

Passive Smoking - Effects of Second-Hand Smoke on Oral Health

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Abstract:- Worldwide, smoking poses a serious threat to public health. Numerous research has examined how active smoking affects health, and the overall harmful effects of active smoking are widely acknowledged. In contrast, it's unclear how passive smoking affects your health. A number of disorders, including female breast cancer, allergic rhinitis, allergic dermatitis, and food allergies, have been linked to smoking, both actively and passively.

The typical oral and nasopharyngeal flora are altered by passive smoking, which increases the risk of upper airway infection. In addition to producing severe periodontitis, implant failure, gingival pigmentation in children and adults, primary and permanent tooth decay, and tooth loss, it can impair alveolar bone density.

But research on the effects of passive smoking on health has not been fully compiled and is still mainly inconclusive. Consequently, the total systemic and oral negative consequences of passive smoking exposure are the focus of this review.

Keywords:- Second Hand Smoke, Passive Smoke, Environmental Tobacco, Tobacco Smoke Pollution

I. INTRODUCTION

Inhaling another person's cigarette smoke or a smoker's exhaled smoke is known as passive smoking, often referred to as involuntary smoking, second hand smoking, or exposure to environmental tobacco smoke (ETS).(1)

Inhaling another person's or a smoker's exhaled cigarette smoke is known as passive smoking, frequently used interchangeably with terms like passive smoking, secondhand smoke, and exposure to environmental tobacco smoke (ETS). Non-smokers of all ages might suffer negative health effects from passive smoking.(1). There is no acceptable level of exposure to second-hand smoke (SHS), a group 1 carcinogen. (2)Tobacco smoking is one of the primary causes of early death, contributing to five million deaths worldwide each year. (3)

It is known to cause foetal malformations, reproductive issues, respiratory illnesses, malignancies, and cardiovascular diseases. It has been widely established that passive smoking is linked to serious ailments like lung cancer, cardiovascular problems, and sudden infant death syndrome. Passive smoking is also associated with a number of health problems, including learning difficulties, developmental retardation, high systolic and diastolic blood pressure, bronchitis, pneumonia, otitis media, increased incidence of TB, and spontaneous miscarriage.(4–6)

II. EPIDEMIOLOGY

Globally, SHS exposure was responsible for 1.2 million deaths in 2017, 63,822 of which were in children under the age of 10-18 years. When calculating the total number of adult fatalities linked to SHS exposure, ischaemic heart disease (IHD) topped the list, followed by adult asthma and lower respiratory infections (LRI) in children. (7)

However, when estimating the number of disability-adjusted life years (DALY) attributable to exposure to SHS, LRI in kids took the lead, followed by IHD and asthma in adults. Nearly half of the total burden of SHS exposure was attributed to Southeast Asia and the Western Pacific, and Europe—particularly the Eastern and Mediterranean countries—was predicted to have a significant sickness burden as well. (7)

Numerous studies have estimated the burden of SHS on a global, national, or regional scale. To estimate the burden, they employed various techniques and procedures, as well as lists of illnesses linked to SHS exposure, evaluations of SHS exposure, and results. The primary goal of this evaluation is to map the projected illness burden and identify data gaps by describing and summarising the SHS exposure and the health impact in order to give a systematic information about the various techniques.

➤ Composition of Environmental Tobacco Smoke (ETS)

ETS includes more than 4000 chemical substances that have a negative impact on passive smokers' dental health(8). A biomarker with a half-life that is longer than that of nicotine

is cotinine. As it is for active smoking, the measurement of cotinine level is an appropriate and trustworthy objective and quantitative screening method for determining exposure to ETS (9,10)

Tobacco and tobacco smoke contain tar, carbon monoxide, hydrogen cyanide, phenols, ammonia, formaldehyde, benzene, nicotine, and about 4000 other chemicals. During pregnancy, ETS can potentially go from the mother's bloodstream to the placenta. (11)

III. EFFECTS ON GENERAL HEALTH

By producing arterial damage, endothelial inflammation, atherosclerosis, PH changes, and cytokine production, passive smoking raises the risk of cardiovascular diseases. It also causes implant failure through the same method, and passive smokers have a 2.3-fold increased risk of dental implant failure compared to non-smokers.(10)

ETS has been shown to have harmful impacts on human health, particularly in terms of cancer risk and cardiovascular disease. In hospitals serving areas where smoking is prohibited, research have found decreases in the number of AMI cases that present. Investigations conducted in the U.S. and Europe have found reductions in AMIs and ER visits of 17 to 25%. Such decreases in AMIs are a significant endorsement of the smoking ban policy, especially given that heart disease is the leading cause of premature death in many nations throughout the world and is consequently responsible for a very large number of deaths each year. Future research should also be done to determine the economic savings from reduced health costs against reduced cigarette excise duty. This could serve as an additional impetus for nations still debating whether to enact such a policy. (3)

Additionally, employees and customers of bars, restaurants, and other hospitality establishments are at a higher risk of developing the aforementioned conditions than other workers due to their specific exposure to extremely high ETS concentrations (3)

➤ *Effects on Oral Health*

Maternal smoking during pregnancy may also have an impact on tooth growth and function, increasing the incidence of dental caries and or facial clefts. (12–14), smaller in size tooth crowns on both the primary and permanent first molars, and primary teeth hypoplasia(11). Children with smokers in the home have been demonstrated to have a higher incidence of gingival melanin pigmentation (6,15,16). Children who have previously been exposed to ETS have been found to have significantly higher rates of gingivitis (17). Numerous studies have found a link between ETS exposure and a rise in childhood caries rates.

Even after controlling for other confounding variables, it has been demonstrated that children exposed to ETS have a greater prevalence of dental caries(18–20).There were 11 studies that looked at early childhood caries (ECC), according to a systematic review of the impact of second-hand smoke

on the development of dental caries (21). In ten investigations, second-hand smoke's independent association was shown to be significant, while five research indicated a relationship between ETS exposure and ECC dosage response. The poor oral health indices reported have been attributed to changes in the oral microbiota brought on by early exposure to ETS.

According to Lindemeyer(11), the increased proliferation of Streptococcus mutans with ETS led to a higher likelihood of cariogenic bacteria being passed from mothers to children. Due to the higher prevalence of upper respiratory tract infections, which significantly affects the oral microbiome, children may also have drier mouths. Children exposed to passive smoking had considerably more decaying, missing, and filled primary teeth (DMFT) than children who were not exposed to ETS, as well as significantly lower salivary flow rates, pH levels, and buffering capacities. (22)

➤ *Steps to Reduce Second hand Smoke Exposure*

Smoking bans and other tobacco control measures have been implemented by governments worldwide in an attempt to reduce the environmental impact of tobacco use and to stop high ETS levels in public areas and occupational exposure. Smoking bans in indoor public areas, together with adult and child education, nicotine product levies, and other similar programs, are seen as one intervention strategy to decrease ETS exposure among non-smokers as part of a wider global effort to reduce the use of tobacco products. (23). Pope Urban VII is credited with initiating the first smoking ban in 1590 with a proclamation that anybody who "took tobacco in the porch-way of, or inside, a church, whether it be by chewing, smoking with a pipe, or sniffing in powdered form through the nose" would be banished. (24).

IV. CONCLUSION

This review demonstrated how much research has been done on the global burden of disease associated with SHS exposure. It also showed how this burden varies greatly amongst countries and regions, most likely as a result of varying exposure levels, but there is still a dearth of data in many areas.

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