



RESEARCH ARTICLE

HOUSING ENVIRONMENT AND HEALTH STATUS OF INDIAN HOUSEHOLDS: AN
OVERVIEW OF LITERATURES

Hariharan R

Department of Economics, Government Arts College, Udthagamandalam
[Deputed from Annamalai University]

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ABSTRACT

The present paper examines the housing environment and health status of Indian households. The review analysed the India's housing environment situation, health impact of cooking fuel used, impact of women's health, children's health, awareness of indoor air pollution, water borne diseases, air borne diseases and respiratory illness. However, there is need a wide scope for research to bring a holistic view of housing environment and health status of Indian households. These factors in the household environment may influence health negatively, though lack of access to piped water, and lack of sanitary facilities are often considered key indicators of ill-healthy housing, leading to high disease burdens, in both urban and rural areas. Thus, the present paper suggests the researchers in the field of household environment and health status to bring various researches for safeguarding the health of Indian households.

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INTRODUCTION

The present paper bring the various reviews in the household environment and its impact on health in India. The environment is which people live greatly influences their health. A degraded environment means a lower quality of life, loss of productivity and higher health care costs. Globally, about 1.5 million deaths per year from diarrhoeal diseases are attributable to environmental factors, essentially water, sanitation and hygiene. Environmental quality is an important direct and indirect determinant of human health. Environmental conditions are a major contributory factor to poor health and quality of life and hinder sustainable development. Poor environmental quality is directly responsible for around 25 per cent of all preventable ill health in the world today with diarrhoea diseases and respiratory infections.

Much of the disease burden in rural India is due to respiratory disorder, namely, asthma, bronchitis, tuberculosis and pneumonia. In low resource settings these diseases may be attributed to exposure to indoor air pollution, solid-cooking fuels, poor housing conditions, biomass cooking fuel, low education, poor sanitation, malnutrition, irregular medical treatment and the comparative high cost of drugs. In rural

Tamilnadu, there is a strong correlation between the economic status of the household and access to water supply and sanitation (Chakravathy, 2003). Thus, among rural households, the poor suffer most severely from the health effects of a bad household environment.

So this number of factors in the household environment may influence health negatively, though lack of access to piped water, and lack of sanitary facilities are often considered key indicators of in healthy housing, leading to high disease burdens, in both urban and rural areas. Factors such as high levels or noise, poor indoor and outdoor air quality, inadequate refuse storage and collections facilities, poor food storage and preparation facilities, temperature extremes and high humidity, overcrowding, poor lighting inadequate or inappropriate construction material, building defects and pests may also influence health significantly.

Significance of Health Status

The world health organization has recently released profiles of environmental burden of disease for 192 countries and these country problems provide on estimate of the health impact from three major risk factors such as unsafe water, Indoor air pollution from cooking fuel or solid fuel use and outdoor air pollution. India is totally home to one of the most degraded

*✉ Corresponding author: Hariharan R

Department of Economics, Government Arts College, Udthagamandalam [Deputed from Annamalai University]

environmental in the world and is paying a very heavy health and economic price for it. According to Richard (2001) estimates the premature death and illness due to major environmental health risks accounts for nearly 20 per cent of the total burden of disease in India and 18 per cent of the total burden of disease in India such as diarrhoea diseases; hepatitis, tropical cluster diseases and respiratory infections in infants and children under the age of 5.

The environmental factors account for about 20 per cent of the total burden of disease in India. Over 90 per cent of this is associated with traditional environmental risks, such as lack of access to a protected water supply and sanitation and indoor air pollution resulting from the use of biomass fuels. The largest portion of the environmental burden of ill health is borne by people in rural areas, where access to basic infrastructure services is lower and where baseline infant and child mortality rates are higher than in urban India. In rural areas, environmental factors account for 22–23 per cent of the burden of disease. This burden is almost entirely caused by the lack of access to water and sanitation facilities and by exposure to indoor air pollution (89% of the rural population relies on wood and dung cakes for cooking fuel) and contaminated drinking water. Thus while modern environmental risks linked to industrial pollution and urban development also exist and are growing, environmental health is still to a large degree a rural health issues.

Unsafe water and lack of sanitation and hygiene (WSH) is a key risk factor for diarrhoeal and other diseases. Worldwide, unsafe WSH has been estimated to account for 3.1 per cent of all deaths. Simon et al., (2007) report reveals that the World Health Organization estimates are 0.75 cases of diarrhoea per person worldwide every year. This rate varies between regions, sub-Saharan Africa having the highest rate of 1.29 cases per person annually. These differentials indicate potential for reducing the disease burden through improvements in provision of water and sanitation services and changes in hygiene behaviour.

