

**Socio-economic and behavioural factors affecting adult mortality in India: An analysis of data from the National Family Health Surveys of 1992-1993 and 1998-1999 (NFHS I & II)**

*Abstract*

Scientific research on various determinants of adult mortality in developing countries is hindered by a lack of good quality of data and also by insufficient use of the information that has already been collected, even without considering its often-questionable quality. This is true in India also as the coverage of the vital registration system of this country is very poor. Although the data from the Sample Registration System (SRS) appears to be valid, it provides little if any information regarding the background characteristics of the dead person. Unlike the SRS, the National Family Health Surveys of 1992-1993 and 1998-1999 (NFHS I & II) include socio-economic variables, which allow for more comprehensive analyses. While the data on infant and child mortality data provided by these two large scale surveys have been much scrutinized, no research has been based on the available information on adult deaths (at age 15 and over) to explore the determinants of adult mortality. Generally speaking, much less effort has been given to understanding the determinants of adult mortality in India, as the research focus has been on infant and child mortality. This paper explores the determinants of adult mortality using data from the NFHS I & II. The method of this analysis is multi variate logistic regression for the adults of age group 15-59. Further, extensive analysis has been done to estimate mortality differentials with respect to gender. Results obtained from these analyses show females experience a higher likelihood of death compared to male during adulthood. Among the different socio-economic characteristics, standard of living, education, size of the household, the dependency ratio, and nutritional status all have significant impacts on adult mortality. Behavioural characteristics such as smoking, drinking alcohol and chewing tobacco are linked to higher adult mortality. Community characteristics like presence of health facilities, distance from the village to the district headquarters have significant impact on adult mortality

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*Key words: Adult mortality, child mortality, gender differentials, socio-economic*

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### **Adult Mortality: Introduction and Context**

The health of children has been dramatically improved over the past decades. Infant mortality has declined by half from 226 to 106 per thousand during 1960 to 1990 as a result of rising incomes, improved health care, increases in female education, proper nutrition, (World Bank, 1993). Life expectancy at birth in both developed and developing countries has risen swiftly and much of this rise is attributable to large reduction in infant and child mortality. Mortality among the young is so slow that further decline in under five mortality will have little impact on the future trends in life expectancy. There are many efforts have been given to study infant and child mortality along with maternal mortality in almost all developing countries. But little academic attention has been given in overall level and determinants of adult health and mortality in these countries. Further, very less study is available about consequences of adult mortality particularly with regard to its socio-economic and health impacts of the family (Roy et. al., 2000). However, growing adulthood from youth or adolescence develops responsibility and self-control among people, which increase the importance of adults in any society. This is the group, which contains the working force and is very crucial in any society because they are economically productive, biologically reproductive and responsible for the support of the children and elderly population (Feachem et. al. 1992). Additionally, it has been already proved proportion of adult out of total population increases as a country passes through demographic transition process. According to the Population Division U.N., percentage share of 15 to 64 age group people of the world in 1960 was 57 and it has reached 64.4 in 2005. On the other hand, percentage share of population below 15 has been reduced from 37 in 1960 to 28 in 2005. Any distortion or change in the enormous age group may have substantial impact in the socio-economic developments of a country. It is found that the consequences of adult ill health and mortality are substantial and larger than that of non-adults. Adult ill health and mortality can directly effect production, earnings, investment and consumption and health of the other members of the household (Over et. al. 1992). Death of an adult member in a family creates many problems for the surviving members whereas premature death of the principle income earner often inflicts serious financial hardship to the family. Another important point for adult mortality is that sometime for a specific adult group mortality differentials are higher than children. For example, the risk of maternal mortality can be one hundred times greater in developing countries than in developed countries, while the risk of death in childhood is only six to twenty times greater in developing countries (Murray et. al. 1992). Nevertheless knowledge of levels, causes and distributions and determinants of adult health and adult mortality is extremely deficient in developing countries as compared to detailed information available in developed countries as we are discussing below.

