

## Determinants of Smoked Tobacco Consumption among Pakistani Adults: An Analysis from GATS Pakistan 2014

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### Abstract

**Objective:** An in-depth analysis of GATS 2014 is performed to study the various demographic determinants of smoked tobacco consumption among Pakistani adults.

**Methods:** The Global Adult Tobacco Survey (GATS) is a standardized surveillance mechanism regarding monitoring of tobacco consumption globally, that uses three stage cluster random sampling technique to have a representative data. We performed the complex data set analysis using SPSS V 15. The associations were determined by carrying out univariate analysis, and determining chi squares for categorical variables.

**Results:** Overall current smoking prevalence was found to be 12.4%. The univariate analysis revealed male gender (OR: 14.1 CI= 11.2-17.7, p value 0.000), little or no education (OR: 1.4 CI=1.2-1.6, p-value 0.000), living in urban areas (OR: 0.7 CI= 0.6-0.8, p-value 0.000) and avoiding smoking attempts in young age till 25 years (OR: 0.2 CI= 0.1-0.2, p value 0.000) were determinants. Association of demographic determinants with cessation behaviour showed that the health concern was the primary reason to ever stop smoking among both urban rural dwellers, educated and uneducated and respondents aged 25 years and above. Educational status, age of respondent and residence had almost no significant effect on cessation behaviour of smoked tobacco users.

**Conclusion:** Males having low education and living in rural area puts an adult Pakistani at high risk of becoming the user of smoked tobacco. Health education involving primary health care providers particularly focusing on rural areas will reduce the prevalence of smoking.

**Keywords:** Smoked tobacco, determinants, GATS, Pakistan, 2014. (JPMA 68: S-18 (Suppl. 2); 2018)

### Introduction

Tobacco smoking is one of the preventable causes of high morbidity and mortality around the globe. More than two-thirds of the smoking related deaths occur in low and middle income countries (LMICs).<sup>1</sup> Southeast Asia has almost 400 million tobacco users, who experience about 1.2 million deaths annually.<sup>2</sup>

WHO estimates that if the current trend of tobacco use continues, it could cause approximately 8.3 million mortalities annually by the year 2030 and more than two-thirds of them will be in LMICs<sup>3</sup> because tobacco consumption is much higher in less developed populations.<sup>4</sup>

The latest GATS survey from Pakistan carried out in 2014 estimated that almost 23.9 million Pakistanis use tobacco product and among them be 12.4% use smoked tobacco". On an average a Pakistani smoker smokes almost 13.6 cigarettes per day.<sup>5</sup> In 2014, State Bank of Pakistan reported that Pakistanis smoked 64.48 billion cigarettes in the financial year 2014. Besides

many other factors responsible the cheap rates at which local cigarettes are sold and ease of access promotes its uptake.<sup>6</sup>

A meta-analysis regarding cause specific mortality attributable to smoking among Asians revealed the strongest association with tobacco smoking was found for lung cancer, 3-4 fold elevated risk of dying with lung cancer and approximately 1.4 fold increased risk of dying early from any cause in persons who ever smoked.<sup>7</sup>

Besides cigarettes other forms of smoked tobacco like huqqa, bidi and shisha are also very common in Pakistan particularly shisha smoking is getting popular in educated youth especially females. A national study from Pakistan on shisha smoking among university and madrassa students revealed overall 20% prevalence of shisha smoking with 30 % male users and 11% females.<sup>8</sup> Age of initiation was also lower than cigarette smoking (17-18 years). Similarly, another national study on female university students found the prevalence of smoking to be about 7.4%, with half 49% them smoking shisha, 13.7% smoked cigarettes and 37% use both therefore describing the rising trend of shisha smoking as it is considered harmless, fashionable and acceptable.<sup>9</sup> A meta-analysis reported the association of water pipe

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smoking with lung, esophageal, head and neck and bladder carcinomas.<sup>10</sup>

In addition to the various health effects, smoking causes a burden on family budget. In households where smokers live, expenditure on cigarettes and tobacco constitutes a remarkable percentage of total expenditure and this occurs at the cost of food expenditures that further compromises their health.<sup>11</sup>

This paper provides an in-depth analysis of the influence of various demographic determinants of smoked tobacco consumption among Pakistani adults using the information from GATS carried out in 2014.

