

## Alcohol and Smoking Consumption Trends Across Indian States and Union Territories: A Regional Analysis

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### Abstract

This study investigates alcohol and smoking consumption trends across Indian states and union territories, highlighting significant regional disparities driven by socio-economic, cultural, and policy-related factors. Data from the National Family Health Survey (NFHS-5) 2019–2021 involving 1.6 million participants forms the basis of this analysis. Alcohol consumption is notably higher in northeastern states like Arunachal Pradesh and Sikkim, influenced by cultural norms, while states like Gujarat and Bihar report minimal use due to legal prohibitions. Similarly, smoking prevalence varies, with northern states exhibiting higher rates compared to the south. Socio-economic factors, including income and education, alongside gender norms, also significantly influence these patterns.

The study underscores the critical role of regional policies, such as the prohibition laws in Gujarat and Bihar, and initiatives like the Cigarettes and Other Tobacco Products Act (COTPA), which have shown mixed effectiveness. The findings emphasize the necessity of region-specific interventions and public health campaigns tailored to local socio-cultural contexts to mitigate the health burdens associated with alcohol and tobacco use. By integrating demographic and cultural insights, this research aims to provide actionable recommendations for policymakers to address these pressing public health challenges in India.

**Keywords:** Alcohol, smoking, regional disparities, NFHS-5 and Gender.

### Introduction

The consumption of alcohol and tobacco remains a significant public health concern worldwide, as both are linked to various chronic diseases, including cardiovascular diseases, cancer, and respiratory illnesses. According to the World Health Organization (WHO), harmful use of alcohol and tobacco products is a leading cause of preventable morbidity and mortality globally. India, as one of the most populous countries, faces substantial health challenges due to the consumption of these substances. The consumption patterns of alcohol and tobacco vary significantly across different regions of India, influenced by various socio-cultural, economic, and policy factors.

### Global Trends in Alcohol and Tobacco Consumption

Globally, alcohol consumption is a widespread phenomenon, with significant variations across countries and regions. According to the WHO Global Status Report on Alcohol and Health (2018), alcohol consumption rates have been steadily increasing in many developing countries, including India. Alcohol consumption patterns are often influenced by factors such as age, gender, economic status, and cultural norms. In countries with high income levels, alcohol is often consumed in social and recreational settings, whereas, in low-income nations, it is more commonly used as a coping mechanism for social stress or economic hardship (Room, Babor, & Rehm, 2005).

Tobacco use, in its various forms, is also a major global health issue, with the WHO estimating that tobacco kills more than 8 million people annually. The smoking habits vary greatly by region, with South-East Asia, including India, having the highest rates of smoking, particularly among men. The global tobacco epidemic has largely been driven by aggressive marketing, particularly in low and middle-income countries, and the subsequent widespread adoption of smoking habits.

### Alcohol and Smoking Trends in India

India, with its diverse cultural and economic landscape, exhibits a wide range of alcohol and tobacco consumption trends across its different states and union territories. The overall prevalence of alcohol consumption in India is lower compared to many Western nations, but certain regions, especially in the northeast, have notably higher consumption rates. According to the National Family Health Survey (NFHS-5), alcohol use is more common among men than women, but there are variations in this pattern across different states. In some states, such as Sikkim and Goa, alcohol consumption rates are relatively high, while in others, like Bihar, where alcohol has been prohibited, the rates are lower (International Institute for Population Sciences [IIPS], 2021).

The prevalence of tobacco consumption is even more heterogeneous. Tobacco consumption in India takes multiple forms, including smoking, chewing, and using smokeless tobacco products. Smoking is most prevalent in the northern states, while the use of smokeless tobacco is higher in the southern and northeastern regions. States like Bihar and Uttar Pradesh have high rates of smokeless tobacco use, while states like Punjab and Maharashtra have higher smoking rates (Mishra et al., 2018).

Socio-economic factors such as income, education, and occupation also play a critical role in determining tobacco and alcohol consumption trends. For instance, research indicates that individuals with lower educational attainment and lower socioeconomic status are more likely to engage in alcohol and tobacco use (Bansal, 2016). Furthermore, gender norms in India also affect the consumption patterns, with men being more likely to use both alcohol and tobacco compared to women, although this gender gap has been narrowing in certain urban areas (Gupta et al., 2020).

### **Regional Variations and the Role of Policy**

The regional variations in alcohol and tobacco consumption in India can be attributed to several factors, including state-level policies, cultural norms, and local economic conditions. States like Goa, Karnataka, and Rajasthan have liberal alcohol policies and a culture of drinking, leading to higher rates of consumption. Conversely, states like Gujarat, Nagaland, and Bihar have imposed stricter controls on alcohol consumption, either through prohibition or heavy regulation. The effectiveness of alcohol control policies is a subject of debate, with some studies suggesting that prohibition leads to illegal alcohol trade and hidden consumption (Mohan et al., 2011).