Numerous literatures are available in developed countries addressing the socio-economic differential in adult mortality. Giving emphasis to study the inequality distribution of some welfare related variable among different socio-economic groups, Preston (1994) pointed out that if inequalities in the outcome associated with the structure are very high, a sense of collective responsibility can generate efforts to reduce inequality. He reviewed the evidence about the extent and sources of socio-economic differences of mortality and health among older persons in United States, with some reference to other countries and concluded that people with lower level of education, income and occupational status have been an adverse distribution on most of the bio-medical and behavioral variables related with health. Socio-economic factors like income, religious affiliation seems to play an increasingly important role in the explanation of regional mortality patterns in the Netherlands (Mackenbach et. al. 1992). There is considerable evidence

demonstrating that an individual's educational status, income and occupation are important predictor of mortality and morbidity. Kitagawa & Hauser (1973) did one of the most complete studies of mortality differentials done in the U.S.; they matched a sample of death certificates for persons 25 years of age and older who died from May through August 1960 with census records on the same persons enumerated in the 1960 census on April 1, 1960. They found that in 1960 higher Socio Economic Status (SES) groups exhibited lower rates of all-cause mortality than did lower SES groups. One of their principal measures of socioeconomic status was educational attainment as assessed by years of school completed. It is seen that mortality varied inversely with educational attainment. This study further suggested improved socio-economic conditions associated with education and income might have a marked effect on the deaths of men 25 to 64 and on deaths of women of all ages 25 and over. The range of mortality differentials was larger among individuals 25-64 years of age than among older individuals, and greater among females than males. However as mentioned above, there is lack of large scale study in developing world to relate adult mortality to a broad spectrum of social and economic factors, including education, income, occupation, race, marriage etc., particularly due to the prevailing misconception about adult mortality. Murray et. al. (1992) challenged a number of misconceptions about adult mortality in developing world and concluded that there are substantially higher rates of adult mortality in these countries than that in industrialized countries with market economies. He remarked further that nearly in all developing countries, men's mortality is higher than women's, despite the extra risks associated with child bearing and cancers of the cervix and breast; however, avoidable mortality is higher for women.

Research on adult mortality in India seems to be limited, as all existing literature tends to focus on level, trend gender differential of adult mortality only. One important reason behind this lack of understanding on the socio-economic determinants of adult mortality in India is lack of data particularly the SRS does not provide socio-economic information of adult deaths. Using SRS and Vital Registration data, Dyson (1984) focused on sex differentials in adult mortality in India and found that after age 35 men almost certainly experience much heavier death rates than women, and at these later ages male life expectation is probably significantly shorter than that of the females. He further remarked that male death rates at later ages in India are surprisingly high by international standards. Krishnaji et. al. (2002) concluded in the age group 15-19, mortality rates for females are still (1997) 27 percent higher than males in the rural areas. However the same rate for urban areas is only 5 percent implying rural- urban differences are far wider than gender differences. Also, there is a wide range of variation in adult mortality across the regions of India.

Despite the limitation of the existing literature focusing determinant of adult mortality, theoretically one should expect that there are some key issues and unanswered questions that need to be addressed to move socio-economic mortality studies of adults in India beyond gender differential to a more inclusive perspective. For example, there may be a common notion that adult mortality is mainly among rich as almost all deaths in Developed countries occur among adults. However, some studies disprove it and conclude that people with lower level of income, education and occupational status have been an adverse distribution on the most of the bio-medical and behavioral variables related with health (Preston 1994). Further, as existing literature on infant and child mortality shows the significance importance of socio-economic and demographic variables for example age, sex, education of the mother, income, size of the household etc in differentiating child mortality, it needs to be examined in the context of adult mortality since determinants of mortality in these two segments of the population may differ

from each other. The objective of the present paper is to study above mentioned various socio-economic, demographic and behavioral factors influencing adult mortality.

### **Data Sources**

The present study use National Family Health Survey II & I conducted in 1992-1993 and 1998-1999 respectively. Two rounds of NFHS data have been applied in order to see the consistency of the results in the mortality among adults.

