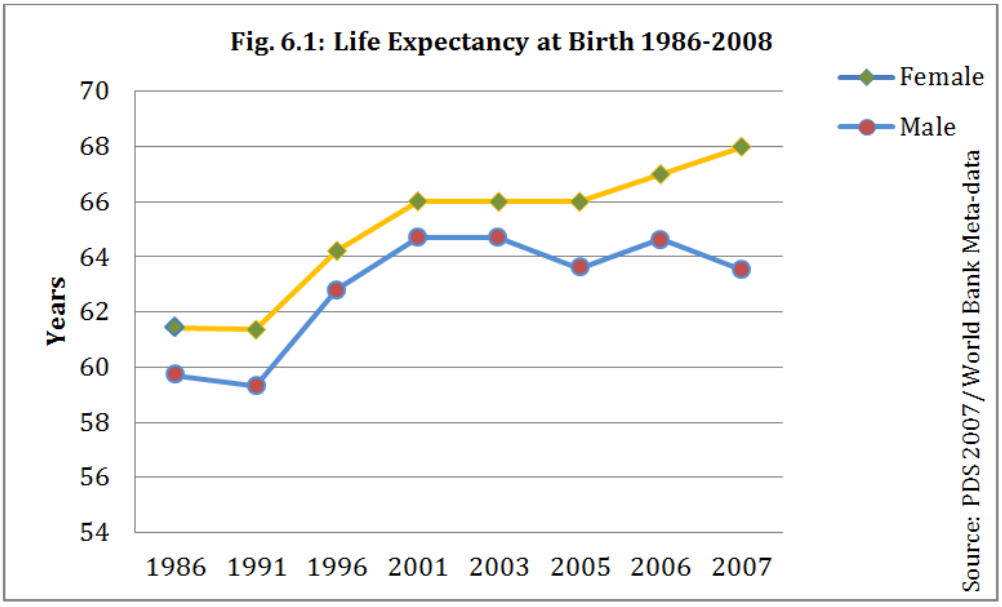
Chapter 6

Infant and Child Health

Life Expectancy

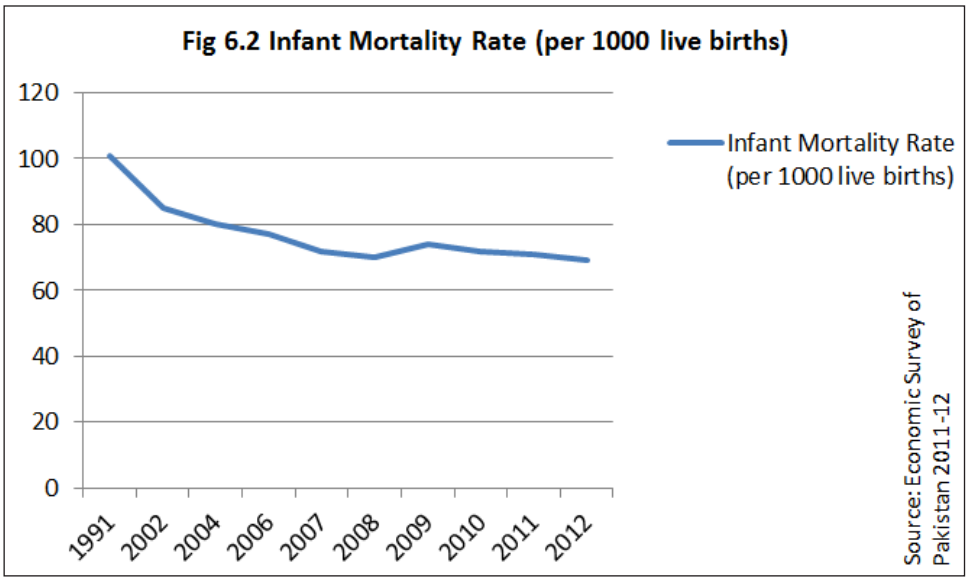


Life expectancy at birth has shown a consistent increase over the past few decades. Female life expectancy over the years has remained slightly higher than males.

The overall crude birth rate is 27%, higher for rural areas at 32%.[88]

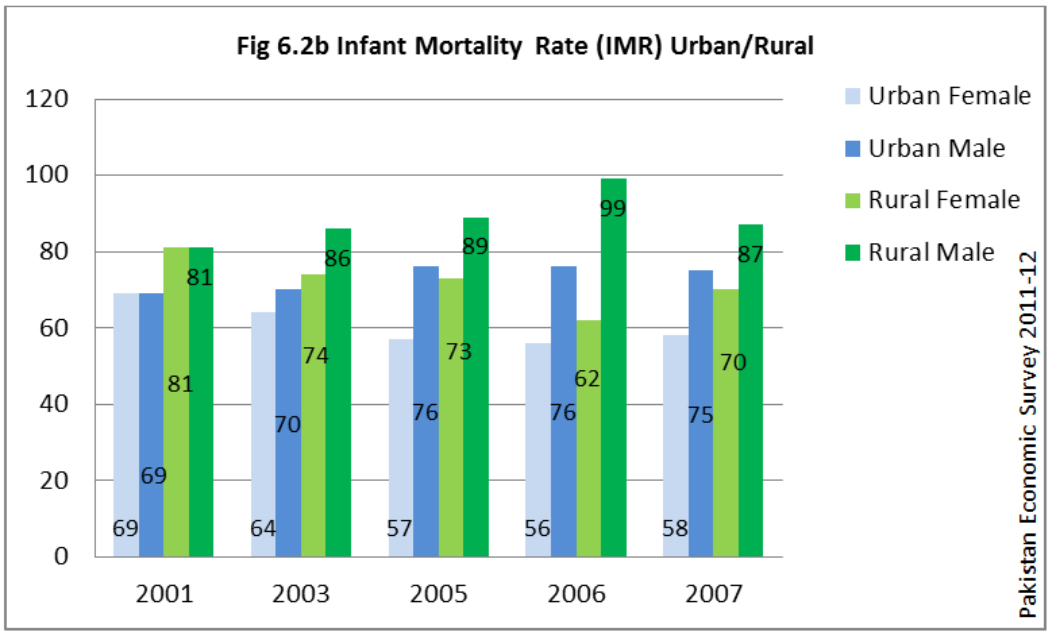
88 Crude Birth Rate by sex and age is not available

Infant Mortality Rate



Infant Mortality rates have shown a slow, but steady decline down to 69 deaths per 1000 live births in 2012, far short of the target of 58 envisaged by the National Health Policy 2009. Given the sliding expenditures on health, the MDG 2015 target of IMR at 40 per 1000 live births is unlikely to be achieved.

