

# IMPACT OF SOCIODEMOGRAPHIC FACTORS ON CIGARETTE SMOKING IN PAKISTANI MALES

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## ABSTRACT

**OBJECTIVE:** To determine the association of socioeconomic factors with cigarette smoking and their relative impact on it in male gender of Pakistan.

**METHODS:** This study was based on Pakistan demographic and health survey data set 2012-13. Bivariate and binary logistic regression analysis has been carried out to evaluate the impact of cigarette smoking in male population of Pakistan.

**RESULTS:** More than two third (71.68%) respondents never smoked cigarette. Chewing tobacco was commonly (18.6%) used by the respondents. High proportion (34.1%) of respondents consumed eighteen and over cigarettes in 24 hours, whereas the 18% of the respondents consumed twelve to seventeen cigarettes. Age, education, place of residence by province, media access and wealth index were found to be significant with respect to cigarette smoking. Inverse association existed between education and smoking .i.e. respondents with no education had smoked 1.604 times more cigarettes as compared to respondents with higher level of education. The respondents reading newspaper and access to radio had less likely to smoke cigarettes [OR=0.931 and OR=0.80] respectively compared to their counterpart having no access to media. Ever married men belonged to Baluchistan province smoked cigarettes 1.576 times more than their counterparts that lived in GB.

**CONCLUSION:** Age, education, place of residence by province, media access particularly newspaper and radio and wealth index were found having statistically significant impact on cigarette smoking in Pakistani male gender. These statistical outcomes will serve as guide in smoking control and management of cigarette smoking.

**KEY WORDS:** Cigarette Smoking (MeSH); Tobacco Smoking (MeSH); Male (MeSH); Pakistan (MeSH); Age Groups (MeSH); Education (MeSH).

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## INTRODUCTION

Tobacco is one of the major public health threat particularly in developing countries. Approximately one person dies every six seconds due to tobacco, accounting for one in 10 adult deaths. More than one billion (80%) smokers globally live in low- and middle-income

countries, where the mortality and morbidity burden due to tobacco is much higher<sup>1</sup>. The prevalence of smoking in most high income countries has declined in the past<sup>2</sup>. From medical prospective, smoking has direct health harms and diseases of nearly all organs of the body seem connected to cigarette smoking<sup>3</sup>.

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Avoiding smoking prolongs life as well playing significant role in decreasing the threat of heart related problems and death<sup>4</sup>. There are several other direct harm to health from cigarette smoking like lung cancer, heart related problem and respiratory complications<sup>3</sup>. Cigarettes smoking is also responsible in the reduction of fertility as well as erectile dysfunction in males<sup>5</sup>. It may contribute to development of diabetes and raise both the risk and the severity of rheumatoid arthritis<sup>3</sup>. It causes the age-related macular degeneration<sup>3</sup> and a major cause of chronic coughing, increased phlegm, emphysema and bronchitis. Smoking intensifies asthma in adults and also damages the immune system<sup>3</sup>. Smokers are more prone to influenza and likely to experience severe symptoms when they get the flu<sup>6</sup>. It is common understanding among smokers that cigarettes smoking relieve stress, epidemiologic and clinical studies have reported a strong association between smoking and depression.<sup>7,8</sup> Smoking only appears to decrease tension because it declines the irritability and stress caused by the underlying nicotine addiction<sup>9</sup>.

Several studies revealed that socio-demographic factors are consistently associated with cigarette smoking namely male sex, younger age, lower socio economic status, and lower educational background are directly linked with smoking prevalence.<sup>10-14</sup> It is well established that rise

in awareness level prevent the initiation of tobacco use and reduce its prevalence among youth<sup>15</sup>. As there were no previous studies conducted locally, the present study was aimed at to determine the impact of sociodemographic factors on tobacco smoking in Pakistan, specifically in male population.