### **Methodology**

Multivariate logistic analysis has been applied to determine different factors affecting adult mortality. To construct the dependent variable, age structure has been constructed two years back of the survey. NFHS data provides information of age of the usual residents at the time of survey and age as well as year of death for the dead persons. To get the age structure two years back for those persons who are living at the time of survey, we have simply subtracted two years from their age at the time of survey. On the other hand, to get the age structure two years back for those persons who have died proceeding two years to the survey, we first calculate their age at survey date if they would have lived up to the survey date. To get dead person's age at survey if they would have lived, interval between survey date and time of the death (month and year of death) have been calculated and this interval has been added to their age at death. Now from this age, two years have been subtracted to obtain what were their ages two years before to the survey. Thus people prior to the two years to the survey date are exposed persons for death. We construct dependent variable assigning zero to the persons who have lived up to survey date and one to the persons who have experienced death before survey date. Logistic regression model has been carried out for the age group 15-59. To find out whether any differential exists between two genders, logistic regression has been carried out separately for each sex.

### **Results**

For the adults of age 15 to 59, the odds ratios of age and age square are 1.023 and 1.000 respectively in NFHS I data and it is highly significant at one percent level of significance. This result is consistent with the result obtained from NFHS II. Analysis of NFHS II data shows that females experiences 1.452 times higher mortality than the males which is again similar to NFHS I results. However, this result is not statistically significant in case NFHS I. As compared to small family, big family experience more than two times higher than the adult mortality and medium family experience almost two times higher mortality. Caste of the household head doesn't seem to be important predictor of adult mortality as a whole. People belonging to the Muslim have lower risk of premature mortality than people belonging to Hindu religion but people belonging to the other religion may experience higher mortality. The death of adults is strongly related on the economic status of the household. As Standard of living increases, probability of death among adults decreases. People exposed to mass media experience less likelihood of mortality than the people without mass media exposure. Those households, which have one or more than one literate members, experience less likelihood of mortality among adults. People working in manufacturing industries suffer higher mortality and people with high occupational status experience higher mortality than the people working in agricultural activities. For the adults of age 15-59 as dependency ratio increases mortality among them also increases.

Persons belong to the households where at least one member smokes suffer almost two times higher probability than the persons who belongs to the household where no person smokes. Persons belong to the households where at least one member drinks or chews tobacco suffers almost 1.5 times higher probability than the persons who belongs to the household where no person drinks or chews tobacco. Among the different diet variables computed, eating chicken and fruit have significance importance in adult mortality. Among community level variables, presence of Primary Health centre, distance to near town and distance to district headquarters have significant relationship with adult mortality.

Separate regression for each sex reveals that some determinants of adult mortality for each sex remain same showing differential in the magnitude of odds ratio whereas the impact of some other determinants vary from sex to sex. For example, as number of family member increases, positive impact on female mortality is much higher among women than men. In case of religion as compared to Hindu women, women from other religion experience lower mortality whereas as compared to Hindu men, men from other religion experience higher mortality. Significant differential exists in the mortality by occupation wise among male and females. Men belonging to the household where household head is working either in manufacturing or other activities experience quite higher mortality than that of agricultural activities. Dependency ratio has almost same impact for the both gender. Odds ratio of smoking by any member of the household for male is lower than males belonging to the household without any smoking member (which is not statistically significant) but odds ratio of smoking by any member of the household for the females is almost fifteen times higher than females belonging to the household without any smoking member. The same result we obtain for other two behavioral variable viz. drinking alcohol and chewing tobacco.

## **Discussion**

Mortality differential by background characteristics is apparent in the analysis of adult mortality from both NFHS I and NFHS II. Age is a very important characteristic in demography which is closely tied with health and mortality of an individual. In this analysis age square has been introduced to observe the linear effect of age on mortality. It is observed that as age increases mortality among adults also increases. However for the female adults of above age fifteen, mortality starts to increase with the increase in age at later age of life and for the male adults, mortality starts to increase along with age at earlier of life. This finding is expected from biological and medical point of view, the preventive capacity of disease decreases as people grow older.

Sex differential in mortality among adults is pertinent in the results of logistic regression. Results from both rounds shows that female adults in India experience higher probability of death than their male counterparts. This may true in Indian context as women belonging to this age group suffer from extra risk of mortality due to poor maternal health. This result also indicates the existence of gender discrimination in the utilization of health care facilities.

