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Gender Inequality in Morbidity Pattern: An Overview from Indian Perspective

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Abstract

This article summary the results from the survey on morbidity and treatment conducted by NSS (National sample survey organization) and present an empirical assessment of gender related inequality present in the morbidity pattern and accesses to health care system in India. It is observed that gendering prevails in the access to health care system or expenditure incurred in ailment.

Keywords: Morbidity, prevalence rate, gendering, MPCE class.

Introduction

Gender difference in health, apart from biological difference between men and women is a dynamic interplay of issues like access to social and economical factors, an indirect outcome of cultural and political set of contacts met by them etc. Though awareness and significance of gender analysis in health sector is increasing worldwide still literature on morbidity related to chronic or acute disease are few in number. Limited attempt has been made to study the general morbidity condition of women compare to male in India. Rather female reproductive/or maternity related health care studies are well documented. The major problem behind it is the absence of systematic and proper information on morbidity. The available database (from National Sample Survey) however partly subjective in nature as data on morbidity relies mainly on self reporting system. Thus the process may get affected by subjectivity and also the consciousness and perception of an individual about health.

Despite all these well-recognised problems and difficulties of measurement, the reported information of morbidity obtained in large scale surveys would be extremely useful, especially in the absence of clinically validated surveys [Ghosh and Arokiasamy 2009]. Hence an attempt has been made this study to document the gender differences that prevail over years in health sector (mostly non-fatal diseases) of India.

Methodology and Data

In this study the data of two rounds of National Sample Survey (NSSO) has been used to enquire the changes in the male female morbidity pattern. From time to time, different rounds of the National Sample Survey Organisation (NSSO) have collected information periodically on the morbidity and health seeking behavior of people in India. The 52nd round of the NSSO (1995-96) and 71st rounds (2014) collected data on morbidity in rural and urban areas of India, from the 15-day reference period. Particulars of medical treatment received as in-patient of a medical institution during the last 365 days and expenses incurred during the last 365 days for treatment of members as in-patient of medical institution, particulars of spells of ailment of household members during the last 15 days (including hospitalisation) has also being collected in the surveys. The sample size consists of 71284 households for rural and 49658 households for urban in the year 1995-96 covering 629888 individuals and in the year 2014 , 189573 in rural and 143531 individuals for urban and total 333104 are covered.

Though NSS collected data on morbidity in the different rounds over years, the data are not comparable from all corners, in all the consecutive rounds. The concepts, definition and methodology have changed time to time according to the purpose. So this study restricted within a few number of diseases and parameters which are common at the two points of study, to get a comparative picture over time. The two-time points are 1995-96 (data of 52nd round survey carried out in June 1995 to July 1996) and 2014 (survey carried out in month January 2014 to June 2014). An overall pattern of morbidity can be measured from the survey estimates on prevalence of morbidity. NSS provides the number of reporting ailment during 15 days or 365 days before survey per 1000 or per lakhs people. Which is not strictly followed the definition of prevalence rate provided by the WHO. NSS provides the estimated proportion of persons reporting ailment

suffered at any time during the reference period. The estimates thus given in the table are, therefore, not prevalence rate. The definition of morbidity is as follows

Morbidity = Number of ailing persons /Total number of persons a live in the sample households*1000

A gender differences in some common diseases related to blood, eye, heart, respiratory and psychiatric and neurological disorder are focused. Rely on published data, socio economic parameters like age, monthly per capita expenditure and rural urban settings have been related to the male female discrimination in health. The MPCE (Monthly per capita expenditure) data provides a reasonable proxy to the level of living of a household. Male female comparison has been made by the rates provided from the official statistics. The Population is grouped into 6 deciles or Quantile which are termed as fractile according to MPCE classes for rural and urban separately in 52nd round. While in 2014 this division is done into 5 percentile group as shown in the analysis. To measure the inequality of total expenditure incurred in case of hospitalization according to different monthly per capita expenditure classes Lorenze curve of concentration has been computed. The study has been extended by performing of a logistic regression analysis (using unit level data of 2014) to find out the impact of social, hygienically important or demographic factors on chronic ailment. The unit level data has been extracted from the data CD sold by NSS.