Indoor and outdoor air qualities are two of the main environmental factors of concern for acute lower respiratory infections. Overall, 50 per cent of the health burden of malnutrition was estimated to be attributable to the environment and in particular to poor water, sanitation and hygiene. Indoor air pollution from burning of low quality fuels, such as charcoal or animal dung, has been largely considered a rural problem yet many urban residents of the developing world rely on biomass fuels for cooking and heating. Women and young children who often spend many hours indoors and cooking over open fires indeed they face greatest exposure to pollutants from indoor and outdoor air (Smit, 2000).

LITERATURE REVIEW

The literature on household environment and health status is very large at national and international level. But, this paper reviews the important studies in the area of household environment and health status. *Annual report of Indian Government (1985-1986)* census found that biomass cooking fuels may be strongly associated with the risk of Tuberculosis. This situation leads an Indian Tuberculosis prevalence of 138 per 100 000, while the world average is 59.7 per 100 000. India

has a 30 per cent global Tuberculosis burden in India one person dies every minute from Tuberculosis.

Selwyn (1990) focused that the epidemiology of acute respiratory tract infections in young children Comparison of finding from several developing countries. The incidence of pneumonia in developing countries may reach 10 percent but it is approximately 16 percent in India. This study explains that children less than 5 years of age were found to be at high risk and at exceptionally high risk in Haryana state. The most frequent underlying causes of persistent pneumonia in children were post-tubercular bronchitis and asthma, or due to poor neonatal care management. A prehistory of asthma is a useful prognosis for early action for prevention of severe pneumonia. Another predominant cause for pneumonia is malnutrition, as the relative risk is 2.3 in the malnourished. Poor economic status and keeping animals at home were also associated with a high-risk of pneumonia.

National Family Health Survey (1992-1993) study was examines the relationship between use of biomass fuels for cooking and the prevalence of partial or complete blindness among persons age 30 years and older in India, after statistically controlling for the effects of several potentially confounding variables. Finding of this study 3 percent suffering from blindness in India translates into almost 3 million partially or completely blind people in the country. In the NFHS, the prevalence of partial or complete blindness increases dramatically with age, reaching 16 percent among 60-69 year-olds and 23 percent among those over 70.

Sharma et al., (1998) studies have explained that Indoor air quality and acute lower respiratory infection in India urban slums. This study shown that biomass smoke is an important cause of indoor pollution and it is one of the predisposing factors in Acute Respiratory Infection. like asthma and rhinitis. The highest exposure is most likely experienced by women, infants and young children. Exposure to pollution from wood burning stoves is associated with severe respiratory symptoms and mortality. Indoor air pollution from the combustion of biomass or solid fuels has been implicated, with varying degrees of evidence, as a causal agent of asthma. Exposure to biomass smoke has been strongly associated with ARI in preschool age children. However, a study of preschool age children has demonstrated a relationship between biomass smoke and ARI.

Mishra et al., (1999) study has involving in India 170,000 people, which controlled for socioeconomic, housing and geographic differences, showed that partial or complete blindness was more strongly associated with use of biomass fuel than other fuel types. Also in India, a recent case control study of senile cataract found cooking with inexpensive fuels to be a risk factor. If indeed cooking smoke is proven to be a causal factor, the public health implications may be large given the size of the populations at risk.

National Family Health Survey (1999) examines the cooking with biomass fuels increases the risk of tuberculosis. This report has analysis the health problems, indoor air pollution poses greater health risks in developing countries such as India. The National Family Health Survey Collected information from a nationally representative sample of 88,562 household, that included 260,162 adults age 20 and above. The primary type of

cooking fuel used in this household and the prevalence of active tuberculosis affected by the household members. This result of the report that adult in households that look with biomass fuels such as wood and dung suffer a significantly higher risk of tuberculosis than adults in households that cook with cleaner fuels and 51 per cent of the active tuberculosis can be attributed to exposure to cooking smoke from biomass fuels. Vinod et al., (1999) attempt to study biomass cooking fuels and prevalence of blindness in India. This study analysis the relationship between type of working fuel and the prevalence of partial and complete blindness in India using data on demographic socioeconomic and health information from a probability sample of 88562 households covering a total of 514827 persons at age of 30. The effect are strong and significant for partial blindness but not for complete blindness. The level of risk and extent of biomass fuel use in India indicate that 18 per cent of partial and complete blindness among persons age 30 and older may be attributes to biomass fuel use. The result strongly suggests that smoke exposure from the use to biomass fuels for looking substantially increases the risk of partial blindness.

