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DOES SECONDHAND SMOKING MATTER TO NONSMOKERS?

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ABSTRACT

Almost everybody is a smoker in one way or another, despite how debilitating this statement may seem to be, its real significance cannot be dismissed. Research shows over 50% of the world population are passive smokers, Africa records the lower rates while Europe has the largest percentage. It is a question most people ask or assume but more often is prudent to ask yourself how susceptible are we to secondhand smoking and what can we do curb the escalation. In this paper, I have expounded on the concept of SHS from its constituents to prevention stating the prevalence between children and adults as well as probable complications one can face. My argument bases on the fact that for an active smoker that is their lifestyle but for a nonsmoker who involuntarily inhales a significant percentage of the tobacco through SHS is a different issue. Therefore, I shall evaluate the paradigm of SHS to help the general public understand the risks SHS exposes to nonsmokers. One way of us being enlightened about passive smoking is understanding and acknowledging the concepts around it.

INTRODUCTION

Almost everybody is a smoker in one way or another, despite how debilitating this statement may seem to be, its real significance cannot be dismissed. Research shows over 50% of the world population are passive smokers, Africa records the lower rates while Europe has the largest percentage. It is a question most people ask or assume but more often is prudent to ask yourself how susceptible are we to secondhand smoking and what can we do curb the escalation. In this paper, I have expounded on the concept of SHS from its constituents to prevention stating the prevalence between children and adults as well as probable complications one can face. My argument bases on the fact that for an active smoker that is their lifestyle but for a nonsmoker who involuntarily inhales a significant percentage of the tobacco through SHS is a different issue. Therefore, I shall evaluate the paradigm of SHS to help the general public understand the risks SHS exposes to nonsmokers. One way of us being enlightened about passive smoking is understanding and acknowledging the concepts around it.

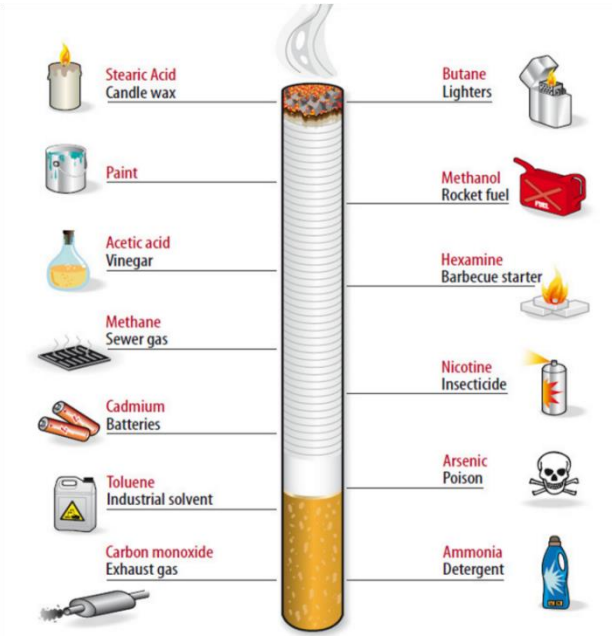
The term secondhand smoke (SHS) has gained considerable attention from medical practitioners and researchers, policy makers, environmentalists, and the general public. Oberg et al. (2010) defines SHS also referred as “passive smoking” or

"environmental tobacco smoke" as the involuntary inhalation of smoke from the combustion of tobacco products such as cigars and the smoke exhaled from a tobacco smoker. By definition, it is undeniable tobacco smokers, and nonsmokers are equally susceptible to the complications that arise from the habit (ASH, 2014; Adda & Cornaglia, 2010; WHO, 2011). Once the tobacco components are released into the environment, they are diffuse and transported by ambient air, later inhaled by a nonsmoker (Oberg et al., 2010). SHS has harmful impacts to the nonsmokers whose prevalence of exposure and infection vary among between children and adults. This paper looks at understanding the concept of SHS, the windows of exposure, prevalence, and complications as well as available mitigation and management measures.