## Methodology

The Global Adult Tobacco Survey (GATS), a component of Global Tobacco Surveillance System (GTSS), is a standardized mechanism for systematically monitoring the tobacco consumption. It was last carried out during 2014 in Pakistan. The target population comprised of adult Pakistanis (males and females) aged 15 years and above. Three staged cluster random sampling technique was used to get representative estimates from across the country. First stage involved enumeration of blocks in selected urban and rural areas (Primary Sampling Units) which was followed by listing of the households called as secondary sampling units. At the third stage the individuals aged 15 years and above were randomly selected and regarded as Tertiary Sampling Units. The information was collected on a pretested standardized questionnaire. The detailed methodology has already been explained elsewhere.<sup>12</sup>

The survey data was released for the general researchers by Center for Disease Control (CDC) (Data set is available at CDC Website (<https://www.cdc.gov>))

and no prior permission is required for data use).

## Study Variables

For this paper the main study variable was the current use of smoked tobacco products. It was taken as a dependent variable along with primary reason to stop smoking and main approach for quitting. Independent variables studied for analysis included demographic variables like age, gender, educational level, residence i.e. urban/rural area.

## Data Analysis

Complex data set analysis was performed to obtain population estimates and their 95% CIs as described earlier.<sup>12,13</sup> The associations between current smoking and sociodemographic features were analyzed by univariate analysis, frequencies were calculated, odds ratios were computed. Associations for cessation and quitting behavior was determined using chi square tests wherein p-values less than  $p < 0.05$  were considered statistically significant. All weighting estimates and their CIs were performed using SPSS V.<sup>15</sup>

## Results

The GATS analysis revealed that current smoked tobacco use was 12.4% in Pakistan with 21% male users and only 2% female users. Of the smoked product users

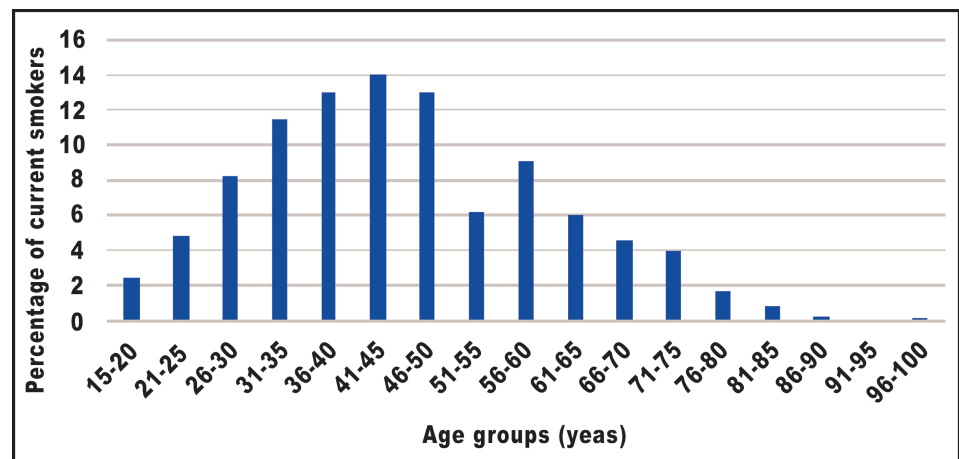


Figure-1: Age wise distribution of current smoking status of respondents of GATS Pakistan 2014.

Table-1: Association demographic variables with the average weekly expenditure by smoked tobacco users.

Weekly Expenditure PKR	Urban n (%)	Rural n (%)	Chi square (P value)	Age Up to 25 years n (%)	Age >25 years n (%)	Chi square P value	Educated n (%)	Uneducated n (%)	Chi square (P value)
100-200	190 (52)	255 (58)		39(60)	406(55)		211(57)	234 (53)	
201-400	119 (32.6)	145 (33)	10.86 (0.93)	17(26)	247(33)	7.6 (0.26)	115(31)	149 (34)	3.7 (0.71)
401- 600	30 (6.6)	21 (5)		7(11)	44(6)		22(6)	29 (6.6)	
601 and above	21(5)	9 (2)		0(0)	33(4.5)		16(4.3)	17 (4)	