The rise in tobacco consumption, particularly smokeless tobacco, has been largely influenced by the tobacco industry's marketing strategies, which have targeted rural populations and low-income groups (Zaman et al., 2018). Efforts to control tobacco use through public health campaigns and legislation have been met with mixed success. The introduction of the Cigarettes and Other Tobacco Products Act (COTPA) in 2003 was a significant step towards curbing tobacco consumption, but its enforcement has been inconsistent across states (Rani et al., 2016).

### **Importance of Regional Analysis**

Given the wide disparity in consumption patterns across different Indian states and union territories, a regional analysis is essential to understand the factors that influence alcohol and tobacco consumption. This analysis can provide policymakers with the necessary insights to design targeted interventions that cater to the specific needs of each region. It is also crucial for public health experts to understand the cultural and socio-economic contexts of alcohol and tobacco use in India to effectively address these public health challenges.

This paper aims to provide a comprehensive regional analysis of alcohol and smoking consumption trends across India's states and union territories. It will examine the socio-cultural, economic, and policy-related factors that contribute to the consumption patterns of alcohol and tobacco in different regions of India. By doing so, it hopes to contribute valuable insights to the ongoing debate on how to reduce the burden of alcohol and tobacco use in India.

### **Review of Literature**

A study by Varkey et al. (2020) explores alcohol consumption patterns across various Indian states, highlighting the impact of cultural, economic, and demographic factors on drinking behaviors. The research reveals significant regional variations, with higher consumption rates observed in states like Punjab and Rajasthan, while southern and northeastern states reported lower rates. Economic development, education, and social norms were identified as major influencers. The study calls for state-specific interventions to reduce the harmful consequences of alcohol use. The researchers suggest that policies addressing accessibility, affordability, and awareness could help manage alcohol-related issues more effectively at the regional level.

Nath et al. (2021) examine the prevalence of smoking across Indian states, with a focus on urban versus rural divides. Their study identifies a rising trend in smoking rates in urban areas, particularly in northern and western states, driven by increased availability of tobacco products and changing social habits. The authors emphasize the role of government regulations in controlling smoking rates, advocating for stronger anti-smoking campaigns tailored to regional needs. Moreover, they suggest that tobacco control policies should be adjusted to reflect the sociocultural contexts of each state to enhance their effectiveness in reducing smoking prevalence.

Chaudhary et al. (2019) provide a comprehensive analysis of alcohol and tobacco consumption in Indian states, using data from the National Family Health Survey (NFHS-4). The study identifies significant differences in alcohol and smoking behaviors, with states like Goa and Kerala showing higher consumption rates. Regional disparities are attributed to local economic conditions, religious influences, and public health policies. The authors suggest that while awareness programs have been implemented, they have not been uniformly effective, and thus more localized strategies targeting high-risk groups should be developed to address alcohol and smoking consumption trends.

A study by Rathi et al. (2022) investigates the evolving trends in alcohol and tobacco consumption across India's states and union territories, emphasizing the role of public health initiatives. The research shows that while alcohol use has decreased in some regions due to stricter policies, smoking prevalence remains stubbornly high, particularly in rural states. The study attributes these trends to limited access to cessation programs and the persistence of tobacco-related social customs. Rathi and colleagues propose a more integrated approach to alcohol and tobacco control, combining policy enforcement, education, and community-level interventions to address consumption effectively across India.

## Methods and Methodology

### Statement of the Problem

The consumption of alcohol and smoking exhibits significant regional disparities across Indian states and Union Territories (UTs). Northeastern states such as Arunachal Pradesh, Sikkim, and Mizoram report higher prevalence rates, while regions like Gujarat, Jammu & Kashmir, and Lakshadweep show minimal levels. These patterns reflect cultural, social, and legal influences. The public health burden associated with these behaviors necessitates a comprehensive understanding of their regional dynamics to design effective interventions. Despite existing policies, limited data integration on demographic and regional factors hampers targeted efforts, creating an urgent need to analyse trends and their socio-cultural determinants for informed decision-making.

### Need of the Study



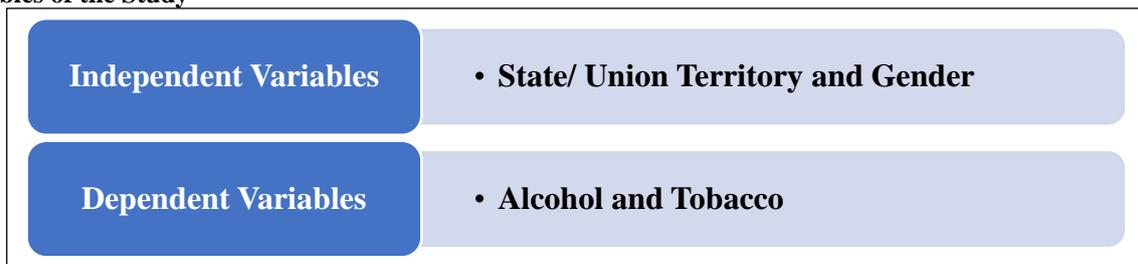
This study is essential to address the growing health concerns associated with alcohol and smoking consumption in India. It highlights regional disparities influenced by cultural, social, and economic factors. Understanding these variations enables policymakers to design region-specific interventions, thereby improving public health outcomes. The study also contributes to the literature by integrating demographic and cultural contexts, ensuring more targeted and effective policy implementation.