## METHODS

Data source: So far three demographic health surveys (1990-19, 2006-07 and 202-13) have been conducted as part of the MEASURE DHS international series. The national institute of population studies done these survey with the technical support from ICF International and Pakistan bureau of statistics and the USAID supported the financially. The most recent data set for ever married men with sample size 3134 was used for this study.

Bivariate analysis is performed for male respondents with the objective to determine the socioeconomic characteristics that have potential influence on cigarette smoking. Pearson's chi-square test of independence was performed to evaluate the association between dependent and independent variable. To understand the functional relationship of variables binary logistic regression analysis was carried out<sup>16,17</sup>. The dependent variable in our study was cigarette smoking while independent variables were place of residence (urban, rural), place of residence by province (Punjab, Sindh, KPK, Baluchistan and Gilgit Baltistan [GB]), educational level (Illiterate, primary, secondary and higher), media exposure (read newspaper, listen radio and watch TV), wealth index (poorest, poorer, middle, richer and richest) and respondents occupation (working and not working). The variables found to be insignificant in bivariate analysis were excluded in binary logistic analysis.

**TABLE I: NUMBER OF CIGARETTES CONSUME BY THE RESPONDENTS IN LAST 24 HOURS**

Frequency of cigarettes consumed	%age
0-5	18.6
6-11	29.3
12-17	18.0
18 and over	34.1

**TABLE II: CROSS TABULATION OF OUTCOME VARIABLE VERSUS EXPLANATORY VARIABLES**

Covariate	Response	Smokers cigarettes		Ever married men		P-value
		No	Yes	No	Yes	
Age (years)	15-19	89.7%	10.3%	0.000		
	20-24	82.1%	17.9%			
	25-29	77.7%	22.3%			
	30-34	70.7%	29.3%			
	35-39	73.0%	27.0%			
	40-44	66.0%	34.0%			
	45-49	67.1%	32.9%			
Place of residence by region	Punjab	68.9%	31.1%	0.000		
	Sindh	76.8%	23.2%			
	Khyber Pakhtunkhwa	78.9%	21.1%			
	Baluchistan	62.4%	37.6%			
	Gilgit Baltistan	73.2%	26.8%			
Residence	Urban	71.7%	28.3%	0.983		
	Rural	71.7%	28.3%			
Educational level	Illiterate	65.8%	34.2%	0.000		
	Primary	71.3%	28.7%			
	Secondary	71.9%	28.1%			
	Higher	78.3%	21.7%			
Read newspaper	No	68.6%	31.4%	0.000		
	Yes	74.2%	25.8%			
Listen radio	No	73.1%	26.9%	0.018		
	Yes	69.1%	30.9%			
Listen TV	No	74.4%	25.6%	0.000		
	Yes	71.1%	28.9%			
Wealth quintile	Poorest	71.9%	28.1%	0.000		
	Poorer	69.0%	31.0%			
	Middle	69.5%	30.5%			
	Richer	68.3%	31.7%			
	Richest	77.8%	22.2%			
Respondent occupation	No working	77.5%	22.5%	0.214		
	Working	71.5%	28.5%			

**TABLE III: BINARY LOGISTIC REGRESSION ANALYSIS ABOUT SMOKING**

Variables	Smoke cigarettes	
	Category	Ever married men
Age in years (ref 45-49)	15-19	0.229
	20-24	0.451***
	25-29	0.584***
	30-34	0.882
	35-39	0.78
	40-44	1.035
Education level (ref Higher)	illiterate	1.604**
	primary	1.36*
	secondary	1.362**
Read Newspaper( ref no)	Yes	0.931*
Has Radio(ref no)	Yes	0.80*
Place of residence by region (ref GB)	Punjab	1.27
	Sindh	0.928
	Khyber Pakhtunkhwa	0.749*
	Baluchistan	1.576**
Wealth index (ref Richest)	Poorest	1.138
	Poorer	1.403*
	Middle	1.396*
	Richer	1.525***