**Table-2:** Univariate analysis of risk factors for smoking among adults GATS Pakistan, 2014.

Characteristics	Current smoking prevalence	Odds ratio	95% CI	p-value
<b>Gender</b>				
Male	23.50%	14.1	11.2-17.7	0.000
Female	2.10%			
<b>Education</b>				
Uneducated	14	1.4	1.2-1.6	0.000
Educated	11.6			
<b>Residence</b>				
Urban	10.5			0.000
Rural	16.2	0.7	0.6-0.8	
<b>Age in years</b>				
15-24	3.30%			0.000
25 and above	15.80%	0.2	0.1-0.2	

**Table-3:** Association of demographic determinants with quitting behavior of current smokers GATS Pakistan 2014.

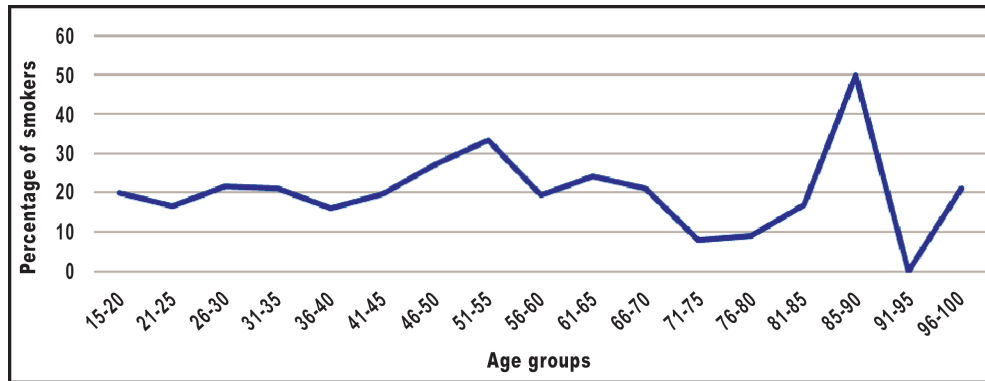
Characteristic	Urban n (%)	Rural n (%)	Chi square (P value)	Age < 25 years	Age >25 years	Chi square P value	Educated	Uneducated	Chi square (P value)
<b>Primary reason to stop smoking:</b>									
Financial issue	16 (7)	21 (9)	7.37 (0.2)	3(2.4)	10 (8.6)	7.8 (0.25)	2 (1.6)	11 (9)	19.7 (0.003)
Health concern	68 (30)	50(22)		6(4.8)	45(36)		26 (21)	25 (20)	
Family/ friends influence	20 (9)	20(9)		4(3.2)	19 (15)		13 (2.4)	10 (8)	
Religion	4 (1.7)	5(2.2)		0(0)	5(4)		1 (0.8)	4 (3.2)	
Other	3 (1.3)	6(2.6)		0(0)	5(4)		3 (2.4)	2 (1.6)	
<b>Main approach utilized for quitting:</b>									
Counselling	7 (4)	7 (4)	1.75 (0.94)	0 (0)	14 (8)	4.0(0.6)	9(5)	5(3)	5.6 (0.45)
Medication	7 (4)	3(1.5)		1(0.5)	9(5)		4(2.2)	6(3.3)	
Substitution with other product	4 (2.2)	5(3)		0 (0)	9 (5)		4(2.2)	5(3)	
Without assistance	58 (33)	42 (24)		5(3)	95(54)		36(20)	64(36)	
Others	8 (4.5)	7 (4)		1(0.5)	14(8)		6 (3.3)	9(5)	

84% males and 8.2% females were smoking on daily basis. The mean age at the start of use of smoked product was 25±18 years. Age wise distribution of current smoking status revealed that there is a gradually increasing trend of smoking with the age until 45 years (14%) and the prevalence gradually decreases afterwards (Figure-1).

This survey revealed that all forms of smoked products were used by Pakistani population but the most common was the use of manufactured cigarettes 10.5% followed by waterpipe/ hookah 3%. The available data of 805 current smokers who responded to the question regarding their expense on the purchase of smoked products; 55% were spending upto 500-1000 PKR (5-10 USDs) weekly followed by 32% spending 1000-2000 PKR (10-20 USDs). Although, it was found that the rural residents were spending more as compared to urban residents but this difference was not statistically significant for both the categories (chi square 10.86, p value 0.93) (Table-1)

Univariate analysis of the determinants of smoking among adults showed that males (OR: 14.1 CI= p value 0.000) are at more odds followed by uneducation (OR: 1.4 CI= p-value 0.000) that puts Pakistanis at highest odds of becoming smokers. It also showed that living in urban areas (OR: 0.7 CI= p-value 0.000) and avoiding smoking attempts in young age till 25 years (OR: 0.2 CI= p value 0.000) showed protective association (Table-2).

