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Original Research Article

Influence of health warnings present on cigarette packets, on motivation to quit smoking, among smokers in a slum of Kolkata

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ABSTRACT

Background: The Government of India by National Health Policy 2017 has set the target of relative reduction in prevalence of current tobacco use by 15% and 30% by 2020 and 2025 respectively. The Union health ministry had notified to mandatory display new health warnings to be covering 85% of the principal display area on all tobacco products (1 April 2016).
Methods: This was an observational descriptive study with cross sectional in design carried out at Baghbazar slum in Kolkata with objective to study the smoking pattern, knowledge about health warning symbols (HWS) on tobacco products among the study population and to assess their motivation to quit and influence of HWS on their motivation. A total 66 smokers were interviewed using predesigned and pre tested questionnaire and analysis done using SPSS version 1.
Results: About 83.3% study subjects were presently smoking and they were smoking daily, about 10 cigarette and bidi was smoked daily (median) and median duration without smoking was 1 month. About 63.6% study subjects were highly motivated to quit smoking. Health warning was definitely motivating them to quit smoking (p=0.01) but it was not resulting in actual quitting smoking (p=1.000). The main reason for motivation for quitting smoking was self-health related factor (84.6%).
Conclusions: Health warning on cigarette packets increased the awareness about ill effects of smoking and motivated the smokers to quit smoking but not compelling them to quit smoking. Mostly those who were motivated to quit smoking were actually thinking about quitting due to other reasons.

Keywords: Health warning, Motivation, Smoking

INTRODUCTION

The Government of India by National Health Policy 2017 of has set the target of relative reduction in prevalence of current tobacco use by 15% and 30% % by 2020 and 2025 respectively. Global adult tobacco Survey (GATS)-2 shows a relative reduction of 17% in prevalence of current tobacco use since GATS-1. The prevalence of tobacco use has reduced by 6%. About 27.6% of adult aged 15 and above (26.7 crore) use tobacco in any form. 19.9 crore in rural area and 6.8 crore adults in urban area use tobacco. The prevalence of tobacco use among young (15-24 years) has reduced from 18.4% to 12.4% in GATS-1 to GATS-2 respectively which is 33% relative reduction. The prevalence of tobacco use among minor aged 15-17 and adolescent aged 18-24 has a relative reduction of 54% and 28% respectively.[1]

The prevalence of current tobacco smoking has shown a slight decline in males but the prevalence (23.6%) is still

higher than the global prevalence of current tobacco smoking (22%). Tobacco use is still single largest risk factor attributable to non-communicable diseases (NCDs).[2]

For reduction of prevalence of tobacco use Government of India brought rule to introduce compulsory pictorial warning on tobacco product to cover 85% of areas of both sides. The union health ministry had notified on 24 September 2015, for mandatory display of new health warnings covering 85% of the principal display area on all tobacco products from 1 April 2016. Cigarette and other tobacco product (packaging and labeling) second Amendment Rules 2018 brought about new instructions about pictorial warning on packets.[3]

The cigarettes and other tobacco products act (COTPA), laid down the rules that two images of specified health warnings (as notified), shall be displayed on all tobacco product packages on a rotation basis (for 24 months) as so each of the images shall appear consecutively on the package for period of 12 months.[4] The study was planned with the objective to study the smoking pattern, knowledge about health warning symbols on tobacco products among the study population and to assess their motivation to quit and influence of HWS on their motivation. As Government of India too is trying to influence the public for quitting tobacco by HWS on tobacco product so there is need of few studies in Indian context it HWS do really influence the quit attempts.

METHODS

Study design

Community based observational descriptive study with cross sectional design.

Study settings

Study was carried out at a slum at Baghbazar Kolkata, which is a service area of Baghbazar Urban Health and Training Centre (UHTC) and it is also the urban field practice area of the Department of Community Medicine RG Kar Medical College Kolkata.

Study period

The study was conducted from 1st August 2019 to 30 September 2019.

Study population

Adult smoker population 18 years or older who have smoked more than 100 cigarettes in their life were chosen as study subject. List of families with smokers (234 recorded smokers found) taken from UHTC Baghbazar Kolkata and 66 study subjects were selected doing simple random sampling.

Those population who have smoked more than 100 cigarettes in their life time were included in the study. Very sick persons and those who did not gave consent for the study were excluded from the study.

Sample size

Accordance to a study by Layoun et al 14.8% adult smokers have changed their smoking habit due to health warning, who were motivated to quit smoking were secondarily to health warning on cigarette packet cigarette packet made more quiet attempts.[5,6] This prevalence was taken for sample size calculation. With Z=1.96 for 95% confidence limit and 9% absolute precision the sample size was calculated to be:

$$n=\frac{4\,p\,(1-p)}{d^2}$$

Taking 10% non-responders the sample size comes out to be 66.

Study technique

Smokers more than 18 years were interviewed visiting home using predesigned and pretested questionnaire after taking written consent.

Study tools and variables

A predesigned and pretested questionnaire was used with WHO STEPS questionnaire, for socio-demographic variables and tobacco use (smoking), Fagerstrom scale was used to measure nicotine dependence with 1-2 as low dependence, 3-4 low to moderate dependence, 5-7 moderate dependence, 8+ as high dependence.[7,8] Mondor scale was used to access motivation to quit smoking with <12 categorized as low motivation and >12 as high motivation.[9] Variables for health warning on cigarette packs contained questions on knowledge of smokers about the health warning and their response to it, motivation to quit after seeing health warning ,actual reason for quitting if required or quitted.[5-7,10-13]

Data analysis

Statistical software SPSS version 16.