Findings

An overall morbidity condition has been deteriorated in a gap of twenty years. It is observed from Table1 that per thousand proportions of ailing people has increased both in case of male and female reporting ailment. Gender differences in case of urban rural settings of the country or in case of types of illness are also noticed. The prevalence of morbidity rates is higher for women in comparison to male for both the acute type of illness or for chronic diseases evidenced in both the settings that contradicts some previous studies (Iyer 2000 and Krishnaswami 2004). They pointed it under reporting of female ailment. Thus the increase rate may be the reflection of health consciousness among the female as the increment of chronic ailment is considerably higher among the urban females than their male counterpart.

Table 1: Number (Per 1000) of person reporting ailment in the last 15 days Before the date of survey, the survey 2014

Type of disease		Male		Increase in rate	Female		Increase in rate
		1995-96	2014		1995-96	2014	
Rural	Acute	41	44	3	44	54	10
	Chronic	13	36	23	14	45	31
	Any type	54	80	26	57	99	42
Urban	Acute	39	45	6	43	56	13
	Chronic	13	56	43	15	79	64
	Any type	51	101	50	58	135	77

Note*:* The short-duration (less than 30 days) ailments are referred to as *acute* ailments, and long-duration (30 days or more) ones as *chronic* ailments. Source: NSS.

Hospitalization is a vital event in the health care system as it is an acute situation when people are admitted, and the data are more reliable to be considered. Some diseases which are comparable over the years have been taken for the study (Table 2,3,4,5,6). From Table 2 considering that per laks people who were admitted in the hospital, blood diseases including anemia or bleeding disorders, eye problem or gastrointestinal diseases are higher among the females. Where male is more prone to diseases like psychological disorder or cardiovascular problem. The morbidity patterns will not same for all the sub-groups of population by ages. True morbidity pattern of a population will be reflected from its age distribution. The evidence of disaggregated morbidity prevalence in India showed a 'J' shaped relationship between age and morbidity, an indication that elders and children are susceptible to higher prevalence of illness [Kannan, et al, 1991; Shariff, 1995; Gumber, 1997; NSSO, 1998]. An age specific morbidity pattern has been compared at two time points in this study to get a proper insight. The J- shaped relation- ship has also been confirmed in most of the diseases here. However, in the age group 0 to fourteen years and 15-44(Table 3 and 4) the eye related problem has decreased both for male and female population. The declination is huge in case of rural female children, which is noticeable compared to the other pockets. Apart from any other positive initiation taken at Government level it may be due another fact that rural female children are neglected in periodic check up of eye related problem. The disaggregated data shows that problem of gastrointestinal disease decreases over time for the children but has enhanced in case of next higher age groups and the enhancement is seen more in case of the female population. The problem of psychiatric and neurological disorder,

cardiovascular diseases or respiratory disease has increased among the children and also in the higher order age group. The prevalence of psychiatric ailment has hiked over time among the urban people more in case of the male population. The cardiovascular disease and respiratory problem are also dominance among the male and increased with the higher age group as expected. The divergence in morbidity condition is more prominent in rural urban setting rather marginal in gender line. Over time these two diseases also remarkably raised.

Table 2: Hospitalised cases reported per 100000 people

	1995-96 Rural		1995-96 Urban		2014 Rural		2014 Urban		Increase in rate			
Name of the disease	M	F	M	F	M	F	M	F	RM	UM	RF	UF
Blood disease					56	92	50	98				
Eye	39	46	52	57	144	193	138	225	105	86	147	168
Psychiatric & neurological	24	32	63	37	199	203	302	253	175	239	171	216
Cardio-vascular	59		111	93	304	251	501	470	245	390	251	377
Respiratory	39	33	43	38	184	174	228	222	145	185	141	184
Gastro-intestinal	273	265	210	253	354	411	448	505	81	238	146	252

M= Male; F=Female; U=Urban; R=Rural; Source: NSS

Table 3: Hospitalised cases reported per 100000 in age group 0-14

	1995-96 Rural		19945-96 Urban		2014 Rural		2014 Urban		Increase in rate			
Name of the disease	M	F	M	F	M	F	M	F	RM	UM	RF	UF
Blood disease					62	35	38	46				
Eye	36	61	27	93	27	7	21	89	-9	-6	-54	-4
Psychiatric & neurological	7	5	7	10	97	97	109	187	90	102	92	177
Cardio-vascular	7	11	22	11	33	25	30	51	26	8	14	40
Respiratory	60	51	60	50	150	121	195	185	90	135	70	135
Gastro-intestinal	361	353	315	348	146	91	195	208	-215	-120	-262	-140