Out of very large number of factors, which can cause an individual risk of premature death, some are more important than the others in the sense that they contribute a large number of deaths. Existing literature shows among all other socio-economic factors, income, education

and occupation are the most important factors as these three factors usually lead to social stratification, which further interlinked with mortality differentials. Results obtained from multivariate analysis reveal this reality; standard of living of the exposed persons is playing a significant role in explaining mortality differentials for all sex and age groups. It shows mortality goes down as standard of living rises. Question may arise why people living at the bottom of the social hierarchy experience higher mortality. Because poor economic condition may lead to poor diet, more physical activity and less resource to pursue health care goals which can contribute degradation of health at the premature age. Thus poor people are already burdened with greater risks of disease, limited access to health care and subject to other health disparities. Another important determinant of mortality differential, as literature puts on view is education of the dead person itself or education of the other members of the household. As data on hand does not provide educational level of the dead person itself, literacy composition of the household has been considered to make out the influence of education on death. Results indicate that literacy composition of the household is important and in the opposite direction of mortality. It is interesting to observe that simply one or two literate person may have significant effect on the mortality of the other members of the household.

Difference in mortality by occupation has been among the major interests in studies in differential mortality. Knowledge of a person's occupation provides a significant insight into his physical environment, his social milieu, his educational background, his income and his life style. As NFHS data provides us occupation of the living persons only, occupation of the household head has been considered as a proxy of the occupational status of the household. Persons involving manufacturing activities experience higher mortality as compared to the persons involving agricultural activities. Professionally highly qualified personnel which are included in 'other' category possess low risk of death as compared to agricultural laborers.

Religion seems to play a very important role in Indian families as several customs and habits related with religion have direct or indirect impact on the health behavior of that household. Similarly, caste, which was originated on the basis of occupation of an individual, has several implications on the day-to-day activities. Furthermore these are the factors, which lead to the rigid social stratification restricting social mobility of the marriage from one religion to another or from one caste to another. Therefore it is necessary to see whether these two factors influence mortality of the adults. People from Muslim religion experience low premature mortality as compared to Hindu population. Ethnicity may not be an important factor for explaining premature mortality as per the result obtained in the multivariate analysis. At the household level, one more factor that must deserve our attention is composition or size of the household. A family with larger number of members can experience more adult mortality than a family with smaller number of members. This direction is completely opposite in case of child mortality. It is expected, in case of child mortality, children from nuclear family are more exposed to death, as number of caretakers of these children are less. In contrast to this, big family may experience higher adult mortality, as there is high probability of presence of aged persons in these families.

It is already pointed out that health behavior in the context of smoking, drinking alcohol and chewing tobacco has leading role in adult mortality of the developed countries. Available literature shows that smoking accounts for about thirty five percent of male deaths on average on the developed countries at ages 35-69 years and somewhat smaller proportion of female deaths due to their shorter smoking histories. Similarly alcohol abuse is one of the major contributing factors to premature deaths in industrialized countries, being implicated as primary cause of

chronic liver diseases, a number of cancers and motor vehicle crashes in several countries. Analysis of NFHS II data reiterates this truth in India also. Even if we are taking smoking, drinking and chewing tobacco by any member of the household and not by the dead persons themselves, these three factors are showing significant positive relationship, which imply the strong impact of these habits in adult mortality. A further important finding is that if any member of the household is using substance, the impact on female health is even stronger than that of male. This may be true as females are more affected both physically and mentally if their husbands or sons use substance regularly. Again if we assume that substance use by any member of the household increases the likelihood of using substance by dead persons themselves, we can infer that females who have smoking or drinking habit will get premature mortality as they must be of peculiar characteristics specially in Indian society. The type of fuel used in the household for cooking does have significant effect on adult mortality.

