Prevalence of underweight and overweight among women of childbearing age in Nepal – trends from 2006 to 2016

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Background and aims

- Body mass index (BMI) is an indicator of nutritional status and food security.
- The prevalence of underweight decreased from 27 to 18% and the prevalence of overweight increased from 6 to 14% between 2001 and 2011 among women in childbearing age in Nepal (Kinnunen & Neupane 2014).
- It is important to follow these trends to inform planning of public health interventions and health policy.
- **Aims:** To examine trends in underweight (BMI<18.5 kg/m²) and overweight (BMI≥25.0 kg/m²) from 2006 to 2016 among 15 to 49-year-old women in Nepal.

Materials and methods

- Nationally representative cross-sectional data on 15 to 40 year-old women were obtained from three Demographic and Health Surveys conducted in Nepal in 2006 (n=10731), 2011 (n=6148) and 2016 (n=6444).
- We excluded women who were currently pregnant, who had given a birth less than a month before or whose anthropometric data were missing.
- Body weight and height were measured by trained personnel.
- Data on socio-demographic variables were collected by interviews.
- Sampling weights were used in the analyses. The main method of analysis was logistic regression model, adjusted for age, parity and woman's education.

Results

Background characteristics of the participants are shown in **Table 1.**

Underweight

- The overall prevalence of underweight decreased from 23.7% to 16.8% between 2006 and 2016 **(Figure 1)**. The adjusted odds ratio (OR) and 95% confidence intervals (CI) for the change was 0.78 (0.70 to 0.83).
- When stratified by the place of residence, the prevalence of underweight decreased from 25.1% to 19.3% (adjusted OR 0.77, 95% CI 0.68 to 0.87) in rural areas and from 16.1% to 15.3% (adjusted OR 0.78, 95% CI 0.69 to 0.89) in urban areas **(Table 2)**.

Overweight (including obesity)

- The overall prevalence of overweight increased from 8.6% to 22.0% between 2006 and 2016 **(Figure 1)**. The adjusted OR (95% CI) for the change was 2.27 (2.06 to 2.50).
- The prevalence of overweight increased from 6.4% to 15.3% (adjusted OR 2.52, 95% CI 2.15 to 2.95) in rural areas and from 20.5% to 25.9% (adjusted OR 1.54, 95% CI 1.35 to 1.76) in urban areas **(Table 3)**.

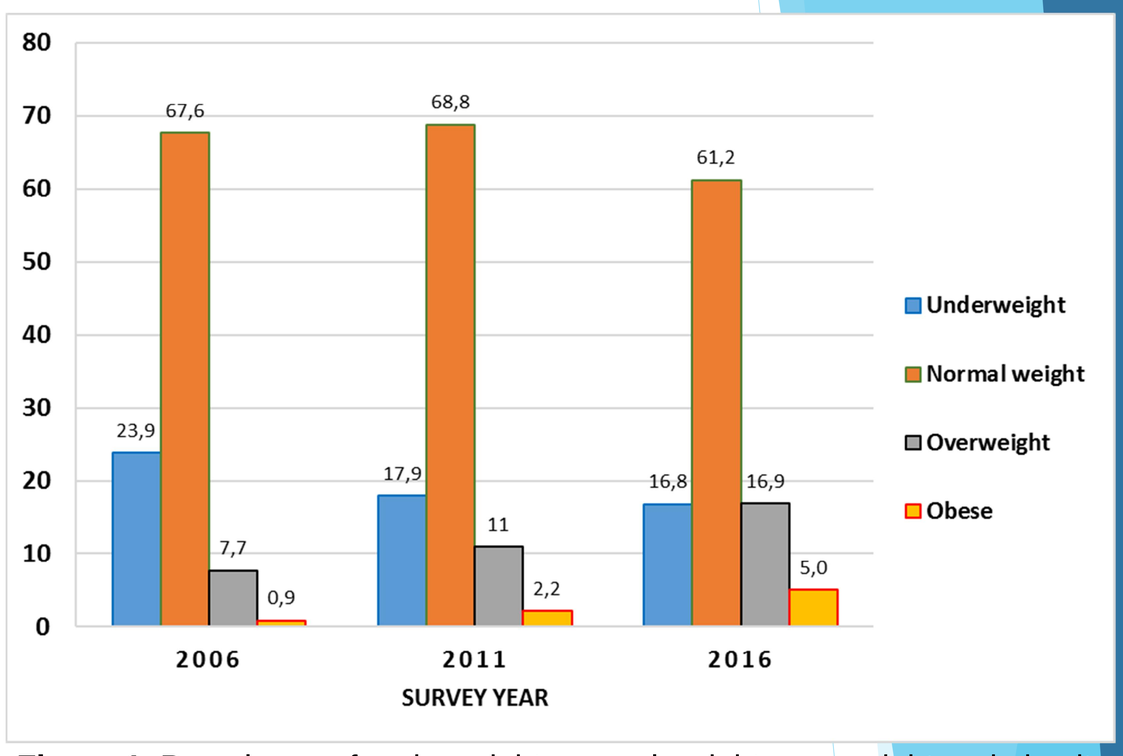

Figure 1. Prevalence of underweight, normal weight, overweight and obesity among 15 to 49-year-old women Nepal from 2006 to 2016 (%)

