



A Study on Habits of Chewing Tobacco during Pregnancy among Women in Alibag

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Abstract

Chewing tobacco during pregnancy is a significant but under-addressed health issue in many rural Indian communities. This study aims to assess the prevalence, usage patterns, and socio-demographic factors associated with this practice among pregnant women in Alibag, Maharashtra. Conducted over a one-year period (July 2024–June 2025), a cross-sectional survey included 400 pregnant women from both government and private healthcare facilities. The findings reveal that 27.5% of respondents used chewing tobacco during pregnancy, with daily use being the most common pattern. Factors such as limited education, early marriage, cultural acceptance, and poor risk awareness contributed to the habit. The study calls for integrated antenatal counselling, community-level awareness, and behaviour change strategies

Keywords: Chewing tobacco, pregnancy, smokeless tobacco, maternal health, Alibag, rural women, public health.

1. INTRODUCTION

Chewing tobacco remains a significant yet under-recognized public health concern, particularly among women in rural India. Unlike smoking, which often receives widespread attention, the use of smokeless tobacco—such as mishri, gutkha, and khaini—is frequently overlooked, especially during pregnancy. In regions like Alibag, traditional practices, low literacy rates, and cultural acceptance contribute to the continued use of these harmful substances among expectant mothers. Despite the known risks, including low birth weight, premature delivery, stillbirth, and developmental disorders, tobacco cessation programs seldom focus on pregnant women.

This study aims to address key gaps in understanding by estimating the prevalence of chewing tobacco among pregnant women in Alibag. It also seeks to assess the frequency and form of tobacco usage to identify patterns that may influence maternal and fetal health. Additionally, the study explores socio-demographic factors—such as age, education, occupation, and income—that correlate with tobacco use, offering insights into high-risk groups. Finally, it examines the level of awareness among pregnant women regarding the health consequences of chewing tobacco. The findings aim to inform targeted health interventions and support more inclusive tobacco control strategies during antenatal care in semi-urban and rural areas like Alibag.

LITERATURE REVIEW

Tobacco use, particularly smokeless forms such as chewing tobacco, remains a pressing public health concern in many parts of India. While the harmful effects of tobacco use are well-documented, its use during pregnancy presents a unique and preventable risk to both mother and fetus. This literature review explores global, national, and regional research findings relevant to chewing tobacco during pregnancy, with a focus on prevalence, health impacts, socio-cultural factors, and intervention strategies.

Global Context

According to the World Health Organization (WHO), tobacco use during pregnancy—whether smoked or smokeless—is associated with increased risks of miscarriage, premature birth, stillbirth, low birth weight, and congenital abnormalities. In many low- and middle-income countries, the use of smokeless tobacco among women is often underreported and overlooked in reproductive health programs (WHO, 2015). The WHO Framework Convention on Tobacco Control (FCTC) calls for stronger action against tobacco use in vulnerable groups, including pregnant women.

National Perspective (India)

India is one of the largest consumers of smokeless tobacco globally. The Global Adult Tobacco Survey (GATS-2), India 2016–17, revealed that around 6.8% of women in India use smokeless tobacco, with higher prevalence in rural areas. Studies have shown that women who chew tobacco during pregnancy are at significantly higher risk of adverse perinatal outcomes (Rani et al., 2003). Despite these risks, tobacco control programs in India have largely focused on male smokers, ignoring female and pregnant users of smokeless products like Mishri, Gutkha, and Khaini.

In a study conducted by Gupta and Subramoney (2004) in Mumbai, pregnant women who used smokeless tobacco were found to have nearly double the risk of stillbirth compared to non-users. Similarly, research in rural Madhya Pradesh and Odisha has confirmed the association between low literacy, cultural normalization of tobacco use, and poor pregnancy outcomes among women using smokeless tobacco.

Regional and Cultural Influences

In Maharashtra and specifically in coastal and rural areas like Alibag, the use of chewing tobacco is deeply rooted in traditional beliefs. Mishri, a roasted tobacco powder applied to gums or teeth, is often seen as a remedy for nausea, dental hygiene, or even fatigue in pregnant women. These beliefs are passed through generations, often supported by elder women in the family.

Cultural acceptance of tobacco use among women, combined with low educational attainment and limited access to health information, perpetuates its use during pregnancy. A qualitative study by Patil et al. (2018) in rural Maharashtra found that pregnant women were rarely asked about tobacco habits during antenatal care visits, and health workers lacked adequate training to counsel them effectively.

