

PREVALENCE AND DETERMINANTS OF MICRONUTRIENT DEFICIENCIES OF ADOLESCENT GIRLS LIVING IN THE RURAL NORTHERN REGION OF BANGLADESH

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BACKGROUND

Adolescent girls (10-19 years) have a greater nutrient demand and are more likely to suffer from micronutrient deficiencies due to insufficient consumption of micronutrient-rich food.

OBJECTIVES

To assess the micronutrient status of adolescent girls in food-insecure and disaster-prone northern Bangladesh.

METHODOLOGY

- A total of 387 girls were included from two districts through a multi-staged cluster random sampling approach
- Two seasonal cross-sectional surveys conducted during wet (March-April) and dry (September-October) seasons
- The urinary iodine concentration (UIC) and hemoglobin status among girls were assessed. Iodine deficiency (ID) was defined as UIC level < 100 µg/L
- Multiple logistic regression analysis was used to determine the factors associated with micronutrient status

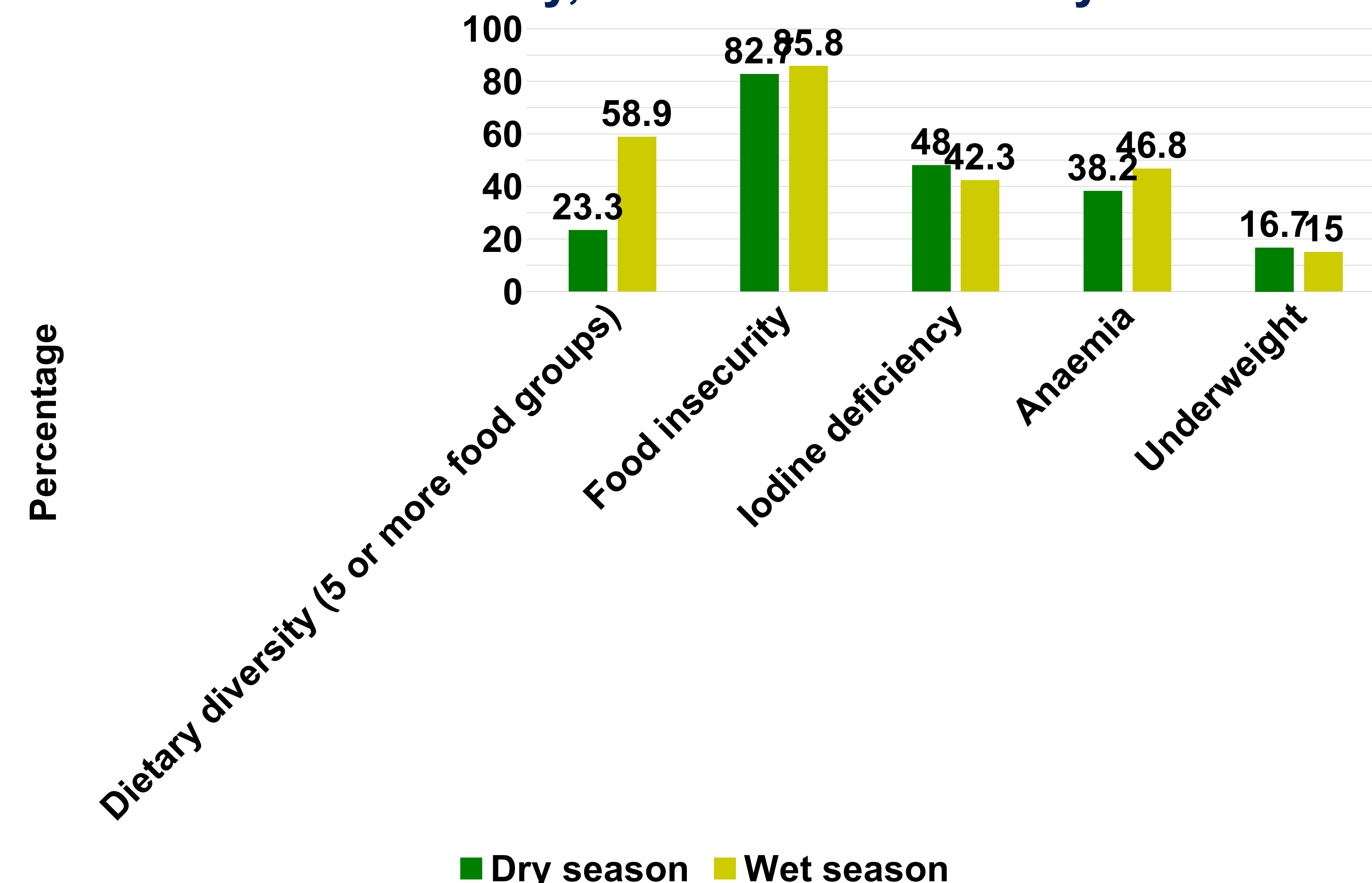
RESULTS

The mean age of the girls was 14.8.

Table 1. Background characteristics of participants

Variables	% (n)
Age in years [Mean (SD)]	14.8 (2.2)
Religion	
Muslim	81.7 (316)
Hindu	18.3 (71)
Education level	
Primary	31 (120)
Secondary	65.1 (252)
Higher	3.9 (15)
Region	
Kurigram Sadar	26.4 (102)
Rajarhat	22.5 (87)
Gaibandha Sadar	26.6 (103)
Saghata	24.6 (95)

Figure 1. Seasonal variation of dietary diversity and food insecurity, nutritional deficiency



- In both seasons, over four-fifths of the studied households experienced food insecurity. A significant increase in dietary diversity was observed in the wet season
- In the dry season, the prevalence of ID and anaemia was 48% and 38% respectively. In the wet season, 42% of girls were found to be iodine deficient and 47% of girls had anaemia

Table 2. Factors associated with anaemia among participants

Variables	AOR (95%CI) ^a
Study round (Ref. Dry season)	
