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smoking hazards

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Introduction:

Tobacco use is the leading preventable cause of death, disease, and disability worldwide. This is because of the over 4,700 chemical components included in cigarette smoke, including over 200 recognized poisons and 43 confirmed carcinogens (2,8). Cigarette smoking is responsible for around 30% of all malignancies, 80% of chronic bronchitis, and a substantial proportion of emphysema, as well as morbidity related with ischemic heart disease and peripheral vascular disease. Pregnancy-related morbidity and mortality are also increased among smokers.

Tobacco usage is the leading cause of death for people who begin smoking in their adult years and do not quit. This is due to the fact that smokers have annual death rates almost three times higher than comparable nonsmokers, especially during middle age (here defined as 30-69 years) (considering differences between smokers and non-smokers in heavy alcohol use, obesity patterns or different educational or economic status). If smokers had the same mortality rates as non-smokers, around two-thirds of their deaths would be prevented. The vast majority of these additional dangers are due to smoking-related illnesses.

There is a lot of evidence that smoking is a major cause of death around the world. About five to six million people die every year from smoking (Jha and Peto, 2014). Based on how people smoke now, about a billion people may die from smoking in the 21st century, compared to "only" 100 million deaths in the 20th century (Peto et al., 1994).

One hundred million lives have been lost to tobacco use already this century, and another two hundred and fifty million will be lost by 2050. Until 2050, current smokers will account for the vast majority of smoker deaths. Accordingly, decreasing the number of new smokers and encouraging current smokers to give up the habit are two of the most pressing issues in public health today.

Smoking causes many premature deaths that may otherwise be avoided. It's one among the things that can cause or contribute to health problems like asthma, allergies, heart disease, and cancer (Mlinaric, A., 2011). Young people are more susceptible to these ailments since their organs are still maturing. Numerous studies suggest that children whose parents smoked during their formative years have poorer health outcomes as adults (Svanes, C., et al., 2017; Accordini, S., et al., 2018) Also, after 12 months of not smoking, the chance of getting cancer or heart disease goes down by a lot. People who have used tobacco products for a long time are less likely to want to quit, which is caused by addiction and a lack of motivation to change (Rulkiewicz, A., et al., 2022)

Tobacco use has repercussions not just for one's physical health but also for a society's economic state. According to research conducted by Baker (Baker, C. L., et al., 2017) smoking tobacco at work diminishes professional activity and increases absenteeism among workers from the United States of America, Europe, and China.

Tobacco usage reduction strategies have been varied. The price of a pack of smokes being raised as a deterrent is one example. According to the data, this had a disproportionate impact on young individuals, whose spending habits are more vulnerable to inflation (Kostova, D., et al., 2011).

According to the Global Adult Tobacco Survey, which polls residents of select nations aged 15 and up, the smoking rates of males vary widely across the world, it is generally accepted that men smoke more than women do in LMICs (Giovino and others 2012)

Prevalence of smoking in the present:

Current smoking rates are a mix of people who smoke every day or sometimes, people who used to smoke, and people who have never smoked. The rate of smoking is also affected by changes in the number of people in a group. For example, immigration tends to lower the rate of smoking (Newbold and Neligan, 2012). I look at how smoking has changed over time by sex. This is important because the number of women who smoke has grown a lot in the last few decades.

Historical smoking trends and changes in prevalence in the last four decades:

Before the start of the 20th century, smokers or factories made cigarettes by hand. The factory process involved hand-rolling on a table, pasting, and hand-packing. In 1880, James A. Bonsack, an American, got a patent for a machine that makes cigarettes. In ten hours, machines could produce 120,000 cigarettes (approximately 200 per minute). This machine changed the industry and helped the biggest cigarette companies in the US grow and export to the UK and other European countries. By 1920, more and more people in Europe and North America were smoking cigarettes. This trend grew even faster during World War II, when soldiers were given cigarettes as part of their rations. During the first half of

the 20th century, this spread of information led to a huge increase in the number of people who smoked cigarettes. This meant that pipe smoking, chewed tobacco, snuff, cigars, and other types of tobacco products became less popular (Encyclopaedia Britannica, 2018). Figure 1 shows how many cigarettes each person in the US, Canada, and the UK smoked from 1920 to 2010. It is based on a global collection of sales data that includes sources from the tobacco industry (Forey et al., 2016)