### Objectives

#### Data Source

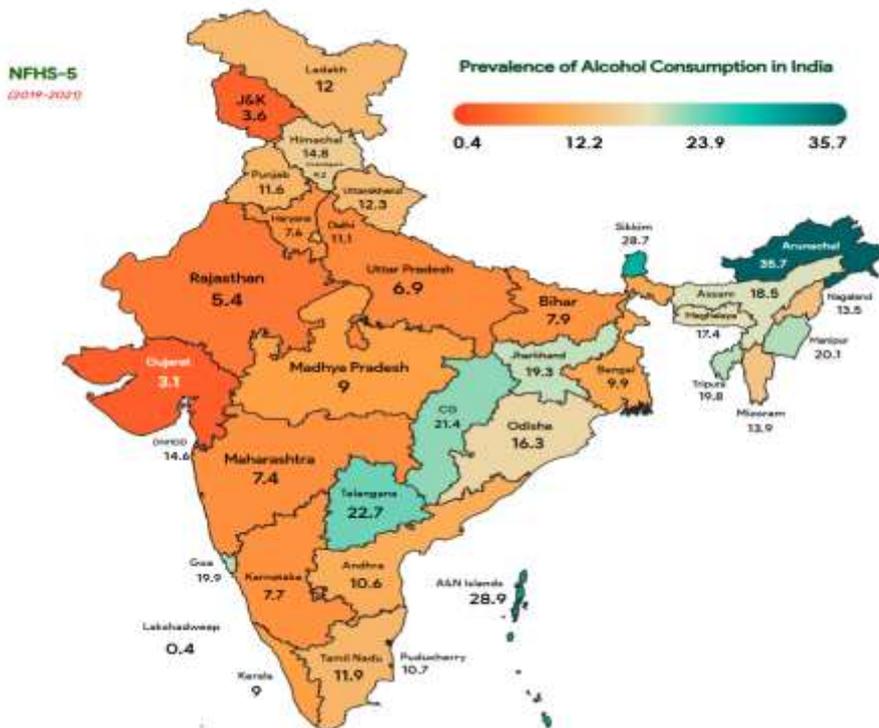
The methodology for analysing alcohol and smoking consumption patterns across Indian states and Union Territories is based on data from the National Family Health Survey (NFHS-5) 2019-2021, using STATA 17.0 for statistical analysis. The survey, which included 16,22,972 individuals, provided insights into alcohol and smoking prevalence, focusing on both gender and regional variations. Descriptive statistics were employed to determine consumption rates, and regional disparities were identified based on demographic, cultural, and legal influences. Maps and graphs were created to visualize these trends across India.