Infant mortality is higher in rural areas than in urban, and higher for rural male infants than for urban males or females and rural females. This is not surprising as infant mortality rates for boys are biologically higher than for girls.



Sex Ratios

Table 6.1: Sex Ratio by Age Group

	Overall	Urban	Rural
All Ages	105	106	105
00-04	100	98	101
05-09	108	102	111

Source:PDS, 2007, Table1 http://www.pbs.gov.pk/content/pakistan-demographic-survey-2007

Sex Ratio at Birth (SRB) is biologically around 105 male births per 100 female births.[89] Usually this evens out to 100 in adults[90], as mortality affects men slightly more than women. In Pakistan, the SRB was 109.9 in 2007 (PDS). Usually birth registration, or in the absence of that, census data is a more accurate source of calculating SRB. The PDS then, may not account for all the births. This slightly higher than normal SRB may be indicative of either prenatal sex selection, or postnatal gender discrimination. Post natal gender discrimination[91], especially in the first two years after birth leads to higher female mortality. It is estimated that excess female deaths under five (annual difference between observed and expected deaths per year) is approximately 23000 per year in Pakistan.[92] Pointing to "girl neglect" (passive and active) these excess deaths are avoidable if a shift in social norms occurs in favor of girls and women. Data is not available on the extent of prenatal sex selection in Pakistan. In other countries of South Asia, the prevalence of prenatal sex selection has increased the female deficit at birth.

There is however a social geography of sex discrimination. Urban families, with smaller family sizes and more access to birth control services, have sex ratios that are more normal. Rural families, where son preference is strong and family planning services thinly spread, have higher sex ratios. Families in the poorest quintiles have lower sex ratios and those in the higher quintiles (with more access to prenatal sex selection services) are more likely to have higher sex ratios.[93]

89 This is attributed to slightly higher male embryo fertilization, despite the higher intra-uterine male fetus mortality

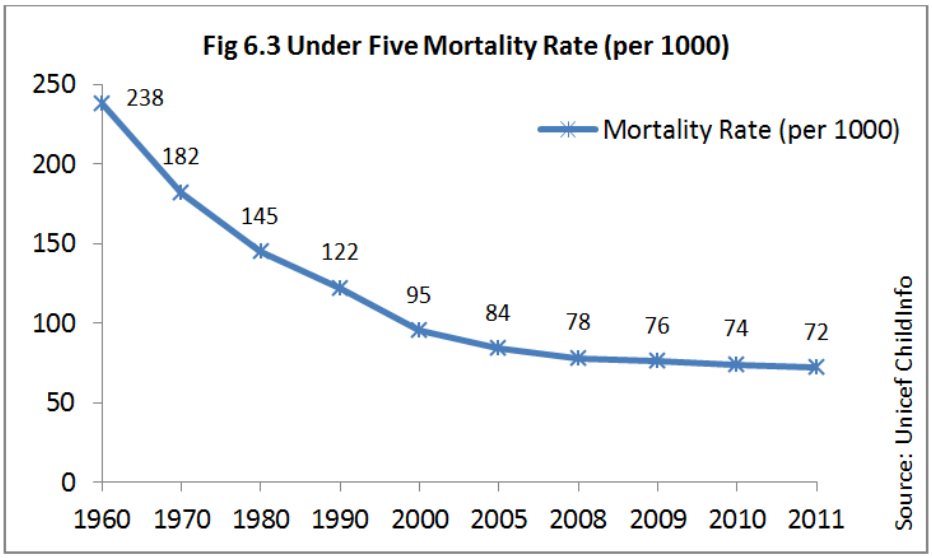
90 Migration may skew the sex ratios if there are areas where men (or women) migrate disproportionally. In Pakistan this can be the economically underdeveloped districts from where men migrate to large cities for work

91 Postnatal gender discrimination manifests itself in childcare, breastfeeding, food allocation immunization etc. In the absence of gender discrimination, mortality rates among boys is higher by about 20-25% (UNFPA 2012, Sex Imbalance at Birth).

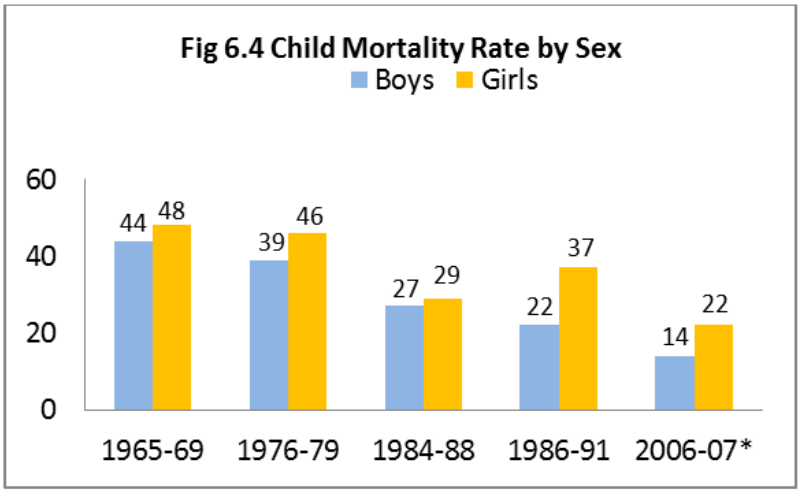
92 ibid Table 2, pg.26

93 Cause specific mortality by sex and age (0-4) not available

Under 5 Mortality Rate



Of the five countries that record half of all under 5 deaths worldwide,[94] Pakistan accounts for 5%, and India for 24%.[95] Low health investments and rates of decline in under-five mortality makes it unlikely that Pakistan will meet the MDG target of 40 per 1000 live births.