M= Male; F=Female; U=Urban; R=Rural; Source: NSS

Table 4: Hospitalised cases reported per 100000 in age 15-44

	1995-96 Rural		1995-96 Urban		2014 Rural		2014 Urban		Increase in rate			
Name of the disease	M	F	M	F	M	F	M	F	RM	UM	RF	UF
Blood disease					30	112	40	110				
Eye	40	29	43	39	21	30	20	35	-19	-23	1	-4
Psychiatric & neurological	28	39	78	48	145	145	220	188	117	142	106	140
Cardio-vascular	44	61	23	36	152	159	180	187	108	157	98	151
Respiratory	11	13	15	34	51	72	71	104	40	56	59	70
Gastro-intestinal	121	196	148	179	345	489	406	524	224	258	293	345

M= Male; F=Female; U=Urban; R=Rural; Source: NSS

Table 5: Hospitalised cases reported per 100000 in age group 45-59

	1995-96 Rural		1995-96 Urban		2014 Rural		2014 Urban		Increase in rate			
Name of the disease	M	F	M	F	M	F	M	F	RM	UM	RF	UF
Blood disease					28	115	85	88				
Eye	34	19	101	34	414	330	321	434	380	220	311	400
Psychiatric & neurological	31	65	129	58	248	290	459	337	217	330	225	279
Cardio-vascular	114	123	240	232	675	476	1081	1057	561	841	353	825
Respiratory	46	20	43	35	252	345	258	239	206	215	325	204
Gastro-intestinal	285	209	188	201	623	670	628	842	338	440	461	641

M= Male; F=Female; U=Urban; R=Rural; Source: NSS

Table 6: Hospitalised cases reported per 100000 in age group 60+

	1995-96 Rural		1995-96 Urban		2014 Rural		2014 Urban		Increase in rate			
Name of the disease	M	F	M	F	M	F	M	F	R M	U M	R F	U F
Blood disease					199	168	113	210				
Eye	74	155	119	57	902	1541	950	1326	828	831	1386	1269
Psychiatric & neurological	100	62	59	39	884	779	1343	733	784	1284	717	694
Cardio-vascular	361	189	104	611	1903	1282	3273	2244	1542	3169	1093	1633
Respiratory	58	85	37	4	1021	640	1321	981	963	1284	555	977
Gastro-intestinal	664	339	210	451	969	758	1363	790	305	1153	419	339

M= Male; F=Female; U=Urban; R=Rural; Source: NSS

Undoubtedly hospitalization is an important occurrence both in terms of money and time. It is well said that female is unwilling to spend over health care which is a common phenomenon in our Indian society. If the treatment incurred a high cost generally female are unwilling towards it and let to utilize the resource for male members of the family. NSS data confirms the said proposition (Table7). Separate Male female data for the year 1996-96 is not available the breakup is available in the year 2014. Table 7 shows that hospitalized cases for female are noticeably higher than male in free bed of public hospital and their share remarkably goes down as it move towards the higher value attached hospitals like special paying private system. However, over time health care system has been inclined more and more towards special paying privatization. The system has undoubtedly urban bias, accessibility or affordability proper health care is crowded over in the urban sector

Table 7: Per thousand distributions of hospitalized cases during last 365 days

	Per 1000 no. of hospitalized cases by type of ward (year 2014)											
	Public hospital						Private hospital					
ward	free		Paying general		Paying special		free		Paying general		Paying special	
	R	U	R	U	R	U	R	U	R	U	R	U
Male	290	226	60	47	6	9	29	30	464	447	151	241
Female	346	206	58	50	4	8	29	31	445	478	118	226
All	318	216	59	49	5	8	29	31	454	463	135	233
	Per 1000 no. of hospitalized cases by type of ward (year 95-96)											
	Public hospital						Private hospital					
ward	free		Paying general		Paying special		free		Paying general		Paying special	
All	388	347	41	55	8	16	28	35	411	372	91	146

