Gender Differences in Treatment-seeking Behaviour during Common Childhood Illnesses in India: Does Maternal Education Matter?

By

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Abstract

Gender inequalities, in one form or the other, with considerable contextual differences, are ubiquitous and all-pervasive in South Asia. In health, these are manifested in differences in mortality (observed by overall sex-ratio) in almost every country in this region. India is no exception in this regard. Discrimination and gender gaps have been observed even in early years of life. Beside other factors, discriminatory treatment-seeking practices among children during the post-neonatal and later childhood period probably contribute to this. There are numerous studies which have established the positive effect of maternal education on child health and survival. But there are contradictory evidences that whether maternal education reduces gender bias in treatment-seeking behaviour or not and the debate over it remains inconclusive. By using National Family and Health Survey (NFHS-2), 1998-99, the present study observed that the gender bias in treatment seeking behaviour does exist among illiterate and middle school educated women when child is affected by acute respiratory infections and reduces considerably among higher educated mother. In case of diarrhoea no evidence of gender differences in treatment seeking behaviour has been found statistically irrespective of the level of maternal education, even after controlling all other spatial, demographic and socioeconomic factors.

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Introduction:

Gender inequalities in one form or the other, with considerable contextual differences, are ubiquitous and all-pervasive in South Asia. In health, these are manifested in differences in mortality (observed by overall sex-ratio) in almost every country in this region. India is no exception in this regard. Discrimination and gender gaps have been observed even in the early years of life. Although overall sex-ratio in India has improved from 927 to 933 in the last decade, it has declined from 945 to 927 in the children aged less than six years (India, RG; 2001).

Beside other factors, discriminatory treatment-seeking practices among children during the post-neonatal and later childhood period probably contribute to this. Singh, Gordon and Wyon (1962) found in the Khanna study in Punjab that among children less than three years old, girls received less and worse medical care than boys. Similarly, in the Matlab area in Bangladesh, girls were less likely to get treatment than boys, even when treatment was free (Chen *et al.*, 1981). Cross-sectional surveys of practitioners and care providers reported discriminatory care-seeking for boys and girls in India and Bangladesh, (Ganatra *et al*., 1994; Hossain and Glass, 1988; Pandey, 2002). Studying the migrants from Tamil Nadu and Uttar Pradesh in Delhi, regional differences in gender bias in treatment-seeking behaviour has also been observed by Basu (1989). Differences in intra-household resource allocation have also been reported from many developing countries (Chudhary, 1988; Chen *et al.*, 1981). Rao *et al.* (1998) revealed that maternal education and living standard of the household have positive effects on Oral Rehydration Treatment rate for boys but not for girls and it is especially prevalent in the central and eastern regions of India.

Various studies have argued the positive effect of maternal education on child health and survival (Caldwell and Caldwell, 1988; Cleland, 1990; Goodburn *et al.*, 1990; Barrera, 1990; Dreze, 1999; Dreze and Murthi, 2001). Analyzing data of NFHS-1, 1992-93, Govindasamy and Ramesh (1997) found that mother's education continues to be a

powerful, positive and significant predictor of utilization of child healthcare services in India; even after controlling for a number of other demographic, socioeconomic and spatial variables. Maternal work status, religion and caste, birth order, child's age and sex also have a great bearing on utilization of childcare services in India (Govindasamy and Ramesh, 1997). Also, results of cross-national surveys of a number of developing countries all over the world have revealed that the prevalence of visits to medical facilities is highest among children aged 6-23 months, children of lower birth orders, children in urban areas, children of mothers with at least secondary education and children of mothers exposed to any sort of mass media (Ryland and Raggers, 1998).

However, the relationship between maternal education and gender bias can be positive or negative depending upon region, parity or contextual details. A positive relationship may exist either because educated women more efficiently withhold high quality care from less desired children (Das Gupta, 1987), or because of lower fertility, which is accompanied by greater gender bias; since parents have narrower latitude to ensure the desired number of sons (Das Gupta and Bhat, 1997). For a negative relationship, Murthy *et al.* (1996) associate education with greater women's agency and decreased gender bias. More examination of trends over time is clearly needed.

The principal objective of the present study is to assess the effect of maternal education on gender bias in treatment seeking behaviour among children, who were affected by the two common childhood illnesses, namely, diarrhoea and acute respiratory infection (ARI). The morbidity pattern and prevalence among boys and girls of illiterate, middle school completed and higher educated mothers are first described along with spatial, demographic and socioeconomic differentials; followed by an analysis of the decision on treatment among the three aforesaid educational categories; and if the treatment was sought, then whether it was sought from the public sector or from the private sector.

