

Assessment of dependency of tobacco in relation with price hike, statutory warning, anti-tobacco camp or advertisement on Kanpur population: A cross-sectional survey

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ABSTRACT

Aim: To examine the significance of cigarette prices, statutory warning, anti-tobacco camp or advertisement in influencing smoking cessation and the motivation to quit tobacco use. Tobacco use is highly prevalent all over the world. Tobacco smoking and chewing affects almost all the systems of the body. **Subjects:** Tobacco (smokeless and smoking) male participants aged between 18 and 50 years were recruited. **Materials and Methods:** Participants were asked to complete a questionnaire related to smoking habits, the Fagerstrom test for nicotine dependence questionnaire, and effect of price hike, statutory warning, anti-tobacco camp or advertisement. **Results:** Tobacco user with moderate and high dependent showed no effect in use of tobacco of price hike, statutory warning, anti-tobacco camp or advertisement. **Conclusion:** This study provides a unique opportunity to study tobacco cessation among tobacco user and their response to tobacco prices, statutory warning, anti-tobacco camp or advertisement. Higher tobacco prices appear to be associated with greater motivation to stop tobacco habit.

Keywords: Cigarette, fagerstrom, price hike, tobacco

Introduction

Tobacco smoking and chewing affects almost all the systems of the body. Lung and oral cavity are mainly affected. Smoking can cause lung disease by damaging your airways and the small

air sacs (alveoli) found in your lungs. Lung diseases caused by smoking include COPD, which includes emphysema and chronic bronchitis.^[1] Cigarette smoking causes most cases of lung cancer. In asthmatic patients, tobacco smoke can trigger an attack or make an attack worse. Smokers are 12–13 times more likely to die from COPD than nonsmokers.^[1]

Tobacco use, mostly chewing tobacco affects the surface epithelium, resulting in changes in the appearance of the tissues.

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The changes may range from an increase in pigmentation to thickening of the epithelium transforming into white lesion. Tobacco use can also irritate the minor salivary glands on the hard palate and directly increase a person's risk for periodontal disease and oral cancer.^[2]

Tobacco is utilized in two form mainly smokeless tobacco and smoke tobacco. Smoke tobacco are like bidi, cigarettes chillum, cigar and hukkah^[3] and smokeless tobacco are in Betel quid (BQ) with tobacco, “khaini” (powdered tobacco and slaked lime paste, sometimes with added areca nut) and “gutka” (processed and packaged areca nut with added tobacco) are the most widely used smokeless tobacco (ST) products in the Indian subcontinent (i.e. Pakistan, Bangladesh and India)^[4] The oral use of tobacco, either finely powdered as snuff or in leaf form for chewing, is as old as its use in pipes, cigars, and cigarettes. Unlike smoking, however, snuff dipping and tobacco chewing have traditionally been limited to a small percentage of the population located mainly in the South.^[5]

Primary healthcare physician can play a very vital role in early diagnosis of tobacco related habits and conditions and physicians can provide help to such individuals with the help of cognitive behavioural therapy. Hence, the role of primary healthcare physician, being the first point of contact for general individual becomes paramount.

Raising tobacco taxes and prices is one of the most effective means of reducing tobacco use, particularly in the young and the less well-off—who are known to be the most price sensitive.^[6,7] A study design is appropriate to estimate the effects of a price increase. As few previous studies focused on the impact of price increase on relapse, studies which provide evidence of the effect of tobacco price on both cessation among smokers and relapse among quitters are scarce.^[6,9] In addition, the impact of tobacco price increases on smoking behavior in different social groups has been investigated; mixed results have been reported for differences in gender, occupation, and education subgroups.^[7] Generally, increases in tobacco price reduce cigarette use, especially among the poor and the young rather than the affluent and the old.^[6] The impact of tobacco price increases is of great interest to the public health community because they play a pivotal role in people's decisions to use tobacco.^[7]

Materials and Methods

A cross-sectional study was conducted on male subjects aged 18–50 years. Prior to participation in this study, each participant signed an informed consent form and ethical approval was obtained from the Institutional Ethical Committee (Ethical clearance no: IEC/RDCHRC/2017-18/030).