U=Urban; R=Rural; Source: NSS

MPCE class is a well proxy of individual's well being or standard of living. NSS provides disaggregated data on the hospitalized cases according to the fractile group of MPCE class. That gives a useful insight to the access of issues related to the house hold expenditure pattern. The mode of representation of per thousand people reporting ailment according to MPCE class in the two study points cannot be directly comparable. In case of 1995-96 the distribution of sick people are given according to fractile of MPCE class (Table8). Where as in the year 2014 average duration of staying in the hospital of morbid people are provided according to MPCE class (Table9). In the Table 8 we noticed that number of per thousand people reporting ailment has positive association with the fractile of MPCE class or in other word rate of hospitalization increases with the purchasing power of money. It means either the poor are less prone to illness or people of higher class by virtue of education or other facilities are supposed to be more aware or conscious about health. The second point seems to be more plausible. There reveals a clear gender deviation from Figure1 that reporting of the ailment in case female both in rural and urban are higher than the male and share increases with higher MPCE class. It clearly indicates that interplay of other factors despite purchasing power of money influence the female's hospitalization in the higher economic profile. From 2014 data we see that duration of staying in the hospital

by number of sick people also have positive association with MPCE class. It is quite obvious that better off section of the society enjoys more the facilities of medical treatments. In the gender line the difference is more profound and deviation has been noticed both for private public and private hospitals but more in case of private hospital. The average staying in private hospital for urban female is lowest among all. Deterioration of rural hospitalization is the compound influence of declination in rural health care system and un-affordability of money.

Expenditure spent on medical purpose is an all time burden for the sick people. The data reveals that rural people have to suffer for spending expenditure in the medical heads not much less than the urban one. The total expenditure incurred on treatment is all time higher for male than the female both in case of rural and urban settings. The lorenze curve drawn for the amount of money spent according to fractile class of MPCE for rural urban and male female separately, at the two time points. It is seen from the fig 1 and fig 2 that the extent of inequality is not more in the gender line rather in the case of urban rural setup. The degree of inequality on spending money among male-female or locality of dwelling, according to MPCE class has been reduced over time as seen in the figure 4 and 5. Due to course of time health consciousness of the people are growing as observed from the Table 7 and 8.

Table 8: Number of reporting ailment according MPCE classes 15 days before the survey (year 1995-96)

Fractile class of MPCE	Rural				Urban	
	Range in Rs	Male	Female	Range in Rs	Male	Female
0-10	-140	44	40	-190	42	40
10-20	140-165	40	39	190-230	42	47
20-40	165-210	45	49	230-310	47	55
40-60	210-265	50	55	310-410	50	55
60-80	265-455	56	62	410-605	51	65
80-90	455-560	66	72	605-1055	58	76
90-100	560-	83	91	1055	71	71

Source: NSS

Table 9: Average duration in the hospital according to MPCE class (year 2014)

MPCE classes	Quantile class of Mpce	Public				Private			
		Rural		Urban		Rural		Urban	
		Male	Female	Male	Female	Male	Female	Male	Female
01	0-20	6.6	5.9	7.4	6.7	7.3	5.8	6.9	5.7
02	20-40	7.2	5.5	7.5	6.9	6.7	6.9	7.1	5.9
03	40-60	7.1	5.8	8.4	6.8	6.8	6.0	6.8	5.8
04	60-80	8.1	5.4	16.3	6.5	7.2	6.6	7.7	6.8
05	80-100	8.6	7.3	9.5	7.1	7.8	6.7	7.7	6.6

Source: NSS

Table 10: Average expenditure in medicine last 365 days during the survey (year 95-96) by MPCE

	Rural		Urban	
	Male	Female	Male	Female
0-10	1042	1018	765	687
10-20	1093	910	948	945
20-40	1235	1156	1507	1489
40-60	1686	1270	1957	1973
60-80	2018	1826	2698	2836
80-90	2738	2354	3943	4269
90-100	7990	4801	11787	9648

Source: NSS

Table 11: Average expenditure in medicine last 365 days during the survey (year 2014) by MPCE

MPCE classes	Quantile class of Mpce	Rural	Urban		
		Male	Female	Male	Female
01	0-20	13089	7282	13889	9014
02	20-40	11626	10960	16597	12280
03	40-60	11521	9126	20973	14715
04	60-80	14865	12053	26045	23603
05	80-100	25753	16469	50152	35003
all		17528	12295	28165	20754

