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Review Paper

Review On Tobacco Consumption in Pregnant Women

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ABSTRACT

Tobacco consumption during pregnancy contain to pose a global public health challenge, with an especially heavy burden in low- and middle-income countries like India where smokeless tobacco (SLT) products such as gutkha and zarda are more frequently than smoked varieties. This review brings together evidence from national surveys, including the National Family Health Survey (NFHS) and Global Adult Tobacco Survey (GATS) to examine the prevalence, contributing factors, and health impacts of tobacco exposure among pregnant women. Findings suggest that tobacco use during pregnancy is strongly influenced by socio-cultural norms, gender disparities, and lower levels of education. Such exposure is associated with significant adverse outcomes, including low birth weight, preterm delivery, stillbirth, placental complications, and maternal health issues such as gestational hypertension and anaemia. Although pharmacological interventions including Nicotine Replacement Therapy (NRT), bupropion, and varenicline offer cessation support, their use is often limited by inadequate screening protocols and a lack of specialized counselling within standard antenatal care systems. Consequently, this article underscores strengthening public awareness initiatives, incorporating routine tobacco screening into prenatal care, and implementing targeted cessation interventions

INTRODUCTION

Tobacco among pregnant women has been a serious issue of global health that has been a danger to the health of the mother and the unborn child. According to Global Adult Tobacco Survey-2 (2016-2017) and National Family Health Survey-4 (2015-2016) 5-8% of pregnant women in India smoke [1] [2]. This 2018 percentage is significantly large in high-income countries, where the USA has an 7.2% percentage [3] and Europe has 8.1% [3]. This percentage, which was also evaluated in 2018, is significantly higher in high-income countries, with the USA holding a

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7.2% share. [4] In India, nearly one million of these take place.[5].Nearly 267 million adults in India are affected by tobacco smoking, which is the major risk factor for chronic disease and a leading cause of mortality. It also has a substantial financial impact, costing the nation more than INR 177,000 crore (USD $27.5 billion) in one year.[6] Indian pregnant women favour gutkha, gul, mawa, and zarda over smoked tobacco products in the West. Mishri, chewed paan (betel quid), and tobacco in powdered or rubbed form are examples of smokeless tobacco products (SLT). However, some women also use hookahs or pipes [7], [8]. Nicotine is the natural chemical compound present in the tobacco plant. This may result in a non-effective pregnancy as it may enter the placental barrier and cause a lot of nicotine (nicotine poisoning) in the fetal serum and the amniotic fluid [9]. It causes the fetus to be underweight for its gestational age, which is extremely harmful to the growth of the fetus. In newborns and young children, it may lead to respiratory tract infections or asthma [10][11] [12]. Serious hazards like low birth weight, premature birth, and stillbirth could arise from it. It raises the risk of iron-deficiency anemia, ectopic pregnancy, miscarriage, early membrane rupture, increased placental vascular resistance, placental abnormalities, gestational diabetes, and gestational hypertension in pregnant women. It may also cause respiratory tract infections or asthma in young children and newborns. [[13]]

Indian women prefer SLT products to men because of gender inequality, financial dependence, lower education levels, and reduced involvement in various employment opportunities [14]. Tobacco products are not as cheap and socially embraced. Moreover, many older Indian women are convinced that the products of SLT are not as helpful as other tobacco items [15]. Although the intake of SLT by women has reduced more than 30 percent, our past results show that the prevalence rate remains very high (12.8) [16]. An analysis of NFHS-5 data shows that 3.2% of pregnant and nursing women in India use tobacco, with smokeless tobacco being the most common type more than 13 times more common than smoking tobacco. Early motherhood and tribal ancestry both strongly predicted SLT intake. [17]

A global cross-sectional survey conducted in 43 countries found that the prevalence of smoking during pregnancy was 1.7%, with notable geographical differences, with the lowest rate seen in Africa and Southeast Asia and the highest in Europe. The pooled prevalence of tobacco use among pregnant women in LMICs was 2.6%; Southeast Asia had the greatest prevalence at 5.1%, while Africa had the lowest at 2.0%. In the Western Pacific region, the pooled prevalence of current tobacco use among pregnant women was 3.5%, while in the African region, it was 0.6%. Europe had the lowest pooled prevalence of current smokeless tobacco use during pregnancy (0.1%), while Southeast Asia had the highest (2.6%). [18]

RATIONALE

In India and around the world, tobacco use during pregnancy is still a major public health concern. A significant portion of women of reproductive age smoke, even during pregnancy, according to national studies like the National Family Health Survey (NFHS-4) and the Global Adult Tobacco Survey (GATS-2). Research from around the world indicates that between 1% and 2% of pregnant women smoke, with higher rates observed in wealthy nations like the US and Europe. Another result of Indian research is the widespread use of smokeless tobacco products, such as gutkha, mishri, and zarda, which are often culturally accepted and falsely thought to be safe. However, numerous studies have shown that nicotine consumption crosses the placenta and

increases the risk of low birth weight, preterm birth, stillbirth, fetal growth restriction, childhood respiratory infections, and maternal complications like anemia, gestational hypertension, and placental abnormalities. Social factors like ignorance, gender discrimination, financial dependence, and a lack of education all play a part in women's continued tobacco use. Even with the current information, there is a lack of thorough studies that only look at pregnant women, particularly in low- and middle-income settings. This article examines earlier studies carried out in India and other countries to gain a better understanding of the prevalence, causes, and health consequences of tobacco use during pregnancy. In order reduce preventable maternal and newborn problems, it also emphasizes the necessity of greater awareness, screening, and cessation techniques.