Material and Methods:

Data for this study are drawn from The National Family Health Survey (NFHS-2), India, carried out between 1998-99 by the ORC-Macro and the International Institute for Population Sciences, Mumbai. Data on fertility, mortality, morbidity, family planning,

and important aspects of reproductive health, nutrition and childcare were collected from a nationally representative sample of 90,303 ever-married women in the age group of 15-49 residing in 92,486 households. In addition, the survey collected information on 33, 026 children born during the last three years preceding the survey. Every member of the households was asked questions regarding the occurrence of four important diseases, namely, asthma, tuberculosis malaria and jaundice. Regarding children born during thethree years preceding the survey, the respective mothers were asked whether their child had suffered from diarrhoea and ARI (cough accompanied with short, rapid breath) with a reference period of fifteen days. In addition, the survey also asked questions on treatment seeking behaviour (source of treatment and no treatment) for the two childhood diseases, namely, diarrhoea and ARI.

For a detailed analysis of how maternal education affects gender bias in treatment seeking behaviour, it is necessary to go beyond the simple dichotomy of treatment/no treatment. The kind of treatment given is also important, since for those mothers who sought treatment from private providers; the motivation of seeking treatment was higher as cost of treatment is often high in private sector. In order to meet the objective of the present study, the response variable has been classified into three categories: no treatment/self-treatment, treatment from the public sector, and treatment from the private sector. The first category includes no treatment, treatment from shop, treatment from friends/relatives, and others. The public sector comprises all types of government medical and paramedical institutions, community health workers, NGO/Trust hospitals/clinics, and NGO workers; whereas private sector includes all types of private medical and paramedical practices, *Vaidya*, *Hakim*, homeopath, traditional healer and other private sector establishments. It is worthwhile to mention that those who took treatment both from the private and public sector are categorized in the private sector as it has been assumed that motivation to seek treatment is higher for those who have taken treatment from the private sector.

Besides, NFHS also collected information on background characteristics of mother, child and households. The effect of maternal education on gender differential in treatment seeking behaviour is likely to be confounded with the effects of some of these other variables. To avoid this problem, it is useful to control statistically, the selected

spatial, demographic and socioeconomic characteristics. The variables included as controls in this analysis are: geographic region (categorized as: south, east, central, north, west and, north-east); child's age (categorized as: <6, 6-11, 12-23 and, 24+ months); mother's age (<20, 20-29, and 30+ years); birth order (1, 2-3, 4+); standard of living of the household (low, medium and high); work status of mother (working and not-working); and mass media exposure[†] (yes, no) and religion and caste. Religion and caste have been pooled to form a single variable and categorized as forward caste Hindu, SC/ST Hindu and Other than Hindu[‡].

Each control variable has a rationale for inclusion. Geographic region has been controlled because prevalence of diseases and access to and utilization of healthcare services varies across the regions of India. It has been observed that "south" has better access to as well as the utilization of healthcare services, whereas "central" has poor track record in this regard. Again some parts of "south" and "north-east" follow matrilineal, matriarchal and matrilocal family system and gender bias is likely to be less in this region compared to "central" and "north", as these regions follow strong patrilineal, patriarchal and patrilocal family system. Rural areas in a developing country like India are characterized by inadequate sanitary and water supply infrastructure and poor access to health services (public as well as private) as compared to urban areas and are hence presumably more susceptible to childhood communicable diseases. There is also lower utilization of health services in rural areas than their urban counterparts, thus Place of residence has been controlled. Age of the child is controlled here since the younger child is considered more delicate in general than the older one. If the child is male, then the delicateness is presumed to be compounded; and greater urgency may be shown in seeking treatment. Age of the mother has been controlled because mothers of tender age are likely to be less educated and less aware of the signs and symptoms of the illnesses

[†] Here "exposure to mass media" has been created from three separate variables, namely, 'read newspaper or magazine at least once a week', 'watch television at least once a week' and 'listen to radio at least once a week'. These three variables are found to be strongly associated with each other and so a composite variable has been obtained from these three: 'exposure to mass media of any sort'. If a woman is exposed to any of these three, then she is regarded as exposed to any sort of mass media.

[‡] Scheduled Castes (SC) and Scheduled Tribes (ST) are castes and tribes identified by the Government of India as socially and economically backward and in need of special protection from social injustice and exploitation.

and utilization of healthcare services than their older counterparts. Higher birth order children are less likely to get treatment for illness at health facility than first birth order as higher birth order children are associated with older mothers who have experience of recommended home treatment; thus birth order has been controlled. Religion and caste are cultural variables that control for cultural variations in child care and treatment practices. Religion and caste are also likely to be correlated with maternal education and access to health care facilities. Treatment-seeking behaviour can also conceivably vary according to household economic condition. Households of high economic status are likely to get earlier and better quality treatment from private sector health facility than other households. Again the mothers of the higher income households are more likely to be educated and less gender biased in seeking treatment. Since NFHS-2 did not collect data on household income or expenditure, a proxy - standard of living index as calculated by NFHS-2 on the basis of housing conditions and land and consumer durable goods - has been incorporated in the analyses. On the basis of the scores, households are classified into low, medium and high standard of living (for details of scores of each good, refer to the report of National Family Health Survey, 1998-99). Women's work participation may also have a bearing on treatment seeking for their children because of the conflict between work schedule and the schedules of treatment providers. It is widely believed that the exposure to mass media can play an important role in educating women about childhood illnesses, its prevention and utilization of healthcare in India and it is directly correlated with maternal education.