Wet season	1.50 (1.08-2.09) *
Nutritional status (Ref. Underweight)	
Normal	1.07 (0.78-1.47)
Overweight	2.27 (1.06-4.88) *
Region (Ref. Kurigram Sadar)	
Rajarhat	1.78 (1.16-2.75) *
Gaibandha Sadar	0.91 (0.59-1.39)
Saghata	0.99 (0.64-1.53)

*p-value < 0.05

^a age, educational level, dietary diversity, food insecurity also adjusted

- The risk of developing anaemia was 1.5 times (AOR:1.5, 95%CI:1.08-2.09) higher among girls in wet season
- Overweight girls had 2.3 times (AOR:2.27, 95%CI:1.06-4.88) higher likelihood to develop anaemia

Table 3. Factors associated with iodine deficiency among participants

Variables	AOR (95%CI) ^a
Salt type used (Ref. Iodized salt)	
Non-iodized salt	3.49 (2.21-5.49) *
Both iodized and non-iodized salt	2.33 (1.15-4.71) *
Salt storage (Ref. Jar with lid)	
Jar without lid	4.65 (1.00-21.51) *
Having animal farm (Ref. Yes)	
No	16.63 (1.53-180.33) *
Region (Ref. Kurigram Sadar)	
Rajarhat	1.30 (0.77-2.17)
Gaibandha Sadar	0.22 (0.12-0.42) *
Saghata	1.18 (0.68-2.02)

*p-value < 0.05

^a study round, age, educational level, dietary diversity, food insecurity, nutritional status also adjusted

- The risk of ID was significantly higher among girls who consumed non-iodized salt or both types of salt
- Salt storage was also associated with ID
- Girls who belonged to families that did not have any animal farm were 16.6 times (AOR:16.63, 95%CI:1.53-180.33) more prone to be iodine-deficient

IMPLICATIONS

- Iodine deficiency and anaemia are still major public health concerns in this region irrespective of the mandatory salt iodization legislation in Bangladesh
- Attention should be given to seasonal influence, dietary diversification, food insecurity, appropriate salt iodization, and awareness-raising programs
- In order to improve the micronutrient status of teenage females in this region, it is crucial to pay careful attention to appropriate policy and interventions



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