Table 1. Background characteristics of the participants by the year of the survey, weighted numbers (%)

	2006 (n=10731)		2011 (n=6148)		2016 (n=6444)	
Parity						
0	2967	27.6	1847	30.0	1854	28.8
1	1357	12.6	862	14.0	1029	16.0
2	1835	17.1	1174	19.1	1413	21.9
3	1538	14.3	930	15.1	958	14.9
4 or more	3035	28.3	1335	21.7	1191	18.5
Place of Recidence						
Rural	9060	84.4	5298	86.2	2391	37.1
Urban	1672	15.6	850	13.8	4053	62.9
Womah s education						
No education	5693	53.0	2422	39.4	2150	33.4
Primary	1885	17.6	1080	17.6	1073	16.6
Secondary	2719	25.3	2183	35.5	2290	35.5
Higher	435	4.1	463	7.5	930	14.4
Partneŕ s education						
No education	2259	26.2	1045	21.6	790	16.0
Primary	2383	27.6	1110	23.0	1106	22.4
Secondary	3282	38.0	2094	43.4	2133	43.3
Higher	720	8.3	577	11.9	900	18.3
Wealth index						
Poorest	1955	18.2	1022	16.6	1100	17.1
Richest	2296	21.4	1379	22.4	1343	20.8

Table 2. Change in the prevalence of underweight from 2006 to 2016 stratified by place of residence, odds ratios (OR) with 95% confidence intervals (CI)

	Year of survey			p-value for trend
	2006	2011	2016	
Overall				
Model I, OR (95% CI)[a]	1.00	0.66 (0.61 to 0.72)	0.65 (0.60 to 0.70)	**<0.001**
Model II, OR (95% CI) [b]	1.00	0.75 (0.67 to 0.79)	0.78 (0.70 to 0.83)	**<0.001**
Rural				
Model I, OR (95% CI)[a]	1.00	0.67 (0.61 to 0.74)	0.69 (0.61 to 0.77)	**<0.001**
Model II, OR (95% CI) [b]	1.00	0.73 (0.67 to 0.81)	0.77 (0.68 to 0.87)	**<0.001**
Urban				
Model I, OR (95% CI)[a]	1.00	0.63 (0.53 to 0.74)	0.70 (0.62 to 0.80)	**<0.001**
Model II, OR (95% CI) [b]	1.00	0.70 (0.60 to 0.83)	0.78 (0.69 to 0.89)	**<0.001**

[a] Model I: Logistic regression model with crude odd ratios
[b] Model II: Logistic regression model adjusted for age, parity and woman's education

Table 3. Change in the prevalence of overweight (including obesity) from 2006 to 2016 stratified by place of residence, odds ratios (OR) with 95% confidence intervals (CI)

	Year of survey			p-value for trend
	2006	2011	2016	
Overall				
Model I, OR (95% CI)[a]	1.00	1.90 (1.71 to 2.10)	2.85 (2.59 to 3.12)	**<0.001**
Model II, OR (95% CI) [b]	1.00	1.63 (1.47 to 1.81)	2.27 (2.06 to 2.50)	**<0.001**
Rural				
Model I, OR (95% CI)[a]	1.00	1.93 (1.68 to 2.21)	3.02 (2.59 to 3.51)	**<0.001**
Model II, OR (95% CI) [b]	1.00	1.67 (1.44 to 1.92)	2.52 (2.15 to 2.95)	**<0.001**
Urban				
Model I, OR (95% CI)[a]	1.00	1.89 (1.62 to 2.19)	1.69 (1.49 to 1.92)	**<0.001**
Model II, OR (95% CI) [b]	1.00	1.71 (1.46 to 2.01)	1.54 (1.35 to 1.76)	**<0.001**

[a] Model I: Logistic regression model with crude odd ratios
[b] Model II: Logistic regression model adjusted for age, parity and woman's education

Conclusion

- Overweight has become more common than underweight among women of childbearing age in Nepal, especially in urban areas.
- However, the prevalence of overweight has increased at a faster rate in rural areas.
- Limitation: Urban and rural areas were defined in a different way in 2016 which may affect interpretation of the results.
- While it is still important to address food security in vulnerable groups, much more emphasis should be given for prevention of further increase in the prevalence of overweight at all levels of the society.