

Socio-Environment and Epidemiological Impact of Indoor Particulate Pollutant (Specially kitchen) and Awareness among Women

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Abstract— Air pollution is a major environmental health problem, affecting developed and developing countries around the world. The main purpose of the present research was to explore the socio-environment condition and impact of kitchen pollution on the health of family member especially both on children and women. Women had to spend most of their time in kitchen. The environment of kitchen affects the health of women if not contained pollutants. The present study aims at investigating the awareness level of indoor pollution among the women. The researcher also tried to find out the impact of biomass stove on female and children health. Common epidemics spread after the biomass fuel in kitchen was also found out. The study was conducted in District Gujrat Village Sabour where biomass fuel is used for the cooking regularly. A sample size of 157 respondents selected through stratified systematic sampling technique Unit of analysis was households of areas. There are 64 % heart diseases and 16% respiratory infection due to indoor pollution.

Index Terms— Socio-Environment, Indoor pollutant, Biomass fuel, Epidemiology, Awareness level among women

1 INTRODUCTION

Over the world about 2.4 billion people of the rural areas depend on biomass fuel such as crops, Woods, dung, 1.2 billion People rely on biomass fuel at south Asia region. It was estimated that 374000 deaths of fewer than 5 years children caused by indoor pollution and 18500 deaths of adults are caused of biomass fuel. Biomass fuels consist of like wood, dung and agricultural waste (WHO 2006)

This indoor air pollution have economic burden on Pakistan which have the annual cost of 1% of GDP. Although the increasing evidence have an association among indoor air pollution and human health problems. In Pakistan, the use of biomass fuel is four fifth of all households and the major contributor of this in Pakistan is indoor air pollutant. It is responsible for cause of variety of health risks. The wild contribution of indoor air pollutant is generated different types of human health diseases like chronic bronchitis which can directly associated with biomass fuel, especially in women of rural areas because using of solid fuels (wood, dung cake, rice straws) for cooking purposes as an alternative of gas fuel The proper gas stoves should be used in the kitchen for improve the indoor air pollutant in rural areas. Air pollution is a cause of health damage, global warming, stratospheric degradation, global climate change, ozone depletion, visibility etc. But the situation in Pakistan is quite alarming Pakistan is not only facing air pollution effects from its source i.e. the fossil fuel that they are consuming but its neighboring country India is consuming coal in its most of the industry which is greatly contributing to the air pollution level Pakistan is facing. Pollution has intensively increased the rates of lung and throat cancer, respiratory infections, heart diseases, and asthma in the public. It has also aided in the increased rates of death. Air pollutants most frequently attack the respiratory system. Death rates from cardio respiratory causes are greater in urban than in rural areas, and in general, increase with size of city or amount of air pollution. (Fatima, 2010)

1.2 OBJECTIVES

- To see the kitchen status in rural Gujrat.
- To identify the impact of biomass stove on women
- To see awareness level of women about kitchen pollutant

1.3 STATEMENT OF PROBLEM

It is estimated that 24% of global disease burden and 23% of all deaths are due to environmental factors and about 36% of this burden threats children from 0-14 years Children are the most noticeable to environmental threats because they are more exposed to dangerous conditions either it is indoor or outdoor, consume more in proportion to their weight and their body systems (in developing stages) are more vulnerable than adults. Environmental threats are mostly associated with persistent poverty and social inequity and are related to two major problems, namely indoor air pollution in combination with unhealthy housing and lack of safe water and sanitation. In the line of populated countries Pakistan as a largest populated country with 66% rural population, per capita GNP of US\$ 430, female adult literacy rate of 33%, 62% population with access to safe drinking water, 43.3% population under 15 years, human development index of 0.499, 42% population with adequate excreta disposal facilities, infant mortality (per 1000 live birth) of 85. 43 million people have been estimated to be affected by drought and they had lowered the available drinking water supplies and threatening crop yield; and a major (60 to 80%) burden of diarrheal diseases is caused due to poor access to safe water, inadequate sanitation and unsafe food. Environment health profile of Pakistan 2007.