Mortality rates for girls are higher than that of boys, high in the period 1986-91 and 2006-07. While inaccuracies in data due to the absence of birth and death registration records may be partially responsible for these discrepancies, gender discrimination in healthcare and feeding practices is a likely cause. It appears that sex differentials in child mortality only surface between ages of 1-4 years as neonatal and infant mortality rates are much higher for boys than for girls in the same periods.[96]

94 The other 4 are India, Nigeria, Democratic Republic of Congo, China

95 Source: Unicef: http://www.childinfo.org/mortality_underfive.php

96 Mahmood, N., & Mahmood, M.A. (1995). Gender Differences in Child Healthcare Practices: Evidence from the Demographic and Health Survey, 1990-91. The Pakistan Development Review, 34(4), 693-707; Also *PDHS 2006-07 Table 8.2

Causes of Child Mortality

Table 6.2: Main Causes of Child Mortality in Pakistan (%)

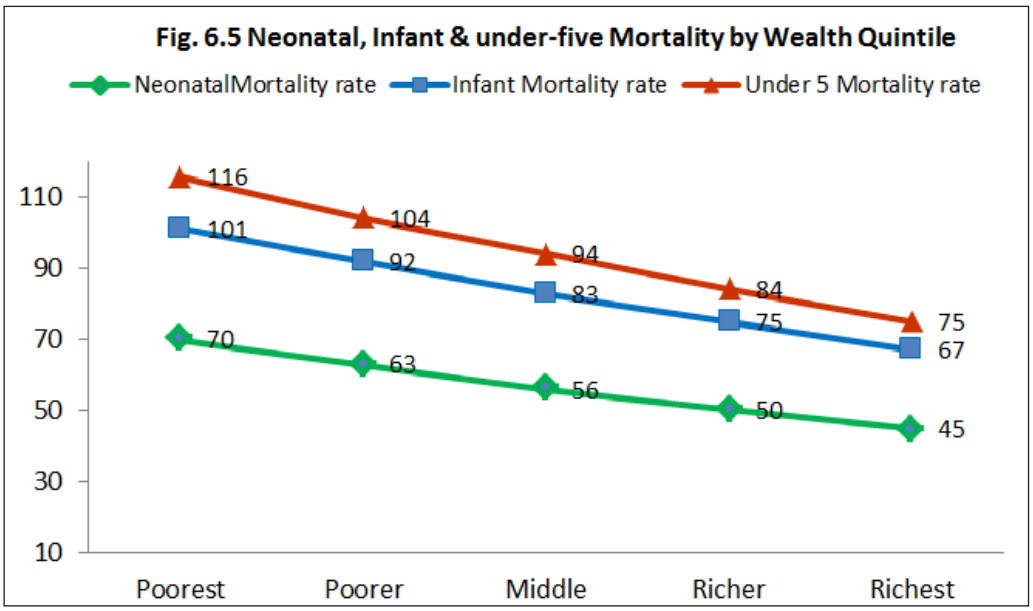
Birth Asphyxia	22
Sepsis	14
Pneumonia	13
Diarrhoea	11
Premature Birth	9

Source: *Situation Analysis of Women and Children in Pakistan* UNICEF, 2012

Almost two thirds of all under-five deaths globally are the result of infectious diseases and conditions. In Pakistan:

- Half of all deaths under five are of newborns.
- Newborns are more likely to die in the absence of skilled birth attendance and postnatal care.
- Mortality for over one third of children under five is due to treatable illness, of which 60% are linked to diseases caused by poor water and sanitation conditions.
- Another 35% of deaths under five are because of malnutrition, with 40% suffering moderate to severe stunting.

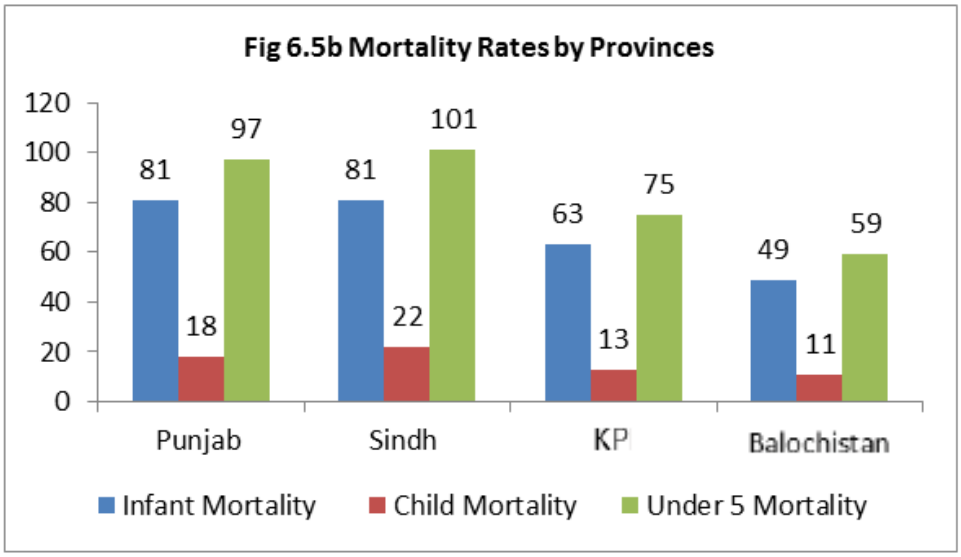
Social determinants of Infant and Child Mortality



Source: PDHS Report 2006-07

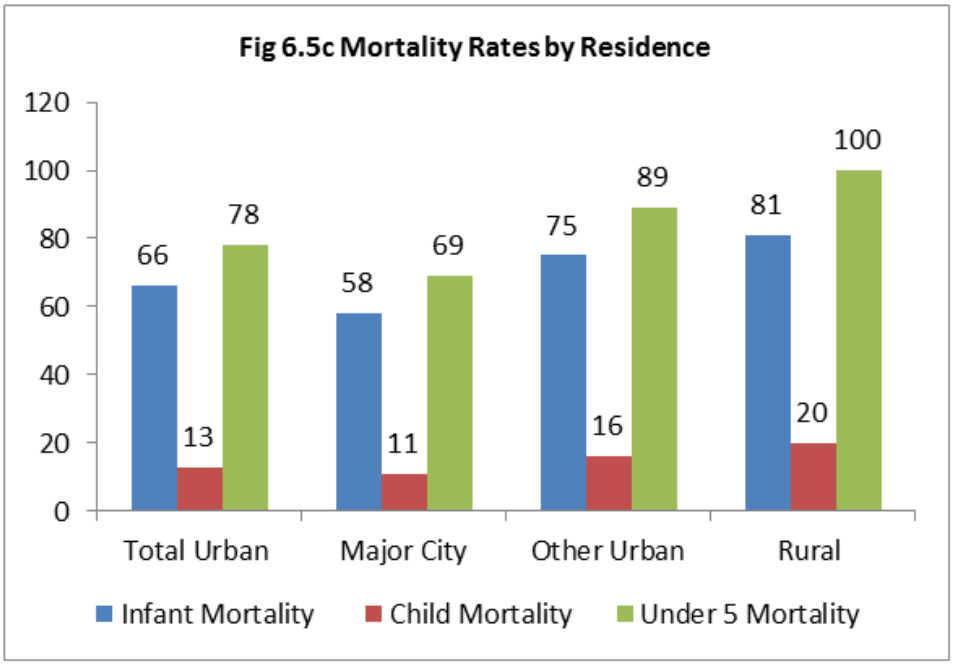
Accident of birth that places a newborn in the poorest household defines their chances of survival.[97] Inequalities of wealth are exacerbated province and place of residence.

