Female Smoking: A Rising Concern in India

Tania Mukherjee[1], Patralika Bhattacharjya[2], Sakhi Roy[2].

[1]Post Graduate Student, Amity School of Economics, Amity University West Bengal, Kolkata

Abstract

Cigarette smoking is the dominant form of tobacco use across the world. There is growing concern about to the increasing trend of female smoking in India. The overall female smoking is growing at a faster rate than male, which is an emerging concern and requires attention of policy makers. A recent WHO report stated that, 'in quickly developing India, female cigarette smoking exists mainly among the urban elite classes of large cosmopolitan cities, which may reflect women's aspiration to 'equal' the social position of men'. Our result suggests smoking cannot be defined with education, and for occupation cigarette smoking is mostly among the higher income groups whereas bidi, gutkha are mostly among the low-income groups.

Keywords: *Female Smoking, India, Trends.*

Introduction

Around 42.4% of men, 14.2% of female and 28.6% (266.8 million) of all adults in India currently use tobacco (smoke and/or smokeless tobacco)[11] .The World Health Organization predicts that India will have fastest rise in death rates for tobacco use in the first two decades of 20th century and most death will be at the productive years of adult life. Tobacco use imposes a significant economic burden on society. The burden caused by tobacco use more than outweighs the economic benefit from their manufacture and sale. India is the second largest consumer of tobacco products and third largest producer of tobacco in world. Each year more than five million deaths are there in the world for consuming any form of tobacco.

Cigarette smoking is the dominant form of tobacco use all across the world. When a person smokes, a dose of nicotine reaches the brain within about ten seconds. At first, nicotine improves mood and concentration, decreases anger and stress, relaxes nerves and reduces amount of food we consume every day. Regular doses of nicotine lead damages to the brain, which then lead to nicotine withdrawal symptoms when the supply of nicotine decreases. Smoking temporarily reduces these withdrawal symptoms and can therefore boost the habit. This cycle is how most smokers become chain smoker. Social and psychological factors play an important part in keeping smokers smoking.

For past two decades female smoking has become rising concern in developing and also developed countries[4,8,9]. The prevalence of female smoking is likely to rise to 20% by 2025 worldwide. It is observed that for females who smoke cigarettes daily, there is increased effect for infertility, still birth and also sudden infant death syndrome (SIDS). Studies showed that the possible risk of fatal breast cancer rises up to 75% for women who smoke two or more packs regularly.[5] Smoking behavior of women differs from that of men[11] . Females are more motivated to smoke and find it hard to quit.

We have focused on this topic because women are the one who gives birth so the entire future generation is dependent on them and if they continue smoking then not only, she suffers but also the new born as smoking significantly damages reproductive organs of females.

The *objectives* of this study is to find out

(i) the trend of female smoking in India,

(ii) Analyze the number of cigarettes smoked on average per day according to age, gender, education and occupation, whether smoking imitation is high among

Corresponding author:
Name: Sakhi Roy
Designation: Assistant Professor, Amity University West Bengal, Kolkata, Address: Major Arterial Road (South-East), Action Area II, New Town, Kolkata, West Bengal 700135.

women than men,

(iii) Conduct a correlation and regression analysis to understand the determinants of Smoking in India. We check weather Education and Working status has effect on the cigarettes smoked by females.

Materials and Method

This paper is descriptive and analytical both and is based on secondary data of NSS 50 (1990), NSS 52 (1993), NFHS 2 (1998), NFHS 3 (2005), GATS 1 (2009), GATS 2 (2016) ,where NSS is Nation Sample Survey, NFHS is National Family Health Survey and GATS is Global Adult Tobacco Survey (an initiative of World Health Organization). From that perspective this paper is qualitative and quantitative both. For correlation and regression analysis data is used NFHS 3 (2005), as the latest raw data of NFHS4 (2016) is not available. Here we have used multiple correlations and then multiple regression. To estimate the joint effect of education in single years and females currently working, on cigarettes smoked in last 24 hours. Here regression equation is,