Almost three fourth of the current smokers never made any quitting attempt as only 21% of the current smokers reported making a quit attempt in last one year. Association of demographic determinants with cessation among current smoked tobacco users showed that the health concern was the primary reason to ever stop smoking. However, significant difference was seen between educated and uneducated. The data also showed that demographic determinants including urban dwellers, educated and aged 25 years and above had an association with quitting without assistance followed by



**Figure-2:** Cessation pattern among different age groups among current smokers for one year: GATS Pakistan 2014.

counselling, although the difference observed was not statistically significant. (Table-3)

Age wise analysis of the cessation attempt reveals that the trend is almost the same in all age groups and slightly increases in old age group smokers at the age of 81-90 years (Figure-2).

## Discussion

The GATS analysis revealed an overall prevalence of tobacco use to be about 19.1% among adult Pakistani population. This is much lower as compared to other neighboring countries like India which has 35.4% overall tobacco use and Bangladesh 43.3%. However, worth noting is that in both these countries smoked tobacco use is less common as compared to Pakistan as GATS Bangladesh reported 16% and India 8.7%.<sup>14,15</sup> Smokeless tobacco use is less in our country where as major burden of tobacco use in neighboring countries is of smokeless tobacco use. Most commonly used smoked tobacco product was manufactured cigarettes; followed by hookah/ waterpipe use. Waterpipe and hookah are gaining the popularity globally as it is considered as a fashion statement and because of the misconceptions that waterpipe filters the harmful effect of smoke.<sup>16</sup>

This analysis revealed that smoking prevalence gradually increased with increasing age and decreases only in later age groups wherein cigarette smoking is more common in younger aged Pakistanis and hookah in older aged persons.<sup>14-16</sup> The rising trend with increasing age is also reported from other countries like Thailand Bangladesh and India.<sup>14,15</sup> The ill effects of increased uptake at the most productive age of life warrants the targeted cessation strategies be an integral component of our national anti-tobacco policy.<sup>2,17</sup>

Univariate analysis showed the male gender at very high

odds of being a smoker probably because of wider social acceptability. It also showed that being uneducated and rural dweller puts a Pakistani adult at higher chance of becoming the smokers. The probable explanation to this is the lack of education especially little or no health education being delivered to them. These findings are in line with cross country comparisons of GATS data for South East Asian regions.<sup>14,17</sup>

Average monthly expenditure as revealed by this study indicates almost no effect of education and wealth index as rural dwellers are expending more on tobacco products. It has its implications particularly in underprivileged sections like rural areas where literacy is generally low because, the expenditure on tobacco is at the expense of compromise on legitimate needs of a family. Studies show these societies and families ultimately tend to perform poor on their health indicators.<sup>23</sup>

GATS reported almost 60% current smokers never even thought about quitting despite noticing the health warning. Our analysis showed that the trend for quitting remains the same in almost all the age groups except in late ages where mostly the smokers are terminally ill, its detrimental effects have already shown up and mostly they are unable to smoke; a fact supported in a study from three South East Asian countries.<sup>18,20,21</sup>

Significant to note is the fact that respondents made quit attempts without any assistance indicating that the health care providers are not addressing the issue either because they are untrained and lack time and support staff, or they are ignorant of the importance of this public health issue.<sup>19-22</sup> Also there is no concept of any counselling clinics in our country to help smokers quit.

## Conclusions and Recommendations

This secondary analysis of sociodemographic determinants of smoked tobacco use in Pakistani adults concluded that males particularly living in rural population and having little or no education are more at the risk of tobacco use. This study also revealed that there is little effect of education and residential status on the patterns of expenditure on purchase smoked tobacco and cessation attempts.

Health education involving primary health care providers particularly targeting rural population might prove to be an effective way to reduce the prevalence of smoking. For helping current smokers in successful cessation, Pakistan needs targeted strategies particularly for middle aged population.

### Limitations

The study had a few limitations in terms of availability of data on only limited and predetermined sociodemographic variables. The effect of confounding variables was not addressed during present study because of limited number of responses for some variables. Despite these limitations the study provides generalizable evidence on demographic determinants of smoked tobacco use in Pakistan, which can be considered while formulating future anti-tobacco policies.

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