Source: NSS

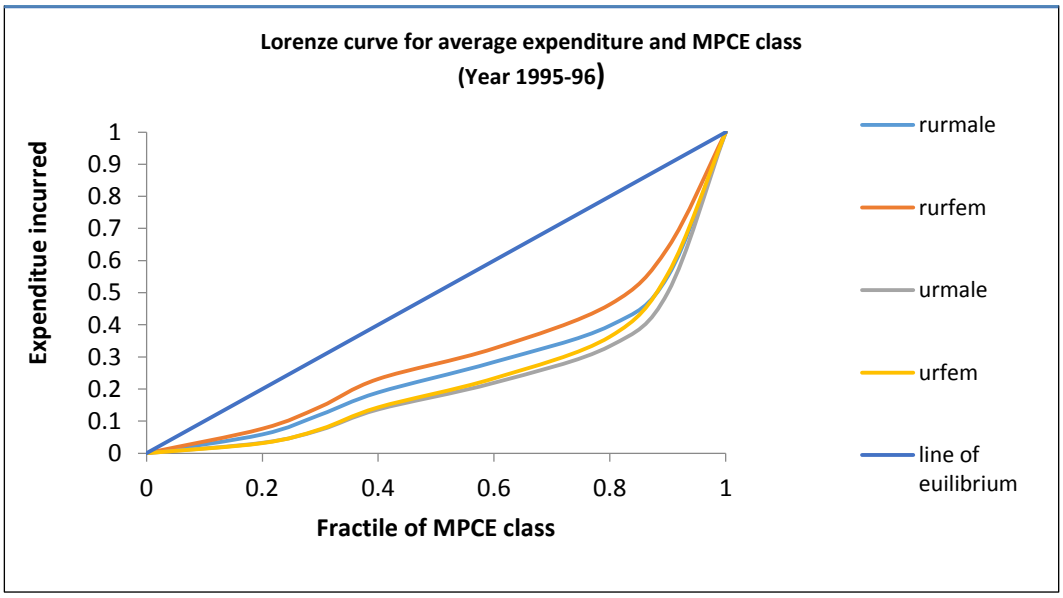

Figure 1: Lornze curve for average expenditure and mpce classes 1995-96

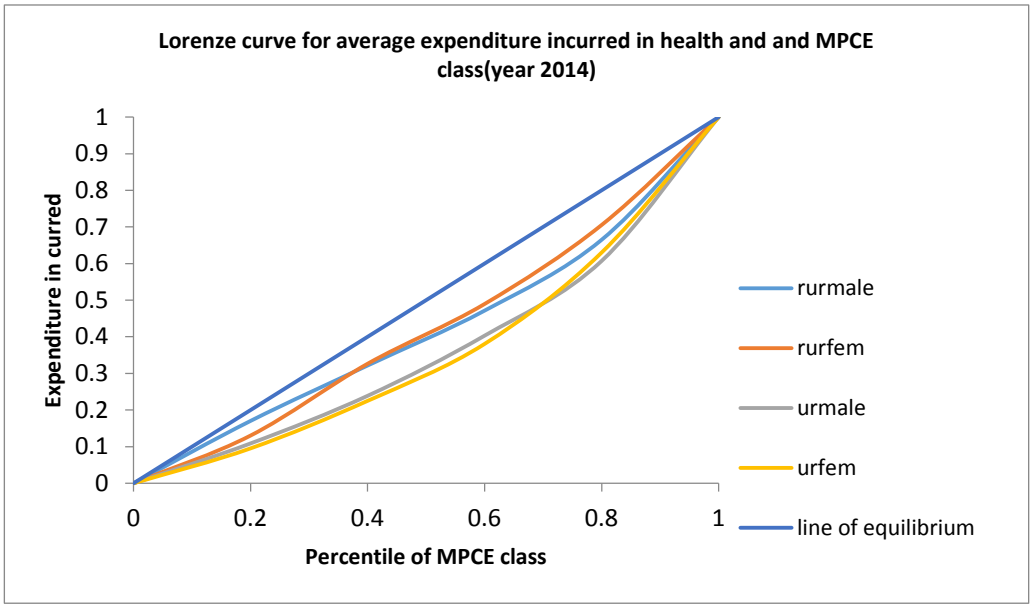

Figure 2: Lornze curve for average expenditure and mpce classes (2014)

It is found that from the logistic regression analysis that caste, educational attainment, marital status, age, sex, occupation, drainage system ,drinking water facility, latrine used have significant effect on individual's chronic ailment and health coverage system. Better occupational status, smaller household size reduces the chance of an individual's chronic ailment. Some apparent negative result is noticed, like educational attainment has increased the likelihood of ailment than not literate group. This is certainly an outcome of non reporting bias of illiterates. Similar argument goes in case of religion, sex. The spouse or any other members of the family compare to the head decreases the likely hood of expenditure incurred for some health coverage system only it increases in case of married children. This likely hood also increases in case of previous hospitalization experience. Some welfare indicator like underground drainage system, usage of LPG gas, drinking water other than tap or tube well reduces the chance of chronic illness. The results of odds ratio are provided in the table 12 and 13.