Inclusion criteria included the males aged 18–50 years. Exclusion criteria was those who were unable to understand and follow verbal instructions and were absent on the day of the study.

Sample size was calculated using the following formula:

$$\text{where, } N = \frac{4pq}{L^2}$$

N = is the sample size, P = Prevalence (60%), $q = (1 - p)$, L = is the permissible error in the estimation of $P = 0.05$

$$N = 4 \times 0.60 \times 0.4 / 0.05 \times 0.05$$

The estimated sample size was 384 which was rounded off to a sample of 390 to accommodate dropouts. There were 20 dropouts as the participants were absent on the days of study and 17 participants did not filled the questionnaire completely. Therefore, the final sample size was 353. The study participants were recruited by random sampling method. The response rate was 95%. Pilot study was conducted on 30 participants whose data were excluded from the total sample. In this study, 4 groups were included; control group including non-tobacco users ($n = 58$), second group included smokers ($n = 168$) who currently smoked cigarettes, third group included smokeless/chewing type tobacco ($n = 81$) and fourth group participants were consuming both smokeless and smoking type tobacco ($n = 46$).

Two separate sets of questionnaires were prepared; one for smokeless tobacco users and other for smoking tobacco users. Questionnaires were distributed according to the smoking habit of the participants. Subjects with tobacco habit completed the Fagerström Tolerance Questionnaire for analyzing the degree of nicotine addiction. Questionnaire including Fagerstrom tolerances test for nicotine dependences was also present. Smokers were further asked questions regarding what age they started smoking, the average duration of smoking, and the average number of cigarettes smoked per day. Subjects with smoking habit completed the Fagerström Tolerance Questionnaire for analyzing the degree of nicotine addiction.

Data were analyzed using IBM SPSS Statistics- version 21 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.) Descriptive statistics included calculation of percentages, mean, and standard deviation. Data distribution was assessed for normality using the Shapiro–Wilk test. Categorical data were compared using the Chi-square test. All values were considered statistically significant for a value of $P \leq 0.05$.

Results

Table 1: shows People using smoke tobacco were 168 and smokeless tobacco, user were 81. According fagerstrom test showed 39.8% smoke tobacco user were low dependent on tobacco while smokeless tobacco low dependent user were 60.5% while low to moderate user were almost same in both forms of user. While people who use both forms were 46 in which maximum were 61.3% people were low dependent smoke tobacco user and 45% were smokeless tobacco use. Table 2 shows 63.5 % people who smoke were not affected by price hike, 92.9 % people who use smokeless tobacco were not affected by price

hike. 84.1% people were not affected by statutory warning who smoke, 96% were people who use smokeless tobacco didn't get affected by statutory warning. Table 3 shows effect of price hike according to dependency, low dependent smoking tobacco user were 35.7% who were affected by price hike and only 6.25% high dependent on smoking tobacco user were affected by price hike. Smokeless tobacco user who were affected by price hike and who were high dependent were 22.2%. Table 4: shows that 17.8% smoke tobacco user with low dependency were affected by statutory warning and 93.7% were not affected who were high dependent. This clearly shows high dependency is not affected much by statutory warning. Smokeless tobacco user with high dependency showed no effect due to statutory warning. Table 5 shows no effect due to anti- tobacco camp or advertisement on high dependent smoking tobacco user 100% while it showed few effect on low dependent tobacco user 6.3%. 7.1% of smokeless tobacco user who were low dependent were effected by anti-tobacco camp or advertisement.

