

Time for Wake up Call for Educating Global Community for Elimination of Smoke for Global Health

S. Chhabra

Emeritus Professor, Obstetrics Gynaecology, Mahatma Gandhi Institute of Medical Sciences, Sevagram. Chief Executive Officer, Akanksha Shishu Kalyan Kendra, Sevagram. Officer On Special Duty, Dr. Sushila Nayar Hospital, Utavali, Melghat, Amravati, Kasturba Health Society, Sevagram, Wardha, Maharashtra, India

***Corresponding author:** S. Chhabra, Emeritus Professor, Obstetrics Gynaecology, Mahatma Gandhi Institute of Medical Sciences, Sevagram. Chief Executive Officer, Akanksha Shishu Kalyan Kendra, Sevagram. Officer On Special Duty, Dr. Sushila Nayar Hospital, Utavali, Melghat, Amravati, Kasturba Health Society, Sevagram, Wardha, Maharashtra, India

Abstract

Introduction

In many parts of the world, concentration of air pollutants exceeds safety levels, with risk of acute as well as chronic health disorders. There are effects on health with their sequelae on people of all age groups around the world. Everything on earth, gets affected, be it human life wild life, plants and trees too.

Material methods

However in spite of growing awareness, knowledge and concerns of health professionals, activists, traditional open fire remains unregulated and smoke continues to be emitted from many sources. It is believed that air within homes, occupational buildings may be more seriously polluted than outdoor air, even in industrialized countries. Smoking also contributes to a lot of harm not only to those who smoke but others around and even those not around. Health concerns have been principle factors responsible for decline in smoking. Decline in smoke emission leads to change in health, even pregnancy outcome. It is essential to make all round efforts to reduce smoke, by cutting down toxic emissions of smoke, from whatever sources. Either smoke generation has to be reduced by elimination of smoking, find alternate modes. Everything from where smoke comes or it needs to gets absorbed at source rather than going into environment and in water too. So comprehensive strategies are essential.

Keywords: Smoke, sources effects, health disorders, elimination

Background

In many parts of the world, concentration of air pollutants exceeds safety levels with risk of acute disorders and impact on preexisting chronic health disorders. Effect is not only on human health but everything on earth, environment and this has additional sequelae, as water, crops, plants and trees too, fruits, vegetables also get affected.

Santos¹ reported that studies have revealed strong evidence of more adverse health effects of air pollutants to susceptible individuals, like those with chronic

cardiovascular or pulmonary diseases, children, elderly and pregnant women and also benefits to health, pregnancy outcome with reduction in air pollution by various actions.

Objective

Information in the context of smoke, its effects and possibilities of reduction in smoke and change in effects was collected.

Methodology

Literature search was done, which included studies as well as opinions, self experiences and observations were added.

Findings

Exposure to air pollution is self-evident around the world. In developing countries, rural communities use wood, cow dung, coal, firewood, whatever available and possible within their limited resources for cooking meals, heating water for bath and other purposes as well as protection from cold in huts. In addition to villages, communities of outskirts of cities also use such things with ill effects on the whole family and surroundings². Smoke is likely to cause skin, eyes, respiratory, cardiovascular and other problems. Women get affected much more because they are responsible for cooking and even heating water for bath for the whole family and protection from cold. Pregnant women get affected more with risk to themselves and their babies too, with increased risk of abortions, preterm births, growth retarded

babies, vascular disorders of pregnancy etc. In addition to smoke of huts in villages (Fig 1), in cities smoke from various other sources, including cigarettes is everywhere, in homes, on roads, at work places and public places too (Fig 2). A recent study by Chan³ revealed smoking caused wide range of disorders and tobacco smoking was estimated to account for more than 1 million annual deaths in China, and the epidemic continued to increase in men. WHO⁴ opined that one in eight deaths, mostly due to heart and lungs diseases, and stroke, were linked to air pollution exposure and advocated reduction of air pollution. In spite of growing awareness, knowledge, concerns of many health professionals, health activities, traditional open fire remains unregulated, adversely affecting health of underprivileged. Also industrial smoke is everywhere, affecting environment all around.



Fig 1. Village huts with smoke



Fig 2. Cities smoke pollution

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Further biomass fuel use has double burden on women as they have to bear responsibility of fetching fuel on head or shoulders from long distances, time lost in bringing firewood on unsafe,

stony and muddy, narrow pathways with dangers of falling, more health hazards too, as mostly it is women, even pregnant women and children who bring firewood (Fig 3).



Fig 3. Firewood brought by girls

So women and children are the worst sufferers. As smoke goes all around clouds absorb soot, dust in atmosphere, sort of solar radiation and the same gets scattered around, causing global warming, with climate change, which has become a

public health concern around the world. In a pilot study attempts were made to keep rural communities protected from effects of smoke by advocacy of prevention of exposure and fixation of Chimneys on huts' roofs for exit of smoke.