Table 12: Results (Odds Ratios) of Logistic Regression
(Dept Variable having Chronic disease=1, 0 otherwise)

Independent Variables	Exp(B)		Exp(B)
Constant	164.627***	Drainage sys Ref: no drain	
Age	0.939	Kachha open	1.218***
Marital Status (Ref: Never married)		Pacca open	1.694***
Currently married	1.344**	Underground system	1.411***
Widowed	1.257**	Drinking water Ref tap+ tube well	
Divorced /separated	1.424***	Other sources	1.652***
Education(Ref: not literate)		Primary source of energy for cooking Ref: Fire wood& chips	
Upto primary	1.818***	LPG	0.931*
Sec & H.S	1.513***	Cow dung	0.999
Graduate & above	1.184***	others	0.975
		Sector Ref. Rural	
		Urban	1.127***
Sex Ref: male		HH Occupation Ref. skilled Agriculture & related works	
Female	0.776***	Elementary works	0.790***
House hold size Ref: medium (4-6)		Plant operator, craft &related workers	0.676***
small(1-3)	0.755***	Sales and service worker	0.794***
Large(6+)	1.246***	Professional & technical workers	0.744***
Social group Ref: OBC and others			
ST	1.024		
SC	2.376***		
Religion Ref: Hindu			
Muslim	0.826***		
Others	0.882***		

*p<0.1, **p<0.05, ***p<0.01 Author's calculation from unit level data of 71st round 2014

Table 13: Results (Odds Ratios) of Logistic Regression
(Dept. Variable: expenditure incurred for any health support=1,0 otherwise)

	Exp(B)
Constant	0.084***
Age	1.005***
Marital Status (Ref: Never married)	
Currently married	1.255***
Widowed	1.249***
Divorced /separated	1.528***
Education(Ref: not literate)	
Upto primary	1.080***
Sec & H.S	1.004
Graduate & above	0.956*
Sex Ref: male	
Female	1.007
Relation to head Ref :self	
Spouse of head	0.982
Married children	1.184
Spouse of married children	0.762
Others	0.692
Social group Ref: OBC and others	
ST	1.055
SC	1.816
Religion Ref: Hindu	
Muslim	0.641
Others	1.042

*p<0.1, **p<0.05, ***p<0.01 Author's calculation from unit level data of 71st round 2014

Discussion and Conclusion

The analysis rely on nationally representative data set has focused in the way age, levels of living or rural urban settings has become the determinants to explain gender inequality in health. The over all morbidity rate for all types diseases has been increased over time and the increament is more in female. That contradricts some previous studies. Due to course of time and more improved methodology taken on self reporting, this increament of female morbid case can be explained as the reflection of health consiousness among the female. A huge increase in chronic disease for female specially in urban is the ailment of joint pain, an outcome of the exessive stress and strain of the dual burden an urban female has to bear upon. A positive insight of decrease in the eye related problem among the

children is noted though visual disability continue to account in case of elderly men and women. Ailment due to Phychriatic and neurological disorder comprises a wide range of diseases including excessive fears, anger and violence; depression; detached from reality, drug, abuse or alcoholism interfering with the performance of major life activities such as learning or thinking etc. and are direct or indirect effects of contemporary social environment. The hike of these diseases is in alarming state both for male and female in the survey result of recent past (2014). The stress of study also increases this ailment among children as reflected in age group of 0 to 14. Some diseases are too prone to male like heart or respiratory and Phychritic and neurological disorder on the other hand female are more suffering from blood related or gastrointestinal diseases. Reporting of ailment thus marked as marginal gender related problem rather gendering emerges in case access to health care or affordability of treatment. It is observed from the analysis that gender difference is strongly present in the expense of treatment, accessibility towards special care hospitalization, free bed hospitalization and also in the rural urban staying. Despite accessibility or affordability females are unable to access treatment due to discrimination within the house hold, granting preferential allocation of resource toward the male members. They receive less expensive and more home based care than the male (Sen et. al, 2000). The regression analysis confirmed that occupational hierarchy, decent environment, smaller household size is good indicator of sound health. Negative impact of education and difference in gender line may be an outcome of under reporting. Winding up it can be said that gendering in receiving health care treatment is the deep rooted societal problem that initiated from household level. First step of eradicating such inequality is the individual effort and initiatives should be taken within the household level.

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