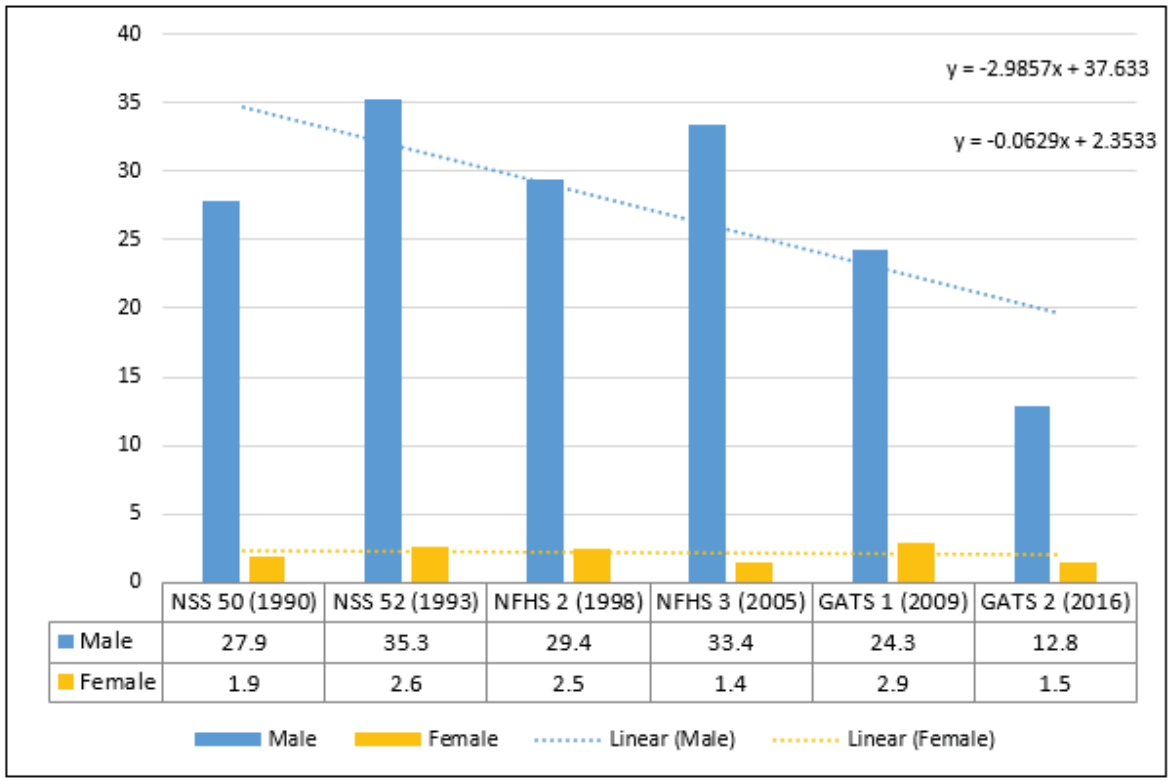
Where, is the dependent variable that is cigarettes smoked in last 24 hours, are the parameters of the model and is the error term,is education in single years, is females currently working. To run the correlation and regression model we have used the software STATA 12.

Findings

I. Smoking Trends among Women:

Figure 1 shows that smoking prevalence (in percentage terms) among male has an overall declining trend. During the period 2009-2016 there is significant decrease (24.3% -12.8%) in smoking trend among male. However, there is rising trend of female smoking during 2005-2009 (1.4-2.9), in 2016 there is a decrease in female smoking but it is greater than in 2005.

We show this data in a comparative bar diagram in Figure1. Here trend line shows the declining trend of male smoking and a steady trend line of female smoking.



