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# A descriptive study to assess the knowledge regarding indoor air pollution and its impact on health among women in selected village Sarabha, Ludhiana, Punjab

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### Abstract

Pollution is the largest environmental cause of disease and premature death in the world today. Indoor air pollution refers to the physical, chemical and biological characteristics of air in the indoor environment within the home, buildings or an institute or commercial facility. The current study aimed to assess the knowledge regarding indoor air pollution among women, to assess the impact on health regarding indoor air pollution among women, to find out the correlation between knowledge and impact on health regarding indoor air pollution among women and to determine the association between knowledge and impact with selected socio-demographic variables. Research approach was "Quantitative research approach" with "Descriptive design" was selected to conduct the study on Sarabha village of district Ludhiana, Punjab. Purposive Sampling Technique (non – probability) was adopted for selecting the 100 women between the age group of 30 – 60 years. The findings of the study revealed that maximum number of women (45%) had excellent knowledge and highest impact was found (42%) of watery eyes and lowest impact (0%) of emphysema on women. Co-efficient of correlation between knowledge score and impact on health score was negative (- 0.050) at level of significance 0.05. Therefore, it was concluded that women having excellent knowledge regarding indoor air pollution but their impact on health was negatively correlated.

### Introduction

Pollution is the largest environmental cause of disease and premature death in the world today. Diseases caused by pollution were responsible for an estimated 9 million premature deaths in 2015. Pollution disproportionately kills the poor and vulnerable [1].

Indoor air pollution refers to the physical, chemical and biological characteristics of air in the indoor environment within the home, buildings or an institute or commercial facility. Indoor air pollution is a concern in the developed countries, where energy efficiency improvements sometimes make houses relatively airtight, reducing ventilation and raising pollutant levels. Indoor air problems can be subtle and do not always produce easily recognized impact on health [2].

The WHO World health report 2002, estimate that indoor air pollution is responsible for 2.7% of the loss of disability adjusted life years (DALYs) worldwide and 3.7% in high mortality developing countries [3].

In INDIA indoor air pollution contribute between 22 and 52% to the overall pollution levels, according to a United Nation Environmental Program study. It also said that emission from household cooking and heating will need to be reduced to greatly improve air quality. (Nov 01, 2018) [4].

In Ludhiana, according to the air pollution data from World Health Organization the pollution Index is 86.74. In May 2019, there is air pollution (82.46), Drinking water pollution and inaccessibility (58.17), dissatisfaction with garbage disposal (79.90), Dirty and untidy (75.48), noise and light pollution (57.14), water pollution (69.39) [5].

### Need

Indoor air pollution is bigger killer than outdoor air pollution in India with the recent global burden of disease report listing the former as a second biggest killer and later as fifth largest.

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Around 1.3 million people died of indoor air pollution in 2010 whereas death because of outdoor air pollution was around 6.20 lakh. Indoor air pollution is second biggest killer after high blood pressure in India [6].

## Objectives
1. To assess the knowledge regarding indoor air pollution among women.
2. To assess the impact on health regarding indoor air pollution among women.
3. To find out the correlation between knowledge and impact on health regarding indoor air pollution among women.
4. To determine the association between knowledge and impact with selected socio-demographic variables.

## Methodology
Research approach was **"Quantitative research approach"** with "Descriptive design". The study was conducted at Sarabha village of district Ludhiana, Punjab. The village is situated on main road of Ludhiana to Raikot road. Purposive Sampling Technique (non – probability) was adopted for selecting the women between the age group of 30 – 60 years. The sample size of the study was 100 women from Sarabha village of district Ludhiana. The data were collected using structured Performa to gain information regarding sample characteristics, structured knowledge questionnaire to assess the knowledge regarding indoor air pollution among women and rating scale to assess the impact of indoor air pollution on health. Formal written permission was taken from the Sarpanch of Sarabha village of district Ludhiana, Punjab prior to the data collection. Self – introduction and introduction regarding research study was given to the women of Sarabha village. The purpose of study was explained to the study subjects and was assured about confidentiality of responses. Researcher went door to door and collects data by using Purposive sampling technique from women of age group 30 – 60 years. After collecting data from subject information booklet regarding indoor air pollution was provided to subjects.