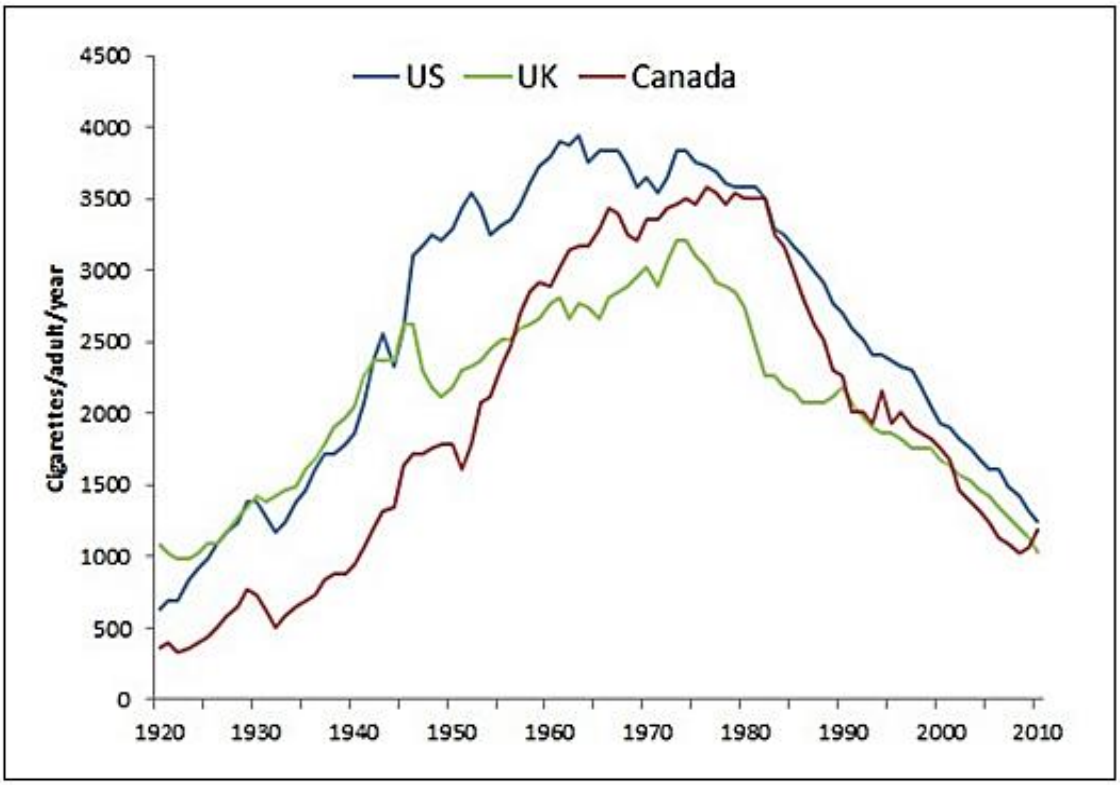

Figure 1. Trends in per capita consumption in Canada, US, UK in cigarettes per adult per year. Note. Data from Forey et al. (2016), International smoking statistics.
Source: Jha, P. (2020). The hazards of smoking and the benefits of cessation: a critical summation of the epidemiological evidence in high-income countries. *Elife, 9*, e49979.

Employees who quit smoking as much as four years earlier saw considerable boosts in productivity and fewer sick days afterward. According to other research (Berman, M., et al., 2014). cigarette smokers in the United States miss out on an extra two to three days of work each year due to health issues. Researchers in the Netherlands, Germany, and China all found the same things in their studies (Yu, J., et al., 2015).

Consequences of Tobacco Use:

Half of the smokers die from a disease caused by smoking, and the life expectancy of one in four smokers is cut by as much as 15 to 20 years (Young RP, et al., 2010). Before World War II, when a lot of people started smoking, lung cancer was uncommon (Gometz, E. D., 2011). So rare, in fact, that doctors had to report cases of lung cancer to the federal government to help find out what in the local environment was causing the disease in a group of people, just like they have to report cases of mesothelioma today.