### Variables of the Study



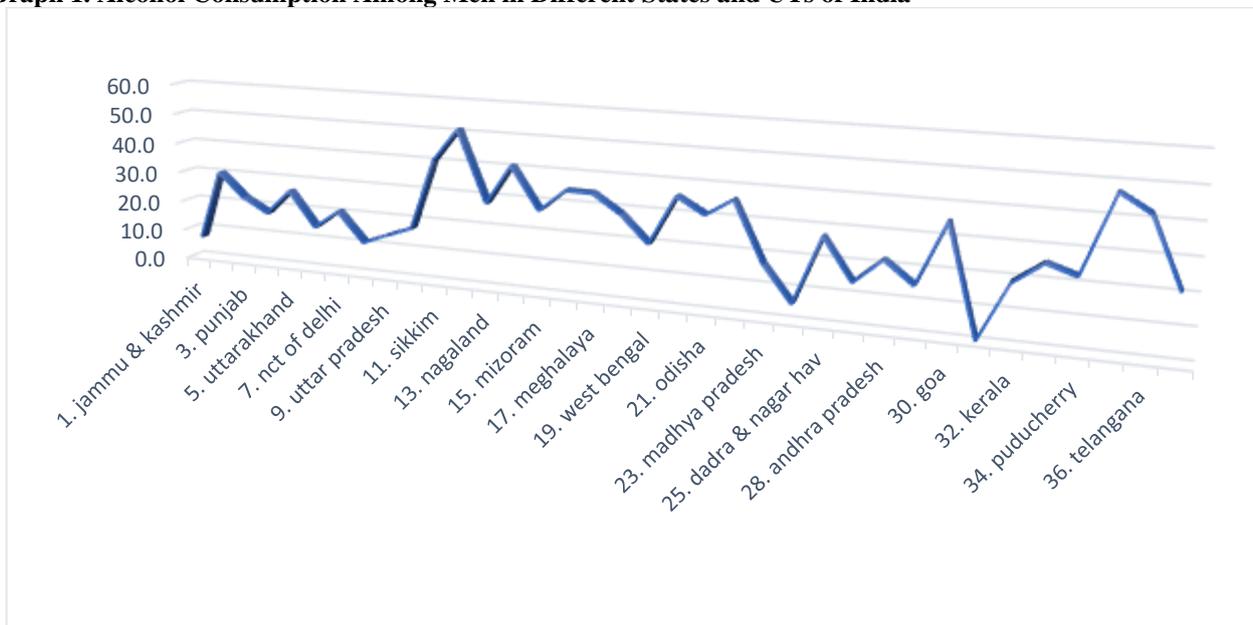
**Result and Analysis**

**Map 1. Alcohol Consumption Trends Across Indian States and Union Territories**



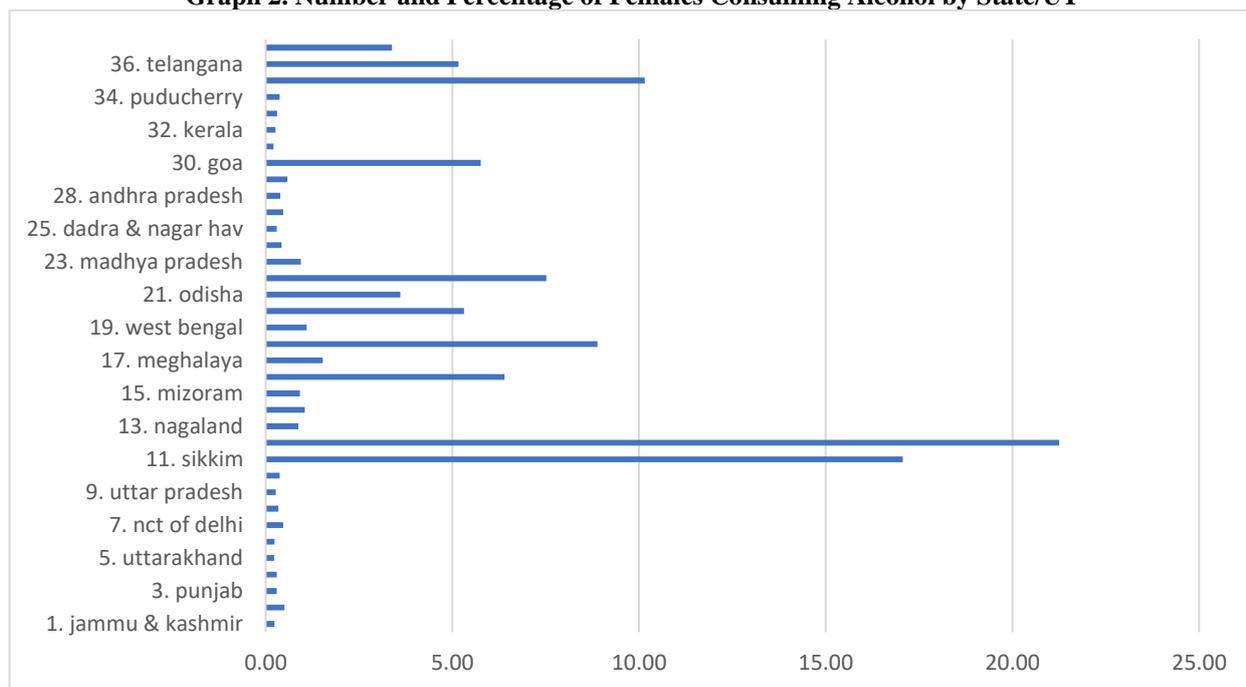
The Map .1 presents data on alcohol consumption patterns in India, based on a survey of 16,22,972 individuals, of whom 11.7% (1,90,388) reported alcohol use. Notably, northeastern states like Arunachal Pradesh (35.7%), Sikkim (28.7%), and Andaman & Nicobar (28.6%) exhibit the highest prevalence of alcohol consumption, influenced by cultural and regional factors. Other states such as Goa (19.9%) and Telangana (22.7%) also report considerable consumption. In contrast, regions like Lakshadweep (0.4%), Gujarat (3.1%), and Jammu & Kashmir (3.6%) show minimal alcohol use, possibly due to religious, cultural, or legal restrictions. Despite moderate prevalence, states like Uttar Pradesh and Assam have the highest number of drinkers due to their large populations. The data highlights regional disparities, with the northeastern states showing higher alcohol consumption, while northern and western states report lower levels. Effective policy interventions must consider local socio-cultural factors to address alcohol misuse in high-prevalence regions.