The analysis focuses on how maternal education affects gender differences in treatment seeking behaviour, after controlling for all these potentially confounding variables. Since the response variable has more than two categories (no treatment/self-treatment, treatment from public source, and treatment from private source) so six sets of multinomial logit regressions (three sets for treatment seeking in case of diarrhoea among the children of illiterate, middle completed and, higher educated mothers and another three sets for treatment seeking in case of ARI among the children of the aforesaid education groups) have been employed for the analysis.

The equations for multinomial logit regression in this case can be written as

$\log (P_1/P_3) = \_ + \sum \beta_i X_i$ (i=1, 2,……,9) ----- (1)

$\log (P_2/P_3) = \_1 + \sum\_i X_i$ (i=1, 2,……,9) ------ (2)

where P_1= probability of using public sector health facility,

P_2 = probability of using private sector health facility, and

P_3 = probability of no treatment/self-treatment.

and $P_1 + P_2 + P_3 = 1$.

and $\{X_i\}$ (i = 1, 2….9) are the aforesaid predictor variables, _ is the intercept and _i's (i = 1,2 ……9) are the regression coefficients of equation (1) and _1 is the intercept and _i's (i = 1,2 ……9) are the regression coefficients of equation (2) (Retherford and Choe, 1993).

Results and Discussions:

Table 1 depicts the prevalence of diarrhoea and ARI by sex among all surveyed children and among affected children. It can be revealed from this table that boys are more prone to be affected by diarrhoea and ARI than girls. Among affected children, the differences among boys and girls are around 13 percentage points for diarrhoea and around 10 percentage points for ARI.

Table1: Prevalence of diarrhoea and ARI by sex of the child, India, NFHS-2, 1998, 99

	Among all surveyed children			Among affected children		
Disease	**N**	**Boys**	**Girls**	**N**	**Boys**	**Girls**
Diarrhoea	30895	10.5	9.2	6083	53.4	46.6
ARI	30970	10.6	8.6	5944	55.3	44.7

Children of illiterate and middle school educated mothers are more likely to suffer from diarrhoea and ARI irrespective of sex of the child (Table 2). In every category of maternal education, it has been found that the boys are more susceptible to the diseases than the girls.

Table 2: Percent of children reported diarrhoea and ARI by maternal education and by sex of the child, India, NFHS-2, 1998-99

	Illiterate			Middle completed			Higher educated		
Diseases	**N**	**Boys**	**Girls**	**N**	**Boys**	**Girls**	**N**	**Boys**	**Girls**
Diarrhoea	3417	10.7	9.8	1860	11.1	9.3	805	8.9	7.0
ARI	3452	11.3	9.3	1809	10.9	8.9	681	7.7	5.7

Table 3 and 4 present the treatment seeking behaviour among boys and girls by maternal education and by selected background characteristics for the two diseases

Table 3: Percentage distribution of boys and girls who suffered from diarrhoea by maternal education, by source of treatment and by selected background characteristics, India, NFHS-2, 1998, 99