2.1 Review Literature

Ali at el. (2011) the selected area for this research was the Uchali Wetlands Complex which in the Northwest of Khushab district in Pakistan. The area was surrounded by the forest and it was a rural area. The Socio economic condition was very low of the population of this area. The household were depended on the biomass fuel like wood, dung, etc. The questionnaire was designed by the use of household fuel and according to their live hood condition. The purpose of study was to create awareness level about the health risk to use the biomass fuel. The responded age was 19 to 95 and majority of the responded were male. More than half of the male were working in the urban areas. They lived in the stone blocks houses.80% family had joined family system. 42% population had no any formal education

3. Theoretical framework

3.1 Indoor Kitchen Pollution & Epidemiology

Desai MA, Mehta S, Smith KR, (2004) said that The disease problem from indoor pollution is most important in populations with insufficient access to clean fuels, mainly poor families in rural areas of developing countries. Women and their children are most exposed because of their domestic roles. Indoor pollution is most firmly related with acute lower respiratory infections in young children, and chronic obstructive pulmonary disease and lung cancer in women and in men. Each of these three health consequences is a major disease category in most societies and thus household cooking fuel in kitchen use is a major source of disease burden in societies where it is dominant. Worldwide, 2.6% of all disease is attributing to indoor smoke from cooking fuels, nearly all in poor regions. Chronic obstructive pulmonary disease in older women is among the largest effects, it does not necessarily follow that smoke exposures in older women ought to be addressed first by interventions, because chronic obstructive pulmonary disease is the result of long exposures starting in early years., Although acute lower respiratory infections affects infants most serious

3.2 Socio-Environment related with Epidemiology
Sims, (1993) explained that The house Environment sttreof house, the level to which the facility of water supplies is sufficient, the effectiveness for the facility of excreta, sewage, and solid waste disposal, the indoor pollution related with fuels using for cooking, the effects related with overcrowding, including household accidents, the increasing change of airborne infections, acute respiratory infection diseases; the food safety, including the extent to which the shelter has adequate provision for storing food, to protect it against spoilage

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and pollution are some of them.

3.3Hypothesis

Higher the levels of indoor kitchen pollutant will be higher level of epidemiology.

3.4Theoretical model of the variables

Socio-Environment

- System of Ventilation
- House Structure
- Stove & Fuel Type
- Roof, Wall, & Floor Material

Indoor Pollutant

- Use of biomass cooking fuel
- Fuel emission pollutant smoke
- Different pollutant inhales by households

Epidemiology

- Respiratory Infections
- Chronic Obstructive Pulmonary Disease
- Lungs Cancer
- Asthma

4. Methodology

This was a descriptive study. The researcher described the effect of the indoor kitchen pollutant on the women and children health. Survey research method was used to collect data a semi structured interview schedule was used as a tool of data collection conducted from respondents. Rural area of Gujrat .union counsel np104 Sabour ward number 202. Women who had involved in cooking were target population of the study. Sampling unit of the present study was women who spend most time in kitchen for cooking. Sample size through the taro yanne formula. The sample size was 157 researches have selected sample through the stratified systematic sampling. Researcher used probability technique for data collection for the present study because the samplings frame of the women of ward number 202 Sabour was available. Questionnaire used for data collection & survey method as a technique of data collection in this study. Data analysis was done by spss

TABLE 1
AGE OF THE RESPONDENTS

Categories	Frequency	Percent
19-24	1	.6
25-29	17	10.8
30-34	14	8.9
35-39	37	23.6
40-44	21	13.4
45-49	15	9.6
50+	52	33.1
Total	157	100.0

This table shows that majority of respondents age is 50+

TABLE 2
EDUCATION OF THE RESPONDENTS

Education of the Respondents	Frequency	Percent
Illiterate	75	47.8
Primary	39	24.8
Middle	11	7.0
Metric	22	14.0
Intermediate	3	1.9
Graduation	3	1.9
M.A & above	4	2.5
Total	157	100.0

This table shows that majority of respondents are illiterate.

TABLE 3
OCCUPATION OF THE RESPONDENTS

Occupation of the Respondents	Frequency	Percent
House Wife	124	79.0
Agricultural	18	11.5
Own Business	3	1.9
Private Sector	4	2.5
Government Job	8	5.1
Total	157	100.0

This table shows that majority of respondents are House Wife.

TABLE 4
FUEL TYPE

Fuel Type	Frequency	Percent
Biomass	149	94.9
Gas	4	2.5
Gas. Wood	2	1.3
Wood	2	1.3
Total	157	100.0

This table shows that majority of respondents are used biomass fuel for cooking

TABLE 5

MONTHLY INCOME OF THE RESPONDENCES

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Monthly Income	157	38000	2000	40000	1.30	9045.491

This table shows that majority of respondents monthly income range is 3800 rupees.