**Graph 1. Alcohol Consumption Among Men in Different States and UTs of India**



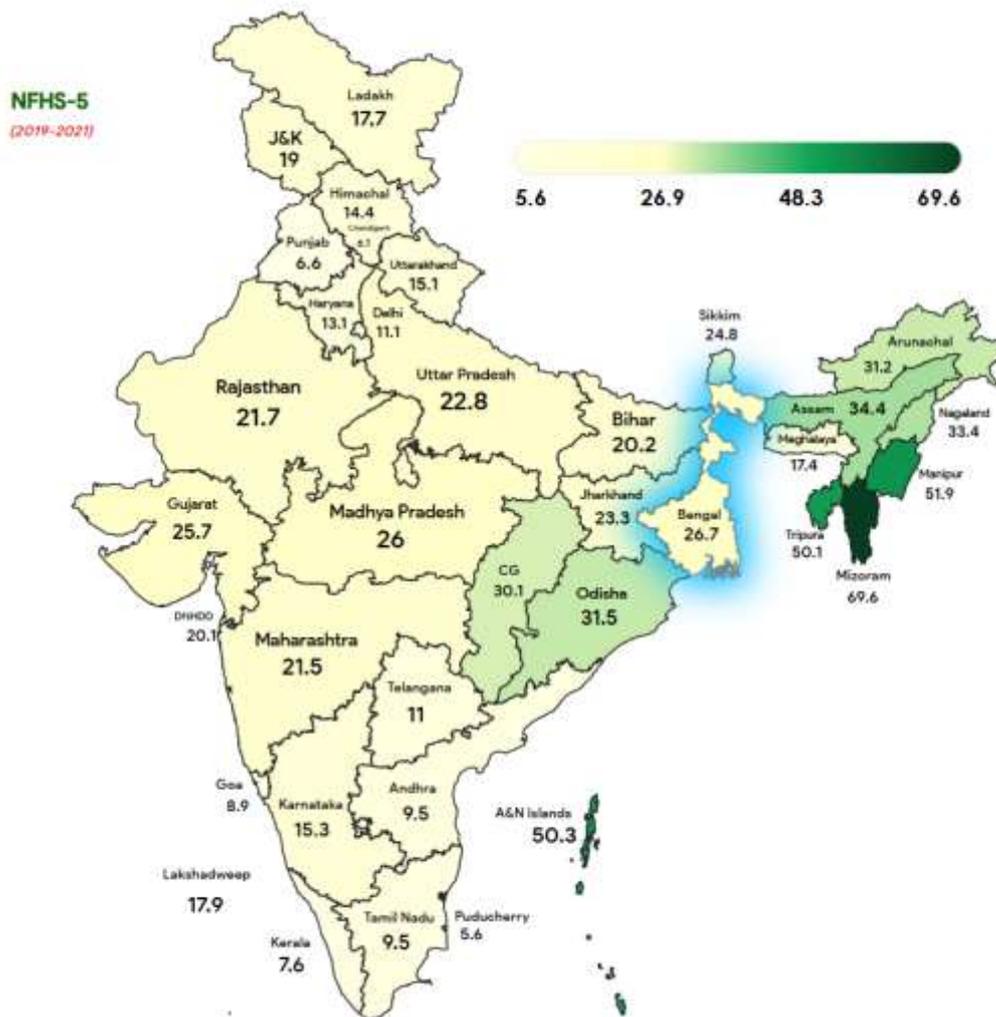
This Grap 1. presents the number of men consuming alcohol across various states and Union Territories (UTs) of India, along with their respective percentages of total male populations. The data highlights significant regional variations in alcohol consumption. The highest percentage of alcohol consumption is observed in Arunachal Pradesh (51.1%), followed by Telangana (41.9%) and Manipur (40.9%). On the other hand, Jammu & Kashmir records the lowest percentage at 7.0%. Notably, states like Punjab (22.4%), Assam (28.5%), and West Bengal (19.8%) have considerable consumption rates. The total number of male drinkers varies greatly, with Uttar Pradesh having the largest number (13,996), while Lakshadweep has the least (6). Overall, the table underscores the diverse patterns of alcohol consumption in India, influenced by both regional and demographic factors.