	Illiterate				Middle completed				Higher educated			
	Boys (Girls)				Boys (Girls)				Boys (Girls)			
Background Variables	**N**	**NT**	**TPbS**	**TPvS**	**N**	**NT**	**TPbS**	**TPvS**	**N**	**NT**	**TPbS**	**TPvS**
Geographic Region												
South	265	36.0 (37..3)	20.9 (21.4)	43.2 (41.3)	195	15.2 (35.6)	16.2 (13.3)	68.6 (51.1)	132	16.3 (15.4)	17.5 (13.5)	66.3 (71.2)
East	642	45.7 (47.1)	15.4 (17.5)	38.9 (35.3)	243	35.4 (43.1)	22.8 (23.3)	41.7 (33.6)	63	32.4 (31.0)	29.4 (13.8)	38.2 (55.2)
Central	1033	38.3 (42.2)	9.5 (6.9)	52.2 (50.9)	356	30.7 (35.7)	12.9 (8.4)	56.4 (55.8)	121	30.2 (15.5)	15.9 (15.5)	54.0 (69.0)
North	859	25.4 (27.2)	31.9 (27.0)	42.8 (45.8)	398	15.0 (15.3)	24.0 (24.9)	61.1 (59.8)	312	9.6 (17.9)	25.7 (24.8)	64.7 (57.2)
West	297	30.8 (34.4)	13.7 (13.2)	55.5 (52.3)	290	24.8 (22.8)	11.7 (15.2)	63.4 (62.1)	119	18.7 (9.1)	4.0 (2.3)	77.3 (88.6)
NE	322	58.7 (52.0)	20.3 (30.7)	20.9 (17.3)	378	48.8 (53.1)	28.6 (22.9)	22.7 (24.0)	58	38.5 (29.3)	23.1 (24.1)	38.5 (46.6)
Residence												
Rural	2860	39.4 (41.5)	18.4 (18.3)	42.2 (40.2)	1290	32.1 (36.5)	22.0 (19.5)	45.9 (44.0)	364	18.8 (21.0)	24.2 (22.3)	57.0 (56.7)
Urban	558	26.1 (29.9)	21.1 (14.0)	52.9 (56.1)	570	22.0 (28.4)	16.5 (15.3)	61.5 (56.3)	441	16.8 (16.8)	15.6 (14.2)	67.6 (69.0)
Child's Age												
<6 Months	497	49.6 (52.7)	9.0 (12.4)	41.4 (34.9)	272	31.3 (37.5)	18.8 (19.6)	50.0 (42.9)	131	29.9 (29.7)	6.0 (17.2)	64.2 (53.1)
6-11Months	701	38.0 (39.4)	20.3 (18.3)	41.7 (42.2)	416	32.7 (33.7)	14.3 (18.6)	53.0 (47.7)	202	6.8 (15.2)	18.4 (17.2)	74.8 (67.7)
12-23Months	1290	34.8 (36.5)	20.5 (16.7)	44.6 (46.7)	692	25.1 (29.0)	23.5 (19.6)	51.5 (51.4)	299	16.3 (16.5)	25.0 (15.7)	58.7 (67.7)
24+Months	930	33.7 (36.6)	20.4 (21.1)	45.9 (42.3)	480	30.3 (39.7)	21.8 (15.1)	47.9 (45.2)	173	22.9 (17.2)	20.2 (23.4)	56.9 (59.4)
Mother's Age												
<20	742	33.3 (39.8)	19.8 (15.9)	46.8 (44.2)	464	31.5 (30.5)	17.8 (22.0)	50.6 (47.5)	72	21.1 (14.7)	15.8 (11.8)	63.2 (73.5)
20-29	1907	38.1 (38.6)	19.5 (17.1)	42.3 (44.3)	1199	28.1 (33.3)	21.4 (18.1)	50.5 (48.7)	628	16.8 (18.5)	19.6 (18.8)	63.6 (62.7)
30+	769	38.9 (41.3)	16.0 (20.7)	45.1 (38.0)	197	29.3 (45.9)	19.2 (10.2)	51.5 (43.9)	105	21.3 (22.7)	21.3 (15.9)	57.4 (61.4)
Birth Order												
1	705	35.6 (35.6)	21.5 (19.2)	42.8 (45.2)	626	28.6 (30.8)	21.5 (20.5)	49.9 (48.7)	389	15.0 (14.8)	19.3 (20.9)	65.7 (64.3)
2-3	1325	36.2 (41.5)	21.0 (17.6)	42.8 (40.9)	906	26.8 (32.4)	19.7 (17.1)	53.5 (50.5)	367	20.2 (24.2)	18.3 (15.4)	61.5 (60.4)
4+	1388	20.2 (19.2)	15.2 (16.8)	45.6 (43.5)	328	36.3 (43.8)	19.6 (16.9)	44.0 (39.4)	49	19.2 (13.0)	30.8 (8.7)	50.8 (78.3)
Religion/Caste												
Forward Caste Hindu	1404	38.7 (39.1)	16.1 (16.7)	45.2 (44.2)	906	27.5 (27.9)	19.2 (20.1)	53.2 (51.9)	510	20.6 (18.4)	22.0 (18.4)	57.4 (63.2)
SC-ST Hindu	1146	37.9 (43.2)	21.8 (18.8)	40.3 (38.0)	337	26.6 (30.7)	22.8 (17.6)	50.5 (51.6)	84	18.8 (11.1)	12.5 (25.0)	68.8 (63.9)
Other than Hindu	868	34.3 (35.1)	19.3 (17.4)	46.4 (47.5)	617	32.5 (44.7)	20.6 (15.6)	46.9 (39.7)	211	10.7 (22.2)	16.5 (13.3)	72.7 (64.4)
SLI												
Low	1586	42.3 (44.4)	17.7 (18.1)	40.0 (37.5)	363	34.5 (45.0)	24.2 (16.0)	41.2 (39.1)	34	10.0 (28.6)	20.0 (14.3)	70.0 (57.1)
Medium	1641	35.2	19.8	45.1	1094	30.7	21.1	48.2	290	17.5	24.0	58.5

		(35.8)	(18.0)	(46.2)		(34.3)	(19.4)	(46.3)		(20.2)	(21.8)	(58.0)
High	155	18.2	20.5	61.4	385	19.9	15.4	64.7	469	18.5	16.6	64.9
		(29.9)	(4.5)	(65.7)		(22.0)	(16.5)	(61.6)		(18.1)	(16.2)	(65.7)
Work Status												
Not-Working	2077	37.2	17.8	45.0	1479	28.0	19.8	52.2	682	17.3	19.9	62.8
		(37.6)	(16.2)	(46.2)		(31.9)	(17.6)	(50.5)		(19.0)	(16.9)	(64.1)
Working	1341	37.4	20.4	42.2	381	33.2	22.4	44.4	123	20.3	17.2	62.5
		(42.3)	(19.7)	(37.9)		(42.0)	(20.5)	(37.5)		(16.9)	(22.0)	(61.0)
Mass Media Exposure												
No	2135	40.9	17.2	41.9	424	36.3	21.2	42.5	30	35.3	17.6	47.1
		(43.7)	(16.5)	(39.8)		(38.4)	(18.2)	(43.4)		(23.1)	(23.1)	(53.8)
Yes	1283	31.2	21.5	47.4	1436	26.9	20.1	53.0	375	17.1	19.6	63.4
		(32.6)	(19.5)	(47.9)		(32.7)	(18.2)	(49.2)		(18.5)	(17.6)	(63.6)

