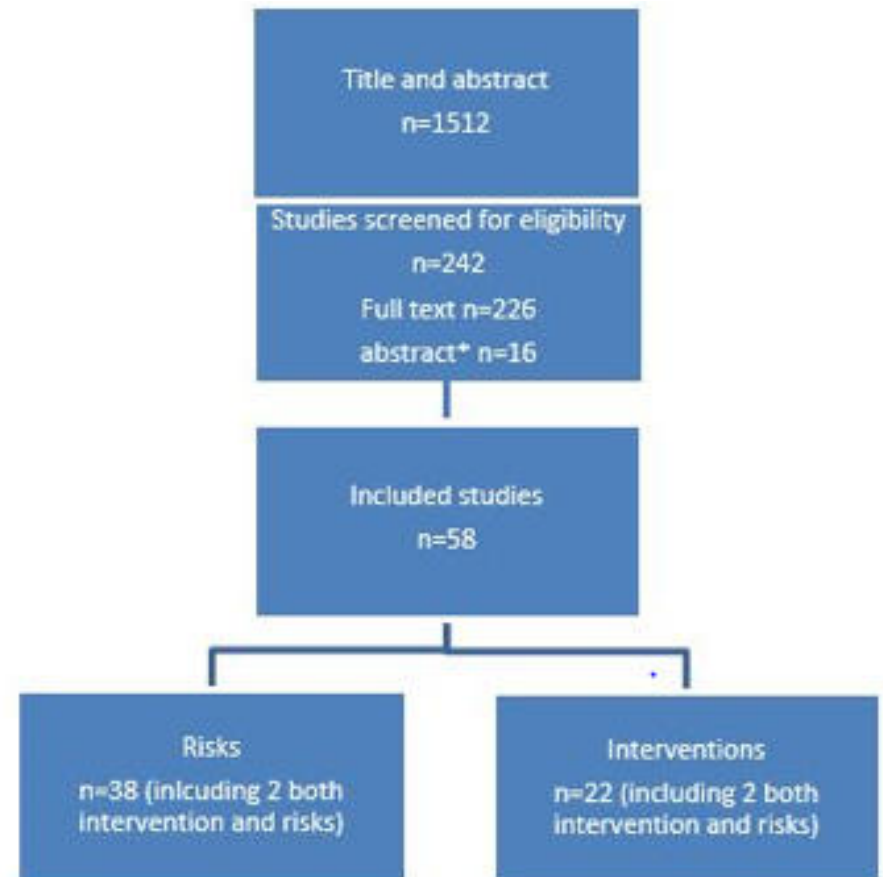
**Risks:** statistical association of variables with children nutritional status

**Outcome:** weight, height, MUAC, WFA, HFA, WFH and micronutrient deficiencies

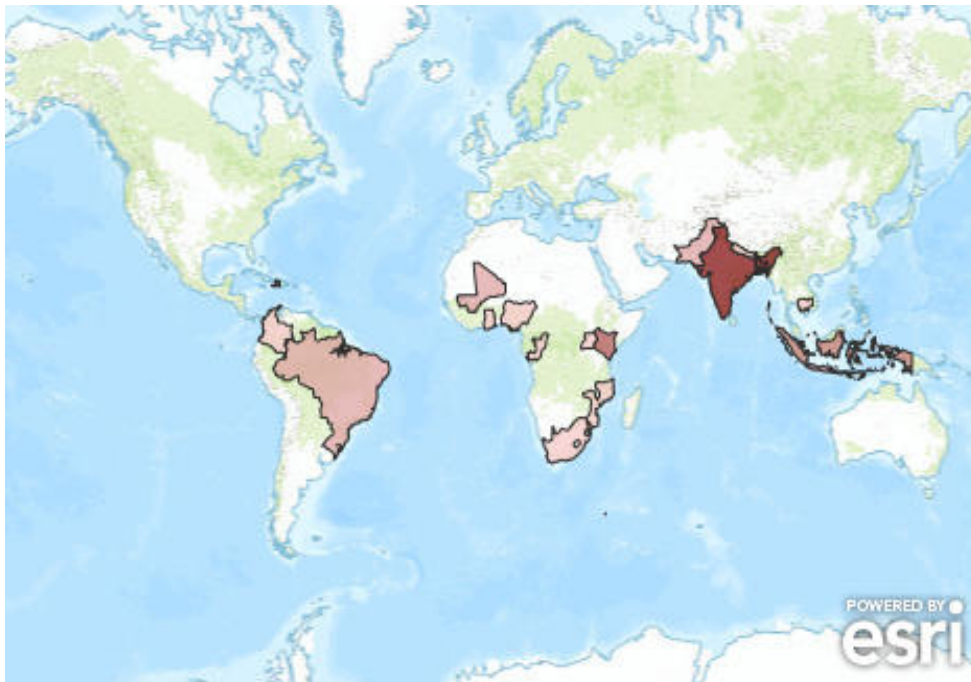


## Flow diagram of selected studies

Search: 30 databases, and websites of agencies, academic institutions and technical bodies