**Graph 2. Number and Percentage of Females Consuming Alcohol by State/UT**



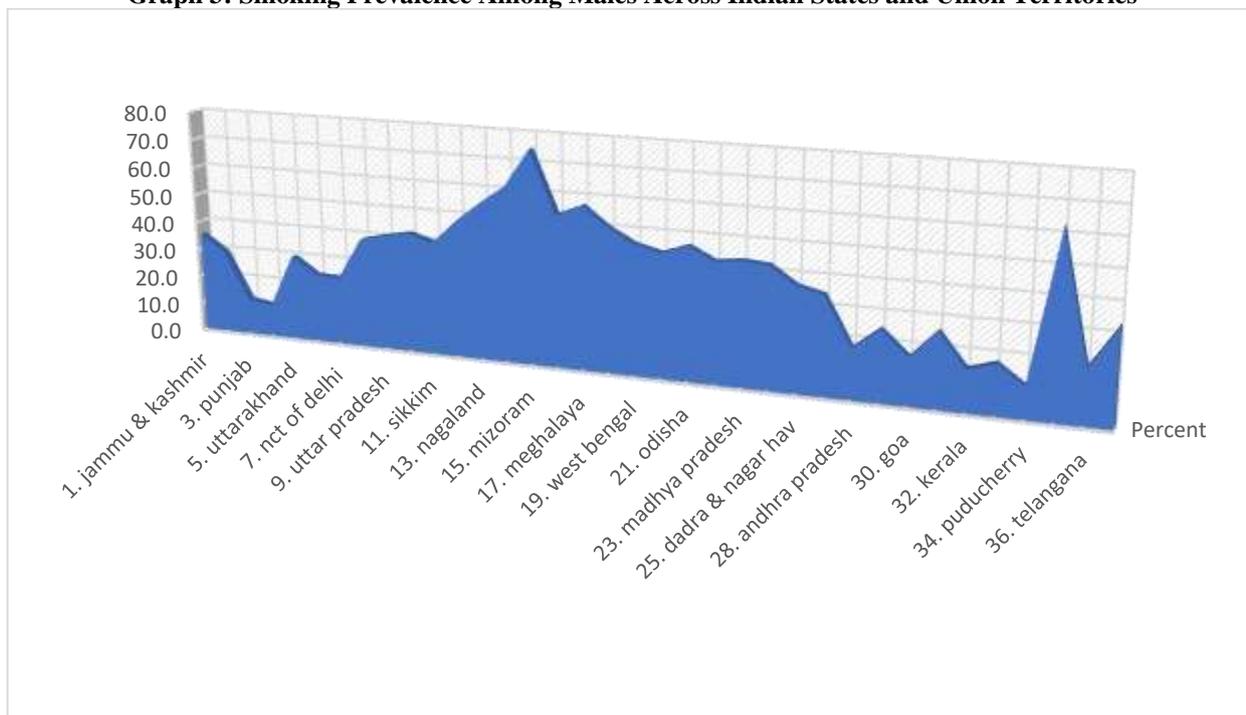
The table presents data on the number of females consuming alcohol across various states and Union Territories (UTs) in India, along with the percentage of the total female population engaged in alcohol consumption. Arunachal Pradesh and Sikkim have the highest alcohol consumption rates at 21.25% and 17.06%, respectively, with significant numbers of female drinkers. In contrast, regions like Jammu & Kashmir, Himachal Pradesh, and Uttarakhand have much lower percentages, with values of 0.24%, 0.50%, and 0.23%, respectively. States like Assam, Jharkhand, and Chhattisgarh show a relatively higher prevalence, with alcohol consumption rates of 8.89%, 5.31%, and 7.52%. The total number of females consuming alcohol across all regions is 19,883, contributing to 2.38% of the overall female population surveyed. These variations highlight regional differences in alcohol consumption patterns among Indian women.