Table 1a: Shows fagerstrom test result for smoking tobacco user (ST) n=168(%)

Grade of dependency	n (%)
Low dependent	67 (39.8)
Low to moderate dependent	49 (29.2)
Moderate dependent	38 (22.6)
High dependent	14 (8.3)

Table 1b: Shows fagerstrom test result of smokeless tobacco users n=81(%)

Grade of Dependency	n (%)
Low dependent	49 (60.5)
Low to moderate dependent	24 (29.6)
Moderate dependent	5(6.2)
High dependent	3 (3.7)

Table 1c: Shows fagerstrom test result of both smoking and smokeless tobacco (SLT) Users n=46(%)

Grade of dependency	Smoke tobacco dependences n(%)	Smokeless tobacco dependences n(%)
Low dependent	28 (60.9)	21 (45.6)
Low to moderate dependent	13(28.3)	15 (32.6)
Moderate dependent	3(6.5)	4 (8.7)
High dependent	2(4.3)	6 (13.0)

Table 2: Shows number of people effected by price hike, statutory warning and anti tobacco camp or advertisement effects n(%)

S no.	Response to questions	Smoking tobacco users n=214(%)			Smokeless tobacco users n= 127(%)		
		Yes	No	Can't say	Yes	No	Can't say
1.	Affected by Price hike	57(26.6)	136(63.5)	21(9.8)	18(14.2)	103(81.1)	6(4.7)
2.	Affected by Statuary warning	32(14.9)	180(84.1)	2(0.9)	5(3.9)	122(96.0)	0
3.	Affected by Anti- tobacco camp or advertisement effects	12(5.6)	198(92.5)	4(1.8)	14(11.0)	102(80.3)	11(8.6)

Discussion

This study is one of the newest studies showing relationship with tobacco dependency with price hike, Statuary warning, anti-tobacco camp or advertisement effects user. Not much study has been done till date including this topic so there is not much study available to discuss with result got in this study.

Few points to discuss is that people with low and low to moderate dependency were affected by price hike on smoking tobacco, but smokeless tobacco user did not showed much effect as price is one of the reasons, may be piece hike of smoking tobacco is much higher than smokeless tobacco, but people with moderate and high dependency showed almost no effect for price hike for both smoking and smokeless tobacco user. In this study annual income was also taken it showed people with low dependency and low income showed decrease in use of tobacco both the form smoking and smokeless, but moderate and high dependent showed less effect in price hike.

This clearly shows that moderate and high dependency does not affect the use of tobacco product but for low and low to moderate price hiking is good means to help people to quit this habit but price hike of smokeless tobacco should also as high as smokeless tobacco to make people quit.^[8]

For Statuary warning, anti-tobacco camp or advertisement result showed very less effect on tobacco use and almost no effect for high and moderate tobacco user.

The price hike on tobacco will not only substantially reduce cigarette consumption, but it will also make an economic contribution to the government. For instance, it will significantly lessen the health hazards associated with such stimulants and ultimately help to achieve the goal of disease inhibition.^[9] It will also encourage new tobacco user who are low and low to moderately addict to limit their tobacco consumption, which is a primary goal of the government's tobacco control policy. Higher tobacco prices will hopefully discourage new people from getting a tobacco habit in their early life.

Conclusion

This study provides a unique opportunity to study tobacco cessation among tobacco user and their response to tobacco

Table 3a: Shows smoking tobacco dependency effected by price HIKE n=214(%)

Grade of dependency	n (%)	People affected by price hike n(%)		
		Yes	No	Can't say
Low dependent	95(44.3)	34(35.7)	57(60)	4(4.2)
Low to moderate dependent	62(28.9)	17(27.4)	37(59.6)	8(12.9)
Moderate dependent	41(19.1)	5(12.1)	30(73.1)	6(14.6)
High dependent	16(7.4)	1(6.25)	12(75)	3(18.7)

Table 3b: Shows smokeless forms tobacco dependency effected by price HIKE n=127(%)

Grade of dependency	n (%)	People affected by price hike n (%)		
		Yes	No	Can't say
Low dependent	70(55.1)	8(11.4)	59(84.2)	3(4.2)
Low to moderate dependent	39(30.7)	3(7.6)	35(89.7)	1(2.5)
Moderate dependent	9(7.0)	5(55.5)	4(44.4)	0
High dependent	9(7.0)	2(22.2)	5(55.5)	2(22.2)

Table 4a: Shows smoking tobacco dependency effected by statutory warning n=214(%)