Although most smokers are aware of the damage they are doing to their lungs, they may not be as aware of the other negative effects tobacco use has on their bodies. People who smoke for long periods of time tend to develop problems with their skin, lips, hands, feet, respiratory system, heart, bones, and reproductive system (Jemal, A., et al., 2008). Smoking causes damage to several parts of the body, including:

A. Skin: Chronic vascular insults cause poor blood flow, which makes it harder for oxygen to get to the skin. This damages collagen and epithelial tissue over time. This also makes it hard for wounds to heal, which makes elective surgeries risky and emergency surgeries dangerous.
B. Mouth: Smoking can cause foul breath, mouth and jaw cancer, recurring pharyngitis, a diminished sense of taste and smell, and stained, yellowed teeth and plaque in the mouth. Because saliva scrubs the lining of the mouth and teeth and protects them from decay, smoking lowers saliva production, which encourages infection.
C. Hands and feet: Poor circulation causes the hands and feet to be persistently malperfused and chilly. Due to peripheral vascular disease caused by smoking, walking can become excruciating and potentially result in amputation. The blood arteries in the fingers that grip cigarettes can also deteriorate to the point of gangrene and amputation, prompting smokers to move to the other hand.
D. Respiratory system: Smoking can cause lung cancer, chronic bronchitis, constant shortness of breath from emphysema in COPD, and a persistent cough that is often caused by pneumonia.
E. Malignancy: Smoking also raises the chance of cancers of the throat, oesophagus, stomach, pancreas, kidneys, bladder, and colon, as well as acute myeloid leukaemia.

Characteristics of Daily and Nondaily Smokers:

1. Characteristics of Daily Smokers:

The regularity with which they light up provides a clear definition of daily smokers. One major distinction between these smokers and their nonsmoking contemporaries is that the former smoke more and more frequently on a daily basis (Berg et al., 2010; Oksuz et al., 2007). It was observed by Sutfin et al. (2009) that these smokers smoked an average of 6 cigarettes per day, while Rose et al. (2007) found that some of these smokers smoked as many as a pack and a half (about 20 to 25 cigarettes) every day. Depending on how often they smoke, daily smokers can be further classified as light, moderate, or heavy. However, there is little evidence to support these distinctions. Rosa and Aloise-Young (2015) conducted a study and discovered that the only distinguishing factor between groups of daily smokers was the number of cigarettes smoked per day.

2. Characteristics of Nondaily Smokers:

Businelle et al. (2009) found that, in general, people who don't smoke every day are more confident in their ability to quit than people who smoke every day. They also tend to have an idea of when the best time to quit is. Also, research has shown that people who don't smoke every day are more likely to try to quit (Wetter et al., 2004) and are more likely to say they have tried (Berg et al., 2012). This group may be easier to target with interventions before their smoking habits get worse.

There is also evidence that some smoke less than once a day but have a regular smoking habit and are not trying to start or stop smoking (Caldeira et al., 2012). One study found that 6.5% of college students who smoked increased how often they smoked, 3.2% decreased how often they smoked, and 13.3% kept smoking less than once a day.

The impacts of smoking:

Smoking hurts not only a person's health, but also their finances, their relationships, and the health of those around them.

Health Effects of Smoking:

Smoking is the leading cause of death, illness, and disability that can be prevented. It kills over 15,000 people every year, which is more than many other things. Depression and anxiety, among other mental health issues, may be exacerbated by smoking. Long-term stress and anxiety levels for those who quit up are lower. When you smoke, not only do you lose fitness, but you also get respiratory problems like wheezing and coughing, experience skin and dental problems, and have terrible odour coming from your mouth, hair, and clothing (Pasco, J. A., et al., 2008). Cigarette smokers are at increased risk for numerous illnesses, Including:

- many forms of cancer such as those of the lungs, throat, pancreas, mouth, and bladder.
- Diseases of the heart and blood vessels and stroke (cardiovascular disease).
- Asthma, COPD, and other respiratory illnesses.

It is estimated that smoking causes the deaths of half of all long-term smokers. There will be a 25% decrease in life expectancy before the age of 65.

1. **Central Nervous System:**

Nicotine's effects on the CNS are readily apparent during the withdrawal phase experienced by smokers. Nicotine withdrawal symptoms include irritability, panic attacks, and melancholy, as well as impaired concentration and memory. Nervousness, restlessness, and inability to focus are also more common among smokers. These results are not confined to the time after quitting. Smokers can start feeling the mental symptoms of nicotine withdrawal after as little as two hours.

2. **risk of smoking:**

The damage that smoking causes to the lungs is slow but fatal. Smoking disrupts the body's natural cleaning processes, which are essential for maintaining healthy lungs and preventing illness. Cigarette smoke destroys the cilia cells that normally sweep foreign particles and irritants out of the airways and towards the mouth. When cilia cells in the lungs die off, many pathogens and toxins have free access to the alveoli, the tiny sacs that fill with air and allow us to breathe.