Another attention grabbing characteristic is dependency ratio of the household, which can be regarded as a good indicator to observe how economic burden can affect the health of young and old adults. For the adults of working age, dependency ratio is positively related with mortality. If the dependency ratio of a household is high, it may affect the health of the earning member of the household, as he has to carry all economic burdens of the dependents. One of the very important components of adult mortality in India is maternal mortality. Literature says that mass media can play an important role in reducing maternal deaths by giving essential information regarding health care behaviors of maternal. Moreover, in the wake HIV/AIDS and various sexually transmitted diseases, mass media may have effect on the health of adults by giving the right information and creating awareness against these fatal diseases. Results from multilevel logistic regression disclose this fact clearly. People exposed to mass media have less risk of mortality as compared to people without exposure.

Size of the village on the basis of population can be an indicator of the different facilities available in the village, which may have direct or indirect effect on the health of inhabitants of that village. However, the result of the multivariate analysis shows that size of the village is positively related with mortality, which is contrary to our belief. However, this finding is not a statistically significant. The place where the person is living also has significant effect in mortality. For example, presence of Primary Health Centre within the village may reduce the probability of mortality. Further, as the distance of place where from the near town increases, probability of death also increases. However, distance of the place from the village headquarters has negative correlation with adult mortality.

As mentioned earlier separate regression analysis for each sex makes it clear that the likelihood of death for different factors significantly varies for each sex. The impact of increasing size of family members on female adult mortality is higher than that male. Question may arise why it is so? Increasing member of family members may increase the probability of joint family which further may reduce the autonomy of women utilizing health care facilities or taking nutritious food properly. Similarly, women belonging to the household having other occupation like teaching, engineering may experience lower mortality than their male counterparts. Differential in the impact of some behavioral variables like smoking, drinking alcohol and chewing tobacco between male and female mortality is very prominent from this analysis. The blow of smoking, drinking or chewing tobacco specially goes to women making them more vulnerable.

## Summery and conclusion

This study finds that the determinants of adult mortality are many and diverse in nature; mortality differential among adults by socio-economic and demographic characteristics is pertinent from this analysis. However, the magnitude of impact on mortality of adults is different for socio-economic characteristics, e.g. standard of living of an individual has stronger impact than the caste of that person. Some of the key findings of this study are widely held in the context of India whereas some others are quite contradictory and are against generally accepted notions. Sex is a very important determinant of adult mortality in India showing females experience higher mortality than their male counterpart's for the adults of age 15-59 after controlling the behavioral characteristics of the household members Wealth of the household is one of the paramount determinants of adult mortality in India as according this study; there is a strong negative correlation between mortality of adults and standard of livings of the households. Like other developing counties, educational composition of the household is a key factor influencing adult mortality; improvement of which can reduce substantially premature adult deaths in India. Mortality differential exists in occupation of the head of the household recommending more intervention is necessary among the workers of manufacturing sectors.

Unlike child health, there exists a positive relation between size of the household and deaths of adults in those households. Many determinants of adult mortality in India are behavioral including smoking, drinking alcohol consumption, chewing tobacco or dietary habits. These determinants are more sensitive to sex of adults; females belonging to the household where at least one member has habit of drinking, smoking and chewing tobacco experience higher risk of death than females belonging to the household where no member has these habits. Religion has impact on adult mortality but there is no clear relationship between caste and premature death of adults. The composition of the household from economic perspective has significant importance in determining the deaths of adults; as dependency ratio of the household increases, mortality of the income earner section increases. Among community level characteristics, location of the place from district headquarter has importance adult mortality suggesting mortality of adults residing near to these places is higher than that of interior places.

Premature adult mortality in India is an important issue for further research as it has significant negative consequences on the economy as well as society of the country. The analyses presented in this paper shows mortality can be reduced substantially by intervening in certain socio-economic and demographic classes which can fill the vacuum still exist in the policy of adult mortality or health. Although there are some policies against mortality due to some major diseases such as malaria or HIV/AIDS or mortality due child delivery, a coherent policy is necessary to prevent premature death so that loss suffered by family or society due to early death of adult members can be minimized. The role of Government is most vital as it can set price of Cigarettes or alcohol by increasing taxes as well as by banning smoking or drinking in public places. The price increase has an important role in reducing the number of people who start or continue a tobacco habit. In formulating health policies, the people living in the bottom of our society should get more importance in utilizing the health care facilities to reduce avoidable mortality.