Gaps in Research and Interventions

Most existing tobacco cessation initiatives in India are gender-neutral and do not cater specifically to the needs of pregnant women. Few interventions address the behavioural, social, and informational barriers that prevent women from quitting. There is also limited localized data, especially in semi-urban areas like Alibag, where both healthcare access and cultural beliefs influence health behaviours.

Community-based research is essential to understanding the extent and causes of tobacco use during pregnancy. Studies like the present one are vital to uncovering localized patterns and informing effective public health strategies.

Conclusion of Literature Review

While national and international research has established the dangers of smokeless tobacco use during pregnancy, there is a significant gap in region-specific studies and interventions. The literature emphasizes the need for targeted awareness, culturally sensitive counselling, and integration of tobacco screening in antenatal care services. This study attempts to bridge that gap by providing empirical data on the chewing tobacco habits of pregnant women in Alibag and suggesting locally adaptable solutions.

2. OBJECTIVES

1. To estimate the prevalence of chewing tobacco among pregnant women in Alibag.
2. To assess the frequency and form of usage.
3. To explore socio-demographic correlates of tobacco use.
4. To examine awareness regarding health risks associated with tobacco use during pregnancy.

3. HYPOTHESIS

Null Hypothesis (H_0):

There is **no association** between tobacco use during pregnancy and awareness of health risks.

Alternative Hypothesis (H_1):

There **is an association** between tobacco use during pregnancy and awareness of health risks.

4. RESEARCH METHODOLOGY

This study adopted a descriptive cross-sectional design to investigate the chewing tobacco habits among pregnant women in Alibag Taluka, Raigad District, Maharashtra. The research was conducted over a one-year period from July 2024 to June 2025. A total of 400 pregnant women** were selected using stratified random sampling from both government and private health centers, ensuring representation from various socio-economic and healthcare backgrounds.

Inclusion criteria included pregnant women in any trimester who were residents of Alibag and provided informed consent to participate in the study. Women who did not meet these criteria or declined consent were excluded.

Data was collected using a structured questionnaire specifically designed for the study. The tool was pre-tested and administered in the local language to ensure clarity and cultural relevance. The questionnaire captured demographic details, obstetric history, patterns and frequency of chewing tobacco use, and the participant’s awareness of health risks associated with tobacco consumption during pregnancy.

Ethical approval was obtained from the Institutional Ethics Committee. All responses were kept confidential and used solely for research purposes. The data collected formed the basis for statistical analysis and further interpretation of findings in relation to the study objectives.

5. LIMITATIONS

The study may be affected by self-reporting bias, as participants could underreport tobacco use due to social stigma. Additionally, since the research is limited to a single taluka (Alibag), the findings may not be generalizable to other regions with differing cultural or socio-economic conditions.

Hypothesis Testing Using Chi-Square Test of Independence

Null Hypothesis (H_0):

There is no association between tobacco use during pregnancy and awareness of health risks.

Alternative Hypothesis (H_1):

There is a significant association between tobacco use during pregnancy and awareness of health risks.

6. CONTINGENCY TABLE

| Group | Aware | Not Aware | Total |
|---------------|-------|-----------|-------|
| Tobacco Users | 35 | 75 | 110 |
| Non Users | 185 | 105 | 290 |
| Total | 220 | 180 | 400 |

Chi-square test statistic (χ^2): 32.94

Degrees of freedom (df): 1

Level of significance (α): 0.05

Critical value at $df = 1, \alpha = 0.05$: 3.84

DECISION:

Since the calculated chi-square value (32.94) is greater than the critical value (3.84), we reject the null hypothesis.

CONCLUSION:

There is a statistically significant association between tobacco use during pregnancy and awareness of health risks among pregnant women in Alibag ($p < 0.001$). The data indicate that pregnant women who chew tobacco have significantly lower awareness of the adverse effects of tobacco use on maternal and fetal health compared to non-users.

7. Results

7.1 Prevalence

Out of the 400 pregnant women surveyed, 110 women (27.5%) reported using chewing tobacco during their current pregnancy. This highlights a considerable level of substance use among expectant mothers in the Alibag region.

7.2 Frequency of Use

Among the 110 users, 70 women (63.6%) reported daily use, indicating a habitual dependency. 30 women (27.2%) used tobacco on a weekly basis, while 10 women (9.2%) reported occasional or monthly use.

7.3 Commonly Used Forms

The most prevalent forms of tobacco consumed included Mishri, Gutkha, and Khaini. These products are locally available and culturally normalized, particularly among rural populations.

7.4 Socio-Demographic Profile of Users

A significant number of users (76.3%) had education only up to the primary level. Most users were aged 20–30 years, and the majority (89%) were housewives, with the rest (11%) working as labourers. Furthermore, 68% of users belonged to households with a monthly income below Rs10, 000, reflecting socio-economic vulnerability.