Notes:
1. N= total number of children, NT= No treatment/Home treatment taken, TPbS= Treatment sought from public sector, TPvS= Treatment sought from private sector.
2. Percentages given in the parenthesis are of girls.

considered here. It is to be noted here that no secular trend of gender discrimination by varying maternal education has been observed, though by and large it can be argued that as maternal education increases gender bias in treatment seeking behaviour decreases and varies with the background characteristics of mothers. In general, illiterate and middle school completed mothers tend to discriminate against their girl child in seeking any formal medical care than higher educated mothers.

If spatial characteristics are under consideration, this trend is high among the mothers in central, western and north-eastern regions in case of diarrhoea and among the mothers in eastern, central and northern regions in case of ARI. This trend is also higher among the mothers in rural areas as compared to the urban areas. Among demographic characteristics, it has been seen that treatment seeking behaviour by sex and by maternal education also varies according to age of the child. It has been noticed that older girls are less likely to seek any formal treatment than younger girls for both the diseases when their mothers are either illiterate or completed middle school. In case of ARI, girls in the age group of 6-23 months tend to discriminate in seeking care irrespective of educational attainment of their mothers. Illiterate and middle school completed mothers of older age group are less likely to seek care for their daughter for both the diseases. Treatment seeking for daughter increases among higher educated older mothers. It has also been observed that the second and third order girls are tended to be discriminated against more than others in case of diarrhoea as are higher order girls in case of ARI irrespective of mother's educational attainment, though the gap decreases as education increases.

Among the socioeconomic characteristics, it can be said that the daughters of forward caste Hindus are more likely to seek care than others irrespective of maternal education in case of diarrhoea, but in case of ARI, it has been observed that as maternal education increases gender gap reduces. Illiterate and middle school completed mothers of poor and middle class families are more likely to discriminate against their daughters in seeking any formal medical treatment but the gender bias reduces considerably for higher educated mothers for both the diseases. It is evident from the result of bivariate analyses that the higher educated working mothers are less gender biased than their illiterate and middle school completed working and non-working counterparts in seeking treatment. Positive effect of mass media exposure in reducing gender bias in seeking treatment can also be observed; the effect is clearer among higher educated mothers.

Table 4: Percentage distribution of boys and girls who suffered from ARI by maternal education, by source of treatment and by selected background characteristics, India, NFHS-2, 1998, 99

	Illiterate				Middle completed				Higher educated			
	Boys (Girls)				Boys (Girls)				Boys (Girls)			
Background Variables	**N**	**NT**	**TPbS**	**TPvS**	**N**	**NT**	**TPbS**	**TPvS**	**N**	**NT**	**TPbS**	**TPvS**
Geographic Region												
South	233	27.6 (30.2)	17.3 (17.9)	55.1 (51.9)	219	12.3 (18.0)	16.2 (16.9)	71.5 (65.2)	131	9.6 (20.7)	16.4 (17.2)	74.0 (62.2)
East	773	36.0 (43.5)	15.1 (10.7)	48.9 (45.8)	311	25.7 (32.1)	19.3 (16.4)	55.0 (51.4)	76	23.3 (30.3)	16.3 (12.1)	60.5 (57.6)
Central	1090	39.5 (46.8)	10.3 (6.0)	50.2 (47.2)	352	25.4 (31.6)	15.2 (11.6)	59.4 (56.8)	130	28.9 (20.4)	14.5 (9.3)	56.6 (70.4)
North	799	28.6 (35.0)	29.2 (29.3)	42.2 (35.6)	298	9.6 (18.9)	24.7 (24.2)	65.7 (56.8)	180	10.2 (6.5)	28.0 (25.8)	61.9 (67.7)
West	174	24.0 (24.3)	16.0 (12.2)	60.0 (63.5)	162	10.1 (8.8)	19.1 (26.0)	70.8 (67.1)	63	3.3 (12.1)	3.3 (6.1)	93.3 (81.8)
NE	378	51.0 (48.9)	22.2 (28.3)	26.8 (22.8)	464	31.0 (43.2)	33.5 (28.4)	35.5 (28.4)	101	37.7 (27.1)	26.4 (22.9)	35.8 (50.0)
Residence												
Rural	2955	37.2 (44.0)	17.5 (15.5)	45.3 (40.5)	1339	22.1 (32.3)	23.5 (22.6)	54.4 (45.1)	344	19.5 (25.2)	24.9 (17.0)	55.7 (57.9)
Urban	492	26.0 (26.9)	20.9 (17.8)	53.1 (55.3)	467	18.3 (19.6)	19.4 (16.2)	62.4 (64.2)	337	17.3 (10.9)	15.4 (16.3)	67.3 (72.9)
Child's Age												
<6 Months	549	42.7 (57.0)	13.1 (12.8)	44.3 (30.2)	265	27.2 (31.4)	15.6 (30.5)	57.1 (38.1)	84	25.6 (31.7)	9.3 (12.2)	65.1 (56.1)
6-11Months	663	34.2 (40.7)	19.0 (16.0)	46.8 (43.3)	383	16.8 (27.4)	21.6 (23.4)	61.5 (49.1)	134	14.5 (13.8)	15.8 (15.5)	69.7 (70.7)
12-23Months	1220	34.6 (38.9)	19.3 (16.2)	46.1 (44.9)	612	19.8 (28.4)	23.3 (17.2)	57.0 (54.5)	259	18.4 (20.8)	27.2 (12.9)	54.4 (66.3)
24+Months	1015	33.8 (37.5)	18.6 (16.9)	47.6 (45.6)	546	22.6 (30.0)	25.3 (18.8)	52.0 (51.2)	204	18.1 (13.6)	16.4 (23.9)	65.5 (62.5)
Mother's Age												
<20	784	34.3 (40.1)	17.4 (13.0)	48.3 (47.0)	445	16.8 (29.9)	24.6 (20.4)	58.6 (49.8)	78	20.9 (17.1)	16.3 (20.0)	62.8 (62.9)
20-29	1942	35.5	18.2	46.4	1136	23.1	20.7	56.3	505	17.1	19.5	63.4