Data Source: NSS 50 (1990)[7], NSS 52 (1993)[7], NFHS 2 (1998)[7], NFHS 3 (2005), GATS 1 (2009), GATS 2 (2016)

Figure 1: Smoking Trends according to Gender

Table 1 show that prevalence of female smoking is more among illiterate, which decreased with increasing years of schooling at different time periods. During the period of 2005-2009 smoking trend among illiterate people has risen from 3%-6%, in 2016 it decreased 3.3%, not so much significantly but smoking trend among literate women is fluctuating each year. Table 1 highlight that female illiterates are more prone to smoking, whereas smoking is much less among females who have ten years of educational qualification.

Table 1: Female Smoking Trends according to Literacy

Parameter	**NFHS 2 (1998) (in %)**	**NFHS 3 (2005) (in %)**	**GATS 1 (2009) (in %)**	**GATS 2 (2016) (in %)**
Illiterate	4	3	6	3.3
<5 years	0.8	0.9	1.6	1.1
5-9 years	0.3	0.15	0.5	0.4
>=10 years	0.1	0.05	0.1	0.1

Data source: NFHS 2 (1998)[7], NFHS 3 (2005)[7], GATS 1 (2009)[1], GATS 2 (2016)[2]

II. Number of Cigarette smoked on average per day according to age, gender, education and occupation:

Table 2: Number of Cigarettes Smoked on average per day according to age, gender, education and occupation.

	Number of Cigarettes smoked						
	<5	5 to 9	10 to 14	15 to 24	25+	Total	Mean
Age							
15-24	54.1	34.3	7.6	1.9	2.1	100	5.1
25-44	46.6	30.7	16.1	3.6	2.9	100	6.8
45-64	46.2	27.4	14.8	8.3	3.4	100	7.4
65+	52.7	26.7	11.1	6.1	3.3	100	6.5
Gender							
Male	45.4	30.8	15.2	5.7	2.9	100	7
Female	72.5	17.5	5.7	0.4	4	100	5.2
Education							

Cont... **Table 2: Number of Cigarettes Smoked on average per day according to age, gender, education and occupation.**

No formal schooling	53.8	24.5	10.8	6.6	4.2	100	7.3
<Primary school	51.4	23.9	17.1	5.1	2.4	100	7
Primary but > Secondary schooling	42.1	32.8	17.9	4.8	2.3	100	6.5
Secondary and above	47.1	32.4	12.9	4.6	2.9	100	6.6
Occupation							
Government and nongovernment	50.7	29.9	12.4	4.7	2.4	100	6.6
Self employed	47.1	28.2	15.8	5.7	3.2	100	7
Student	37	57.3	3.5	0.1	2.1	100	5.5
Home maker	47	30.3	14.9	3.3	4.5	100	6.8
Retired or unemployed	52.2	32	8.2	5.3	2.3	100	5.7

Data Source: GATS 2 (2016)[2]

Table 2 present the percent distribution of daily cigarette smokers classified by number of cigarettes smoked every day. Overall, a typical cigarette smoker in India smokes an average of 6.8 cigarettes every day. The mean number of cigarettes smoked per day by men is 7.0 which is higher than by female (5.2). The frequency of cigarettes per day among rural smokers (7.2) is higher than urban smokers (6.3). Although, prevalence of smoking is less among young adults (aged 15-24 years), mean number of cigarettes smoked by young adults is 5.1. The mean number of cigarettes smoked per day decreases with increase in level of education—from7.3 cigarettes per day among those with no formal education to 6.5-6.6 cigarettes per day among those with primary or more education. The mean number of cigarettes smoked per day is higher among self-employed (7.0) cigarette smokers. The mean of number of cigarettes smoked per day by female is less than male, but 72.5% female smokes less than 5 times per day, which is much higher than male. 4% female smokes more than 25 times per day which is also higher than male. Here we can see that who smokes cigarette 5-9 times on average per day, are students. In extreme case of more than 25 times smokers are somewhat same in every occupation and gender.

