

# Length gain by food supplementation in moderately malnourished children in Bangladesh

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# Background

- 70% of the world's malnourished children reside in S Asia.

Undernutrition accounts for

- 80 % of the childhood deaths.
- Delayed mental development, poor school performance, and reduced intellectual capacity.
- About 48% of the under five children being underweight, 43% are stunted and 13% wasted in Bangladesh.

•The World Summit for Children proposed reduction of mild/moderate malnutrition by half while the decline in the rates of childhood malnutrition has been slow in South Asia<sup>1</sup>.

• *One previous study indicated Nutrition education effectively improved weight gain with or without food supplementation in moderately malnourished children<sup>2</sup>. However in the context of developing countries it is important to understand whether food supplementation has any extra benefits in reducing malnutrition.*

# Objectives

To compare effectiveness of nutrition education with and without food supplementation in improving the physical growth of moderately malnourished children aged 6-24 months.

# Method

**Trial:** Randomized trial

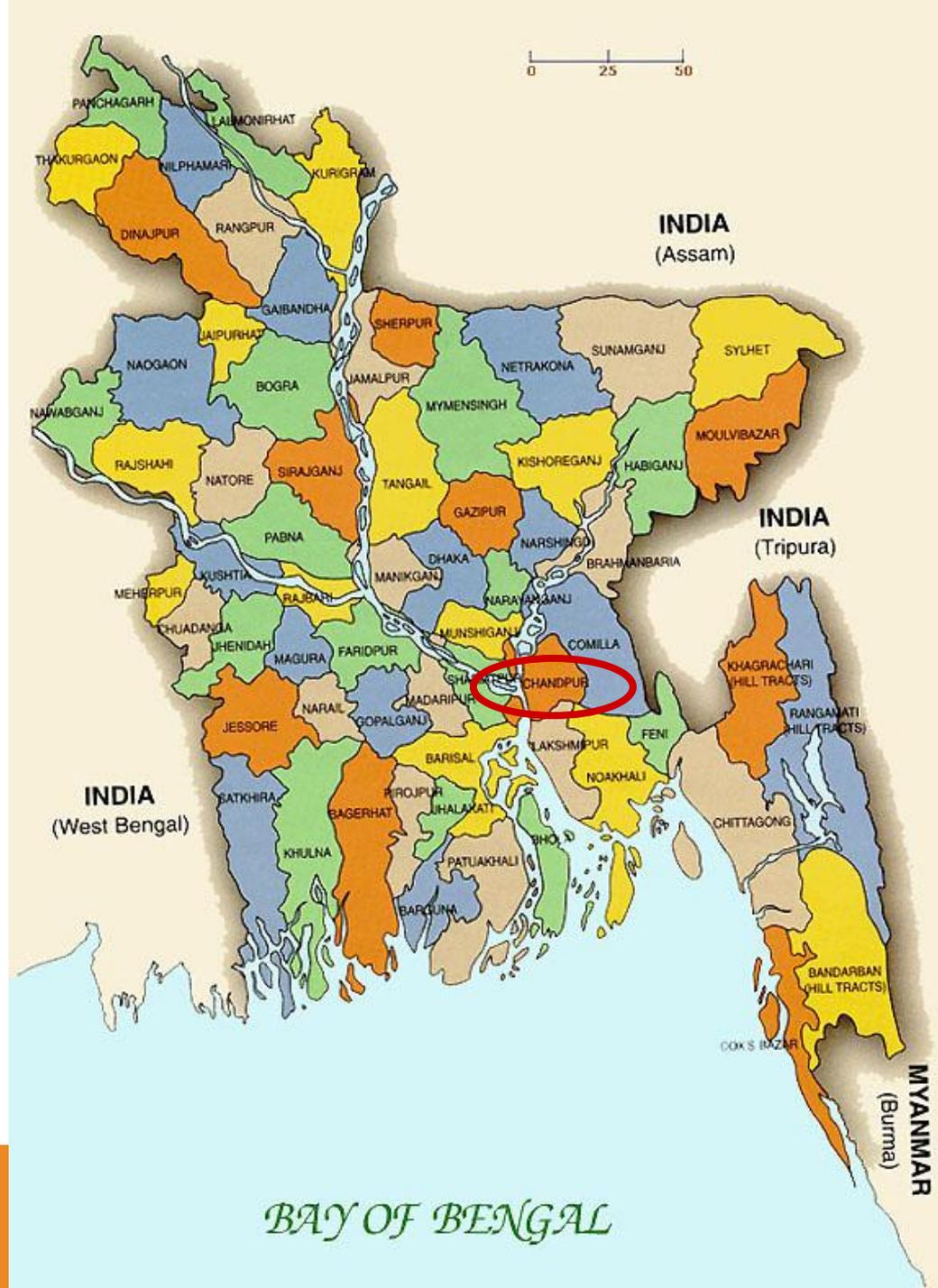
**Subjects:** Both sex aged 6-24 mo, moderately malnourished children.