		(42.3)	(16.0)	(41.7)		(27.8)	(20.3)	(51.9)		(18.8)	(15.6)	(65.6)
30+	721	37.5	18.1	44.4	225	19.7	27.0	53.3	98	22.2	23.8	54.0
		(41.2)	(18.6)	(40.3)		(34.0)	(25.2)	(40.8)		(20.0)	(20.0)	(60.0)
Birth Order												
1	758	30.7	20.9	48.4	630	16.1	23.4	60.5	323	14.4	16.1	69.5
		(33.9)	(17.1)	(49.1)		(27.8)	(19.8)	(52.4)		(16.8)	(16.1)	(67.1)
2-3	1352	35.7	18.7	45.6	821	23.1	21.3	55.6	319	20.0	23.1	56.9
		(43.1)	(15.9)	(41.0)		(28.3)	(20.2)	(51.5)		(18.5)	(19.4)	(62.1)
4+	1337	38.5	15.5	46.0	355	25.4	23.3	51.3	39	33.3	20.8	45.8
		(44.0)	(15.2)	(40.8)		(33.1)	(24.7)	(42.2)		(40.0)	(-)	(60.0)
Religion/Caste												
Forward Caste	1424	33.5	19.0	47.5	878	18.0	21.2	60.8	449	17.2	18.4	64.5
Hindu		(39.2)	(15.9)	(44.9)		(25.3)	(20.4)	(54.3)		(17.6)	(17.1)	(65.3)
SC-ST Hindu	1148	41.8	16.6	41.6	314	23.4	25.0	51.6	71	21.1	31.6	47.4
		(48.0)	(14.9)	(37.1)		(33.8)	(17.7)	(48.5)		(23.9)	(22.5)	(53.5)
Other than	875	31.2	18.1	50.7	614	24.7	22.8	52.5	161	17.6	24.7	57.6
Hindu		(36.8)	(17.0)	(46.2)		(31.9)	(23.2)	(45.0)		(21.1)	(11.8)	(67.1)
SLI												
Low	1657	41.0	15.5	43.5	394	24.3	25.2	50.5	29	33.3	16.7	50.0
		(47.2)	(13.7)	(39.1)		(36.7)	(22.2)	(41.1)		(35.3)	(29.4)	(35.3)
Medium	1577	31.7	19.8	48.5	1048	22.4	23.5	54.1	268	25.3	20.8	53.9
		(36.7)	(18.2)	(45.1)		(29.1)	(20.1)	(50.7)		(22.8)	(19.3)	(57.9)
High	178	23.1	23.1	53.8	345	15.1	16.6	68.3	369	12.8	18.8	68.3
		(27.0)	(17.6)	(55.4)		(20.5)	(21.9)	(57.5)		(13.2)	(12.6)	(74.2)
Work Status												
Not-Working	2128	34.0	16.7	49.4	1424	19.3	22.1	58.6	565	17.7	20.4	61.9
		(40.5)	(14.7)	(44.8)		(28.9)	(19.8)	(51.3)		(19.4)	(15.6)	(65.0)
Working	1319	38.4	20.3	41.3	382	28.0	23.7	48.3	116	21.5	16.9	61.5
		(43.1)	(17.6)	(39.3)		(29.7)	(25.1)	(45.1)		(15.7)	(21.6)	(62.7)
Mass Media Exposure												
No	2189	38.3	16.7	45.0	389	25.1	21.7	53.1	41	24.0	40.0	36.0
		(44.5)	(15.5)	(40.0)		(39.0)	(17.6)	(43.4)		(37.5)	(25.0)	(37.5)
Yes	1258	31.0	20.2	48.8	1417	20.1	22.6	57.4	640	17.9	18.5	6.3.6
		(36.8)	(16.5)	(47.2)		(26.2)	(21.9)	(51.8)		(17.6)	(16.2)	(66.2)