<b>Table 1 Factors affecting Mortality above age 15-59, NFHS I and NFHS II, All India</b>				
		<b>NFHS I</b>		<b>NFHS II</b>
<i>Back ground Characteristics</i>	<b>Exp(B)</b>	<b>S.E.</b>	<b>Exp(B)</b>	<b>S.E.</b>
<b>age</b>	1.023*	0.011	1.052***	0.011
<b>Age square</b>	1.000	0.000	1.000*	0.000
<b>sex</b>				
Male ®				
Female	1.016	0.049	1.452***	0.057
<i>Size of the family</i>				
< 5 members (Small family)®				
5 to 10 members (Medium family)	1.160**	0.069	1.826***	0.067
Above 10 members(Big family)	1.100	0.100	2.156***	0.100
<b>CASTE</b>				
General®				
OBC	-	-		
ST	0.911	0.086	1.034	0.063
SC	1.092	0.070	0.999	0.076
<b>RELIGION</b>			0.969	0.073
Hindu®				
Muslim	0.906	0.085	0.815**	0.090
Others	1.150	0.109	0.937	0.109
<i>Standard of living Index</i>				
Low®				
Medium	0.736***	0.069	0.942	0.059
High	0.680***	0.135	0.817*	0.108
<i>Mass Media Exposure</i>				
No Exposure®				
Exposure	0.735**	0.065	0.941	0.060
<i>Literacy composition of the household</i>				
No literate®				
one or two literate	0.784***	0.063	1.021	0.076
More than two literate	0.599***	0.072	0.603***	0.083
<i>Occupation</i>				
Agriculture®				
Manufacturing Activities	1.145**	0.057	0.940	0.065
Others	1.291***	0.069	1.085	0.054
<i>Dependency ratio</i>				
Less than 1 (Less dependency) ®				
1 through high (High Dependency)	1.813***	0.054	1.245***	0.052
<i>Smoking of any member</i>				

No®				
Yes	-	-	1.877***	0.061
<b>Drinking of any member</b>				
No®				
Yes	-	-	1.707***	0.065
<b>Chewing of any member</b>				
No®				
Yes	-	-	1.387***	0.053
<b>Milk</b>				
occasionally or never®				
Daily or weekly	-	-	0.941	0.059
<b>Egg eating habit</b>				
Never				
Occasionally eater	-	-	1.221	0.094
Daily or weekly	-	-	1.083	0.112
<b>Eating Chicken</b>				
Never				
Occasionally eater	-	-	0.953	0.099
Daily or weekly	-	-	1.135*	0.111
<b>Eating Fruit</b>				
Never or occasionally®				
Daily or weekly eater	-	-	0.797**	0.068
<b>Fuel used for cooking</b>				
Traditional method				
Modern method			1.171	0.108
<b>PHC</b>				
Within village®				
Outside village	1.201*	0.095	-	-
<b>Any Hospital</b>				
Within the village®				
Outside the village	1.120	0.091	-	-
<b>Any Health Facility</b>				
Within village®				
1 to 5 KM	-	-		
6 to 10 KM	-	-		
Above 11 KM	-	-		
<b>Distance to near town</b>				
Less distance®				
Far Distance	1.133**	0.060	0.964	0.056

<b><i>Distance to Head Quarter</i></b>				
Less distance®				
Medium distance	0.859**	0.078	-	-
Far Distance	0.744***	0.079	0.948	0.049
<b><i>Size of the village</i></b>				
Small village®				
Big village	0.991	0.053	1.012	0.048
<b><i>Mean education of the village</i></b>	1.028	0.120	1.086	0.145