Key: values represent odds ratio; ref implies reference category; \*\*\*p<0.001, \*\*p<0.01, \*p<0.05

**RESULTS**

The maximum (20.3%) and the minimum (1%) respondents fell in age group 30-34 and 15-19 respectively, while almost same proportion (18%) of respondents were found in age range of 35-39 and upper age groups. The percentage of rural (51.5%) respondents are higher compared to urban (48.5%). Punjab has a higher proportion of respondents while about quarter (24.2%) of the respondents was from Sindh. Respondents with secondary level of education were in a greater proportion (32%) while about more than a quarter (27.1%) of the respondents were illiterate.

Various questions were asked from the respondents about the use of tobacco, High proportion (55.1%) of the respondent’s smoked nothing. Whereas,

18.6% of the respondents used chewing tobacco. More than two third (71.68%) of the respondents never smoked cigarette and only 28.32% ever married men smoke cigarette.

Percentage distribution of the total number of cigarettes smoked in last twenty four hour is demonstrated in Table I.

**Bivariate analysis:**

Under the bivariate analysis the findings revealed that the early age groups of the respondents did not smoke cigarettes i.e. 89.7% of the ever married men with age group 15-19 years old did not smoke. As age increased, the proportions of smoker also increased. Figures related to place of residence by urban rural was found insignificant

(p=0.980) while figures related to the place of residence by province found to be significant (p=0.980). Higher number of respondents smoking cigarettes lived in Baluchistan (37.6%) followed by Punjab, GB, Sindh and KPK. Educational status found to be positively associated with smoking. Newspaper and radio were found to be significant as well as wealth index. Whereas the smoking and occupation of ever married men were not significantly related. The detail explanations of bivariate analysis are illustrated in Table II.

**Binary logistic regression:**

Factors along with odds ratio are showed in Table III, model revealed that the early age groups (20-24 and 25-29) was less likely to smoke [OR=0.451,0.584] as compared to upper age groups. The places of residence by region were found to be significantly related to cigarette smoking. Model revealed that the ever married men resident of Baluchistan smoked cigarettes 1.576 times more than their counterparts who lived in GB. Education and smoking had inverse relationship. Ever married men with no education had smoked 1.604 times more as compared to higher level of education. The respondents reading newspaper and access to radio had less likely to smoke cigarettes [OR=0.931 and OR=0.80] respectively compared to their counterpart having no access to media. Poorer, middle and richer had smoked cigarettes 1.403, 1.396 and 1.525 times more than their counterpart richest respectively.

**DISCUSSION**

This study found out that more than two third (71.68%) of the respondents never smoked cigarette. Chewing tobacco was commonly (18.6%) used. Number of cigarettes consumed by the respondents in last 24 hours varied high

proportion (34.1%) of the respondents consumed eighteen and over cigarettes, whereas the 18% of the respondents consumed twelve to seventeen cigarettes. The association of smoking was well documented in this study, the findings was consistent with the previously study conducted by the National Health Survey of Pakistan<sup>18</sup>.

The proportion of cigarette smoker's increase as age increased in our findings. Historical study showed that the use of tobacco smoking increases with an increase in age, particularly in rural areas of Pakistan.<sup>18,19</sup> The identical results yielded in Sindhi males from rural areas<sup>20</sup>. It is well established that cigarette smoking varies by location and geographical area of residence.<sup>21</sup> Smoking trend between both gender increases at the rate of 1.26 per decade in Northern areas of Pakistan.<sup>22</sup>

Among low and middle income countries, Ethiopia had lowest prevalence rate of 7.4% and Latvia had the highest (65%).<sup>23</sup> The prevalence of smoking among adolescence decreased between 2002 to 2010 in some European countries, namely Germany, Netherland, Belgium and France and increases in Croatia, but remained constant for Italy and Hungary.<sup>24</sup> The smoking trend is increasing in some Asian countries.<sup>25-28</sup> However, in Kuwait, the prevalence is highest at early adult ages. More than half of them quit smoking habit till reaching at 29 years of age.<sup>29</sup> The prevalence of smoking is highest for young adults than older ones in Australia, U.S and Korea.<sup>30</sup>

Among provinces, the respondents from Baluchistan are more likely to smoke in our findings; the reason might be the province has low status in term of health, education gender equality indicators, economic development and physical status comparing with provinces and Pakistan taken as whole.