The term "secondhand" depicts the involuntary nature of the vulnerability to exposure to tobacco smoke. Smokers and nonsmokers are equally prone to SHS as both inhale the emitted components. The components are passed into the surroundings from the blazing of the tobacco between puffs referred as the sidestream smoke and the smoke emitted during the mouthpiece puff drawings (mainstream puffs) (Oberg et al., 2010). Sidestream smoke is considered the primary SHS contributor because more than two-thirds of the smoke emissions occur from the smoldering tip of the cigars (Oberg et al., 2010). Toxins in the Sidestream smoke are up to ten times more in sidestream smoke as compared to the mainstream hence the passive smokers inhale over 80% of the cigarette components compared to the active smokers (ASH, 2014).

The sidestream is more dangerous as the emissions are unfiltered hence ingested directly into the smoker's body system. Processed cigars have filters, which are designed to filter toxic substance from being inhaled. This insinuates that every time a nonsmoker is exposure to a smoking environment or shares the same space with a smoking person; he/she inhales a significant percentage of the smoke than the active smoker hence has a higher chance of contracting tobacco smoking related complication if the exposure is consistent and duration (Oberg et al., 2010).

Properties of Passive Smoking



Cigarette smoking the primary contributor to SHS exposure because it id the widely consumed tobacco products across the world (ASH, 2014; Burke, et al., 2012; IARC, 2013; WHO, 2011). The prevalence of tobacco smoking, however, varies considerably depicting variations of patterns among countries. Tobacco is a den of thousands of chemicals and toxins emitted as particles, gasses, and vapor burn. The mainstream smoke constitutes about 3-11% carbon monoxide, 1-9% nicotine, 15-44% particles and more than 4000 other additional constituents (Oberg et al., 2010). An approximate of four hundred compounds is posited to be in both the sidestream and the mainstream smoke. Other minor constituents encompass vapor phase and wrapper components. An estimate of more than one hundred thousand chemical as postulated to be in the mainstream smoke. The picture below shows some of the chemicals and compounds in a cigar (WHO, 2011).

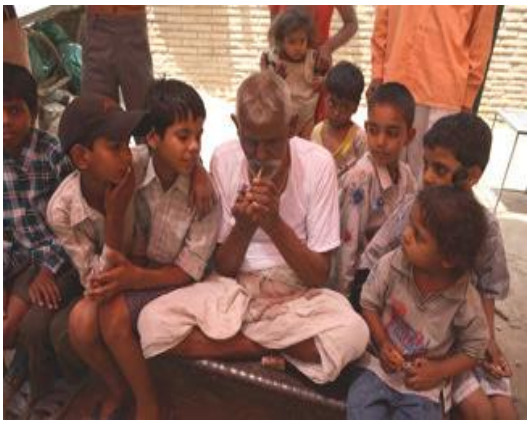
The realm of SHS is sophisticated, the correlation between the biological activity and concentration of toxins between the sidestream and the mainstream vary considerably (ASH, 2014; Oberg et al., 2010). The variations emanate from the completeness of combustion in the lighted cigar and temperature. Completeness of combustion and temperature affects the amount of constituents and chemicals released to the environment. The sidestream is

estimated to have a higher concentration of constituents as compared to mainstream smoke; it contains twice the composition of carbon monoxide and nicotine and about 15-time higher formaldehyde (Oberg et al., 2010). As indicated earlier, the sidestream envisaged to constitute more than three times the toxins in the mainstream. Some of the constituents compound carcinogenic and other noncancerous health effects. Nicotine, cadmium, benzo[a]pyrene, chromium (VI) and arsenic have adverse health effects while benzene, acrolein, and formaldehyde among others ae said to have negligible impacts on human health (Oberg et al., 2010). The magnitude of toxins and chemicals in the tobacco products is alarming for the wellness of the passive smokers who inhale these substances that can complicate their health. The table below shows the concentration of some of the constituents in side stream smoke (IARC, 2013).

