

Socio economic status, food security and anemia among mothers in Bhaktapur, Nepal

Longitudinal follow-up study

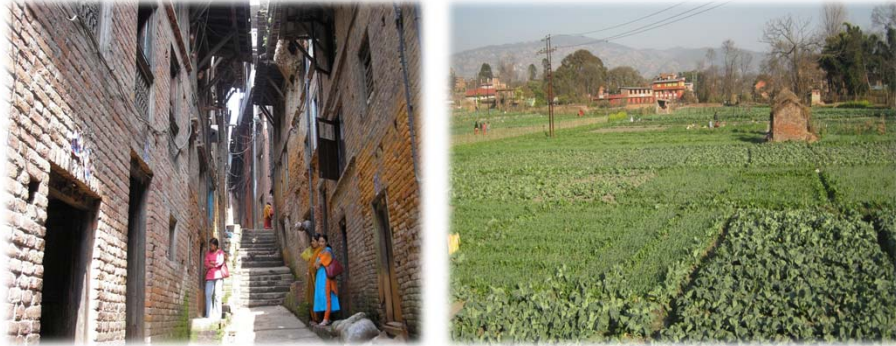
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Outline of presentation

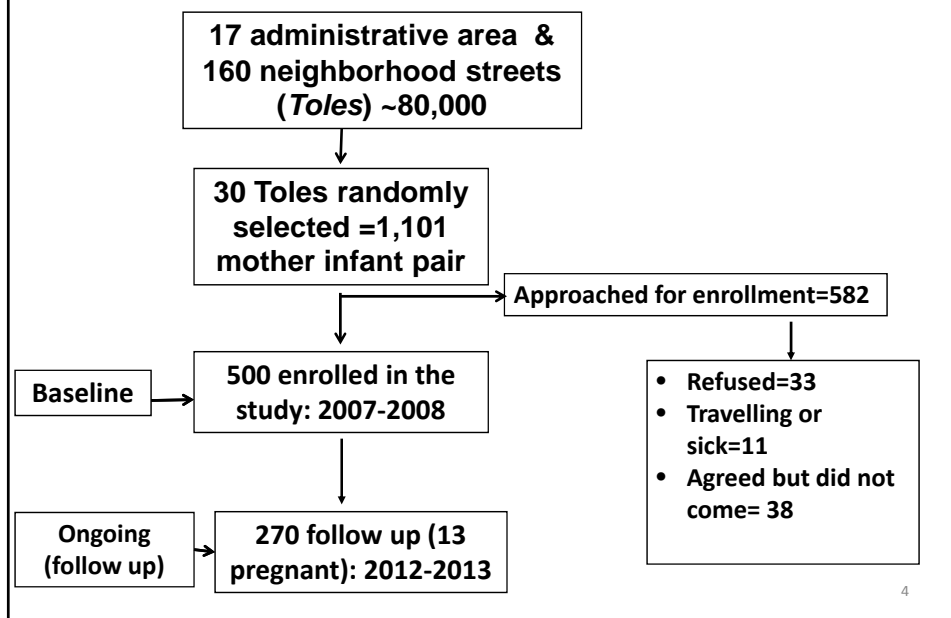
- Description of population
 - Socio- demographic features
 - Food security/anthropometry/anemia
- Methods
- Change in population anthropometry/anemia over time
- Implications

Field site- Bhaktapur Municipality



- ~80,000 inhabitants, densely populated and agriculture-based
- Research on micronutrition/ childhood infection since last 15 yrs (University of Bergen, Bill Gates Foundation, USAID)

Flow chart of recruitment process



Objective of the baseline and follow up study on micronutrient survey

Baseline survey (2007-2008)

- To estimate the prevalence of micronutrient deficiencies using dietary recall and blood analysis from mother and infants

Follow up study (2012-2013)

- To understand relationships between baseline diet/anthropometry and changes in diet, child and maternal anthropometry.
- To better understand the food security, agriculture, and socioeconomic situation of peri-urban households

