



The Impact of Indoor Pollution on the Health of under Five Children in Bangladesh

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Abstract

The present work was carried out in different area of Bangladesh to determine the impact of indoor pollution on health of under five children. In Bangladesh, as in many other developing countries, most of infant and childhood mortality has been due to diarrheal disease, nutrition and respiratory infections associated with environmental factors (water and sanitation, hygiene practices, crowding and indoor air pollution). The major driving force for environmental health degradation in Bangladesh is its growing population. Indoor air pollution in developing countries mostly arises from the indoor burning of solid fuels such as wood, animal dung, coal and crop residues in open fires or poorly functioning stove. The incomplete combustion biomass fuels release a host of complex chemicals.

Keywords: Indoor air pollution, mortality, infant and childhood mortality.

Introduction

Indoor air pollution (IAP) is identified as one of the major risk factor for respiratory tract infection related morbidity and death among children of under five years age in the developing countries. It is also associated with other adverse health outcomes in children such as low birth weight, pre-maturity and chronic bronchitis defined by Abt, E., Suh, H. H., Allen G., and Koutrakis P.^{1,2}. These are also the major direct causes of newborn death. Biomass fuel is the major source of IAP when it is burned for cooking, space heating and lighting homes in open fires or poorly functioning stoves. Biomass is the major fuel used for cooking and heating in Bangladesh, accounting for about 90% of total household energy consumption. Wood, crop residues and animal dung are the major sources of biomass fuel used in Bangladesh. In Bangladesh, IAP is not a recognized environmental health at policy level.

Every year, over 10 million children of aged under five years die. Most of these deaths (99%) are reported from developing countries given by Ahmad, K., Jafary, F., Jehan, I., Hatcher, J., Khan, A. Q., Chaturvedi, N., et al.³. The fourth Millennium Development Goal (MDG-4) calls for a two thirds reduction in death rates for children under age five years between 1990 and 2015. While almost 40% of these deaths occur in the neonatal period (death within the first 28 days after birth). On global basis, the three major direct causes of neonatal deaths are infections, including tetanus, sepsis, pneumonia, and diarrhea (36%), pre-maturity (27%), and birth asphyxia or problems related to child birth complications (23%). There is growing evidence that indoor smoke is one of the underlying causes that increase the risk of the many child diseases. In global ranking,

indoor smoke is the 4th risk factor for burden of disease in developing countries defined by Albalak, R., Bruce, N., McCracken, J. P., Smith, K.R. and De Gallardo, T.⁴.

Material and Methods

Since our research on under five children, so our target population is the person who have under five children. For the primary data collection, our survey method was personal interviewing (in home) method. A questionnaire was developed keeping in mind the objectives of the study. It is an important tool for gathering primary data. Poorly constructed questions can result in large errors and invalidate the research data, so significant effort should be put into the questionnaire design.

After preparing questionnaire, we were testing of this questionnaire on a small sample of different district in Bangladesh to identify and eliminate potential problem of this questionnaire. By this way we improve our questionnaire and prepared a final questionnaire. We didn't follow any method for sample size determination. For conveniently, we decided that every student survey on at least 10 respondents. There are 81 students in our class but two students do not collected data. Therefore, total sample size is 790. I prepared this report on the basis of 790 populations. For data collection, we used judgment sampling in a non-probability sampling and every student collect data on at least 10 respondents from their own district. This report is based on all the students of my class. After the data collection by the questionnaire, we checked of all questionnaires for completeness and interviewing quality. After the questionnaire checking, we review of the questionnaires with the objective of increasing accuracy and precision. By this