Jyothi and Vijay (2000) have studied the bio fuels, pollution and health linkages survey of rural Tamil Nadu. This report examine the first at how the fuel supply is obtained, fuel consumption patterns and whether people have the desire to change it second how the exposure to pollution form these fuels vary with attributes such as kitchen locations cooking practices, type of housing and thirdly health impact on women due to prolonged exposure and the response of medical professionals. This survey were collected of data covering 5,028 household from 30 villages and 4 district villages were selected using multistage sampling design. Then stratification of each selected district was done by village population size. The results of this study show that fuel wood is that main sources of cooking fuel. Average consumption of fuel wood is 2.5kg per household per day in the area. Only 8 per cent of the households were using been fuels vice kerosene or liquid petroleum gas for cooking purpose whereas 61 per cent were using fuel. Result of the survey reveals that only 10 per cent households are wiling send some money to improve the air quality in the kitchen.

Smith and Mehta (2000) studies estimate the number of premature deaths (mainly among young children) caused by indoor air pollution at 400,000-2 million per year, while 40,000-300,000 adult deaths per year are attributed to urban air pollution.

World Bank (2001) report examines the linkages between health and environment, particularly child survival in Andhra Pradesh. This report estimates the burden of disease associated with environmental factors, based on two different methods. The first- and more familiar method uses a bottom-up approach by assigning different shares of the various components of the total burden of disease to environmental factors based on expert judgment and assessments from the literature. The second method is based on the results of determinants of infant and child mortality in India, which focused specifically on indicators of the quality of the household environment. This investigation uses the National Family Health Survey of 1992-93 with a sample size of almost 90,000 households, including

about 60,000 children born in the preceding five years. Finding of this report the household access to a private water supply reduces child mortality by about 32 percent in urban areas but by only 3 percent in rural areas, which is not significant and there is no significant difference between urban and rural areas in the reduction in child mortality for a household resulting from access of this household to private sanitation facilities.

Mahalannabis et al., (2002) have explained those risk factors for pneumonia in infants young children and the role of solid fuel for cooking. This case control study has been shown that 59 percent of households rely on wood for cooking fuel, 13 percent on crop residues and dung cakes, and 17 percent on liquid petroleum gas, 8 percent on kerosene and rest on other fuel sources. Among with these unhealthy cooking sources, a mean number of 2.8 persons per room may adversely affect health and quality of life. A study examined the effect of cooking smoke on the reported prevalence of asthma in the elderly (>60 years) based on NFHS-II conducted during 1998-1999. after controlling for all cofounders, the study revealed that the risk of asthma is 1.59 times among rural households that use biomass fuel for cooking.

Agnihotram (2003) study has conducted reviewing respiratory disease burden in rural India: household environment matters. This study shows that health and social development are inter-related. Health interventions and disease control programs depend on social development in rural India. Poverty associated symptoms such as poor housing conditions; biomass cooking fuel, low education, poor sanitation, malnutrition, irregular medical treatment and the comparative high cost of drugs seen in rural India are impediments to good health. This study has implicate two major findings First, steps should be taken to improve detection and treatment of respiratory disease at field level, and specific programs implemented, second, referral services should be enhanced, and comprehensive programs such as immunization, and tobacco, population and HIV/AIDS control programs should always address the issue of TB and other respiratory disorders.

Chakravarthy (2003) has focused on Prevalence of asthma in urban and rural children in Tamilnadu. Asthma and bronchitis also take a major toll in Indian, and have been recorded as highest in Karnataka and lowest in the Punjab. These chronic diseases are most predominant among children and the aged population: a community based study suggested a prevalence of 18 percent of rural children between 6 and 12 years suffer with symptoms suggestive of asthma. The causes are not well understood. Major causative agents implicated are pollen grains, fungal spores, dust mites, insect debris, and animal epithelia: in addition environmental factors such as poor housing conditions and bed dust allergy may be associated. Labour-intensive and otherwise unfavorable occupations are also seen as asthma prone. The rural occupation of stone crushing is risky and if the labourers are children they are more prone to asthma.

Vijaylaxmi et al., (2003) have studied Household energy, Women's hardship and health impacts in rural Rajasthan, India: need for sustainable energy solutions. This study use of unprocessed bio-fuels for cooking is interlinked with many other factors such as socio-economic conditions, availability of alternative fuels, cooking practices, health impacts, gender

equality and housing characteristics. This analysis were collected data only from the rural areas of Rajasthan, covering 6403 females and 5552 males from 1989 households in 13 villages. The results reveal that women undergo a lot of drudgery due to use of bio-fuels. They walk approximately 2.5 km to collect fuel-wood. About 50 hours per month per household are expended in fuel-wood collection and transportation. The use of kerosene for cooking is negligible in the area, because of unavailability more than non-affordability. The health impacts of the use of bio-fuels are quite high for adult women.

Ahila (2005) has conducted Household environment and health status a study in cuddalore district. This micro level study was collected 90 samples out of 90 households. The primary data relating to age, weight, height, educational background, economic features diseases and health care expenditure were collected for the (2004-2005). Finding of this study economic factors like wealth, income and expenditure have direct influence on household environment whereas expect education other demographic factors do not have significant influence. In case of diarrhea it is nearly 25 percent for children and 3 to 6 percent for adults.