Constituent	Concentration
1,3-Butadiene	20–40 μg/m3
Carbon monoxide	5–20 ppm
Acetaldehyde	200–300 μg/m3
Formaldehyde	100–140 μg/m3
Benzene	15–30 μg/m3
Nicotine	10–100 μg/m3

Windows of Exposure

The introduction states that a large percentage of the population is smokers either by choice or by chance. The shows an elderly man smoking a cigarette surrounded by a dozen of children; the elderly man is an active and passive smoker while the children are passive smokers. As stated above, the children shall inhale a higher composition of the smoke compared to the man. This, therefore, brings us to the point of understanding the incidence in which an individual becomes a passive smoker (ASH, 2014).



For an individual to be termed as a passive smoker, they must be exposure to emissions of tobacco products cigarette being the most used. Once exposure, we inevitably become smokers. There is a myriad of windows of exposure, active smoking being at the forefront. As alluded earlier, every smoker is equally an active smoker. As a person smokes the emitted Sidestream and mainstream smoke released into the environment of which they ultimately inhale as SHS (ASH, 2014; IARC, 2013; WHO, 2011). The consequences to an active smoker are greater as he/she directly and passively inhales the smoke.

Other instances of exposure include being in the proximity of a smoker. The exposure can be at home, social places such as bars and pubs, workplaces and other public environments such as in public transport among others. The exposure at homes may be from smoking parents, relatives, siblings, visitors as well as friends (ASH, 2014). Many homes to do not observe the no-smoking policy hence some people comfortably smoke in their homes, the occupants of the house ultimately become smokers not by choice but by circumstance. A passive or active mother passively exposes the unborn child cigar components through the umbilical cord hence the unborn presumes a passive smoker (Burke, et al., 2012).

It is hard to evade completely being a victim of passive smoking as long as you are within an environment of active smokers or associate with a smoker. At the workplace, an individual is likely to be exposed to a smoker more so where no-smoking policies are not succinctly followed and adopted (Leo, 2013). Nevertheless, smoke is not static; it diffuses from the smoking zones hence people

passing by the zone unintentionally inhale the components released into the environment. Some people some in public amenities such as public transport, parking lots, spas, salons, offices, and gardens among others. People within these areas definitely become passive smokers. Bars, some restaurants, pubs, casinos and other such like environments allow smoking (Oberg et al., 2010). All the people within the walls of the bar become passive smokers whether a smoker or a nonsmoker.

The discussed abut windows are but a few; the exposure environments are exhaustive as any place with an active smoker indisputably becomes a risk for passive smoking. As elucidated by the windows of exposures, passive smoking is a complex issue with unlimited possibilities of people being exposed to the smoke. In one way or another, we inevitably become victims of active smoking. A certain way of keeping off SHS is in a smoke-free environment with no smokers, which may be tricky (Leo, 2013). The nonsmokers (all ages) are exposed to SHS (Adda & Cornaglia, 2010). In the European region, the percentage of male smokers is presumed to be escalating by 38% where the prevalence Over fifteen percent of the United States populations are active, and regular smokers in that over 70% of of active smokers in many countries ranges between 27-30% (WHO, 2011). Infant SHS prevalence is estimated by (WHO, 2011) to range between 10% in Sweden to about 60% in Greece, 40% in the United States and 50-70% in South East Asia countries (ASH, 2014).

SHS Exposure Prevalence

According to IARC (2013), children are more susceptible to SHS exposure. In reference to a study conducted by WHO in 2007, in Africa about 28% of children aged 13-15 years are exposed to SHS, 34% in South East Asia, 38% in Eastern Mediterranean, 41% in the United States, 43%; 51% in Western Pacific while Europe has the significant rate of prevalence of 78%. The average susceptibility across the world is estimated at 43%. Over half of the teens are exposed to SHS at their homes in which are more vulnerable than girls. The source of exposure is more from parents, guardians and other relatives. At least 4 out of 10 children are projected to have a parent who is a smoker hence SHS exposure. Besides their homes, substantial numbers of the youths are exposed to passive smoking in public places ranging from 64.1% to 43.5% in Western Pacific and Africa respectively (IARC, 2013).