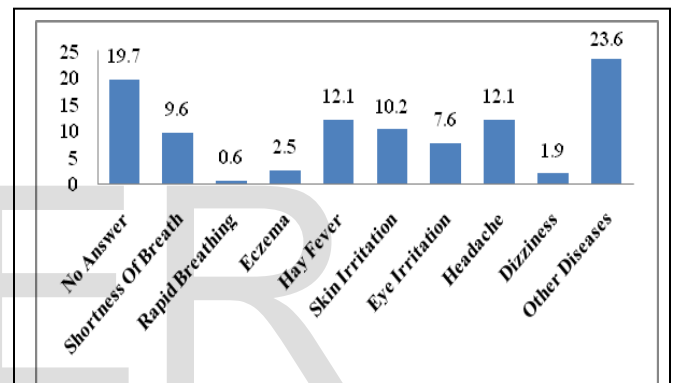


Fig. 1. The fig has indicated how much percent diseases have among the respondents.

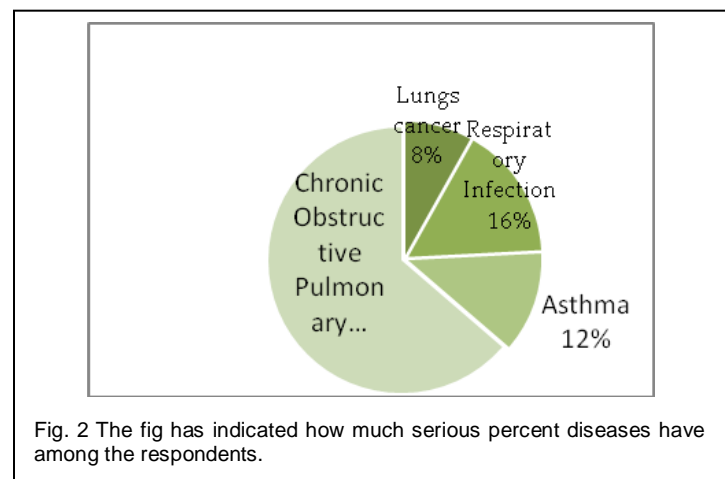


Fig. 2 The fig has indicated how much serious percent diseases have among the respondents.

5. Data Analysis

Table 34: Chi-Square Tests

Ho = the biomass have no adverse effect on women/children health

H1 = the biomass have adverse effect on women/children health

Level of significance:

$$\alpha = 0.05$$

	Chi-Square Tests		Sig. (2-sided)
	Value	df	
Pearson Chi-Square	16.552a	4	.002
Likelihood Ratio	7.771	4	.100
Linear-by-Linear Association	.106	1	.745
Respondents	157		

Test Statistics to be use Chi-square

6 cells (60.0%) have expected count less than 5. The minimum

	Symmetric Measures		Sig.
		Value	
Nominal by Nominal	Phi	.325	.002
	Cramer's V	.325	.002
Respondents	157		

expected count is .06.

Researcher's p-value is less than α so researcher reject H_0 which indicates that the biomass have effect on women and children health. The phi-squares value shows that there is positive relationship between biomass usage and women/children health. It means that if biomass usage is higher than the adverse effect on women/children health is also higher.

6. CONCLUSION

Indoor kitchen pollution are caused by the burning the traditional biomass fuel included crops residues, wood, dung. It damage the health of pollution particularly women, children and elderly are more effected by it. Indoor air pollution is a main health threat for a huge worldwide poorest pollution... The result of the indoor pollution has great contribution to the women and children disease such as acute lower respiratory infection. The indication on which the study estimate the burden of diseases is based however limited. Supply of energy and there use should include assessment of pollution exposure reduction, fuel efficiency and effect on global and local environment, availability of household need, affordable, safe and sustainability The main objective of the study is to study health problem by the indoor pollution so data evidently proved that biomass fuel have effected for health.. Majority of woman of village rely on biomass fuel because of such reasons poverty, lack of awareness level, facility of natural gas is not available and easily availability of biomass fuel. Effected population is considered burden on the society that area cannot progress properly.

6.1 Recommendation

It need to development and adaptation of fuel efficient and smoke free stove for the purpose of cooking at large scale Pakistan council for renewable energy technology (PCRET) should be presented in the market on a mass scale.

The ministry of health should lobby for tax relief on natural gas and since health cost imposed on the economic because of vast use of biomass fuel. Actually tax release on natural gas will help to reduce the use of biomass fuel.

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