97 Source: Journal of Pakistan Medical Association, Karachi, vol. 61 No 1 Jan 2011 cited in UNICEF SitAn 2012
Adjusted*neonatal, infant and under5 mortality rate per 1000 across wealth quintile (*Adjusted for sex of child, urban residence, occupation of mother and father).

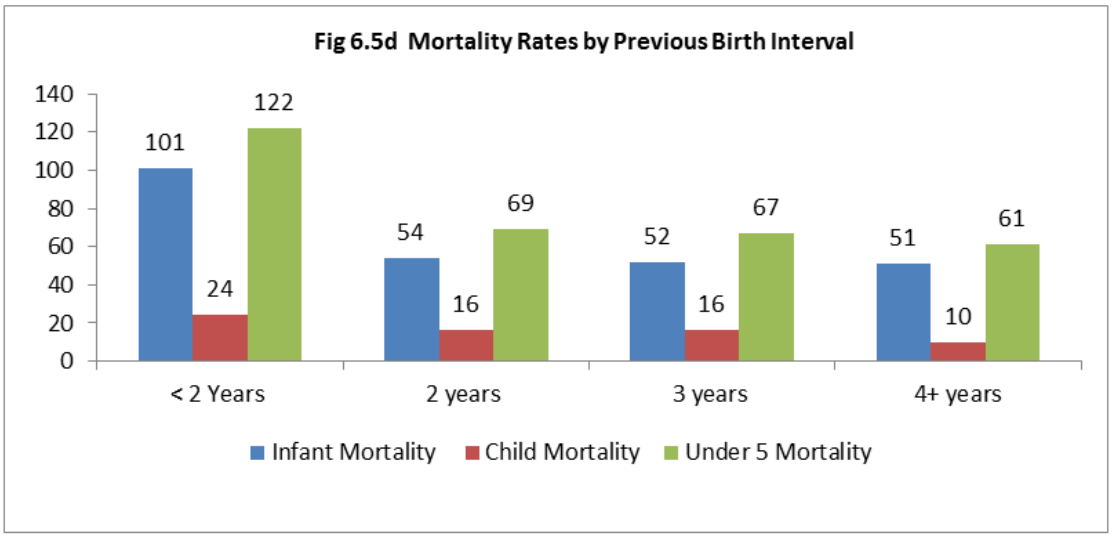


Source: PDHS Report 2006-07

Infant mortality is highest in Punjab (81) and under-5 mortality is highest in Sindh. Rural poverty is very high in both these provinces, which would explain these rates. Under reporting from Balochistan and Khyber Pakhtunkhwa, both of which have hard to access settlements and are affected by multiple crises these past years would account for the unusually low rates for these provinces. MICS 2012 for Balochistan notes an IMR of 72 per 1000, and an under-5 mortality rate as 89 per 1000. Gender differentials are high, 107 per 1000 under-5 mortality rate for girls and 74 per 1000 for boys.

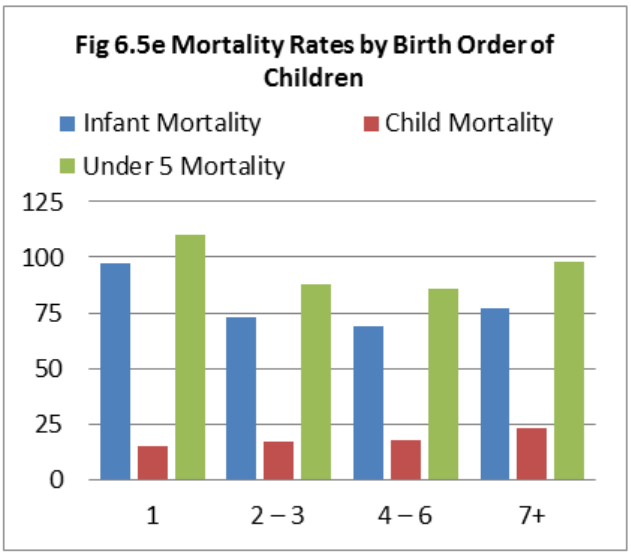


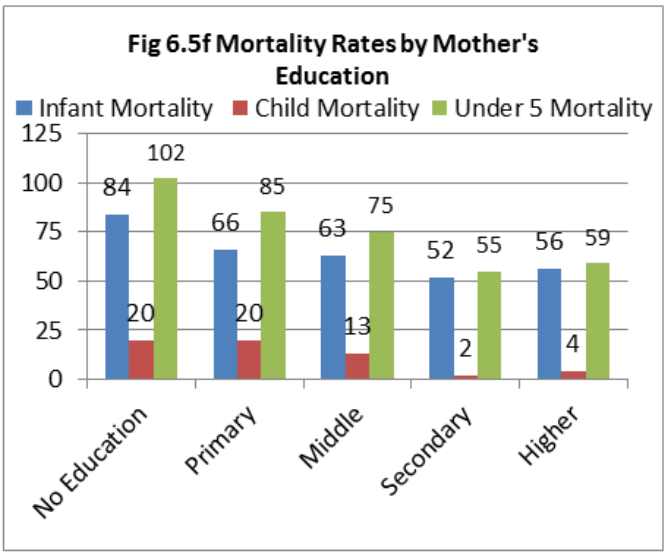
Source: PDHS Report 2006-07



Source: PDHS Report 2006-07

Younger mothers, with no education, with less than two years of birth spacing and living in poor households have higher infant and child mortality rates. Mothers who are better off on each of these counts are less likely to lose a child at birth or within the first year. Moreover, mortality amongst firstborns is higher than amongst the siblings that follow. (Annex 1 Table 6.3)





Source: PDHS Report 2006-07

Improving Access to Primary Health Care - Lady Health Workers (LHWs)

