

PREVALENCE AND PREDICTORS OF USE OF EASILY AVAILABLE STREET DRUG AMONG FEMALE POPULATION OF AHMEDABAD.

Dr. Mamta Patel

Assistant professor , Aroma college of commerce, Ahmedabad- 13

Received: May 18, 2018

Accepted: June 24, 2018

ABSTRACT

The research objective of present study is to monitor and investigate consumption patterns of most conveniently available legal street drug tobacco in female participants of Ahmedabad as the information regarding tobacco use and exposure is one of the sources of prevention of increasing morbidity and premature mortality caused by tobacco use in women and new born children who get highly affected by the tobacco use. The study sample of 1350 female participants (age 15 to 64 Years) was selected by self organized population based survey. An un-weighted dataset is part of survey design and rates and ratios are estimated with 95% CI. For the evaluation of consumption of tobacco products, different socio-demographic characteristics of respondents were selected as covariates. For the data collection a pretested questionnaire was prepared in two languages English and Gujarati. The whole statistical analysis of the collected data was carried out by means of SPSS 21.0 using logistic regression for selection of the risk factors. From the study results we can conclude that a majority of the early age female respondents were habituated with tobacco use. Highest prevalence of tobacco abuse was found in lower cast and illiterate or less educated female participants.

Keywords: *Combusting tobacco, Female participants, Logit model (Logistic regression), prevalence.*

1. Introduction

Tobacco is the ninth most harmful legal street drug to humans. It get utilised more frequently as it is easily available in the market. Tobacco is explicitly exempted from drug scheduling, despite their detrimental impacts on individual health and society as a whole, due to economic and cultural reasons. Smoking and tobacco use pose a serious risk of death and disease. Consumption of tobacco products is the largest preventable risk factor for morbidity and mortality in developed and developing countries. The epidemic of tobacco use among women is increasing in some countries. A WHO survey of smoking trends in youths showed that in half of the 151 countries surveyed, similar numbers of girls and boys smoked. Evidence suggests that most of these girls and boys will continue to smoke into adulthood. Women who smoke are more likely than those who do not to experience infertility and delays in conceiving. Smoking during pregnancy increases risks of premature delivery, stillbirth and newborn death, and may cause a reduction in breast milk. Smoking increases women's risk for cancer of the cervix. More research is needed to understand trends in tobacco use among women. Monitoring and surveillance data in relation to tobacco use and its impacts is one of the main requirements of tobacco control. In relation to monitoring and surveillance, standardized estimates of smoking prevalence are needed to chart the progress of developing countries through the stages of the tobacco epidemic, and to determine specific strategies for interventions. Without such data, the extent and range of the impact of tobacco cannot be gauged. This study aimed to find out the magnitude of tobacco product usage in female population of Ahmedabad, one of the key cities of India with particular focus on variation by sociodemographic factors with the major aims to determine the prevalence of consumption of tobacco products in adult female participants who are residents of Ahmedabad and between the age of 15 to 64 years and to identify risk factors of tobacco consumption among female adults of Ahmedabad.

2. Material, Methods and Data collection

Design of study: It was a self organized cross sectional population based survey which includes 1350 adult female participants between age of 15 to 64 years from Ahmedabad city.

Selection of participants: To select the participants or respondents from female population of Ahmedabad city a random selection is used.

Data collection: The face to face survey was conducted to collect required data using a predesigned and pretested questionnaire (prepared in local language Gujarati). It was given to selected participants of age between 15 to 64 years who are female and residents of Ahmedabad city. An unbiased assistance was provided to those respondents who were unable to fill questionnaire at their own (e.g. illiterates, physically unable etc.). Non responses were excluded from the sample.

3. Statistical Analysis

The whole statistical analysis of the collected data was carried out by means of SPSS 21.0 using binary logistic regression.

3.1 Binary logistic regression with multiple independent variables

For m explanatory variables

$$\text{logit}(p(Y)) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_m X_m,$$

Where $\text{logit}(p) = \ln\left(\frac{p}{1-p}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_m X_m$

and the odds = $\frac{p}{1-p}$

Here parameter β_i = effect of covariate x_i on the log odds that Y assumes 1, controlling other covariates x_j , for instance, $\exp(\beta_i)$ is the multiplicative effect on the odds of a unit increase in covariate x_i , at fixed levels of other covariates x_j .