Notes:
1. N= total number of children, NT= No treatment/Home treatment taken, TPbS= Treatment sought from public sector, TPvS= Treatment sought from private sector.
2. Percentages given in the parenthesis are of girls.

In general, it has also been observed that sons of illiterate and middle school completed mothers are more likely to be taken for treatment to the private medical sector than the public medical sector, though considerable variations do exist according to spatial, demographic and socioeconomic characteristics of mothers.

Table 5 presents the odd ratios of the multinomial logit regression of treatment seeking behaviour among the children of illiterates, middle school completed and higher educated mothers. Though sex of the child is of particular interest in this study, other spatial, demographic and socioeconomic variables are also controlled here. It is to be noted here that gender discrimination in treatment seeking behaviour does not exist statistically when the child is affected by diarrhoea irrespective of the level of maternal education; but it does exist in case of ARI among illiterate and middle school educated

Table 5: Odd ratios from the multinomial logistic regression models of treatment seeking behaviour during diarrhoea and ARI among children of illiterate, middle school completed and higher educated mothers by selected background characteristics

	Illiterate				Middle completed				Higher educated			
	Diarrhoea		ARI		Diarrhoea		ARI		Diarrhoea		ARI	
Background Variables	**TPbs Vs NT**	**TPvS Vs NT**	**TPbs Vs NT**	**TPvS Vs NT**	**TPbs Vs NT**	**TPvS Vs NT**	**TPbs Vs NT**	**TPvS Vs NT**	**TPbs Vs NT**	**TPvS Vs NT**	**TPbs Vs NT**	**TPvS Vs NT**
Geographic Region												
South (rc)												
East	.746	.812	.708	.721	1.001	.407**	.560	.421**	.783	.462	.455	.460*
Central	.415**	1.174	.361**	.619**	.590	.736	.423**	.467**	.908	.801	.359*	.435*
North	2.294**	1.403*	1.583*	.576**	2.767**	1.423	1.694	.925	2.206*	1.223	2.495*	1.081
West	.722	1.383	.897	1.311	1.008	1.039	2.361*	1.779	.267*	1.351	.617	2.083
NE	.884	.271**	.950	.220**	1.023	.200**	.839	.214**	.712	.311**	.642	.238**
Residence												
Rural (rc)												
Urban	1.097	1.395**	1.382*	1.469**	.976	1.255	.901	1.195	.809	1.203	.900	1.637*
Child's Age												
<6 Months (rc)												
6-11Months	2.465**	1.528**	1.897**	1.628**	.947	1.210	1.331	1.478	3.932**	3.477**	3.302*	2.342*
12-23Months	2.614**	1.843**	1.879**	1.657**	1.543*	1.715*	1.083	1.341	3.109**	2.168**	3.209*	1.349
24+Months	2.898**	1.817**	1.896**	1.722**	1.042	1.172	1.139	1.184	2.860**	1.620	3.224*	1.855
Mother's Age												
<20 (rc)												
20-29	1.031	.921	1.276	1.056	1.040	1.074	.779	.958	1.628	.920	1.056	1.353
30+	1.236	.861	1.626*	1.108	.709	1.275	1.061	1.079	1.604	.802	1.469	1.176
Birth Order												
1(rc)												
2-3	.847	.881	.676**	.734**	.881	.688	.871	.812	.530*	.708	1.088	.688
4+	.654*	1.025	.529**	.759*	.764	1.025	.918	.776	.989	1.367	.366	.518
Sex												
Male (rc)												
Female	.906	.937	.780*	.802**	.789	.827	.669*	.650**	.811	.912	1.034	1.097
Religion/Caste												
Forward Caste Hindu (rc)												
SC-ST Hindu	1.162	.862	.747*	.754**	.979	.976	.752	.723	1.163	1.372	1.144	.754
Other than Hindu	1.100	1.410**	.836	1.381**	.725	1.003	.763	.899	.990	1.604	.898	1.010
SLI												
Low (rc)												
Medium	1.007	1.152	1.380**	1.341**	1.061	1.121	.920	1.048	1.054	.657	.939	1.582
High	.804	1.846**	1.635	1.864**	.992	1.600*	.932	1.369	.659	.713	1.188	2.829
Work Status												
Not-Working (rc)												
Working	1.122	.890	1.226	.826*	1.060	.791	.971	.774	.998	.975	1.172	1.490
Mass Media Exposure												
No (rc)												
Yes	1.478**	1.316**	1.100	1.137	1.117	1.176	1.412	1.231	1.692	1.929	.643	1.731