## Results
### Description of sample characteristics
The majority of women were in age group of 41- 50 years (43%), followed by 41% were in 31-40 years and 16% in 51-60 years. Majority of the women 46% were having secondary education, followed by 33% had primary education, 21% had graduate education and 0% was illiterate. As regard to religion maximum number of women 83% will in Sikh, followed by 15% Hindu and 2% Muslim. In the type of family more than half of women 55% were in the nuclear family, followed by 44% were in joint family and only 1% in any other type of family. The maximum number of women 92% can use chimney/exhaust fan in kitchen and 8% cannot use chimney/exhaust fan in kitchen. The majority of women 38% were use L.P.G for cooking, followed by 22% were use cow-dung, 21% use all type of fuel (wood, cow-dung and L.P.G) and 19% were use wood for cooking.

**Table 1:** Frequency distribution of level of knowledge of the women regarding Indoor air Pollution

N = 100

| Level of knowledge | Percentage | Range of score | Frequency (%) |
|---|---|---|---|
| Excellent | >75% | 22-28 | 45% |
| Good | 50-75% | 14-21 | 39% |
| Average | <50% | 0-13 | 16% |

Maximum Score = 28
Minimum Score = 0

**Table 2:** Mean, median and Standard Deviation of knowledge score of women Regarding indoor air pollution

N=100

| Test | Mean | Median | SD |
|---|---|---|---|
| Knowledge score | 19.51 | 21 | 5.09 |

Maximum score = 28
Minimum score = 0

**Table 3:** Frequency distribution of level of impact on health of women regarding indoor air pollution

N = 100

| Level of impact | Percentage | Range of score | Frequency (%) |
|---|---|---|---|
| Usually | >75% | 40 - 52 | 0% |
| Sometime | 50-75% | 26 - 39 | 27% |
| Never | <50% | 0 - 25 | 73% |

Maximum Score = 52
Minimum Score = 0

**Table 4:** Mean, median and Standard Deviation of impact on health of women of indoor air pollution

N=100

| Test | Mean | Median | SD |
|---|---|---|---|
| Impact score | 19.26 | 18 | 7.85 |

Maximum Score = 52
Minimum Score = 0

### Item wise frequency distribution of impact on health of women regarding indoor air pollution
In the category of "usually" highest impact was found 42% of watery eyes and lowest impact 0% of emphysema on women. As regard to category "sometime" highest impact was found 62% of sneezing and lowest impact 9% of conjunctivitis and corneal infection. As regard to category "Never" highest level of women 90% was never experienced problem of corneal infection and lowest level of women 4% was never experienced problem of watery eyes.

### Correlation between knowledge score and impact score of women regarding indoor air pollution
Correlation was found between the knowledge score and impact score was **-** 0.050 at level of significance (0.05). So, there was negative correlation between the knowledge score and impact score of women regarding indoor air pollution. Hence, H1 was rejected and null hypothesis H01 was accepted.

### Association of knowledge score and impact on health score of women regarding indoor air pollution with selected demographic variable
ANOVA and t – test value of women knowledge score regarding indoor air pollution with education status (0.00)

and type of family (0.020) was found statistically significant at 0.05 level of significance. ANOVA and t – test values of impact indoor air pollution on women health with type of house (0.001) was found statistically significant at 0.05 level of significance.

## Limitation
The study was limited to only 100 women of selected village Sarabha, Ludhiana, Punjab.

## Recommendations
1. A comparative study to evaluate the level of knowledge of women regarding indoor air pollution in urban and rural areas.
2. A similar study can be conducted on a large sample to generalize findings.
3. A true experimental study on the effectiveness of planned teaching program in
4. terms of knowledge regarding indoor air pollution and its impact on health among women.

## Acknowledgement

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