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Perception of Air Pollution Health Hazards among Roadside Shop-Keepers in Selected Areas of Bangalore City- Cross Sectional Study

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ABSTRACT

Background: Air Pollution, one of the major avoidable causes of diseases and death globally, has been an increasing issue worldwide. Though anyone can be exposed, people who live near road intersections or who direct traffic are particularly at risk. Proper awareness about the health hazards and the protective measures plays a crucial role in protecting oneself to great extent.

Objectives: To assess the Knowledge, Attitude and Practice about health hazards of outdoor air pollution and the prevention of the same among roadside shopkeepers in selected areas in Bangalore.

Methodology: Community based Cross sectional study was conducted among 150 roadside shopkeepers near Victoria hospital area in Bangalore using an interview based semi - structured questionnaire.

Results: Of the 150 respondents, 65.3% were aware that chronic exposure to air pollution can cause some health hazards and 50% believed it can cause respiratory ailments. However, almost none were aware about other health hazards. Very poor practice regarding personal protection was observed. Attitude towards preventive measures was poor.

Conclusion: A major lacunae has been found in both knowledge and attitude towards the health hazards caused by the ambient air pollution necessitating the need for awareness generation and drastic change in practice.

Key Words: Air Pollution Hazards, Knowledge, Practice, Roadside shopkeepers.

INTRODUCTION

Outdoor air pollution, the life threatening environmental health problem is affecting everyone in developed and developing countries alike. Air pollution ranks eighth among the leading risk factors for mortality and accounts for 2.5% of all deaths in developed countries.[1] An assessment by WHO's International Agency for Research on Cancer (IARC) in 2013 concluded that outdoor air pollution is carcinogenic with the particulate matter component of air pollution is highly associated with increased cancer incidence, especially cancer of the lung.[2] Worldwide, ambient air pollution contributes to 6.7 % of all deaths.; this mortality is due to exposure to small particulate matter of 10 microns or less in diameter (PM10); 88% of those premature deaths occurred in low- and middle-income countries, and the greatest number in the WHO Western Pacific and South-East Asia regions;[3] An estimated 6.5 million premature deaths in the world are linked to air pollution every year with more than half of them being reported from China and India together. India alone contributes 1.59 million deaths to this dubious figure.[4] India has the second highest premature deaths caused by

outdoor air pollution. Outdoor air pollution has become the fifth largest killer in India.

Vehicular emissions and industries contribute major part to Air quality crisis in cities and constitutes 24-hour average data on particulate matter – PM2.5 or PM 10 which are less than 10 micrometers in diameter – as well as other pollutants including nitrogen dioxide, ozone, Lead and carbon monoxide.[5] These pollutants are also deposited on soil, plants, and in the water contaminating it and further contributing to human exposure. Outdoor air pollution contributes to around 40% – ischemic heart disease; 40% – stroke; 11% – chronic obstructive pulmonary disease (COPD); 6% - lung cancer; and 3% – acute lower respiratory infections in children.[6]

Acute exposure has been linked to a range of adverse cardiovascular events including hospital admissions with angina, myocardial infarction, and heart failure. Long-term exposure increases an individual's lifetime risk of death from coronary heart disease.[7] Emerging evidence from recent epidemiological, observational, clinical, and experimental studies suggest that certain neurological diseases, such as Alzheimer's disease (AD), Parkinson's disease (PD), and stroke, and also cancer of the urinary tract/bladder may be strongly associated with ambient air pollution.[8]

Bangalore has ranked second in the list of most polluted cities in India as far as air pollution is concerned.[9] People of the world have demanded cleaner air for decades but the inclining amount of air pollution humans generate has put society and the environment at risks. In this respect, traffic policemen, those shopkeepers/vendors near the roadside, near factories are at a risk. The livelihood of these street workers/vendors are regulated and bound under Street Vendors act 2014. Owing to the nature of their job, they are continuously exposed to emissions from vehicles, are prone to develop various health issues due to ambient air pollution. Even pedestrians and drivers in open vehicles are also hit worse. Raising awareness about the various health hazards of air pollution and also about various ways to prevent them from getting exposed to air pollution would help in protecting themselves from serious health hazards of air pollution to a certain extent.

OBJECTIVES

The study was conducted to assess the Knowledge, Attitude and Practice about outdoor air pollution hazards and its prevention among roadside shopkeepers/ vendors in Victoria hospital area in Bangalore city.

METHODOLOGY

Community based cross sectional study was conducted from September to December 2015 among the roadside shopkeepers/vendors near the Victoria hospital area of Bangalore city. Victoria hospital area, being a sensitive area is one of the most highly polluted area in Bangalore. Pollution here is mainly contributed by the vehicular exhaust and even construction works. Around hundreds of shops/natural market were there in the nearby Victoria hospital region (Krishna Rajendra Market Area). In that, shops which are on either sides of the main roads and those near the junction of bus terminus who are vulnerable for high exposure to air pollution everyday were chosen. Around 150 such permanent shopkeepers (for more than 6 months) were selected by systematic random technique. Institutional ethical clearance was obtained. Informed consent was obtained and information regarding knowledge about various health aspects due to air pollution and various means of protecting it and their everyday practices were assessed using a pretested semi structured questionnaire by interview technique. The interview was conducted in the language with which the subject was familiar (Kannada/Tamil), for which purpose the consent form and assessment tools were translated into both the languages and back-translated by an independent coworker proficient in both languages to ensure validity of the translation.

Data was entered in Excel sheet and analysed and analysed using descriptive statistics and expressed in terms of proportions and presented using charts, tables and bar diagrams wherever necessary.

RESULTS:

Out of 150 respondents, 72(48%) were males and 78(52%) were females and majority were in the age group of 40-49 years. And around 56% were illiterate and almost around 78.6% belonged to upper lower socio economic status.