we identified illegible, incomplete, inconsistent, or ambiguous responses. At this stage, we make a preliminary check for consistency. After editing, we assigned a code, usually a number (or alphabetic letter), to each possible response to each question. We assigned the code for each open-ended question and multiple response of the question and prepared a code plan for data entry. After completed the coding, we transferred the coded data from the questionnaires onto directly into computers by keypunching. Besides keypunching, the data can be transferred by using mark sense forms. The data can then be read by a machine. If any errors occurred, we verify the data set, or at least a portion of it, for keypunching errors. After the entry of all data, we completed data cleaning for consistency checks and treatment of missing responses. Although preliminary consistency checks have been made during editing, the checks at this stage are more thorough and extensive, because we are made by computer. Procedures for statistically adjusting the data consist of weighting, variable re-specification, and scale transformations. These adjustments are not always necessary but can enhance the quality of data analysis. For multiple regressing analyses, we made dummy variable and some variables have done scale transformations for regression. Analyze the data by using SPSS mainly, also taken the help of EXCEL and MINITAB software. Hence we also try to interpret the results by observing the computer output, which can be done in the section of data analysis.

Results and Discussion

Analysis of the following variables with related livelihood and healthcare services and the results represented in frequency table and graphical presentation by pie chart or bar diagram. If the data are ratio, then we have calculated mean and standard deviation with histogram.

Distribution of the respondents on the basis of created problems from smoke: Under the analysis, the frequency distribution in table 6.1, 74% of respondents said that the smoke creates problems and only 26% respondents said that the smoke does not create problems.

Table-1

Frequency distribution of the respondents on the basis of created problems from Smoke

	No. of respondents	Percent
Yes	586	74
No	204	26
Total	790	100.0

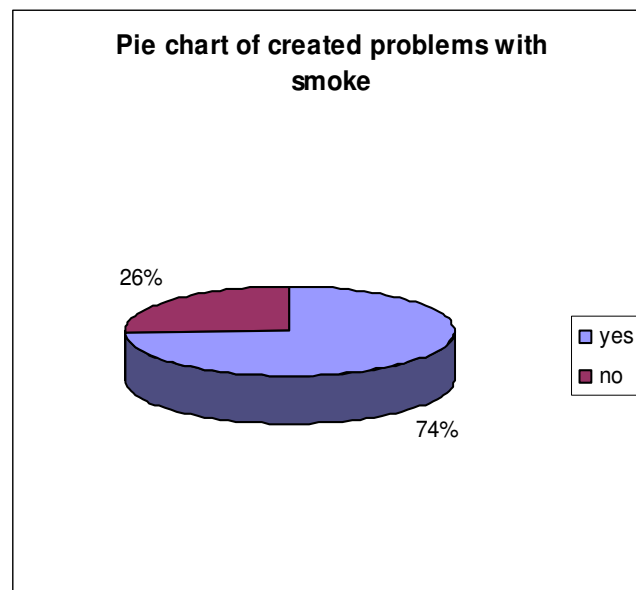


Figure-1

Pie chart of the respondents on the basis of created problems from smoke

Under the analysis, the frequency distribution in table 6.2, 40% of respondents said that the smoke creates eye sensation problem, 21% drop water from eye, 13% cough, 11% Eye sensation, Drop water from eye and only 10% other problems.

Table-2

Frequency distribution of respondents on the basis of problems arises from smoke

Types of problems	Number of respondents	%
Eye sensation	317	40
Drop water from eye	163	21
Cough	103	13
Others	80	10
Eye sensation, Drop water from eye	87	11
Eye sensation, Drop water from eye, Cough	32	4
Eye sensation, cough	8	1
Total	790	100

Under the analysis, the frequency distribution in table 6.3, 50% of respondents said that the problems arise to family members for smoke and 50% said that the problems do not arise to family members for smoke.