Table 6.4: Distribution of LHWs by Area and Province

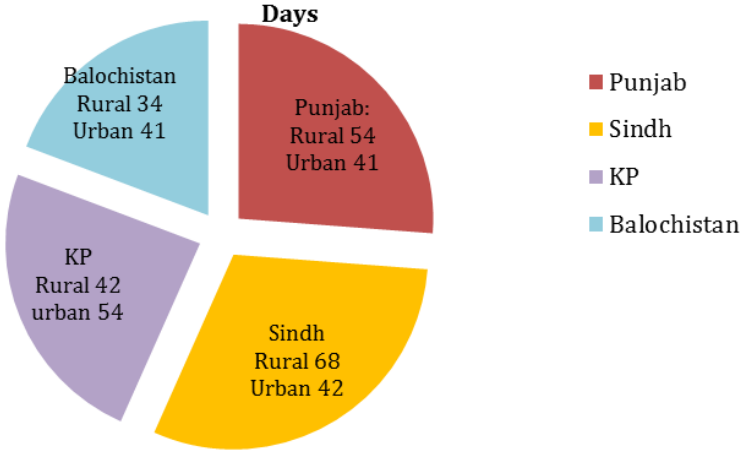
Province	Urban	Rural	Total	%
Punjab	8125	44617	52742	51.2
Sindh	4510	18444	22,954	22.3
KP	1933	12277	14210	13.8
Balochistan	2088	4638	6726	6.5
AJK	185	2963	3148	3.1
FANA	175	1170	1345	1.3
FATA	0	1463	1463	1.4
ICT	38	305	343	0.3
Total Number of LHWs	**17054**	**85877**	**102931**	**100.0**

*Includes under training LHWs Source: National Programme for Family Planning and Primary Health Care, Ministry of Health cited in PRSP II Progress Report 2010-11

As of March 2012 the total number of LHWs in Pakistan was 110000.[98] Each LHW covers 250 households or 1000 individuals on average, though this varies across districts and provinces.

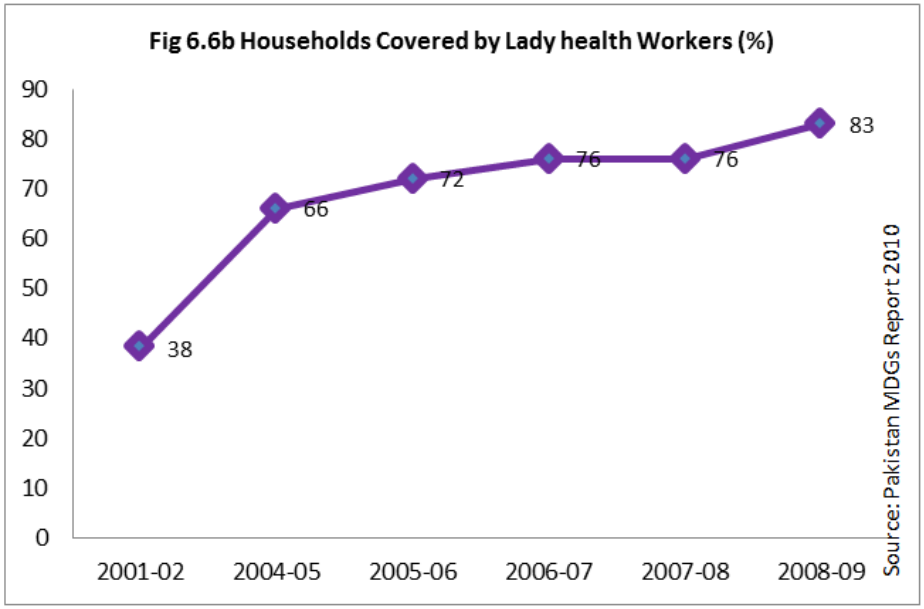
The urban rural coverage of households (Fig.6.6) is estimated from the responses by households to whether an LHW had visited the household during the last thirty days.

Fig. 6.6: % of Households covered by LHWs in the Last 30 Days



Source: PSLM 2010-

98 Planning Commission of Pakistan. Annual Report 2012-13.Chapter 17 Health and Nutrition

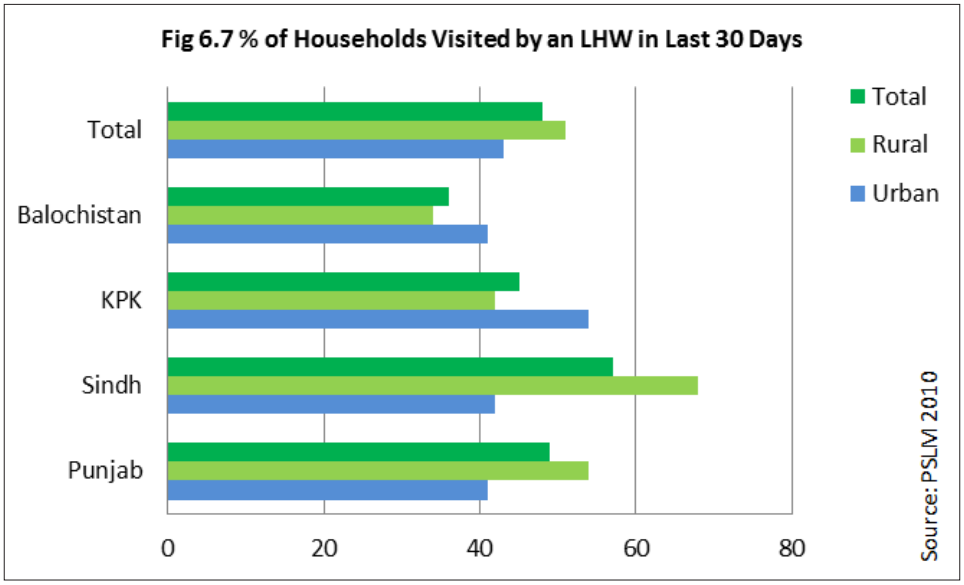


The increase in the number of LHWs and the redistribution of their placements to rural and underserved populations, has improved coverage (Fig6.6b) and access by significantly expanding coverage of specific primary health care initiatives to their target population (Table 6.5)

Table 6.5: LHWs Number and Coverage

Total Number of LHWs	110000
Coverage of Target Population	76%
Children Immunized (16 million of the 30 million needing immunization)	53%
Women immunized in high-risk districts (4.5 m of the 5 m women in high risk districts)	90%

Determinants of LHW Visits



As expected households with a child under age ten are approximately two and half times more likely to receive a visit by an LHW, while the presence of currently married women raises the probability by one and half times than in otherwise comparative households (results of a logistic regression Annex 2 Table 6.6).