Epidemiology of Tobacco-Related:

According to a study conducted by the Harvard School of Public Health in 1997 (Murray, C. J., & Lopez, A. D., 1997), titled "Global Burden of Disease," it was predicted that by the year 2025, deaths and illnesses caused by tobacco use would have increased by a factor of nearly three. The Oxford University Center, led by Sir Richard Doll, who was among the first researchers to link smoking and lung cancer in the 1950s, made similar forecasts (Saha, S. P., et al., 2007). Cigarette smoking remains linked to major health issues such as cancer, cardiovascular disease, and chronic obstructive pulmonary disease.

According to a 2004 report by the Centers for Disease Control and Prevention (CDC., 2005), about 2600 people die every day in the United States from cardiovascular disease. That's one death every 33 seconds. Also, smoking makes the chance of dying from heart disease four times more likely. In 2003, it was estimated that heart disease and stroke cost the United States $351 billion in medical bills and lost work time.

Tobacco use is predicted to cause the deaths of around 500 million people living now, 250 million of whom will be in their prime working years. In industrialized nations, tobacco use is already the leading cause of death for adults. Tobacco use is predicted to overtake motor vehicle accidents as the leading cause of death for adults worldwide within the next few decades. Full impacts of smoking are now visible for men in industrialized countries. One-third of all male deaths (plus one-fifth of all male deaths in the elderly) are attributable to tobacco use, and half of all male cancer deaths in this age range can be attributed to tobacco use (plus one-third in the old age group).

Cigarette smoking effects on the respiratory epithelium

Passive and active exposure to tobacco smoke both increase the risk of developing chronic irritation and discomfort in the eyes, nose, and throat. Smoking has been linked to worsening and extending the course of rhino sinusitis since at least 1964, when the United States Department of Health published a report on the topic. More than 4000 harmful substances, including gases and particles, are released into the air when cigarettes are burned. Some of these are acrolein, formaldehyde, carbon monoxide, nicotine, cotinine, acetaldehyde, phenol, and potassium cianide8. Many of these have been shown to be toxic to the respiratory epithelium. The parts of the body that make mucus also change a lot when people smoke cigarettes. Chronic exposure to this smoke causes metaplastic changes to the respiratory mucosa, which leads to a rise in the number and size of goblet cells and an increase in the amount of secretions in the

upper airways. Cohen et al. and Kreindler et al. also showed in vitro that cigarette smoke stops chloride from moving through epithelial cells. This is similar to what happens in people with cystic fibrosis. (Tamashiro, E., et al., 2009)

The respiratory epithelium is significantly altered structurally by cigarette smoke, in addition to the functional changes already mentioned. Tobacco smoke has been shown to have a number of negative effects on the respiratory system, including a decrease in cell viability and the induction of apoptosis in respiratory hair cells, mitogenic effects that can turn pro-apoptotic depending on the concentration of the smoke, and an impairment of epithelial regeneration following injury.

Smoking effects on the musculoskeletal system:

A smoker's musculoskeletal health deteriorates over time. Evidence of injury appears in late adolescence and grows with age, but both the risk and the damage can be mitigated or even reversed if the user gives up smoking.

1) Osteoporosis:

Poor bone health is typically connected with osteoporosis. Although it can strike persons of any age, the condition is most commonly associated with the elderly (National Osteoporosis Society, 2014). As a result of bone mineral density (BMD) decrease and bone tissue degradation, osteoporosis develops (Poole, K. E., & Compston, J. E., 2006)

Smoking is a well-established risk factor for low bone mineral density (BMD), but heritable factors like age account for the vast majority (60-80%) of the variance in BMD that has been observed. The remaining 20-40% is attributable to non-modifiable risk factors like age, as well as modifiable risk factors like smoking (Wong, P. K., et al., 2007)

Smoking affects BMD through a variety of mechanisms, including decreased calcium absorption, lower levels of vitamin D, changes in hormone levels, decreased body mass, increased free radicals and oxidative stress, an increased risk of peripheral vascular disease, and direct effects of toxic components of tobacco smoke on bone cells (Murray, M., 2014)

Little data suggests that smoking at a young age has a physiological impact on the development of osteoporosis later in life. In fact, the 2004 Surgeon General's study says that the data is insufficient to infer a causal connection between smoking and decreasing bone density in premenopausal women and younger males. (US Department of Health and Human Services., 2004) As early smoking habits are likely to continue into adulthood, the findings presented here will highlight the harmful impact of smoking on bone health in older adults.

Evidence suggests, however, that smoking may slow bone-building in young adults. A five-year longitudinal study on the progression of bone mineral density (BMD) in 833 men aged 18 to 20 found that smokers had significantly lower increases in total body and lumbar spine BMD and significantly greater decreases in total hip and femoral neck BMD at both baseline and follow-up visits.