Notes:
1. NT= No treatment/Home treatment taken, TPbS= Treatment sought from public sector, TPvS= Treatment sought from private sector.
2. rc= Reference Category
3. * p<.05, ** p<.01

mothers and becomes statistically insignificant among higher educated mothers, even after controlling all other variables. Among other variables, it can be observed that the children of illiterate mothers of the central region have significantly sought less treatment in both the medical sectors; although within this ambit, treatment seeking in public sector

is higher. Treatment seeking in the private sector is significantly low in the north-eastern region irrespective of the level of maternal education. In urban areas, treatment seeking in private sector is significantly higher among the children of illiterate mothers as compared to those in rural areas. It is also significantly higher among higher educated mothers only in case of ARI. Age of the child is positively and significantly associated with treatment seeking behaviour in both the sectors, especially, among the children of illiterate and higher educated mothers, even after controlling all other variables. It has been observed that mother's age has no statistically significant bearing in treatment seeking behaviour among children irrespective of the level of education among mothers. Higher order children of illiterate mothers are significantly less likely to seek treatment in both the sectors, but this decreases with increase in maternal education. It has been found that children of illiterate SC/ST Hindu mothers are significantly less likely to seek treatment in both the sector in case of ARI and that the children of illiterate mothers of other religions are significantly more likely to take treatment from private providers. But the effect of religion and caste diminishes as maternal education increases. Illiterate mothers of middle class and rich households are more likely to seek treatment from private health providers. The effect of household standard of living decreases, as maternal education increases. It seems that work status of mothers does not have much bearing on treatment seeking for their child, whatever the level of education she has. It has been observed that exposure to mass media has an important bearing on treatment seeking behaviour among children of illiterate mothers, especially, when the child is affected by diarrhoea.

Conclusions and Policy Recommendations:

Four major findings emerge from this study. First, the prevalence of child morbidity irrespective of sex is considerably high in India as in other countries of South Asian Region (SAR) and irrespective of gender; prevalence of diseases is low among the children of higher educated mothers. Second, among children surveyed in India almost two-third of these who had common childhood illnesses like diarrhoea and ARI sought formal medical treatment. The proportion seeking care is generally higher for boys than girls among illiterate and middle school completed mothers, though no secular trend has been observed by other background characteristics. Third, Gender discrimination in

treatment seeking behaviour has been observed among the children affected by ARI among illiterate and middle school completed mothers, even after controlling all other variables, but not in the case of diarrhoea and it can be established that as the education of mother increases, gender gap in seeking treatment decreases considerably. Lastly, treatment taken only from the public sector health facility is significantly lower than that taken from the private sector health facility irrespective of the sex of the child (though treatment seeking for boys are a bit higher in private sector health facility than girls and are statistically insignificant in most of the cases) and level of maternal education. The majority of children, who sought treatment, irrespective of their demographic and socioeconomic characteristics, consulted private providers.

These findings should be interpreted in the light of a few potential limitations of the data. First, the spell of morbidity is always subject to change with seasonal variations. So, the prevalence of morbidity, as seen in the NFHS, may not represent the actual scenario prevalent in India. Secondly, treatment seeking behaviour for any illness also depends upon *perceived severity* of that particular disease and this has not been considered in the analysis, as data on it are not available. Thirdly, seeking care, especially in the rural areas, also depends on the accessibility and availability of health facility. *Distance to the health facility, inconvenience of hours of operation, perceived cost and opportunity cost to utilize services* are factors that influence accessibility. But these factors couldn't be taken into account due to the limitation in data set. This could, to some extent, affect the estimates of influence of various predictor variables obtained here.

What are the policy implications of these findings? First of all, effective policies and programmes are urgently required to reduce the occurrences of these two most fatal childhood illnesses as episodes of these diseases early in life can have adverse effects over the entire life cycle. Diseases in infancy could have long term effects in terms of both cognitive and physical infirmities. Poor health directly reduces cognitive potential and indirectly undermines schooling through absenteeism, insufficient attention to lessons, and early dropouts. The policies and programmes may include the access to clean water and sanitation, safe and adequate housing, medical care including insurance, information about symptoms of the diseases and preventive behaviours, and adequate nutrition to children, especially, for the rural poor and underserved urban children.

Secondly, more investment in public sector health facility, improving the quality of services and reduce urban bias in healthcare delivery are very essential and thirdly, Government should enhance participation of private sector and NGOs in healthcare sector and go for public-private compact in delivering basic healthcare services.

Lastly, as it has been seen that maternal education plays very important role in reducing gender differences in treatment seeking for their children, so special programme on maternal education is urgently needed. The message of gender equality has to be percolated deep enough to reach the family and community levels. Otherwise, a girl child begins her formative years on a weak foundation, and this continues all through her life and will be transmitted to the next generation. To overcome this cycle of discrimination, an urgent action oriented behavioural change campaign with strong political will, involving health, maternal education and other socioeconomic indicators, is required.

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