Well of households (in the fifth quintile) and urban households are least visited by LHWs—rightly so since the focus of the LHW program is on underserved households.

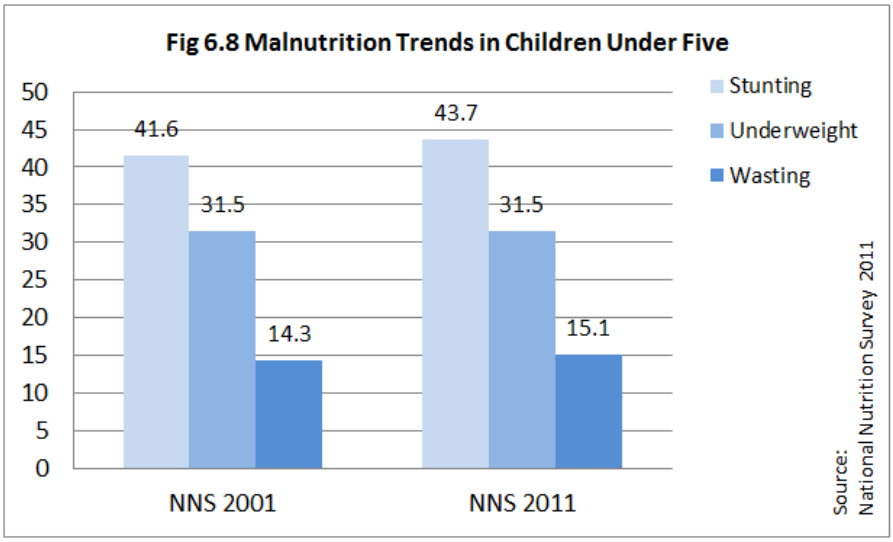
Households in Balochistan and Khyber Pakhtunkhwa receive fewer visits than do their counterparts in Punjab and Sindh. This is hardly surprising as both provinces are coping with multiple crises, not the least of which is security. Furthermore, the total number of LHWs is low in Balochistan (Table 6.4) and more innovative strategies are required to reach the scattered population and large distances between villages.

The achievements and the challenges faced by LHWs in completing their tasks are well documented. While increase in immunization, contraceptive prevalence rates, infant and maternal health show a positive correlation with the presence of an LHW in the community, higher than the national average, LHWs work suffers because of the inadequacy of the health system management, financial constraints and referral systems.[99] LHWs have recently received a boost with the regularization of their services within the government cadres.

However increasing threats from militants and inadequate security and state response has increased the vulnerability of LHWs and resulted in a serious setback for infant and child health.

99 OPM Fourth Third Party Evaluation 2009; Asad Hafeez et al, Lady health workers programme in Pakistan: challenges, achievements and the way forward JPMA Vol 61, No. 3, March 2011

Child Malnutrition



The National Nutrition Survey (NNS) 2011 reveals that:

- The percentage of children under five who are stunted underweight or wasted has shown a slight increase over the past ten years.[100]
- 32 % of Pakistani children under the age of five years are underweight.
- Approximately half of all children in Balochistan, KP and Sindh are stunted.
- Almost 40% of all children in Balochistan and Sindh are underweight.
- Food security remains a national priority.

Table 6.8: Nutritional Status among Children (0-59 months) by Sex and Age, PPHS 2010[101]

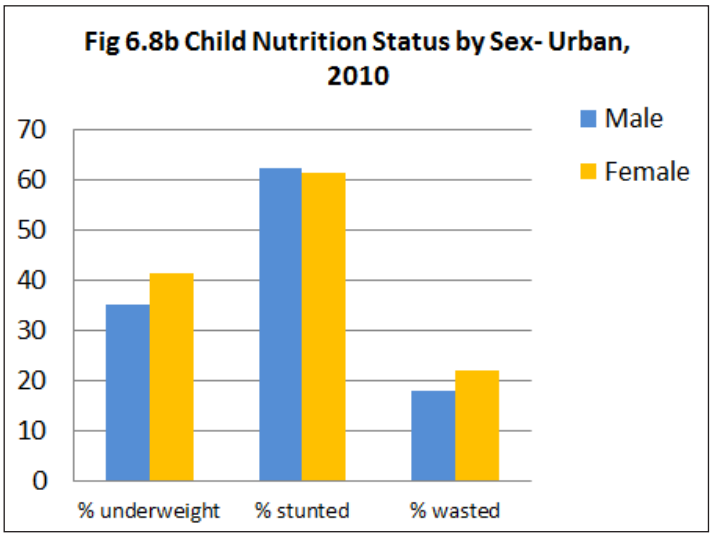
Age (months)	% Underweight			%Stunted			%Wasted		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
0-5	59	56	57	58	60	59	27	26	26
6-11	43	48	46	72	59	66	17	30	24
12-23	39	36	37	62	73	68	22	16	18
24-35	31	46	38	67	65	66	11	21	16
36-47	40	43	41	64	60	62	17	16	17
48-59	40	33	36	61	60	60	18	14	16

Source: Pakistan Panel Household Survey data- PIDE

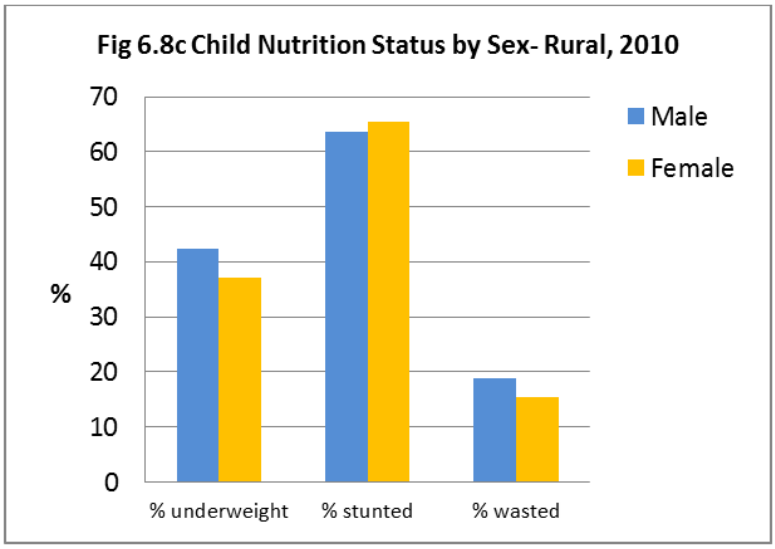
100 This trend may be treated with caution as the National Nutrition Survey (NNS) for 2001 calculates by using ages 6-59 months, NNS 2011 has 0-59 months as its reference age group. For details see Annex 3,Table 6.7 and 6.7b