Anthropometry and Hemoglobin test



Socio-economic features (based on follow up ongoing survey)

- Household outer material bricks= 95%
- Roofing materials
 - Metal=56%
 - Cement=39%
- Children in private schools= 83%
- Family having refrigerator= 21%
- Receiving remittances= 9%



Kitchen and cooking fuel

No separate kitchen=40%

Main source of energy for cooking:
LPG=74%

Firewood/straw=
20%



Agricultural and land ownership

- Household having agricultural land= 64%
- Mean land (sq m)= 1,378 (SD 1,292)
- Rice planting on previous year= 75% with mean 11 muri (SD 10)



Household food insecurity (in past 6 months)

Questions	Yes (%)	Rarely (%)	Sometimes (%)
Did you worry for not enough food?	29%	55%	33%
Did you or any household member have to eat less amount of food?	14%	60%	24%
Was there ever no food to eat?	7%	70%	20%
Did you or any household member go to sleep at night without food ?	4%	50%	42%

Trends in nutritional status (anthropometry and hemoglobin) from baseline to follow-up

(Disclaimer: these are still based on a preliminary subsample)

HOUSEHOLD AND MOTHER CHARACTERISTICS

Indicators	2007-2008 (n=270)	2012-2013 (n=270)
Mean age (SD)	25.9 (4.0)	30.5 (4.3)
Mother with two or more birth	58%	77%
% using Depo-Provera	51%	28%
% staying on rent	32%	21%
% staying on single room	33%	23%

HOUSEHOLD AND MOTHER CHARACTERISTICS

Indicators	2007-2008 (n=500)	2007-2008 (n=270)	2012-2013 (n=270)
Mean age (SD)	25.7 (4.2)	25.9 (4.0)	30.5 (4.3)
Mother with two or more birth	59%	58%	77%
% using Depo-Provera	46%	51%	28%
% staying on rent	37%	32%	21%
% staying on single room	38%	33%	23%

Overweight has increased among women

Indicators	2007-2008 (n=270)	2012-2013 (n=270)
Mean BMI, SD	22.5 (3.0)	24.4 (3.6)
% < 18.5	12 (4%)	5 (2%)
% > 25	47 (17%)	112 (41%)

Is selection bias responsible for the change in maternal overweight?

Indicators	2007-2008 (n=500)	2007-2008 (n=270)	2012-2013 (n=270)
Mean BMI, SD	22.4 (3.1)	22.5 (3.0)	24.4 (3.6)
% < 18.5 kg/m ²	4.6%	4%	2%
% > 25 kg/m ²	17%	17%	41%

ANEMIA PREVALENCE

Indicators	2007-2008 (n=270)	2012-2013 (n=270)
Mean Hb (SD), g/dL	13.2 (1.1)	12.6 (1.4)
% < 12 g/dL	8%	29%
% < 12.3 g/dL	17%	41%
% < 10 g/dL	0.39%	0.7%

ANEMIA PREVALENCE

Indicators	2007-2008 (N=500)	2007-2008 (n=270)	2012-2013 (n=270)
Mean Hb (SD)	13.1 (1.2)	13.2 (1.1)	12.6 (1.4)
% < 12 g/dL	12%	8%	29%
% < 12.3 g/dL	20%	17%	41%
% < 10 g/dL	1.6%	0.39%	0.7%

Summary

- We observed an increase in the prevalence of overweight among women over the past 5 years and an apparent increase in the prevalence of anemia
- Further work is needed to explore the potential role of dietary factors in exploring change in maternal anthropometric status
- Food insecurity still persists in this population despite the apparent nutrition transition

Next steps

- Complete follow-up survey
- Re-analyze this data using multivariate techniques to identify factors associated with change
- Explore factors associated with child growth in this population

Thank you



Extra slides

NDHS comparison

INDICATORS	BHAKTAPUR SURVEY	NDHS 2011
< 12 g/dL (overall)	29%	35%
< 10 g/dL	0.7%	5
Urban area	29%	28%