TYPE OF TOBACCO USE

1. Smokeless tobacco:

It's possible that the global prevalence and distribution of tobacco use are underestimated. In 121 different countries, 67% of men use smokeless tobacco, out of a global population of over 350 million. [19] Smokeless tobacco usage is sometimes more prevalent than cigarette smoking, with 82.7% of people in the World Health Organization's [WHO] South East Asia region and nearly 95% of people living in developing countries. [20] The International Agency for Cancer Research came to the conclusion that the oral cavity, esophagus, and pancreas are associated in humans. [20] This assessment is supported by the American Cancer Society and the U.S. National Cancer Institute.[20] A very diverse range of smokeless products with varying carcinogenic qualities is consumed worldwide. [20]

2. Cigarette smoking:

Although the majority of individuals are aware of the harmful effects of smoking cigarettes, there were 933 million smokers globally in 2015. [21] Low- and middle-income countries are home to almost 80% of smokers worldwide. It is estimated that smoking causes nearly two-thirds of lung cancer deaths worldwide. [19] About 2.2 million new cases of lung cancer and 1.8 million deaths from the disease occurred in 2020, accounting for 11.4% of all cancer-related deaths. [23] While breast cancer is the most frequent disease in women, lung cancer is the most common cancer in men. In 25 countries for women and 93 countries for men, it was the leading cause of cancer-related death. In addition, it causes myeloid leukemia and malignancies of the oral cavity, pharynx, larynx, esophagus, nasal cavity, pancreas, bladder, stomach, kidney, and ovary. [23]

3. SECOND HAND SMOKING:

Repeated second hand smoking can complicate the risk of cancer of the lungs, heart related diseases, emphysema, allergies, asthma, and other diseases in the mother and the growing child alike[24]. It is also known as passive smoke or ambient tobacco smoke.[24]. It has more dangerous substances, such as as carbon monoxide and nicotine.[22]. Infants who are subjected to this smoke can be susceptible to SIDS and have reduced lung capacity [22].

Factors influencing pregnant women's use of tobacco

Reduced educational achievement and ignorance of the negative effects of tobacco smoking during pregnancy are two factors that contribute to lower perceived risk and higher demand. High levels of societal acceptance and ignorance of health dangers are other factors.[25]. Some pregnant women begin smoking in order to supress cravings, to deal with pregnancy-related stress imbalances and issues, certain kinds of illness [7].

Some believe it keeps teeth strong during pregnancy and relieves "labor pain" and other body ailments.[[26]] [20] According to one study, women smoke because they think it reduces stomach problems and body aches, controls hunger, reduces stress, and eases tooth pain. It is also frequently used during formal family events such as weddings and after consuming non-vegetarian meals. Some women indicate that they smoke continually because stopping caused them anguish [[27]][[28]]. The use of smokeless tobacco has gained acceptance in the society since women are exposed to tobacco at an extremely tender age which could be through their family members who comprise mothers, fathers, grandparents, husbands and social groups that consume tobacco [23]. This has made it a normal way of living since it is very cheap and is readily available in their society [[29]][[30]].

All these problems complicate access to assistance by tobacco users willing to quit. Another issue that contributes to tobacco use during pregnancy is the lack of specialist screening of maternal health of pregnant tobacco users. The nutrition deficiency and safe institutional births are the priorities in maternal health efforts in India [20]. The main aspect of maternal health check-ups in India is iron deficiency anemia in expectant women and anemic individuals are handled systematically. This issue was highlighted in the prenatal clinics in Mumbai, where a system had been established to evaluate the pregnant women who were anemic or iron-deficient, and also during the treatment therapy and post-treatment therapy. Still, no services to evaluate tobacco use were available [[31]].