3.2 Selection of the variables

3.2.1 Response variable: The present study focuses on the phenomenon of tobacco consumption therefore it was considered as response variable with two categories consumer (code 1) and non consumer (code 0).

3.2.2 Explanatory Variables: The following is a detailed review of explanatory variables which we believe have an effect on responses.

Variable name	Categories (Identity)	Variable name	Categories (Identity)
Age	55-64(A-1)	Level of Education	16 or more years of education(ED-1)
	45-54(A-2)		13-15 years of education(ED-2)
	35-44(A-3)		8-12 years of education(ED-3)
	25-34(A-4)		1-7 years of education(ED-4)
	15-24(A-5)		No education(ED-5)
Cast	Other backward Class (OBC)	Annual Income:	10 lakhs or more(I-1)
	Schedule tribe(ST)		5-9.99 lakhs(I-2)
	Schedule cast(SC)		2.5-4.99 lakhs(I-3)
	General(OPEN)		0-2.49 lakhs(I-4)

Explanatory Variables		Prevalence Rates			Odds Ratio					
Variable	Category	%	L.B.	U.B.	O.R. (Crude)	L.B.	U.B.	O.R. (Adjusted)	L.B.	U.B.
Age	A-1	22.1	17.36	26.84	0.474	0.323	0.697	0.980	0.565	1.701
	A-2	11.9	7.91	15.89	0.225	0.141	0.358	0.501*	0.266	0.943
	A-3	15.3	11.32	19.28	0.301	0.200	0.453	0.690	0.395	1.206
	A-4	21	16.07	25.93	0.444	0.297	0.663	0.493*	0.280	0.870
	A-5	37.4	31.11	43.69	1	-	-	1	-	-
Cast	OBC	20.5	15.43	25.57	3.081	1.995	4.760	2.463*	1.466	4.138
	ST	19.3	12.76	25.84	2.857	1.701	4.797	1.803	0.937	3.470
	SC	42	37.06	46.94	8.670	6.015	12.498	3.355*	2.134	5.276
	OPEN	7.7	5.54	9.86	1	-	-	1	-	-
Level of Education	ED-1	3.5	1.47	5.53	0.017	0.009	0.033	0.112*	0.049	0.258
	ED-2	6.3	3.31	9.29	0.031	0.018	0.056	0.209*	0.095	0.459
	ED-3	10.3	6.69	13.91	0.054	0.033	0.086	0.280*	0.146	0.538
	ED-4	25.5	20.35	30.65	0.160	0.109	0.236	0.273*	0.166	0.447
	ED-5	68.1	62.1	74.1	1	-	-	1	-	-
Annual Income	I-1	5.2	2.34	8.06	0.034	0.018	0.062	0.146*	.066	0.321
	I-2	7.6	4.68	10.52	0.050	0.032	0.080	0.168*	.091	0.312
	I-3	5	2.96	7.04	0.032	0.020	0.052	0.086*	.048	0.155
	I-4	62	57.01	66.99	1	-	-	1	-	-

4. Discussion

Present study is a statistical study of consumption of tobacco products in female participants (respondents) as effects of different socio-demographic predictors. In Young (A-1) female tobacco consumption is highly prevalent. Similar patterns of consumption of tobacco are found in other backward class, schedule cast and schedule tribe users. Maximum tobacco consumption proportion of consumers is found in illiterate female. Female with lower income are found to be frequent users tobacco. But these study results may not clear the picture of combined effects of set of predictors as they are individual proportions. To overcome this problem an advance statistical analysis is needed.

Like all other regressions, multiple logistic regression is also a predictive analysis. Logistic regression is used to predict membership of categories of response variable. It can be considered as a zoomed profile of simple proportionate values of tobacco use in any form according to their socio-demographic characteristics and awareness of ill effects. Table 1 presents detailed review of explanatory variables which we believe have an effect on responses and Table 2 presents estimated odds ratios for use of combusting (smoking) tobacco products in male participants using MLR model. It can be seen that some of the categories of predictors are not statistically significant (without *). Odds ratios or EXP (b) of the independent variables are predicted changes in odds for the unit increase in respective dependent variable. The values greater than 1, less than 1 and equal to 1 of odds ratio represent corresponding increase, decrease and no effect on response variable respectively.

5. Results

Table 2 summarizes the analysis of data of current and former female tobacco users found in selected sample according to their socio-demographic characteristics (or status) by using logistic regression.