101 G. M. Arif, Shujaat Farooq et al. Child Malnutrition and Poverty: The Case of Pakistan. *Poverty and Social Dynamics Paper Series,* PSDPS-3, 2012 with additional analysis from the PPHS data

Child malnutrition by Sex and Area of Residence



Source: PPHS

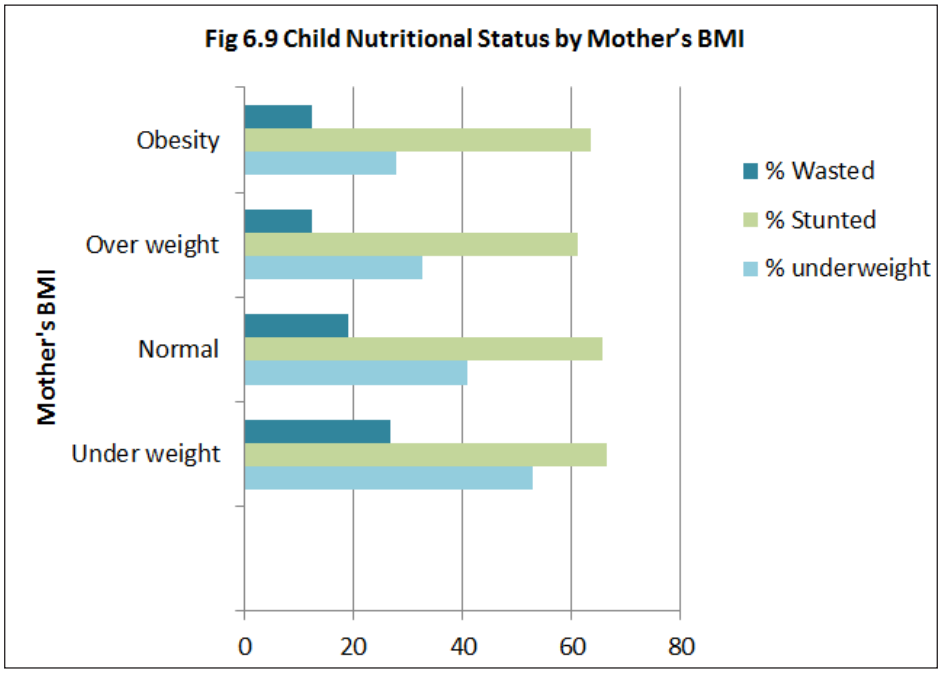


Source: PPHS

The figures[102] above are drawn from Pakistan Panel Household Survey (PPHS) that has a smaller sample size of four thousand households and does not include major urban areas. The figures suggest that in rural Pakistan, contrary to the literature that highlights gender discrimination in nutrition and food practices, more boys are underweight and wasted with only a small difference in stunting as compared to girls. In urban Pakistan the reverse is true and more girls are underweight and wasted than boys.

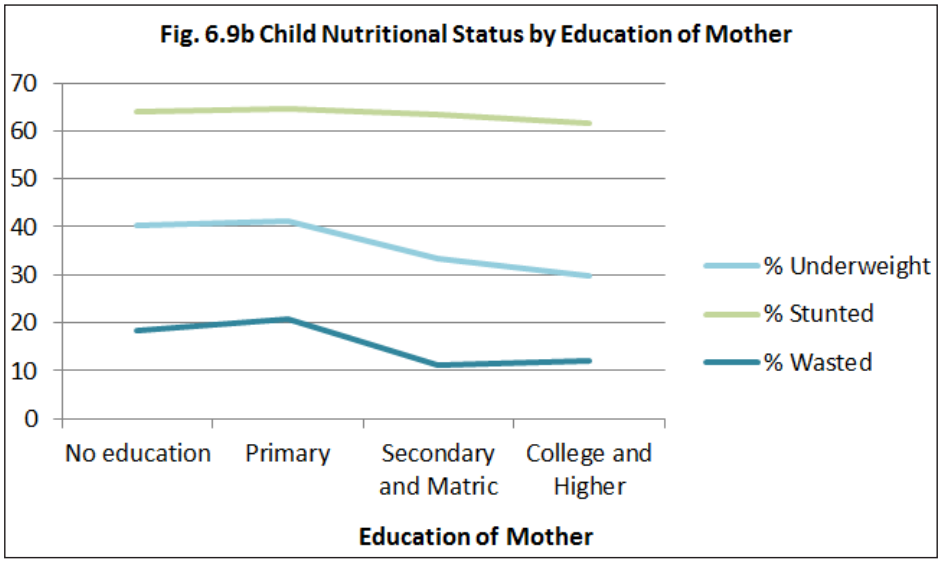
102 Source: G. M. Arif, Shujaat Farooq, Saman Nazir and Maryam Naeem Satti (2012). Child Malnutrition and Poverty: The Case of Pakistan. Poverty and Social Dynamics Paper Series, PSDPS-3, 2012, Figure 2 and 3

Child Malnutrition and Mother's Health and Education



Source: PPHS

Children are stunted irrespective of the mother's body mass index (BMI).[103] A higher percentage of wasted and underweight babies are born to underweight mothers.



Source: PPHS

Children are less likely to be underweight, wasted or stunted the higher the education level attained by the mother (Annex 4 Table 6.9).

103 Both these figures are derived from the PPHS. Source: G. M. Arif, Shujaat Farooq et al. Child Malnutrition and Poverty: The Case of Pakistan. *Poverty and Social Dynamics* Paper Series, PSDPS-3, 2012.

Use of Iodized Salt

Iodine deficiency is one of the leading causes of child and adult malnutrition. Despite efforts to introduce iodized salt across the country, the percentage of households using it is quite low (Table 6.10).

Table 6.10: Households Using Iodized Salt by Province and Region (%)

Province	Urban	Rural	Overall
National	35	21	28
Punjab	32	15	23
Sindh	30	8	19
KP	50	45	47
Balochistan	41	31	36
Distance to place of salt purchase (both ways in minutes)			
1-10	40	37	39
10+-20	36	28	31
20+-60	43	15	18
60+	60	13	15

Source: PSLM 2007

Reasons cited for not using iodized salt (Table 6.10b) include availability and affordability, indicating that access remains low. A high percentage of households stated that they did not prefer it, pointing to the need for increased social marketing and media advocacy on the benefits of iodized salt.