III. Initiation of Daily Smoking:

Among 20 to 34 years old smoking initiation is high and associated with greater daily cigarette consumption. For this young people are facing early health hazards especially for women, who facing health hazards which are much more severe than men and also a threat to the society as it affects at the time of the child birth. In Table 3 we can see there that women are making initiation of smoking much more than men

Table 3: Initiation of daily smoking (age 20-34)

	2009-10	2016-17
Overall	17.9	18.9
Gender		
Male	18.1	18.8
Female	14.7	21.2

Data source: GATS (2009-10)[1], GATS (2016-17)[2]

Initiation of daily smoking is higher among female than men. Overall smoking initiation has risen to 18.9% in 2016-17 form 17.9% in 2009-10. According to gender, smoking initiation by men slightly has risen in 2016-17 than 2009-10 whereas female initiation of daily smoking has significantly risen in 2016-17, from 14.7% in 2009-10 to 21.2%.

IV. Smoking and Pregnancy:

Smoking and pregnancy are related to many effects on health and reproduction. This includes preterm birth, low birth weight, birth defects of the mouth and lip. On average smoking during pregnancy doubles the chances that a baby will be born too early or with weight less than 51/2 pounds at birth. GATS 2 data mentions that in India 1.3% pregnant women aged between 25-49 ages are currently smoking. 1.3% is not a big percentage but is not negligible.

Non-smokers who breathe in second hand smoking are affected almost as much as smokers. In day to day life people now are breathing smoke not fresh air. Non-smokers are also now suffering health issues related with lung, heart etc. Second hand smoking is more dangerous when it comes to pregnant women as they have to inhale the smoke and it effects as much as a woman who smokes at the time of pregnancy.

GATS 2 highlights that pregnant women are being exposed to second hand smoke. People are still neglecting the second hand dangers. At home 37.7% pregnant women are exposed to second hand smoke only in one month and at any public place 25.9% pregnant women are exposed.

Table 4: Percentage of pregnant women exposed to second hand smoke

	At home (in one month)	**At any public place**
India	37.7	25.9

Data Source: GATS 2 (2016)

V. Correlation and Regression Analysis

In order to find the association or interdependence, we use Correlation and Regression analysis. Here number of cigarettes smoked in last 24 hours is the dependent variable and education in single years and females currently working are independent variable.

Table 5: Correlation Results

	Number of cigarettes smoked in last 24	**Education in single years**	**Females currently working**
Number of cigarettes smoked in last 24 hours	1.0000		
Education in single years	-0.1484* (0.0000)	1.0000	
Females currently working	0.0309 (0.1928)	-0.1448* (0.0000)	1.0000

Author's own compilation.

From Table 5 we can see a negative correlation between number of cigarettes smoked in last 24 hours and education in single years. This means higher the education, lower the cigarette smoking among women. Higher education means women are aware of the health hazards due to smoking so they avoid it, and women with lesser education, due to lack of awareness- smoking is more among them. On the other hand, correlation between number of cigarettes smoked in last 24 and females currently working is almost insignificant. The correlation between Education in single years and females currently working is negative, but it is not possible and makes no sense, so we can say it is a spurious correlation, i.e., a relationship between two variables that appear to

have interdependence or association with each other but actually do not and often caused by a third unseen factor.

Regression Analysis:

In the regression analysis the dependent variable is number of cigarettes smoked in last 24 hours and independent variables are Education in single years and Females currently working. We find that Education has a statistically negative significant association with smoking.

The R-squared here is 0.023, which is interpreted as the ratio of the sample variation in number of cigarettes that is explained by variations in Education and working status of Females. A value of R square that is nearly equal to zero indicates a poor fit of the OLS line. Low R-squared in regression equations are not uncommon, especially for cross-sectional analysis.

Table 6: Regression Results

	Number of cigarettes smoked in last 24 hours
Education in single years	-0.270***
	(-6.70)
Females currently working	0.363
	(1.17)
Constant	6.896***
	(27.17)
N	1781
R-squared	0.023
Rsme	6.519

t statistics in parentheses
*$p<0.05$, **$p<0.01$, ***$p<0.001$

Here goodness of the fit of the model is low also the data is quite old to interpret the present situation. As the latest raw data of NFHS 4 is not available to us so it is not possible to run a correlation, regression model so, we have used the available raw data of NFHS3 2005.More women are joining workforce and out of stress women are smoking more than before which we can see in the recent data of GATS 2016-17.