# STUDIES LOCATION TYPES AND OUTCOME



Location	n	%
Bangladesh	14	24%
India	16	28%
Kenya	7	12%
Pakistan	2	3%
Indonesia	5	9%
Brazil	2	3%
Others	12	21%

# INTERVENTION TYPE

Intervention type	N	%
<b>Nutrition</b>	17	77%
- school feeding	3	18%
- supplementation	6	35%
- promotion	5	29%
- SAM treatment	3	18%
<b>Health</b>	3	14%
<b>Wash</b>	2	9%



## INTERVENTIONS - WASH

Author	Intervention	Component	Measure of effectiveness
Buttenheim 2007 [Bangladesh]	Sanitation	Included: sanitation infrastructure; health, hygiene and nutrition education; income-generating activities; and community mobilization (filling ditches, installing hygienic latrines, and developing local Community Resources Management Committees).	Less wasted (increased weight-for-height by .341 SD)

# INTERVENTIONS – HEALTH / NUTRITION

<b>Singh 2011</b> [India]	Performance pay (government health worker) and nutritional information	1) change in compensation for childcare workers from wages to performance pay, 2) provide mothers with information without incentivizing the workers, 3) combine the first two treatments, where along with the change in compensation for workers, plus nutritional information to mothers directly.	Less underweight
<b>Kiran 2011</b> [India]	Reproductive and Child Health (RCH)	Regular health check-up camps conducted once a week; nutritional assessment of children (0-5 yrs), immunization to all children and pregnant mothers along with regular antenatal check-ups, nutrition counselling of mothers about importance of exclusive breastfeeding, proper complementary feeding practices and immunization of all under five children.	Less stunted, less wasted, less underweight



# INTERVENTIONS – NUTRITION (SCHOOL FEEDING)

<p>Ahmed 2004 [Bangladesh]</p>	<p>School feeding with fortified biscuits</p>	<p>A mid-morning snack consisting of eight fortified wheat biscuits to four slum areas in Dhaka City. At a cost of U.S. 6 cents per packet of eight, the biscuits provide 300 kilocalories and 75 percent of the recommended daily allowance of vitamins and minerals.</p>	<p>Less wasted (increase BMI of participating children by an average of 0.62 points)</p>
<p>Neervoort et al 2013 [Kenya]</p>	<p>School feeding combined with health education and, when clinically indicated, vitamin or iron supplements</p>	<p>A lunch combined with health education and, when clinically indicated, vitamin or iron supplements for a period of 3 months. All children were given an anti-worm treatment from the school.</p>	<p>Less stunted (12% intervention vs 22% control), less wasted (0% vs 11%), less incidence of anaemia (19% vs 42%) (confounding factors: having no father, family size)</p>