Map 2. Smoking Prevalence Across Indian States and Union Territories



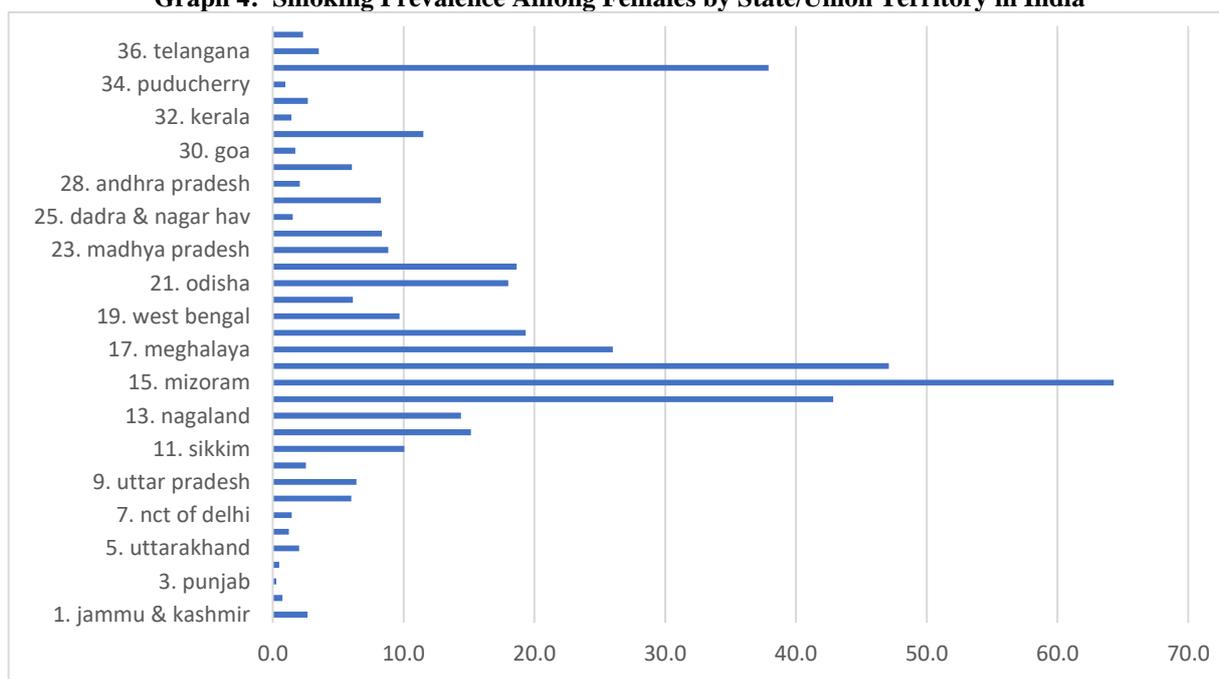
This table presents the smoking prevalence in various states and union territories of India, reflecting both the number of individuals who smoke and the percentage of the total population that smokes. The data highlights significant regional variations, with some states showing higher smoking rates. For example, states like Mizoram (69.6%), Tripura (50.1%), and Manipur (51.9%) have exceptionally high smoking percentages, whereas states such as Kerala (7.6%) and Goa (8.9%) have lower rates. Notably, larger populations such as Uttar Pradesh (22.8%), Maharashtra (21.5%), and Rajasthan (21.7%) contribute significantly to the total number of smokers in the country. The total number of smokers in India is 3,70,678, constituting 22.8% of the population. This data can be used to assess the impact of smoking on public health and tailor interventions accordingly in different regions.

**Graph 3: Smoking Prevalence Among Males Across Indian States and Union Territories**



The table presents data on the prevalence of smoking among males in various Indian states and union territories (UTs), showing both the number of male smokers and the percentage of smokers within the male population. The total number of male individuals across these regions is also provided. The highest smoking prevalence is observed in Mizoram (75.0%), followed by Manipur (61.7%) and Nagaland (55.3%). On the other hand, states like Kerala (14.7%), Goa (16.6%), and Andhra Pradesh (17.7%) have comparatively lower smoking rates. Uttar Pradesh, with 40.7%, and Bihar, with 42.4%, show significant smoking rates. The national average prevalence for smoking among males stands at 37.4%. These figures highlight regional disparities in smoking habits, possibly influenced by cultural, economic, and social factors. Understanding these differences is crucial for formulating targeted public health interventions and awareness programs.

**Graph 4: Smoking Prevalence Among Females by State/Union Territory in India**



The table presents data on the number and percentage of female smokers across various states and union territories (UTs) in India. The total number of female smokers is 76,488, which represents 9.1% of the total female population of 836,809 in the survey. The highest prevalence of smoking is observed in Mizoram (64.3%) and Tripura (47.1%), followed by Manipur (42.9%) and Arunachal Pradesh (15.1%). Conversely, states such as Himachal Pradesh (0.7%), Punjab (0.3%), and Kerala (1.4%) report relatively low smoking rates. In terms of absolute numbers, Uttar Pradesh has the highest number of female smokers (6,880), followed by Assam (7,686), and Madhya Pradesh (5,177). The data highlights significant regional variations in smoking habits among females, indicating the need for targeted health interventions based on geographical and cultural differences.

## Major Findings

### 1. Alcohol Consumption Trends

- The survey revealed that 11.7% of the total population (1,90,388 out of 16,22,972 individuals) reported alcohol use, with significant regional variations.
- Northeastern states, particularly Arunachal Pradesh (35.7%), Sikkim (28.7%), and Andaman & Nicobar (28.6%), exhibited the highest alcohol consumption rates, influenced by regional and cultural factors.
- Goa (19.9%) and Telangana (22.7%) also showed considerable alcohol use.
- In contrast, states like Gujarat (3.1%), Lakshadweep (0.4%), and Jammu & Kashmir (3.6%) reported minimal alcohol consumption, possibly due to religious or legal restrictions.
- Despite moderate alcohol consumption in certain states, large populations in Uttar Pradesh and Assam contributed to the high number of drinkers, underscoring the need for region-specific policy interventions.