Bone density was shown to be poorer in postmenopausal female smokers compared to nonsmokers15, according to a meta-analysis of 29 cross-sectional studies published in 1997. This disparity widened exponentially with time, with smokers' BMD dropping below non-smokers' by around 2% of the average bone density at menopause for every decade spent smoking (Law, M. R., & Hackshaw, A. K., 1997)

BMD may improve after smoking cessation. Ex-smokers have BMD that is intermediate between that of present and former smokers, suggesting that quitting smoking may halt or partially reverse bone loss. the negative consequences of smoking can be undone (Szulc, P., et al., 2022) Smoking cessation may improve bone mineral density (BMD) in postmenopausal women, according to one study, however only at a tiny fraction of measurement sites.

2) Rheumatoid arthritis:

Symptoms of rheumatoid arthritis include tenderness, stiffness, and swelling in and around the joints. It is believed that 690,000 people in the UK are affected by this ailment, which often manifests itself between the ages of 40 and 50 and is around three times more common in women than in males (Murray, M., 2014) Rheumatoid arthritis affects approximately 1% of the population, although smoking is thought to account for up to 25% of this effect (Murray, M., 2014).

Evidence suggests that cigarette smoking is associated with an increased risk of RA, according to the Surgeon General's 2014 report. 38 Smoking decreases the efficacy of TNF-alpha inhibitors, which are commonly used in the treatment of rheumatoid arthritis, and the evidence is compelling enough to draw this conclusion. 38

Smoking cessation has been linked to a lower risk of RA (Costenbader, K. H., et al., 2006; Lahiri, M., et al,2012; Di Giuseppe, D., et al., 2013) while one study found that risk remained elevated in former smokers for 20 years or more after quitting (Costenbader, K. H., et al., 2006). However, the possible improvement of rheumatoid arthritis by giving up smoking is not supported by enough information to warrant any judgements.

Cancer and Other Diseases Caused by Smoking:

In 2012, cancer, cardiovascular disease, respiratory illness, and tuberculosis were responsible for almost 66 million deaths among individuals over the age of 25 around the world (WHO 2013a). Total mortality from smoking, rather than mortality from individual causes, is increasingly utilized as an indicator of the dangers of smoking (U.S. Department of Health and Human Services 2014). The gender gap in smoking rates is largely to blame for the fact that men account for the vast majority of the world's five million annual smoking-related deaths and women for only 20% (Rudäng, R., et al., 2012)

Smoking Cessation:

People in a population are put into three groups: current smokers, former smokers, and people who have never smoked. The number of people who used to smoke but no longer do is a good measure of how many people in a population have quit. Between 1950 and 2005, the number of adult smokers in the UK went from 70% of men to 25% of men and from 40% of women to 20% of women. This was because more people quit smoking and more people never started smoking. In the US, there are about four times as many former smokers as current smokers among men aged 60–64. (Jha, Ramasundarahettige, and others 2013). Most HICs have reported similar rates of quitting.

Success in reducing tobacco use can be gauged by the growing number of middle-aged persons (those 45–64) who are making the decision to quit smoking for their own health. It is estimated that roughly half of all adults in this age range in the United States and the European Union have quit smoking. HICs are home to over 60% of the nation's ex-smokers. When compared to high-income countries, most LMICs have far fewer ex-smokers than current ones, with the exception of Brazil. Women's rates of smoking cessation remain substantially lower than men's worldwide.

Smoking cessation has the potential to have significant positive effects on health. If you're a smoker, quitting can save your life and add ten years to your average lifespan (Young, R. P., et al., 2010). It can also reduce your risk of developing tobacco-related diseases in the future and slow the advancement of tobacco-related diseases you may already have. The health advantages of quitting smoking are instantaneous regardless of how long someone has smoked or how old they are. You can always decide to stop. Improvements in blood pressure, heart rate, and peripheral circulation can be seen within the first 24 hours of stopping. By the end of the first day, the carbon monoxide concentration in the lung's air passages may have returned to normal.

After 48 hours, the nicotine is completely out of the body, and the ex-sense smoker's of smell and taste is improving. After 1–3 months, an ex-lung smoker's function may have improved by as much as 30% (Gometz, E. D., 2011) after around 6 months, the ex-shortness smoker's of breath has greatly improved, and the persistent "smoker's cough" is becoming less of a regular occurrence.