Fig 4. Low cost Chimneys on hut roofs

Abortions were two and half times less than in controls⁵. Anemic pregnant women were 3 times less in study villages than pregnant women of control villages, hypertensive disorders during pregnancy were 4 times less, low birth weight 6 times less, small for gestational age babies 5 times less and maternal deaths 4 times less in comparison to nearby villages where no actions were taken. Comprehensive review of indoor air quality monitoring system for enhanced public health studies revealed that most homes had more than one source of smoke that contributed to indoor air pollution (IAP)⁶. Inadequate ventilation can increase IAP by not carrying IA out and not bringing in enough outdoor air to dilute emissions from indoor sources⁷. So air within homes, other buildings may be more seriously polluted than outdoor air, even in

industrialized cities. The relative contribution of indoor and outdoor generated pollutants to personal exposures depends on multiple factors, including the type of pollutants, building structure, indoor sources, and personal activities. Concentrations of IAP of ambient origin are primarily determined by the process of outdoor-to-indoor air exchange in the building which depends on ventilation systems. Closed windows, usually associated with use of air conditioning, much more common in developed countries, can reduce air exchange rates by about 50%⁸, leading to reduced infiltration of *adjusted present value* (APV) to the indoor environment. A lot of smoke emission around the globe is from vehicles, industries and waste management systems also smoking too. Most of the decrease in

propensity of smoke has been explained by residential types and occupation of the respondents. Lahoti et al⁹ did a study to know about trends of smoking and smokeless tobacco in India and reported relative reduction of tobacco consumption, (Global Adult Tobacco Survey-India (GATS-India)¹⁰. Age of the respondents contributed significantly to reducing smokeless tobacco consumption, regardless of change in the composition of population. Study by Lahoti⁹ revealed that the propensity component was primarily responsible for major tobacco consumption decline (smoking- 41%, smokeless tobacco use- 81%). Tripathy¹¹ did a study to assess the compliance to the prohibition of smoking at public places under section-4 of Cigarettes and other Tobacco Products Act (COTPA) in a tertiary health-care institution in a smoke-free city of India. Overall compliance rate for section-4 of COTPA was found to be only 23%. Evidence of active smoking was observed in 52.5% venues. Signages were seen at only 20%. Butt ends and other smoking aids were seen in 92.5% and 65% places respectively. These findings suggested non-compliance to the provisions under COTPA. So better modalities of actions for advocacy for all the stakeholders is essential. Awareness of air pollutants is facilitated by growing public alerts.

Possibilities

Actions need to be taken by society as a whole not just policy makers, ministers of health as well as non health around the world. It is essential to make all round efforts to reduce smoke from all the sources globally known by all possible educational modes. Personal exposure to ambient air pollution can be reduced on high air pollution days by staying indoors, reducing outdoor air infiltration to indoors, cleaning indoor air with air filters, and limiting physical exertion, especially outdoors near air pollution sources¹². In the developed world, people spend about 90% of their daily time indoors on average, with about 70% of their daily time in residential homes¹³. While effective policies to reduce emissions at sources whatever, are preferable, evidence supports effectiveness of individual actions too, to reduce exposure to smoke for reduction in health risks. Transition from traditional to clean

cooking fuel requires significant public policy actions. Governments as well as civil societies need to look into this, for policies, programs as well as services. Health concerns have been the principle factors driving decline of smoking and making it increasingly unacceptable for various reasons. Reducing smoking, toxic emissions from all sources is essential. Policy makers, program manager. Health providers, public and everyone should consider various modes and tailor interventions to individual circumstances to maximize the net reduction in exposure, based on individual circumstances. While it may not be practical to explicitly and reliably quantify such exposures, if indoor pollutant generation can be minimized, then staying indoors has safety. In addition to the balance of air pollutant exposures, benefits of any reduction in exposure to air pollutants must be weighed against the physical and mental health benefits of outdoor activities. In addition to reducing outdoor activities on high pollution days, public health messages may discourage outdoor activities at other times. The benefits of physical activity may be especially great for individuals who are more sensitive to air pollution, such as those with heart and respiratory disease and pregnant women need special care. On the other hand, the balance will tilt more towards limiting activity as air pollution concentrations reach higher levels, on days with particularly poor air quality, or in areas with chronically elevated levels of air pollution. Encouraging individuals to exercise at locations and times when air pollutant levels are lower is likely to help to preserve the benefits of exercise, while minimizing the health risks from exposure to air pollution. No explicit formulae for calculating and optimizing this risk-benefit ratio are available. Whatever modes possible, policy makers, program managers, health providers, activities, society at large must educate themselves and global communities for a smokeless world.

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