Grade of dependency	n (%)	People affected by statutory warning n(%)		
		Yes	No	Can't say
Low dependent	95(44.3)	17(17.8)	78(82.1)	0
Low to moderate dependent	62(28.9)	11(17.7)	49(79.0)	2(3.2)
Moderate dependent	41(19.1)	3(7.3)	38(92.6)	0
High dependent	16(7.4)	1(6.2)	15(93.7)	0

Table 4b: Shows smokeless forms tobacco dependency effected by statutory warning n=127(%)

Grade of dependency	n (%)	People affected by statutory warning n(%)		
		Yes	No	Can't say
Low dependent	70(55.1)	5(7.1)	65(92.8)	0
Low to moderate dependent	39(30.7)	0	39(100)	0
Moderate dependent	9(7.0)	0	9(100)	0
High dependent	9(7.0)	0	9(100)	0

Table 5a: Shows smoking tobacco dependency effected by anti-tobacco camp or advertisement effects n=214(%)

Grade of dependency	n (%)	People affected by Anti-tobacco camp or advertisement effects n(%)		
		Yes	No	Can't say
Low dependent	95(44.3)	6(6.3)	86(90.5)	3(3.1)
Low to moderate dependent	62(28.9)	3(4.8)	59(95.1)	0
Moderate dependent	41(19.1)	3(7.3)	37(90.2)	1(2.4)
High dependent	16(7.4)	0	16(100)	0

TABLE 5b: shows smokeless forms tobacco dependency effected by anti-tobacco camp or advertisement effects n=127(%)

Grade of dependency	n (%)	People affected by Anti-tobacco camp or advertisement effects n(%)		
		Yes	No	Can't say
Low dependent	70(55.1)	5(7.1)	59(84.2)	6(8.5)
Low to moderate dependent	39(30.7)	5(12.8)	33(84.6)	1(2.5)
Moderate dependent	9(7.0)	4(44.4)	5(55.5)	0(0)
High dependent	9(7.0)	0(0)	5(55.5)	4(44.4)

prices, statutory warning, anti-tobacco camp or advertisement. Higher tobacco prices appear to be associated with greater motivation to stop tobacco habit. As the unhealthy behaviors of smoking, chewing betel nuts, and drinking typically occur together, public health authorities should develop effective health promotion programs that reflect this linkage and thereby significantly improve citizen health. In addition, we conclude from this that the government should continue using tobacco price hike as a tool with which to reduce tobacco consumption.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

1. U.S. Department of Health and Human Services. The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General.
2. Taybos G. Oral changes associated with tobacco use. *Am J Med Sci* 2003;326:179-82.
3. “WHO Report on the global tobacco epidemic, 2008 (foreword and summary)” (PDF). World Health Organization. 2008: 8. Tobacco is the single most preventable cause of death in the world today.
4. World Health Organization (2009–2010), regional Office for South- East Asia. Global Adult Tobacco Survey (GATS): India Country Report. New Delhi.
5. Moll JM, Wright V. An objective clinical study of chest expansion. *Ann Rheum Dis* 1972;31:1-8.
6. Gilmore AB, Tavakoly B, Taylor G, Reed H. Understanding tobacco industry pricing strategy and whether it undermines tobacco tax policy: The example of the UK cigarette market. *Addiction (Abingdon, England)*;108;1317-26.
7. Tabuchi T, Fujiwara T, Shinozaki T. Tobacco price increase and smoking behaviour changes in various subgroups: A nationwide longitudinal 7-year follow-up study among a middle-aged Japanese population. *Tob Control* 2017;26:69-77.
8. Mohan P, Lando H, Panneer S. Assessment of tobacco consumption and control in India. *Indian J Clin Med* 2018;9:1-8.
9. Chatterjee S, Kumari A, Tiwari S, Shankar D, Saxena S. Effectiveness of health education on knowledge about tobacco use among police personnel in Haldia city, West Bengal: An interventional study. *Int J Prev Clin Dent Res* 2019;6:76-9.