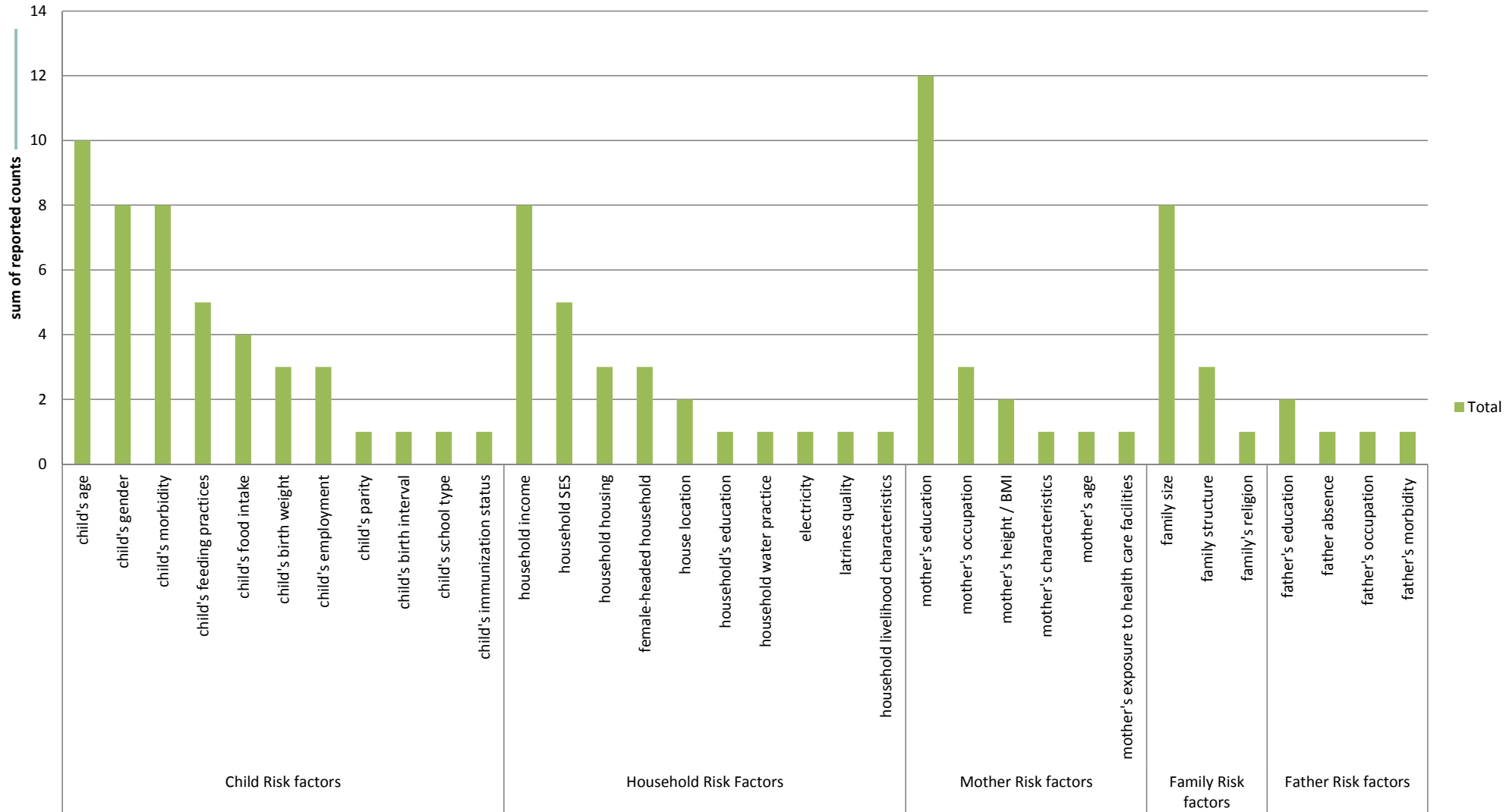
# INTERVENTIONS – NUTRITION PROMOTION

<p><b>Penny et al 2005</b> [Peru]</p>	<p>Nutritional education at health facilities</p>	<p>To enhance the quality of nutrition counselling through training and provision of simple, standardised, age-appropriate messages to be used at all points of contact with young children in health facilities.</p>	<p>Less stunted (at 18 months 16% in intervention vs 5% in control; adjusted odds ratio 3.04 [95% CI 1.21–7.64]), less energy, iron and zinc deficient.</p>
<p><b>Attanasio et al 2005</b> [Columbia]</p>	<p>Conditional Cash Transfer</p>	<p>Mothers receive cash if their school-aged children attend school and preventive healthcare visits. Eligible families receive a monthly nutritional subsidy of about \$US15.38 if they have children aged 0–6 who participate in the health component of the programme.</p>	<p>Less stunted (Z-score increased by 0.161) Weight gain (0.578 kg).</p>

# INTERVENTION - SUPPLEMENTATION

<p><b>Semba et al 2013</b> [Indonesia]</p>	<p>Micronutrient fortified milk and fortified noodles</p>	<p>Milk products were fortified with vitamin A, vitamin C, vitamin D, vitamin E, vitamin K, vitamin B12, thiamin, and riboflavin. Noodles were fortified with vitamin A, vitamin B6, vitamin B12, thiamin, niacin, folate, and iron.</p>	<p>Less stunted (fortified milk :Intervention vs control, OR = 0.80; 95% CI, 0.76 to 0.85; p &lt; .0001, fortified noodles: OR = 0.95; 95% CI, 0.91 to 1.01; p = .08).</p>
<p><b>Berger et al 2008</b> [Indonesia]</p>	<p>Micronutrient supplementation</p>	<p>Vit A</p>	<p>Less underweight (z score - 3, 7.8% vs 8.6% (P&lt;0.0001), less stunted (7.8% vs 8.6% (P&lt;0.0001), less anaemic, less episodes of diarrhoea</p>
<p><b>Iannotti et al 2013</b> [Haiti]</p>	<p>Lipid based nutrient supplement LNS, micronutrient supplementation Vit A, B12, iron and zinc)</p>	<p>The LNS provided 108 kcal and other nutrients including vitamins A, vitamin B-12, iron, and zinc at ≥80% than recommended amounts.</p>	<p>Less stunted (increased the length-for-age z score (±SE) by 0.13 ± 0.05) less underweight (increased weight-for-age z score by 0.12 ± 0.02.)</p>

### Risks Factors Grouped (sum of reported count for all studies)



# KEY POINTS

The non selected studies: WASH interventions do not capture nutritional outcomes!

Lack of representativeness: 65% of studies conducted in India, Bangladesh and Kenya

Short time span: duration of 16 months on average

Maternal and households factors in urban areas!!!

Gaps in knowledge that need to be addressed with further research



## Interventions to tackle malnutrition and its risk factors in children living in slums: a scoping review

Sophie Goulet, Paula Griffiths, Barry Bogin & Nyovani Madise

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Nutritional interventions for preventing stunting in children (0 to 5 years) living in urban slums.

*Cochrane Database of Systematic Reviews* 2015, Issue 5. Art. No.: CD011695.

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