**Study area:** 15 community nutrition center areas in 3 of 7 unions of the Shahrasti sub-district in Chandpur district in south central Bangladesh

**Sample Size:** 282 children\*

**Duration:** Interventions for 3 mo and follow up for the following 3 mo

*\*from the register books of the CNPs, BINP.*



# Interventions

- 2 intervention groups and 1 control group.
- Intervention groups:
  1. Received intensive nutrition education twice/week (INE)
  2. Received intensive nutrition education twice weekly along with supplements (Pusti packet: Table-1).
- The control group: Received the routine nutrition education from the BINP community nutrition promoters.

**Table 1: Pusti pack and education**

Ingredient s	Amount (g)	Kcal
Rice powder	40	160
Pulse powder	20	80
Molasses	10	40
Oil	6	54
<b>Total</b>	<b>76</b>	<b>336</b>

**Per packet cost:** 4.00 tk (US\$0.06)

**Frequency:** Six days every week

**Each pack:** Provided 8 g protein and 336 kcal per day

**Nutrition education:** Based on food security, caring practices, and disease control

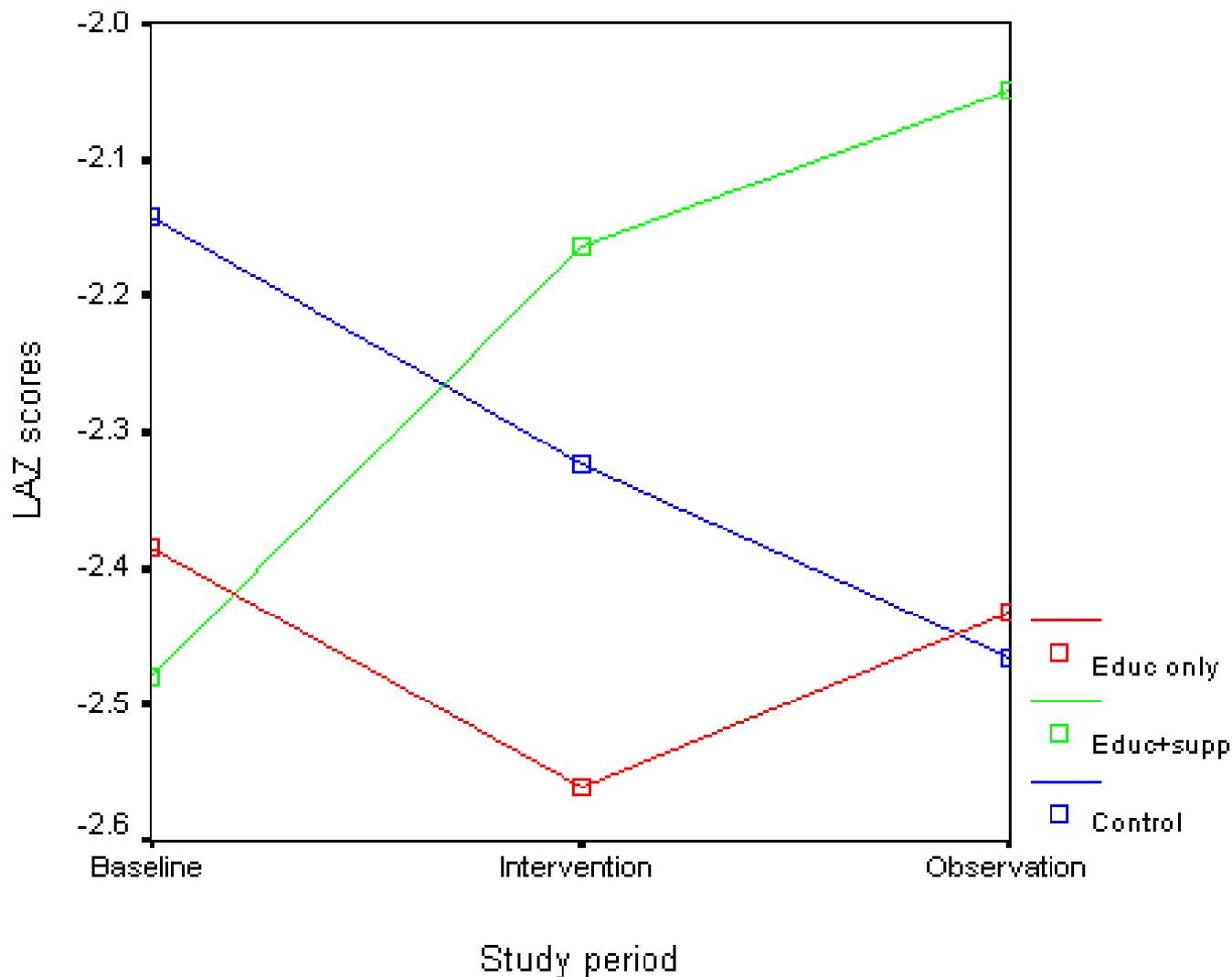
# Statistical analysis

- Data Checking: Questionnaires manually checked before entry. Consistency of data was checked using SPSS/PC+ (SPSS Inc., USA).
- Anthropometric data were analyzed using SPSS/PC+ and NCHS statistical packages.
- Data with normal distribution were compared using Analysis of Variance (ANOVA).
- Repeated measure ANOVA was used for comparing longitudinal growth among the groups. Statistical significance was set at 5% probability level.

## Socio-demographic variables by intervention groups

Variables	Categories	Educ N (%)	Educ+Supp N (%)	Control N (%)	Total N (%)	p
Sex	M	35 (28.5)	48(39.0)	40(32.5)	123(43.6)	NS
	F	58(36.5)	51(32.1)	50(31.4)	159(56.4)	
Family income	<2000	75 (32.8)	88 (38.4)	66 (28.8)	229 (81.2)	0.02
	>2000	18 (34)	11 (20.8)	24 (45.3)	53 (18.8)	
Educational status	Illiterate	35(37.6)	33(35.5)	25(26.9)	93(33.3)	NS
	1-5	33(34.5)	35(36.8)	27(28.4)	95(33.7)	
	>6	25(26.6)	31(33.0)	38(40.4)	94(33.3)	