### 2. Alcohol Consumption Among Men

- Men in states like Arunachal Pradesh (51.1%), Telangana (41.9%), and Manipur (40.9%) exhibited the highest alcohol consumption rates.
- Jammu & Kashmir had the lowest alcohol consumption rate among men at 7.0%.
- Uttar Pradesh had the highest number of male drinkers (13,996), highlighting the impact of population size on alcohol consumption.

### 3. Alcohol Consumption Among Women

- The prevalence of alcohol use among women was notably higher in Arunachal Pradesh (21.25%) and Sikkim (17.06%).
- States like Jammu & Kashmir, Himachal Pradesh, and Uttarakhand had very low alcohol consumption among women, often below 1%.
- The data indicates significant regional differences in female alcohol consumption, with northeastern states showing higher rates.

### 4. Smoking Prevalence

- The survey found that 22.8% of the total population smoked, with substantial regional variations.
- States like Mizoram (69.6%), Tripura (50.1%), and Manipur (51.9%) reported extremely high smoking prevalence.
- Kerala (7.6%) and Goa (8.9%) showed lower smoking rates, with socio-cultural factors possibly influencing these patterns.
- Uttar Pradesh, Maharashtra, and Rajasthan contributed significantly to the total number of smokers in India due to their large populations.

### 5. Smoking Prevalence Among Males

- Males in Mizoram (75.0%), Manipur (61.7%), and Nagaland (55.3%) had the highest smoking prevalence.
- States such as Kerala (14.7%) and Goa (16.6%) had comparatively lower smoking rates.
- Uttar Pradesh and Bihar had significant smoking rates of 40.7% and 42.4%, respectively, indicating the need for tailored public health interventions in these areas.

### 6. Smoking Prevalence Among Females

- Mizoram (64.3%) and Tripura (47.1%) had the highest smoking rates among women.
- Other states such as Himachal Pradesh (0.7%) and Punjab (0.3%) reported very low female smoking prevalence.
- Uttar Pradesh and Assam had the highest number of female smokers, with 6,880 and 7,686, respectively.

## Result

The data on alcohol and smoking consumption across Indian states reveals significant regional variations. Northeastern states, such as Arunachal Pradesh, Sikkim, and Andaman & Nicobar, show the highest alcohol consumption rates, while Gujarat and Lakshadweep have the lowest. Male alcohol consumption is highest in Arunachal Pradesh and Telangana, while Jammu & Kashmir has the lowest. For females, states like Arunachal Pradesh and Sikkim have the highest consumption rates. Smoking prevalence is notably higher in Mizoram, Tripura, and Manipur, with Uttar Pradesh and

Maharashtra contributing significantly to the national total. These patterns underscore the need for region-specific public health policies.

## Conclusion

The analysis of alcohol and smoking consumption trends across Indian states and Union Territories reveals significant regional disparities influenced by cultural, demographic, and socio-economic factors. Northeastern states like Arunachal Pradesh and Mizoram exhibit the highest prevalence of alcohol and smoking, respectively, while states like Gujarat and Kerala report the lowest. Male and female consumption patterns highlight gender-specific variations, with men displaying a broader prevalence across regions. The findings emphasize the need for localized policy interventions and public health initiatives tailored to address the unique challenges of high-prevalence areas. These insights are crucial for designing effective strategies to mitigate health risks associated with these behaviours.

## Future Policy Implications

### 1. Regional Tailoring of Alcohol and Tobacco Policies

○ Policymakers should develop state-specific strategies to address alcohol and smoking issues, focusing on regions with the highest consumption rates (e.g., northeastern states and Uttar Pradesh).

○ States with cultural or religious restrictions (e.g., Gujarat, Jammu & Kashmir) require policies that respect local beliefs while addressing substance misuse through alternative methods.

### 2. Targeted Public Health Interventions

○ The high prevalence of alcohol and smoking in states like Mizoram, Manipur, and Tripura calls for region-specific awareness programs, healthcare initiatives, and strict regulations to reduce consumption.

○ For states with low consumption, prevention programs should aim at maintaining low rates, focusing on education and awareness.

### 3. Gender-Sensitive Approaches

○ Given the significant variation in alcohol and smoking prevalence between men and women, targeted interventions for women in regions with high consumption rates (e.g., Arunachal Pradesh, Sikkim) are necessary.

○ Public health campaigns should address the unique socio-cultural factors influencing female alcohol and smoking consumption.

### 4. Strengthening Enforcement and Legislation

○ States with minimal consumption, such as Gujarat and Lakshadweep, should strengthen enforcement of alcohol and tobacco regulations to preserve low prevalence rates.

○ At the same time, states with higher consumption should focus on enhancing regulation, especially in terms of age limits, advertising, and sales in high-risk areas.

### 5. Collaboration with Local Communities

○ Policy interventions should work closely with local communities, leveraging traditional knowledge and regional differences to create more effective prevention programs.

○ Collaboration with NGOs, local governments, and community leaders can enhance the effectiveness of public health campaigns.

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