**Table 2 Factors affecting Mortality above age 15-59 by sex, NFHS I All India**

	NFHS I				NFHS II			
	Male		Female		Male		Female	
	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)	S.E.
<b><i>Back ground Characteristics</i></b>								
<b>age</b>	1.046***	0.016	1.002	0.015	1.147***	0.017	1.003	0.017
<b>Age square</b>	1	0	1	0	0.999***	0	1	0
<b><i>Size of the family</i></b>								
< 5 members (Small family)®								
5 to 10 members (Medium family)	0.893	0.095	1.478***	0.103	1.316***	0.091	2.124***	0.105
Above 10 members(Big family)	0.754**	0.147	1.526***	0.14	1.367**	0.138	2.904***	0.153
<b><i>CASTE</i></b>								
General®								
OBC	-	-	-	-	1.028	0.086	1.071	0.096
ST	0.972	0.121	0.849	0.122	1.11	0.103	0.705***	0.121
SC	1.172	0.098	1.02	0.101	0.882	0.103	1.072	0.11
<b><i>RELIGION</i></b>								
Hindu®								
Muslim	0.964	0.12	0.857	0.121	0.780**	0.126	0.875	0.133
Others	1.365**	0.142	0.928	0.171	1.193	0.139	0.528***	0.192
<b><i>Standard of living Index</i></b>								
Low®								
Medium	0.762***	0.1	0.705***	0.095	0.917	0.082	1.042	0.091
High	0.801	0.185	0.553***	0.202	0.736**	0.15	0.908	0.163
<b><i>Mass Media Exposure</i></b>								
No Exposure®								
Exposure	0.957	0.094	1.320***	0.089	0.954	0.083	0.961	0.09
<b><i>Literacy composition of the household</i></b>								
No literate®								
one or two literate	0.762***	0.088	0.791***	0.089	0.802	0.102	1.621***	0.124

More than two literate	0.551***	0.103	0.644***	0.102	0.417***	0.111	1.076	0.134
<b>Occupation</b>								
Agriculture®								
Manufacturing Activities	1.406***	0.082	0.948	0.081	0.952	0.09	0.95	0.098
Others	2.133***	0.095	0.815**	0.104	1.107	0.075	1.121	0.083
<b>Dependency ratio</b>								
Less than 1 (Less dependency) ®								
1 through high (High Dependency)	1.975***	0.08	1.688***	0.073	1.438***	0.075	1.264***	0.078
<b>Fuel used for cooking</b>								
Traditional method								
Modern method					1.085	0.148	1.271	0.167
<b>PHC</b>								
Within village®								
Outside village	1.019	0.125	1.507***	0.148	-	-	-	-
<b>Any Hospital</b>								
Within the village®								
Outside the village	1.062	0.125	1.176	0.134	-	-	-	-
<b>Distance to near town</b>								
Less distance®								
Far Distance	1.013	0.084	1.273***	0.086	0.914	0.079	0.969	0.086
<b>Distance to Head Quarter</b>								
Less distance®								
Far Distance	0.650***	0.11	0.852	0.114	0.995	0.067	0.870*	0.075
<b>Size of the village</b>								
Small village®								
Big village	0.929	0.076	1.051	0.074	1.099	0.067	0.917	0.073
<b>Mean education of village</b>	1.3	0.175	0.826	0.166	0.788	0.199	1.834***	0.226
<b>Any Health Facility</b>								
Within village®								
1 to 5 KM	-	-	-	-	0.986	0.08	0.999	0.087
6 to 10 KM	-	-	-	-	1.02	0.105	1.002	0.113
Above 11 KM	-	-	-	-	1.217*	0.112	1.192	0.129
<b>Smoking of any member</b>								
No®								
Yes	-	-	-	-	0.491	0.076	15.115** *	0.082
<b>Drinking of any member</b>								
No®								
Yes	-	-	-	-	0.994	0.086	5.134***	0.102
<b>Chewing of any member</b>								
No®								
Yes	-	-	-	-	0.779***	0.071	2.255***	0.083

<b>Milk</b>								
occasionally or never®								
Daily or weekly	-	-	-	-	0.807***	0.078	1.186**	0.094
<b>Egg eating habit</b>								
Never								
Occasionally eater	-	-	-	-	1.452***	0.123	0.952	0.153
Daily or weekly	-	-	-	-	1.077	0.153	0.923	0.174
<b>Eating Chicken</b>								
Never								
Occasionally eater	-	-	-	-	0.829	0.127	1.163	0.164
Daily or weekly	-	-	-	-	0.564***	0.151	1.238	0.178
<b>Eating Fruit</b>								
Never or occasionally®								
Daily or weekly eater	-	-	-	-	0.977	0.093	1.304**	0.103

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