# Nutritional outcomes of study children over the period

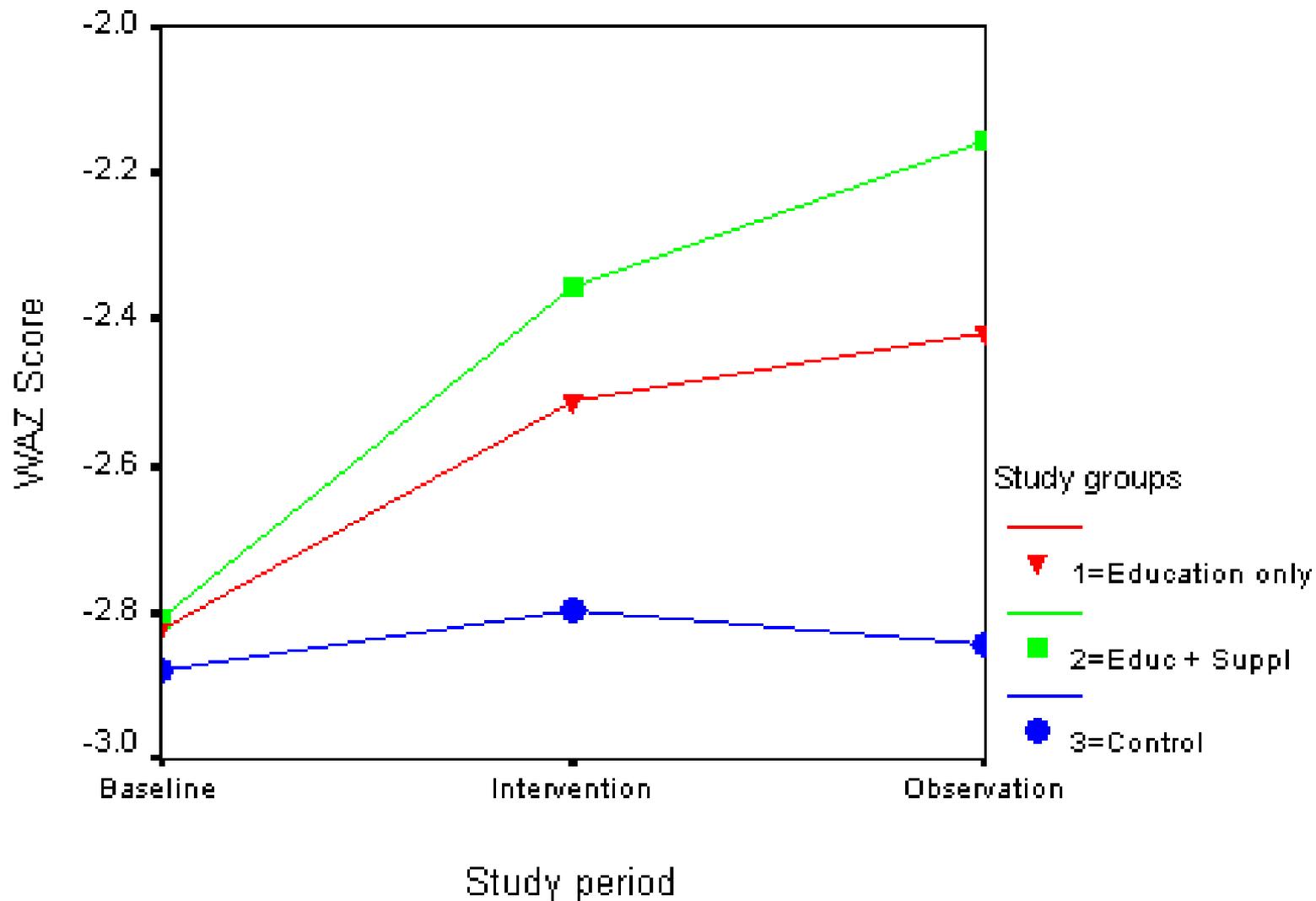


Group	Sample Size (n)	Mean LAZ Score	Standard Deviation (SD)
Control	90	-2.15	1.08
Educ only	34	-2.34	0.98
Educ+supp	46	-2.46	0.97
Educ only	19	-2.19	0.71
Educ+supp	14	-2.14	0.55
Control	31	-2.31	0.99
Educ only	18	-2.18	1.5
Educ+supp	13	-2.03	1.14
Control	11	-2.11	1.82

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nt (p<0.001].

- 1 [\*Educ+supp]
- 2 [\*\*Educ+supp]
- 3 [\*\* Education]

# Comparison of WAZ scores in 3 groups over time



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# Conclusion

- Greater LAZ score in children having educ+suppl than the children in only educ and in control group at the end-of-intervention and end-of-observation period ( $p < 0.001$ ).
- WAZ score was also significantly higher for the educ and the educ+suppl groups than the control group ( $p < 0.01$ )
- Significantly greater gain has been noted between the two intervention groups in terms of length but not in weight. Therefore, food supplementation has extra benefit of better length gain in moderately malnourished children.