Knowledge: Out of 150 respondents around 65.3% were aware that exposure to air pollution can cause some health hazards. And around 50.7% were aware that exposure to air pollution can cause respiratory illnesses like cough, cold and breathing problems. Only a negligible number of respondents around 3% to 5% were aware about the effect of air pollution on pregnancy and children, aggravation of asthma, visual disturbances and gastro intestinal and dermatological problem. However none of the respondents had knowledge about the effect of air pollution on cardiovascular, nervous system, its acute effects and its role in Diabetes Mellitus and Hypertension.

Table 1: Socio demographic profile

Socio demographic Profile	Frequency (n=150) (%)
Gender	
Males	72 (48)
Females	78 (52)
Education	
Illiterate	84 (56)
Primary school	34 (22.7)
Middle school	15 (10)
High school	12 (8)
PUC/Diploma	5 (3.3)
Socio Economic Status	
Upper Lower class	118 (78.6)
Lower middle class	32 (21.4)
Age category in years	
20-29 years	27 (18)
30-39 years	40 (26.7)
40-49 years	58 (38.7)
50-59 years	19 (12.6)
≥60 years	6 (4)

Table 2: Knowledge regarding health hazards due to air pollution (n=150)

Knowledge	Yes (%)	Don't Know (%)
Causes respiratory ailments	76 (51)	74 (49)
Pregnant and children at risk	4(2.7)	146(97.3)
Aggrevates asthma	8(5.3)	142(94.7)
Causes visual disturbances	4(2.7)	146(97.3))
Dermatological effect	7(4.70)	143(95.3)
Gastro intestinal disturbances	7(4.7)	143(95.3)

Table 3: Attitude regarding use of personnel protective equipments (headcap, Masks, Apron, glasses)

Measures	Agree (%)	Undecided (%)	Disagree (%)
Cap/mask/apron	48 (32)	91 (60.67)	11 (7.33)
Frequency Eye/hand/ face wash	15 (10)	135 (90)	0 (0)

Table 4: Practice regarding air pollution

Practice	Yes (%)	No (%)
Wear Mask	1 (0.67)	149 (99.33)
Use Hand wash	12 (8)	138 (92)
Groceries covered	4 (2.67)	146 (97.33)

Attitude: Regarding attitude, 24% of respondents agreed that maintenance of personal hygiene can protect against hazards due to air pollution and around 32% agreed that personnel protective measures like apron, glasses, head cap and masks can protect. Regarding reduction of absorption of pollutants on applying oil and wet mopping, it is found that almost around 99% had no idea. And 19% agreed that keeping grociers covered has role in protecting against air pollution hazards. Only around 10% believed that frequent washing of eyes and hands has protective effect on air pollution. However, almost 100% believed strongly that air pollution hazards can be reduced when strict legislative measures have been undertaken and implemented.

Practice: Regarding practice it was found that only one (1) person was wearing mask among 150 respondents. And only 4(2.6%) persons had kept the groceries covered and around 12(8%) were found washing their hands after an activity. However when enquired about the self reported practice of changing their clothes at the end of the day or taking bath, only 12(8%) respondents reported positively.

DISCUSSION

Air being the classical element of life, in its impure form is associated with wide range of health hazards. More than 98% of cities in the low and middle income countries does not meet the WHO air quality index rendering them highly vulnerable for various health hazards.[10] The Victoria Hospital being a sensitive area is the second highly polluted region in Bangalore with respirable suspended particulate matter (RSPM) 144% more than the national standards.[11] Since no studies has been done on Knowledge, Attitude and Behavior of Roadside shop keepers about health hazards of air pollution, have discussed the salient points in our study.

Though air pollution being a highly burning health issue, in present study the knowledge regarding the health hazards and simple protective measures to be adopted to prevent oneself from the hazards were found to be very poor.

In our study around 65.3% of respondents (Roadside shop keepers) believed that ambient air pollution can cause health hazards. Though they had knowledge that air pollution can cause some health hazards especially minor respiratory ailments like cough and breathing difficulty, the knowledge regarding acute and chronic hazards due to air pollution is highly inadequate as only a negligible number of respondents in our study had some knowledge about other hazardous effects of air pollution on health. However none of the respondents had clear knowledge regarding the various health consequences of the air pollution and its prevention. In a study done in Ningbo, China the knowledge about health hazards among residents were reported to be 64.59%.[12] In a study by Wang R in Shangai on caregivers knowledge about respiratory effects of air pollution, around 80.5% had good knowledge.[13] In a study among traffic policemen in Kathmandhu about knowledge on respiratory problems following exposure to air pollu-

tion, it was found that 43.4%-84.3% had knowledge about various respiratory effects of air pollution.[14]

Regarding attitude, though the cognitive part was fair, the behavioral and affective aspect were found to have great effect on practice. Though 32% agreed that using of personnel protective measures has role in protection against air pollution hazards, we could see almost none were following it leading to huge attitude practice gap and they were hesitant to practice even simple measurers like using masks as it may create impression among their customers and interfere in their sales. However almost all believed that government and local authority should adopt strict legislative measures and it should be implement strictly inorder to tackle the burden of air pollution.

CONCLUSION

Perception of health hazards due to air pollution was found to be very low with negligible percent of respondents had some knowledge. However none had clear knowledge about the serious hazards of the current burning scenario of air pollution. Strict legislative measures along with a proper and continuous health education and sensitization about health effects due to chronic exposure to air pollution and the basic preventive measures that can be adopted and practiced in day to day practice should be given not only to the shopkeepers/vendors but also to the general public along with reduced generation of pollutants through various means is a need of an hour.

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