There is substantial empirical evidence of the prevalence of exposure to passive among children, unlike the adults. Nonetheless, exposure among adults is extensively attributed to living with spouses who smoke, smoking coworkers, and public places. Over one billion of male adults and 250 million women are smokers across the globe (ASH, 2014). It should be assumed adults are less vulnerable to SHS but a lot of emphases has been accorded to children. Children and adults are affected by the complication that arises from the environmental tobacco smoke (WHO, 2011; Leo, 2013).

Consequences of SHS exposure

The passive smokers are at risk of getting tobacco-related diseases and complications just like active smokers. The implications are affected greatly by the intensity and the duration of exposure. Typical cases among adults circumnavigate from cancerous complications more so lung cancer and cardiovascular diseases (Oberg et al., 2010). For mothers who smoke during the antenatal period, the effects of tobacco constituents have gross adverse impacts to the fetus. The probabilities of a miscarriage, prematurity, perinatal mortality and morbidity, stillbirth ad low weight birth, as well as sudden infant deaths are very high. The children are also exposed to the risk of congenital anomalies and other abnormalities such as bigger or smaller head circumferences among others (Burke, et al., 2012). In addition, the children are susceptible to childhood cancers, emphysema, exacerbate chronic complications like sickle cell anemia impaired sense of smell (olfactory) among others. Meningococcal disease is also high among children with smoking mothers. It has substantial mental and physical disability effects that can result in deaths. Children who their mothers smoked in the postnatal period have a higher stake of being infected (WHO, 2011; ASH, 2014).

Respiratory tract infections that affect the lungs and airways such as flu, pneumonia and bronchitis are common in children and adults. Asthma and wheezing common in children can develop as an

effect of passive smoking and lead to exacerbated chronic diseases. Others conditions prone to both adult and children passive smokers include stroke, coronary heart diseases, leukemia, brain tumors, lymphoma, atherosclerosis, chronic obstructive pulmonary disease (COPD) among others (ASH, 2014; Adda & Cornaglia, 2010; WHO, 2011; Oberg et al., 2010).

SHS Countermeasures

Passive smoking is harmful and does not discriminate as long a person is exposed for longer durations. To regulate the smoking habits many public institutions and amenities have a no smoking policy where individuals are not allowed to some. This reduces passive smoking in public places, workplaces, and other environments. Oberg et al., (2010) notes that some countries have managed to effectively implement the 100% smoke-free policies for public places and indoor workplaces. The policy is believed to have significant results in prevention of passive smoking. Others measures that can minimize SHS exposure include public education and awareness campaigns to enlighten the public on how to reduce SHS exposure in homes and other social gatherings and amenities. Smoking parents should be helped through the available health care rehabilitation options to help them quit smoking.

CONCLUSION

A large sect of the population is either an active or passive smoker or both. It is not mandatory for an individual to be an active smoker to contract tobacco smoking related problem. The discussed literature above coherently points out that many people both children and adults are passive smokers. Tobacco products smoke constitute of very toxic chemicals and constituents that are harmful to the health of people, the sidestream smoke having thrice as more chemicals as the mainstream smoke. It means that non-smokers to inhale a large percentage of the constituents as compared to the active smoker, the difference in severity, however, arises as they as both active and passive smokers. Nonetheless, SHS is only harmful depending on the intensity, and the duration of exposure, one-time exposure to less concentration of the smoke has negligible repercussions. A feasible way of preventing adversity of SHS is through the implementation of 100% smoke-free policies and passive smoking awareness campaigns. Secondhand smoking is dangerous; we should assume because you are not an active smoker you are exempted from tobacco smoking related diseases.

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