How to go about quitting:

Stopping smoking is one of the best decisions you can make for your health, wallet, and happiness. Despite the difficulty, the benefits of giving up smoking are enormous. Instant and permanent advantages are yours to enjoy. Those extra years of life span are a direct result of your decision to stop smoking.

Strategies for quitting smoking range widely. "Cold turkey" refers to the method used by the vast majority of people who decide to quit smoking without gradually reducing their intake. Cutting down in preparation for quitting can be effective, but only if the smoker is being truthful about their true intentions. Gum and other nicotine replacement medications are more effective than cigarettes for helping people cut down. People who try to switch to light cigarettes end up sucking harder and faster, so the switch is ineffective.

Although using medication to aid in quitting is no certainty, it does raise the odds of success. Subsidized nicotine patches are now also available with a valid prescription. The Pharmaceutical Benefits Scheme also helps pay for bupropion (Burpopion, Prexaton) and varenicline (Champix) for people who need them (PBS). Nicotine replacement therapies such as gum, lozenges, mini-lozenges, inhalers, and pills are not covered by PBS, but they are less expensive than smoking when considering the long run. Nicotine patches and gum come in smaller packages now that cost less overall than a pack of smokes. The success

rate of quitting can be improved by using both nicotine patches and oral nicotine medications, such as gum.

Encouraging people to stop smoking:

motivating smokers to finally put down the cigarettes Hospital discharge policies for heart attack survivors have been updated to ensure that patients are generally taking an ACE inhibitor, beta-blocker, aspirin, and statin upon release. The positive effect on a patient's health that can be achieved by quitting smoking much outweighs the benefits of any of the aforementioned innovations. To the same extent that they stress the importance of following medical treatment, doctors should also emphasize the importance of this point.

In addition to high blood pressure, diabetes, and heart disease, smoking should be on a patient's list of issues. Smoking status is often recorded by admission nurses with other vitals such as temperature, blood pressure, and pulse. While medical students are typically instructed to include tobacco use in the "social history" section of a history and physical, this information is more appropriately located in the "previous medical history" section (Percival, J., 2012)

70% of smokers wish to quit, but only 3-7% will be successful on their own. Long-term tobacco abstinence is highly challenging and may need numerous efforts employing multiple quitting tactics before a smoker reaches his or her ultimate objective. The average smoker has tried to quit six to nine times, and the quit rate with more successful interventions such as behavioral and pharmaceutical therapies is just 15 to 30 percent (CDC., 2002)

Tips for Quitting Smoking:

Nicotine addiction is one of the challenges that smokers face when attempting to kick the habit. It's not hopeless to give up cigarettes. In order to quit smoking, please follow these steps (Balatif, R., 2020)

a. Strong inner determination. Consider first creating a list of reasons to quit smoking in order to maintain motivation.
b. Think positively, and you will effectively quit smoking. Reward yourself when the money you would have spent on smokes can now be spent on your favorite items.
c. Set a target time. Never abruptly quit smoking. Try to reduce smoking gradually.
d. Provide assistance to quit smoking, particularly from the smoker's family and friends.

Conclusion:

The use of tobacco is a major public health problem, and secondhand smoke is a part of that. Continued efforts to stop and get rid of this abuse are a medical necessity. The use and exposure to tobacco is the leading cause of preventable illness, disability, and death in the world today. Aspiring doctors and other health care workers should lead the charge in promoting policies that reduce cigarette use.

Tobacco use might be reduced by one-third worldwide if cigarette prices were doubled after accounting for inflation; in many low- and middle-income countries, this price rise would be attained by tripling the real excise tax on tobacco. Consumption could be lowered and real excise tax rises more politically palatable with the help of other non-price initiatives. The biggest obstacle is still working to hasten the day when a sizable percentage of current smokers finally kick the habit.

Cigarette smoking is a primary cause of chronic respiratory disorders, cardiovascular diseases, cancer, and reproductive problems. In addition, it has a significant influence on the modification of the transcriptome. In order to minimize the amount of dangerous compounds absorbed by the body, cigarette smokers are recommended to either lower the number of cigarettes they smoke daily or to quit.

Most young smokers began their habit between the ages of 15 and 18, according to the findings. In general, smokers have been at it for between one and three years, and they puff on fewer than ten cigarettes daily, on average. Teens who smoked had a moderate level of nicotine dependence. These results suggest that the respiratory system may be particularly vulnerable to the negative consequences of cigarette smoking in young people. Insights like these can be utilized to make the case against smoking to young people and motivate them to either give up the habit altogether or never start.

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