Viswanathan and Kavikumar (2005) have observed that cooking towel use patterns in India 1983-2000. This study based on household level data on quantity consumed and expenditure incurred on a range of fuels used for cooking and lighting. The data was collected by the NSSO on a large sample of households in both rural and urban areas across all the geographical regions of India are every 5 years. This study covered 16 major states of India and includes both rural and urban house. The study uses data of all the major fuels used for cooking services such as firewood dung cake, coal, kerosene, gohar gas and LPG among these firewood, dung cake and coal have been categorized as dirty fuels and kerosene gohar gas and LPG are referred as clean fuels, this categorization is primarily based on the particulate and gaseous emissions these fuels emit upon combustion and the likely health impacts such emission would have on the individuals involved in cooking activities in the household.

Sivasakthipriya (2005) conducted her of this study on household environment and health with special reference to manalur village Cuddalore district. This study used by the stratified random sample comprising 84 low income, 6 middle income and 10 high incomes group households. The data relating to size, age, sex, source of monthly household income sanitation, food contamination and indoor air pollution. This study finding that the Low income group is mostly affects the indoor air pollution to uses of wood for cooking.

Thomas et al., (2006) reported that on average 14 per cent of households had (6month) usually or always present. When their mothers were cooking, this percentage increased to 18.3 per cent of households in the loudest wealth quinine paraffin stoves were burring in the lower wealth quintile homes on average four house per day, with the evening meal faking over half of this time to prepare. This study established that people spend on average two hours cooking indoors dosing both winter and summer. Consequently in such situations children

and women are exposed too much higher air polluter levels indoors them from outdoors sources.

World Health Origination (2006) study explained biomass uses have serious adverse consequences on health, environment, and on economics development. Concerning health, 1.3 million people die prematurely every year because of exposure to indoor air pollution from biomass-more than the annual deaths from malaria. In developing countries, only malnutrition, unprotected sex, and lack of clean water and sanitation are greater health threats. As for the environment, biomass use exacerbates land degradation and regional air pollution. Use of biomass through deforestation may lead to global warming effects through loss of carbon sink, as well as higher greenhouse gas emissions than other fuels. Finally, biomass use can also have negative effects on economic development, as valuable time and effect is devoted to fuel collection instead of education or income generation activities.

Annette et al., (2008) study was focused that the impact of the environment on health by country a meta- synthesis. This study estimate of the health impacts from the three major risk factors unsafe water, sanitation and hygiene, indoor air pollution from solid fuel use and outdoor air pollution. The result of this study show that in 23 countries, the disease burden from the two risk factors such as unsafe water, sanitation & hygiene and indoor air pollution from solid fuel use, alone accounts for more than one tenth of the country's total disease burden, amounting together to 3 million deaths globally.

Rajkumar et al., (2008) has conducted in an attempt to identify the impact of indoor air pollutants from fuel used for cooking on respiratory allergy in children Delhi in India. A total of 3,456 children were using biomass fuels for cooking and 68.8 per cent were using liquid petroleum gas. The indoor levels of SO₂ and NO₂ were significantly greater houses where the cooking was made on coal, wood, kerosene and cow dung cake. When compared to LP gas, asthma, rhinitis and upper respiratory tract infection was diagnosed in children from these homes, respiratory diseases including in the children could also be significantly associated with both types of cooking fuels.

The studies the reviewed above may give some insights to the researchers in the field of household environment and health status thereby to improve the same at large level.

CONCLUSION

The health problem faced due to poor household environment is high and the Indian Tuberculosis prevalence of 138 per 100 000, while the world average is 59.7 per 100 000. India has a 30 per cent global Tuberculosis burden in India one person dies every minute from Tuberculosis. Due to household environment, the prevalence of partial or complete blindness increases dramatically with age, reaching 16 percent among 60-69 year-olds and 23 percent among those over 70. The number of premature deaths that too among the young children caused by indoor air pollution is also witnessed. Asthma and bronchitis also take a major toll in Indian, and have been recorded as highest in Karnataka and lowest in the Punjab. The results reveal that women undergo a lot of drudgery due to use of bio-fuels. They walk approximately 2.5 km to collect fuel-wood. About 50 hours per month per household are expended in fuel-wood collection and transportation.

From economic perspective, the poverty is associated with poor housing condition, biomass cooking fuel, low education, poor sanitation; malnutrition, irregular medical treatment and the comparative high cost of drugs seen in rural India are impediments to good health. It is interesting to find that few of the households are willing to spend money for improving the air quality in the kitchen. The economic factors such as wealth, income and expenditure have direct influence on household environment whereas expect education other demographic factors do not have significant influence.

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