CHAPTER – 9

Result – 6

Association of socio-economic, demographic characteristics and self reported morbidity status with undernutrition among studied children

9.1: Factors associated with undernutrition among school going children of nonindustrial area

9.2: Factors associated with undernutrition among school going children of industrial area

9.1: Factors associated with undernutrition among school going children of nonindustrial area

Those variables which showed significant associations in the x^2 test were tested to predict effective predictor variables using binary logistic regression analysis (describe in previous chapter). The results of the BLW analysis estimated that odd ratio (ORs) and 95% CIs of probable risk factors and relation with the prevalence of undernourished children (Table 9.1.1). The odds found to be greater in sanitation and cooking fuel type for being undernourished. Lower category (up to upper primary) of fathers' education (1.58 times, $p<0.01$) and mothers' education (1.87 times, $p<0.001$) had significantly greater risk for being undernourished children. However no statistically significant association was found with regard to family size, family income and expenditure. Those variables which showed a significant association in the binary logistic regression analysis were further tested to predict more effective predictor variables using step wise multiple logistic regression analysis. The greater risk (1.87 times, $p<0.001$) was found in lower category (up to upper primary) of mothers' education for being undernourished children than the above upper primary section (table 9.1.2).

9.2: Factors associated with undernutrition among school going children of industrial area

Those variables which showed significant associations in the x^2 test were tested to predict effective predictor variables using binary logistic regression analysis (describe in previous chapter). The higher odds of undernutrition was found in lower level of fathers' (1.72 times, $p<0.001$) and mothers' (1.98 times, $p<0.001$) education. Low income (2.10 times, $p<0.001$) and low expenditure had greater risk (1.99 times, $p<0.001$) for being undernourished children. The odds were significantly higher (2.07 times, $p<0.001$) in undernourished children living in house having less than two rooms. Father's occupation was also significantly associated with undernourished children. Significantly higher odds (1.75 times, $p<0.001$) were found in manual groups for being undernourished children than non manual groups. Significantly lower risk (0.72 times, $p<0.05$) was found in rental house for being undernourished children than own house (Table 9.2.1). Those variables which showed a significant association in the binary logistic regression analysis were further tested to predict more effective predictor variables using step wise multiple logistic regression analysis. Stepwise logistic regression analysis estimated significantly greater odds (2.10 times, $p<0.001$) were found in low monthly income for being undernourished children than higher monthly income. The odds were significantly higher (1.55

times, $p<0.001$) in undernourished children living in house having less than two rooms (table 9.2.1).

Summary of Results

The important results of this chapter are summarized below

The greater risk was found in lower category (up to upper primary) of mothers' education for being undernourished nonindustrial children than the above upper primary section. But in industrial area the odds were significantly higher in undernourished children of low income families and living in house having less than two rooms.

Tables

Table 9.1.1 - Factors associated with undernutrition among school going children of nonindustrial area

Variables	Categories	Total	Prevalence of CIAF	(%)	B	S.E.	Wald	Sig.	ORs	95.0% C.I. for EXP(B)	
										Lower	Upper
Father's education	Above upper primary©	164	84	51.22	-	-	-	-	1	-	-
	Up to upper primary	457	285	62.36	0.46	0.18	**6.17**	**0.013**	**1.58**	1.1	2.26
Mother's education	Above upper primary©	166	80	48.19	-	-	-	-	**1**	-	-
	Up to upper primary	455	289	63.52	0.63	0.18	**11.69**	**0.001**	**1.87**	1.31	2.68
House ownership	Own©	609	357	58.62	-	-	-	-	**1**	-	-
	Rental	12	12	100.00	20.8	1.16	0	0.999	**1.14**	0	0
No. of living room	>2 rooms©	77	42	54.54	-	-	-	-	**1**	-	-
	≤2rooms	544	327	60.11	0.23	0.25	0.86	0.353	**1.26**	0.78	2.03
Sanitation	Properly present©	411	233	56.69	-	-	-	-	**1**	-	-
	Not properly present	210	136	64.76	0.34	0.18	**3.74**	**0.053**	**1.40**	1	1.98
Cooking fuel type	Smokeless©	26	10	38.46	-	-	-	-	**1**	-	-
	Smoke	595	359	60.34	0.89	0.41	**4.67**	**0.031**	**2.43**	1.09	5.46
Illness	Above 3 months©	231	142	61.47	-	-	-	-	**1**	-	-
	Within 3 months	390	227	58.21	-0.14	0.17	0.64	0.423	**0.87**	0.63	1.22

BLR (Binary logistic regression) i.e. univariate analysis, © - reference category, Odd ratios (ORs), minimum 95% confidence intervals (CIs)

Table 9.1.2 - Step wise logistic regression (forward conditional model) was used to identify the probable risk factors for undernutrition

Variables	Categories	OR (95%CI)(Step-1)
Mother's education	Above upper primary©	-
	Up to upper primary	**1.87***(1.31-2.68**)

Odd ratios (ORs), minimum 95% confidence intervals (CIs), © - reference category.

Table 9.2.1 - Factors associated with undernutrition among school going children of industrial area

Variables	Categories	Total	Prevalence of CIAF	(%)	B	S.E.	Wald	Sig.	ORs	95.0% C.I. for EXP(B)	
										Lower	Upper
Father's education	Above secondary ©	289	117	40.84	-	-	-	-	1	-	-
	Up to secondary	332	179	53.96	0.54	0.16	**11.1**	**0.001**	**1.72**	1.25	2.37
Mother's education	Above secondary ©	222	82	36.94	-	-	-	-	**1**	-	-
	Up to secondary	399	214	53.63	0.68	0.17	**15.74**	**0.000**	**1.98**	1.41	2.76
Monthly income (per capita)	>2500 ©	303	116	38.28	-	-	-	-	**1**	-	-
	≤2500	318	180	56.60	0.74	0.16	**20.63**	**0.000**	**2.10**	1.53	2.90
Monthly expenditure (per capita)	>2500 ©	290	112	38.62	-	-	-	-	**1**	-	-
	≤2500	331	184	55.59	0.69	0.16	**17.66**	**0.000**	**1.99**	1.44	2.74
Father's occupation	Non-manual©	359	150	41.78	-	-	-	-	**1**	-	-
	Manual	262	146	55.73	0.56	0.16	**11.72**	**0.001**	**1.75**	1.27	2.42
No. of living room	>2Rooms©	177	62	35.03	-	-	-	-	**1**	-	-
	≤2Rooms	444	234	52.70	0.73	0.18	**15.57**	**0.000**	**2.07**	1.44	2.96
House ownership	Own©	366	187	51.09	-	-	-	-	**1**	-	-
	Rental	255	109	42.75	-0.30	0.16	**4.19**	**0.041**	**0.72**	0.52	0.99

BLR (Binary logistic regression) i.e. univariate analysis, Odd ratios (ORs), minimum 95% confidence intervals (CIs), © - reference category,

Table 9.2.2 - Step wise logistic regression (forward conditional model) was used to identify the probable risk factors for undernutrition.

Variables	Categories	OR (95%CI)(Step-1)	OR (95%CI)(Step-2)
Monthly income (Percapita)	>2500 ©	-	-
	≤2500	**2.10***(1.53-2.89)**	**1.76**(1.23-2.52)**
No. of living room	>2 Rooms©		-
	≤2Rooms		**1.55*(1.03-2.33)**

Odd ratios (ORs), minimum 95% confidence intervals (CIs), © - reference category