Table-3

Frequency distribution of the respondents on the basis of problems arises to family members for smoke

	Number of respondents	Percent
Yes	397	50
No	393	50
Total	790	100.0

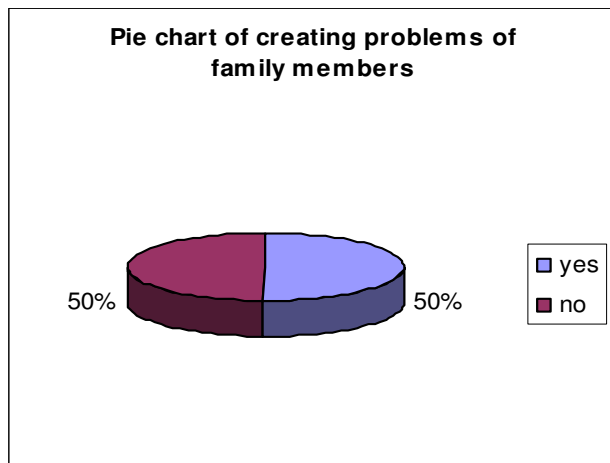


Figure-2

Pie chart of the respondents on the basis of problems arises to family members for smoke

Under the analysis, the frequency distribution in table 6.4, 38% of respondents said that the smoke create eye burning problem, 17% difficulty to open eye and 26% other problems.

Table-4

Frequency distribution of respondents on the basis of problems arises from smoke

Types of problems	Number of respondents	Percentage
Eye burning	298	38
Difficulty to open eyes	136	17
Cough	55	7
Health problem	47	6
Others	209	26
Eye burning Difficulty to open eyes	28	4
Eye burning Difficulty to open eyes cough	17	2
Total	790	100

Under the analysis, the frequency distribution in table 6.5, 79% of respondents said that the health problem arises for cooker from smoke and only 21% said that the health problem does not arise for cooker from smoke.

Table-5

Frequency distribution of the respondents on the basis of problems arises for cooker from smoke

	Number of respondents	Percent
Yes	397	50
No	393	50
Total	790	100.0

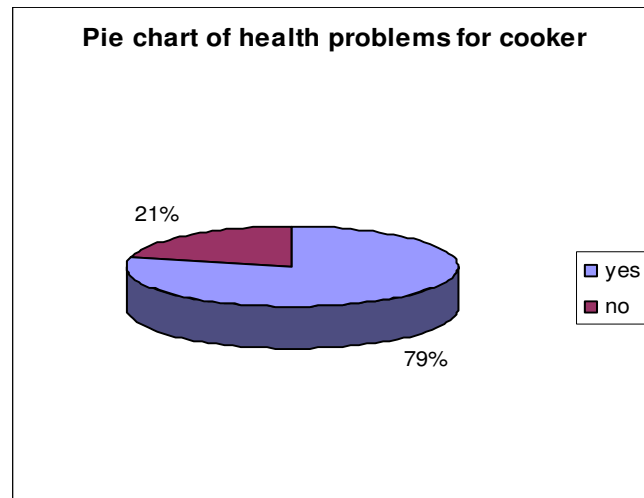


Figure-3

Pie chart of the respondents on the basis of problems arises for cooker from smoke

Under the analysis, the frequency distribution in table 6.8, 75% of respondents said that the health problem arises for children from smoke and only 25% said that the health problem does not arise for children from smoke.

Table-6

Frequency distribution of the respondents on the basis of problems arises for children from smoke

	Number of respondents	Percent
Yes	596	75
No	194	25
Total	790	100.0

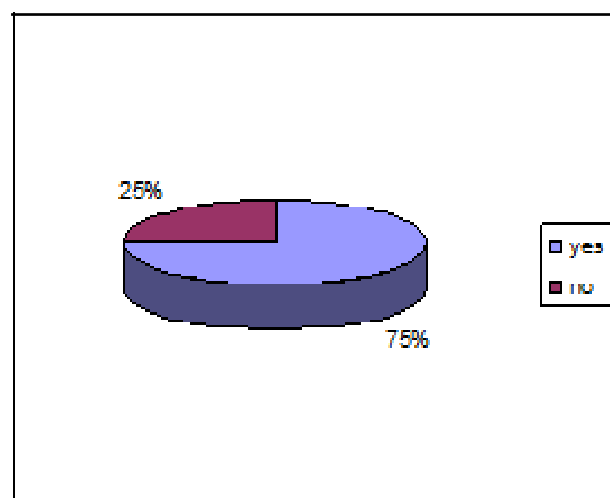


Figure-4

Pie chart of the respondents on the basis of problems arises for children from smoke

Under the analysis, the frequency distribution in table 6.10, 51% of respondents said that the pneumonia occur to babies from smoke and 49% of respondents said that the pneumonia does not occur to babies from smoke.