Previous study<sup>18</sup> showed much variation among different ethnic groups in Pakistan. The prevalence rates of smoking were highest in Sandhi's. However Pashtuns were fond of chewing/snuff tobacco rather than cigarette smoke.

The importance of education is acknowledged globally, better educated individuals indeed to have a better health and a lower risk of mortality.<sup>31</sup> Our findings revealed that inverse association exist between educational attachment and smoking. Higher educational attainment increases the probability of smoking cessation.<sup>32</sup> Pakistan has poor literacy rate<sup>20</sup>; nearly half of the males were illiterate<sup>33</sup>. A study showed in Rawalpindi a major city of Pakistan, education reduce the smoking habit.<sup>34</sup> Identical results yielded by National Health Survey of Pakistan. 18 In Dhaka, people with low education more likely to smoke.<sup>35</sup>

Along with education, the mass media coverage become an important tools for stopping the smoking behaviour particularly television.<sup>2,36</sup> The newspaper coverage sometimes promote the smoke free bars and restaurants.<sup>37</sup> Higher educated groups were more effected through mass media campaign than lower educated groups.<sup>38</sup> The U.S based tobacco industry target on young people because they can influence them smoothly.<sup>39</sup> Almost one fourth of urban Nepali people saw cigarette advertisement frequently.<sup>40</sup> The chance of adopting the smoking habit was much higher among these people. The Indian men was found more addictive who watched television daily<sup>41</sup>.

The increase in the price of cigarette with media campaign significantly reduced the smoking intensity in Mauritius and Australia.<sup>42,43</sup> The campaign may have short term influence due to parallel marketing by tobacco industry<sup>44</sup>, which neutralize the effort of quitting. Tobacco companies spend tens of billions of dollars each year on tobacco advertis-

ing, promotion and sponsorship.<sup>45</sup> Our finding revealed that positive association between wealth index and cigarette smoking. A study in Serbia demonstrating that richest men were more likely to quit smoking than poorest men.<sup>46</sup> A cross national gender study revealed that smoking is inversely associated with wealth and education among three countries namely Australia, U.S and Korea.<sup>30</sup> In India, the richest people were less likely to consume tobacco than poorer.<sup>47</sup>

#### Study limitations:

This study based from secondary data set taken from PDHS, in which a few limited question asked about smoking and other form of tobacco use to a small proportion of ever married men. The data lacked other important variables like smoking related various kinds of diseases, treatment and prevention, which does not allow establishing temporal relationship on the basis of these findings. This study goal was to only pinpoint the socio demographic factors that might be helpful in anti-tobacco seeking measures and mechanism.

## CONCLUSION

It is concluded from this study that those with lower educational attachment, people belong to less develop areas with low socio economic status, increase in age and sufficient lack of media access are more prone to cigarette smoking.

#### Recommendations:

Potential struggles are mandatory where the low literacy rate and insufficient media coverage particularly in remote areas, so that various direct health harm caused by cigarette smoking can be reduced. Government should completely ban the smoking encouraging advertisement. The availability of these outcomes can be emerging in anti-tobacco management and control.

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### AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

- JAN:** Concept & study design, analysis and interpretation of data, drafting the manuscript, final approval of the version to be published
- MI & AAC:** Analysis and interpretation of data, drafting the manuscript, final approval of the version to be published
- SAAZ:** Critical revision, drafting the manuscript, final approval of the version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

### CONFLICT OF INTEREST

Authors declare no conflict of interest

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