Treatment for quitting tobacco

Nicotine is an extremely dangerous and addictive drug. Although it is most frequently found in cigarette smoke, it is readily available as an alternative to other "smokeless" tobacco products. The benefits of NRT during pregnancy are roughly twofold: it provides nicotine without the added reproductive poisons found in tobacco smoke, and it can reduce cravings and other withdrawal symptoms, which can help people quit smoking.[[32]] NRT use during pregnancy: The authors showed that only people with moderate to severe addiction could take NRT under medical supervision; pregnant women who smoke fewer than five cigarettes a day should use behavioral intervention instead of NRT.[[33], [29]] Using the lowest effective dose of NRT is advised. Patients wearing the patch may choose to remove it before sleep. If the woman keeps smoking at the same pace, the nicotine replacement treatment should be stopped.[35]

Bupropion

Bupropion is an aminoketone antidepressant. It is frequently used as a smoking cessation treatment in an extended-release formulation. The effectiveness of bupropion as a smoking cessation treatment during pregnancy has not been thoroughly evaluated; nevertheless, in a prospective, controlled observational study, pregnant smokers treated with bupropion showed a greater stop rate (45%) than controls (14%) who did not receive any medication.[36] In comparison to newborns exposed to other antidepressants during the first trimester of pregnancy, a study of 1213 infants delivered to women exposed to bupropion at that time did not reveal any appreciable change in the prevalence of abnormalities.[37] Furthermore, an analysis of 1,005 outcomes from pregnancies joined prospectively in the manufacturer's pregnancy registry revealed no appreciably higher frequency of serious abnormalities when compared to the general population.[37] There is no evidence linking the use of bupropion during pregnancy to an increased risk of serious congenital defects. Women on antidepressants have been found to have a modestly increased incidence of

spontaneous abortion; however, it is impossible to rule out the possibility that this is due to possible mismanagement of the underlying depression. Compared to other antidepressants, there is no evidence linking bupropion to a higher incidence of impulsive abortion. Research on the prevalence of impulsive abortions in pregnant women using bupropion to quit smoking is nonexistent.[[32]]

varenicline

It is believed that nicotine's addictive properties are caused by the α4β2 nicotinic acetylcholine receptor, which is partially agonistic to valenicline.[38] As a submaximal agonist, varenicline has the advantageous pharmacological effect of reducing the negative symptoms of nicotine withdrawal and cigarette craving while simultaneously blocking the positive advantages of long-term nicotine usage.[39] When compared to bupropion, varenicline significantly increased abstinence rates at six months or longer in a recent meta-analysis of all randomized clinical trials looking at varenicline in non-pregnant individuals.[40]

IMPACTS ON BABIES:

Smoking during pregnancy can lead to various health issues for the unborn child, including:

Low birth weight is one of the main effects of smoking during pregnancy. Nicotine and carbon monoxide enter the mother's bloodstream, constrict blood vessels, and lower the amount of oxygen the unborn child receives, all of which have an impact on the development and growth of the unborn child. [41] In addition, the baby was undersized due to respiratory issues that impacted its growth and development. The lungs of infants might not be prepared to function independently. [41] Additionally, smoking during pregnancy can affect the central nervous system, which may have long-term effects on the fetus's brain. Learning disorders can result from smoking.[39] Other serious health issues that may arise include: difficulty becoming pregnant, early placenta separation, and premature membrane rupture. The womb is not where pregnancy takes place. Pregnancy difficulties include smoking throughout pregnancy, which lowers a woman's chances of becoming pregnant. The process of becoming pregnant takes a long time. [41] Placenta separation early: Placental abruption is caused by smoking during pregnancy. Both the mother and the fetus are at risk from excessive bleeding. [41] One type of early membrane rupture brought on by smoking during pregnancy is placental abruption. It may result in a greater risk of infection. [30] Ectopic pregnancy is another term for a pregnancy that does not occur in the womb. can result in internal hemorrhage and rupture. They are hypovolemic shock.[41]

ANTENATAL WOMEN'S TOBACCO EXPOSURE IN INDIA: DIFFICULTIES WITH TOBACCO SCREENING AND CESSATION COUNSELLING

Iron deficiency, anemia, early membrane rupture, abnormalities in gestational diabetes and hypertension, ectopic pregnancy, and miscarriage are among the prenatal risks associated with tobacco use. [43]Furthermore, tobacco smoking has been linked to long-term consequences such as respiratory illnesses and sexually transmitted diseases in newborns, as well as long-term impacts like type 2 diabetes, cognitive impairments, anemia, and nutritional deficiencies—all of which are frequent in pregnant women.[44]. In addition to treating anemia and other nutritional concerns, these routine prenatal visits offer a beneficial chance for screening and smoking cessation counseling.[45] The challenges faced in early detection of pregnant tobacco users and giving cessation programs in Indian healthcare systems are progressively marked by this investigation.

CONCLUSION

Pregnancy smoking remains to be a significant topic of public health concern that creates significant threats to the health of both the unborn baby and the mother. It has been observed that smoking causes respiratory, low birth weight, preterm labor, and fetal retardation. However, pregnant women still consume tobacco products even with increased knowledge because they are socially acceptable, have a low risk perception, have no education, and are readily available. Tobacco consumption during pregnancy has to be minimized with intervention, including specialized counseling and quitting medications.

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