It is found that 'Casual and social smoking is on rise amid young working women'[10].The survey also found that only 2% of female are heavy smokers (smoking a pack a day or more), majority of them said that peer pressure and work-related pressure pushed them to increase number of cigarettes they smoked. Smoking for weight loss was also cited as a reason.

Conclusion

The findings of this study show a rising trend of female smoking. Less than 5 cigarettes smoked on average per day, is greater among female which suggests that females are not chain smokers. The study highlights that female illiterates are more prone to smoking, whereas smoking is much less among females who have ten years of educational qualification. Smoking cannot be defined with education or occupation, because most of the female smokers are working, so are aware of the health hazards. Smoking might be to relief their stress or to make an experiment or influenced by someone.

The reasons for smoking are mostly psychological. One might think that smoking among friends is glamorous, it helps to fit with the crowd, it feels sophisticated, and it shows independence of womanhood. Some also smoke out of depression and anxiety. Thus, addiction to nicotine makes it hard to quit smoking, but this addiction can be eliminated once the psychological reasons can be overcome. Females need to fight to have equal access to all opportunities and behaviors, without being judged or stereotyped for them, but that doesn't mean that they should do anything they can. Some addictions are best

avoided, even if they help smash a stereotype. It is time for them to create new "gender-neutral" norms that serve both genders better and help females to be their best version of themselves.

Conflict of Interest: Nil.

Source of Funding: Self funded.

Ethical Clearance: Analysis done based on secondary data.

References

1. Global Adult Tobacco Survey India, GATS1 (2009-10), Retrieved from https://www.who.int/tobacco/surveillance/en_tfi_india_gats_fact_sheet.pdf
2. Global Adult Tobacco Survey India, GATS2 (2016-17) , Retrieved from https://www.who.int/tobacco/surveillance/survey/gats/GATS_India_2016-17_FactSheet.pdf
3. Government of India, Department of Health and Family Welfare, (2017), Retrieved from https://mohfw.gov.in/node/3236
4. Rani M, Bonu S, JhaP,Nguyen S N, Jamjoum L. Tobacco use in India: prevalence and predictors of smoking and chewing in a national cross-sectional household survey*, BMJ Journals.* 2003 *Volume 12, issue 4.*
5. National Center for Chronic Disease Prevention and Health Promotion (US) Office on Smoking and Health. The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General. Atlanta (GA): Centers for Disease Control and Prevention (US); 2014. 6, Cancer.
6. National Family Health Survey, India, NFHS3, Retrieved from http://rchiips.org/nfhs/nfhs3.shtml
7. National Family Health Survey, India, NFHS4,Retrieved from http://rchiips.org/nfhs/nfhs4.shtml
8. Goel S, Tripathy J P,Singh R J,Lal P. Smoking trends among women in India: Analysis of nationally representative surveys (1993–2009). *South Asian J Cancer.* 2014 Oct-Dec; 3(4): 200–202.
9. Roy P, Goel S. Is female smoking rising or declining in India? *South Asian J Cancer*. 2015 Apr-Jun. *Volume 4(2): 99–100*
10. Mishra S, Joseph R A, Gupta P, Pezzack B, Faujdar, Sinha D N, Dikshit R, PatraJ,Jha P. Trends in bidi and cigarette smoking in India from 1998 to 2015, by age, gender and education, *BMJ Global Health*. 2016.*Volume 1, issue 1.*
11. ShenoyJ. Smoking on rise among young working women in urban India. The Times of India. 2018 Mar 8.
12. World Health Organization, Female smoking, Retrieved from https://www.who.int/tobacco/en/atlas6.pdf