Table-7
Frequency distribution of the respondents on the basis of pneumonia occur to babies from smoke

	Number of respondents	Percent
Yes	596	75
No	194	25
Total	790	100.0

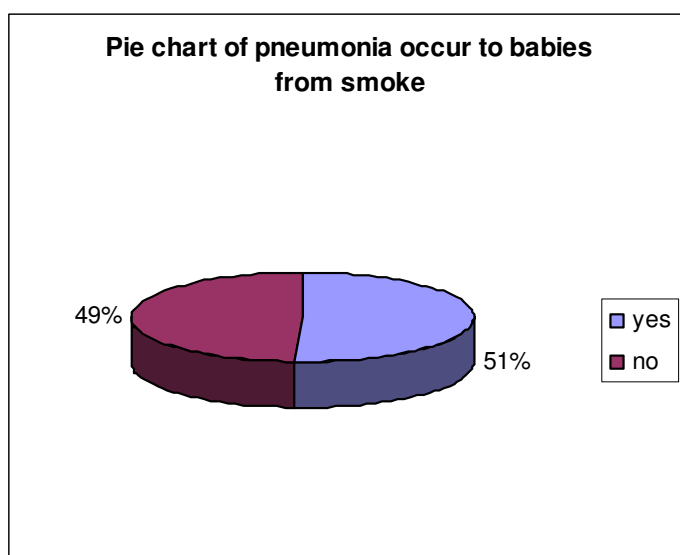


Figure-5

Pie chart of the respondents on the basis of pneumonia occur to babies from smoke

Under the analysis, the frequency distribution in table 6.11, 83% of respondents said that the pneumonia causes death of children and 17% of respondents said that the pneumonia does not cause death of children.

Table-8
Frequency distribution of the respondents on the basis of pneumonia causes death of children

	Number of respondents	Percent
Yes	596	75
No	194	25
Total	790	100.0

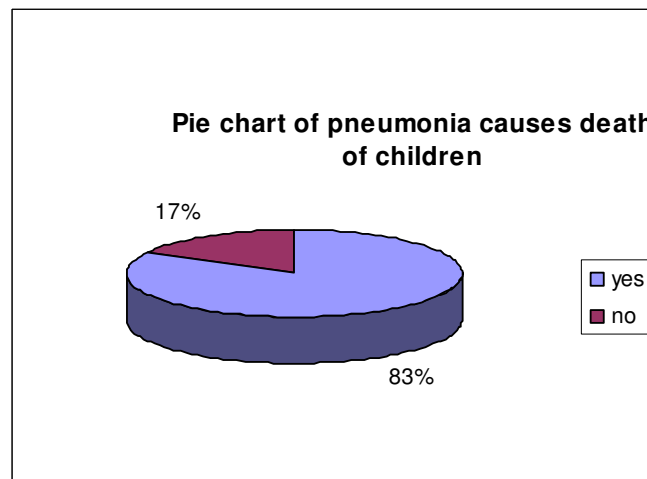


Figure-6

Pie chart of the respondents on the basis of pneumonia causes death of children

Conclusion

From all the analysis we see that most of the respondents (mothers) have no knowledge about the impact of indoor pollution. Also they do not know that the indoor pollution creates many health problems of children. So we have to give knowledge to mother that the indoor pollution in house created by smoke influence on health of children by advertisement, television, radio, newspaper, community to increase their knowledge.

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