Table 6.10b: Households Not Using Iodized Salt by Reason of Not use (%)

Province	Punjab	Sindh	KP	Balochistan	Overall
Not available in the area	12	13	6	15	11
More costly than normal salt	26	37	40	23	31
Do not like to use	32	36	41	49	36
Others	31	14	13	13	22
Total	100	100	100	100	100

Source: PSLM, 2007

ANNEXES TO CHAPTER 6

Annex 1

Table 6.3: Infant and Child Mortality by Child, Mother, Household and Regional Characteristics

	Infant Mortality	Child Mortality	Under 5 Mortality
Overall	78	93	93
Male	80	14	93
Female	73	22	93
Birth Size			
Small / very small	101	na	na
Average or larger	60	na	na
Mothers Age at Birth			
< 20	116	18	133
20 – 29	75	19	92
30 – 39	67	15	81
40 – 49	55	(20)	(74)
Birth Order			
1	97	15	110
2 – 3	73	17	88
4 – 6	69	18	86
7+	77	23	98
Previous Birth Interval			
< 2 Years	101	24	122
2 years	54	16	69
3 years	52	16	67
4+ years	51	10	61
Mothers Education			
No Education	84	20	102
Primary	66	20	85
Middle	63	13	75
Secondary	52	02	55
Higher	56	04	59

Contd.

Table 6.3: Infant and Child Mortality by Child, Mother, Household and Regional Characteristics

	Infant Mortality	Child Mortality	Under 5 Mortality
Wealth Quintile			
Lowest	94	30	121
Second	87	17	102
Middle	74	18	90
Fourth	67	14	79
Highest	53	08	60
Residence			
Total Urban	66	13	78
Major City	58	11	69
Other Urban	75	16	89
Rural	81	20	100
Province			
Punjab	81	18	97
Sindh	81	22	101
KP	63	13	75
Balochistan	49	11	59

Note 1: All rates are expressed per 1,000 live births, except for child mortality, which is expressed per 1,000 children surviving to 12 months of age.
Note 2: Figures in parentheses are based on 250-499 unweighted cases in one or more of the component rates.
na= not applicable
Source: PDHS Report 2006-07: Table no. 8.3, pp. 91 and Table no. 8.4, pp. 93

Annex 2

Table 6.6: The Determinants of LHW Visits—Logistic Regression Model

	PSLM		HIES	
	Odds Ratio	**Z-stat**	**Odds Ratio**	**Z-stat**
Household size (in numbers)	1.046***	15.32	1.045***	6.86
Sex of head (male=1)	1.043	1.3	0.953	-0.74
Presence of child of age less than 10 (yes=1)	2.385***	42.82	2.692***	21.4
Presence of currently married women in reproductive age 15-49 (yes=1)	1.453***	14.66	1.536***	7.6
Per capita household income (Ref=Quintile 1)				
Quintile 2	1.022	0.88	1.041	0.71
Quintile 3	0.991	-0.37	0.970	-0.53
Quintile 4	0.994	-0.24	0.899	-1.84
Quintile 5	0.854***	-6.19	0.754***	-4.63
Region (urban=1)	0.697***	-21.4	0.691***	-10.25
Province (Punjab as ref.)				
Sindh	1.325***	14.66	2.121***	17.39
KP	0.664***	-18.21	0.776***	-5.33
Balochistan	0.438***	-35.41	0.408***	-16.56
Constant	0.348***	-27.82	0.277***	-13.88
Log likelihood	-49190.819		-10077.985	
LR chi2	7613.58 (12)		2360.14 (12)	
Pseudo R2	0.0718		0.1048	
N	76526		16338	

***pvalue<0.001; **pvalue <.0.005
Source: PSLM and HIES, 2010-11

Annex 3

Table 6.7: Trends in Child Nutrition in Pakistan

Data Source	% Underweight			% Stunted			% Wasted		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
NNS 1985-7	48	–	–	42	–	–	11	–	–
NNS 2001	42	42	39	31	33	25	12	11	12
NNS 2011	32	33	27	44	46	37	15	13	16
PDHS 1990	40	–	–	50	–	–	9	–	–
PSES 2001	48	51	42	50	53	44	–	–	–
PRHS 2001	–	57	–	–	64	–	–	18	–
PPHS 2010	39	40	38	64	65	62	18	17	20

Note: The differences between figures may be due to methodological variations among these surveys. PDHS 1990-1 used NCHS standard with reference population of children (0-59) months. The figures reported for NNS 2001 are percent median with reference population (6-59) months. PRHS, PSES, PPHS-2010, NNS-2011 are using reference population of 6-59, 0-59, 6-59 and 0-59 months respectively.
Source: G. M. Arif, Shujaat Farooq et al 2012. Child Malnutrition and Poverty: The Case of Pakistan. Poverty and Social Dynamics Paper Series, PSDPS-3, 2012. Table 2.

Table 6.7b: Child (0-59 months) Nutrition Status (moderate/severe) by Sex, 2010

Nutritional status of children	% Underweight			%Stunted			%Wasted		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Normal	55	56	55	32	31	31	63	60	62
Moderate	17	16	16	21	19	20	9	9	8
Severe	23	26	24	43	44	44	9	10	10
Over weight/ height	5	3	4	4	6	5	19	21	20
Total	100	100	100	100	100	100	100	100	100

Note: Normal children are healthy children having Z-scores between -2 and +2 SD, while Z-scores for moderate malnourished child is below -2 SD and severe malnourished child is below -3 SD.
Source: G. M. Arif, Shujaat Farooq et al.2012. Child Malnutrition and Poverty: The Case of Pakistan. *Poverty and Social Dynamics Paper Series*, PSDPS-3, 2012. Table 3.

Annex 4

Table 6.9: Child Nutritional Status by Mother's BMI and Education

Mothers' characteristics	% Underweight	% Stunted	% Wasted
Under weight	53	66	27
Normal	41	66	19
Over weight	33	61	12
Obesity	28	63	12
Education			
No education	40	64	19
Primary	41	65	21
Secondary and Matric	33	63	11
College and Higher	30	62	12
Total	39	64	18
(N)	2,568	1,937	1,949

Source: G. M. Arif, Shujaat Farooq et al. Child Malnutrition and Poverty: The Case of Pakistan. *Poverty and Social Dynamics Paper Series*, PSDPS-3, 2012. Table 6