Explanation of Odds Ratios of Table 2

Odds ratio of prevalence of tobacco consumption among female users of age 45 to 54 years category of variable age is 0.501*(with confidence interval 0.266-0.943) compared to baseline age category of tobacco use among female users of age 15 to 24 years. Which means that the odds of females with age 45 to 54 years, having exposure of tobacco is 0.501 times that of odds of female with age of 15 to 24 years having exposure of tobacco .i.e. female with age 45 to 54 are less likely than female with age 15 to 24 to get addicted by tobacco consumption. Odds ratios of categories other backward class and schedule cast of variable cast are 2.463*(1.466-4.138) and 3.355*(2.134-5.276) respectively compared to baseline category of general cast. Which means odds of female with O.B.C. and with S.C. having exposure of tobacco are 2.463 and 3.355 times than the odds of female with general cast having exposure of tobacco respectively. All coefficients of education variable categories are statistically significant. The odds are 0.112, 0.209, 0.280 and 0.273. The odds of female with education having exposure of tobacco are decreasing with the increase in odds of illiterate females having an exposure of tobacco. That means female with higher education are less likely to get addicted by tobacco habits than illiterate female. All model coefficients of categories of income variable are also statistically significance which show that female with higher incomes are significantly less likely to get addicted by tobacco use than female with income below 2.5 lakhs.

Predicting Response Probabilities

Log odds (p) = 0.586 - 0.020(A-1) - 0.691(A-2) - 0.370(A-3) - 0.707(A-4) + 0.901(OBC) + 0.589(ST) + 1.211(SC) - 2.188(ED-1) - 1.567(ED-2) - 1.272(ED-3) - 1.3(Ed-4) - 1.927(I-1) - 1.781(I-2)- 2.455(I-3)

For example, let a female case of predicting probability of getting an exposure of tobacco with following details

AGE	CAST	EDUCATION	INCOME
35 YEARS	ST	3 YEARS	1.5 LAKHS

Log odds= 0.586 - 0.370(1) + 0.589(1) - 1.3(1) + 0.00(1) = -0.495

Odds =EXP (-0.495) = 0.6095

Predicted Probability = 0.6095 /1+0.6095 = 0.379

0.379 is the probability of the considered female case to get addicted by tobacco products.

6. Conclusion

From the study results we can conclude that a majority of the early age female respondents were habituated with tobacco use. Highest prevalence of tobacco abuse was found in lower cast and illiterate or less educated female participants. Age, cast, income and education are found to have significant effects on consumption of tobacco products in female users. Very high prevalence rates found in study indicate urgent need of effective tobacco control programs to get rid of this deadly habit.

7. References

1. Sieminska, A., & Jassem, E. (2014). The many faces of tobacco use among women. *Medical science monitor: international medical journal of experimental and clinical research*, 20, 153.
2. Hosmer D W, Lemeshow S.(2000): *Applied logistic regression*. US, Wiley-Inter science.
3. Tabachnick B G, Fidell L S, Osterlind S J.(2001) *Using multivariate statistics*. US, Allyn and Bacon Boston.
4. Bailey S L (1992): Adolescents' multi substance use patterns: the role of heavy alcohol and cigarette use, *American Journal of Public Health*, September :9(82): 1220- 1224.
5. Amos, A., Greaves, L., Nichter, M., & Bloch, M. (2011). Women and tobacco: a call for including gender in tobacco control research, policy and practice. *Tobacco Control*, tobaccocontrol-2011.
6. Gupta S, Sarpal SS, Kumar D, Kaur T, Arora S (2013): Prevalence, pattern and familial effects of substance use among the male college students–A North Indian Study, *Journal of Clinical and Diagnostic Research*, 7(8):1632-1636.
7. Narain R, Sardana S, Gupta S, Sehgal A (2011): Age at initiation and prevalence of tobacco use among school children in Noida: A cross-sectional questionnaire based survey, *The Indian Journal of Medical Research*, 133(3), 300.
8. Gilani S I, Leon D A (2013): Prevalence and sociodemographic determinants of tobacco use among adults in Pakistan: findings of a nationwide survey conducted in 2012, *Population Health Metrics*, 11 (1), 1.
9. Lemeshow S, Hosmer D W (1982): A review of goodness of fit statistics for use in the development of logistic regression models, *American Journal of Epidemiology*, 115(1), 92-106.