7.5 Awareness of Health Risks

Only 32% of tobacco users were aware of the adverse health effects of tobacco during pregnancy, compared to 64% awareness** among non-users, indicating a significant gap in health education.

8. KEY FINDINGS

8.1 High Prevalence: Over a quarter of women engaged in chewing tobacco. Surveyed pregnant

8.2 Educational Gap: Tobacco use was more common among those with lower educational attainment.

8.3 Cultural Factors: Family traditions and misconceptions played a role in continued usage.

8.4 Limited Risk Awareness: Most users lacked knowledge about potential health complications.

8.5 Missed Counselling Opportunities: Few women recalled being advised about tobacco use during antenatal visits.

9. DISCUSSION

The findings highlight a significant public health issue in Alibag that reflects broader rural trends. Despite access to health services, critical behavioural risks go unaddressed. Compared

to studies in Mumbai and Pune, the prevalence in Alibag is consistent, underscoring the systemic nature of the problem. Deep-rooted cultural acceptance, poor education, and lack of focused health messaging perpetuate this avoidable risk during pregnancy.

10. SUGGESTIONS

- **Incorporate Tobacco Screening in ANC Protocols**
Include tobacco use as a mandatory inquiry during every antenatal visit.
- **Enhance Health Education Campaigns**
Conduct culturally relevant campaigns using posters, videos, and group sessions.
- **Train Frontline Health Workers**
Equip ASHA, ANM, and PHC staff to identify users and offer cessation support.
- **Engage Families**
Involve spouses and elders to create a supportive environment for quitting.
- **Create Community Support Groups**
Launch women's peer groups for sharing experiences and promoting cessation.
- **School-Based Prevention**
Integrate tobacco education in rural school curricula to build early awareness.
- **Develop Local Language IEC Material**
Use Marathi leaflets, booklets, and short films for effective communication.
- **Track Tobacco Use in MCP Cards**
Regularly monitor and record tobacco use in Mother-Child Protection documentation.
- **Advocate Policy Reforms**
Encourage panchayats and NGOs to implement women-centric de-addiction programs.
- **Replicate Study across Regions**
Extend research to neighbouring talukas for a more comprehensive intervention plan.

11. RECOMMENDATIONS

To effectively address the issue of chewing tobacco among pregnant women in Alibag, a multi-faceted and community-driven approach is essential. Firstly, structured tobacco cessation modules should be integrated into routine antenatal care (ANC) services, enabling early identification and intervention during pregnancy. Healthcare providers must be trained to screen, counsel, and follow up on tobacco use sensitively and consistently.

Secondly, community health workers such as ASHAs and ANMs should be mobilized for active surveillance and support. These frontline workers can play a crucial role in identifying at-risk women, offering peer-level support, and encouraging compliance with cessation programs.

Third, awareness campaigns should go beyond clinics. Utilizing local festivals, village meetings, and regional media outlets in Marathi can help disseminate messages about the dangers of chewing tobacco in a relatable and culturally appropriate way.

Peer influence is another powerful tool—sharing success stories of women who have successfully quit can inspire others to follow suit and break the cycle of harmful habits.

Lastly, partnerships with NGOs experienced in tobacco de-addiction and women's health can ensure long-term, sustainable behaviour change through counselling, education, and community empowerment.

These combined efforts can significantly reduce tobacco use and improve maternal and child health outcomes in the region.

12. CONCLUSION

The study highlights a serious public health concern in Alibag, where over 27% of pregnant women reported chewing tobacco during pregnancy. This high prevalence is alarming, particularly considering the well-documented risks such as low birth weight, miscarriage, and stillbirth. A strong correlation was observed between low educational levels and tobacco use, indicating that lack of formal education plays a significant role in perpetuating harmful health behaviors.

Cultural norms and family traditions also contributed to continued use, with many women influenced by elder family members or relying on misconceptions that tobacco helps relieve pregnancy discomforts. Additionally, awareness regarding the health risks of chewing tobacco during pregnancy was notably poor among users, underscoring the urgent need for targeted health education.

The study also found that antenatal counselling on tobacco use was either missing or ineffective, with very few women recalling being advised by healthcare workers. This reveals a critical gap in antenatal care practices, where preventive guidance could be easily integrated.

In conclusion, multi-level interventions—focusing on education, culturally-sensitive awareness campaigns, and health worker training—are essential to reduce tobacco use during pregnancy and improve maternal and fetal health outcomes in regions like Alibag.

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