Health warning (HW)

Any form of health risk warning whether pictorial or written text present on the cigarette packets or the Bidi packets.

Nicotine dependence

According to diagnostic criteria (diagnostic and statistical manual of mental disorders, 4th ed) 14 a nicotine dependence is a maladaptive pattern of substance use, leading to clinically significant impairment or distress as manifested by three or more of tolerance, withdrawal,

taking larger amount of substance, unsuccessful efforts to cut down substance use, a great time spend in activities necessary to obtain a substance or abandonment or reduction of important social, occupational or recreational activities due to substance use.

RESULTS

Mean age of study populations was 52.50 years with SD 14.13; 40.9% completed primary; 39.4% completed secondary education and 16.67% were illiterate. Most of the study subject (43.9%) belong to skilled worker group and 15.2% were unskilled worker (Table 1).

About 83.3% of study population were presently smoking and also smoking daily. Median age of starting smoking was 18 years with minimum age being 10 years. Maximum cigarette/bidi smoked daily was 60 with median 10. Median duration without smoking found out to be 1 month (Table 2).

Table 1: Distribution of study subjects according to socio-demographic characteristics (n=66).

1.	**Age (years)**					
	<45	45-55	55-65	> 65	Mean	SD
	22 (33.3)	13 (19.7)	21 (31.8)	10 (15.2)	52.50	14.130
2.	**Education**					
	Illiterate	Less than primary	Completed primary	Completed secondary		
	11 (16.7)	2 (3)	27 (40.9)	26 (39.4)		
3.	**Occupation**					
	Unemployed	Unskilled worker	Skilled worker	Clerical, shop, farmer	Semi professional	Professional
	8 (12.1)	10 (15.2)	29 (43.9)	9 (13.6)	9 (13.6)	1 (1.5)
4	**Monthly income**					
	< 4000	4001-8000	8001-12000	>12000	Mean Income	SD
	19 (28.8)	19 (28.8)	12 (18.2)	16 (24.2)	9578.79	8067.247

Figure in parenthesis indicate percentage.

Table 2: Distribution of study subject according to smoking history (n=66).

1	**H/O presently smoking N (%)**			
	No	Yes		
	11 (16.7)	55 (83.3)		
2.	**H/O smoking daily N (%)**			
	No	Yes		
	11 (16.7)	55 (83.3)		
3.	**Age of starting of smoking (years)**			
	Minimum	Maximum	Median	IQR
	10	69	18	16-25
4.	**Number of cigarettes plus bidi smoked daily**			
	Minimum	Maximum	Median	IQR
	1	60	10	5.75-20
5.	**Maximum duration without smoking**			
	Minimum (months)	Maximum (months)	Median	IQR
	0	120	1	0-10.5

Most of the study subject (90.91%) had correct knowledge about the health warning on cigarette packets (Figure 1). Most of the study subjects (92.42%) had correct knowledge about the hazards of smoking (Figure 2).

About 97% of study population told that they had seen health warning on cigarette and 90.9% knew correctly what the HW depicts. 92.4% had correct knowledge about hazards of smoking. 66.7% said they sees HW before smoking and 33.3% said they never see. About 86.4% of study subject believed that the disease shown in HW on cigarette packets actually occurs. Half of the study subject (50%) believed HW did not at all motivate them to quit smoking. About 37.9% believe that they were not quitting because they were addicted and same % of study subject believed that it relieves stress. About 84.8% told that HW did not have any effect on change in smoking habit but still 74.2% believed it is necessary (Table 3).

Table 3: Distribution of study subject with variables related to Health Warning on packets (n=66).

1	**Whether seen HW or not**				
	No			Yes	
	2 (3)			64 (97)	
2	**Knowledge of HW**				
	Don't know	Knows wrongly		Knows correctly	
	6 (9.1)	0 (0)		60 (90.9)	
3	**Knowledge about hazards of smoking**				
	Don't know	Knows wrongly		Knows correctly	
	4 (6.1)	1 (1.5)		61 (92.4)	
4	**Whether sees HW before smoking or not**				
	No	Yes			
	22 (33.3)	44 (66.7)			
5	**Belief of risk of disease as shown in HW**				
	No	Yes			
	9 (13.6)	57 (86.4)			
6	**Motivation to quit smoking due to health warning**				
	Not at all	A little	Moderately	Very much	Extremely
	33 (50)	12 (18.2)	10 (15.2)	7 (10.6)	4 (6.1)
7	**Whether had any quit attempts of smoking**				
	No	Yes			
	34 (51.5)	32 (48.5)			
8	**Reasons for not quitting smoking**				
	Addicted	Relieves stress	Nothing will happen		Will quit later
	25 (37.9)	25 (37.9)	14 (21.2)		2 (3)
9.	**Effect of HW on their change in smoking habit**				
	No effect	Stopped permanently	Stopped for one month	Reduced number of cigarettes	
	56 (84.8)	1 (1.5)	1 (1.5)	8 (12.1)	
10.	**Whether HW necessary or not**				
	No	Yes			
	17 (25.8)	49 (74.2)			

Figure in parenthesis indicate percentage.

Table 4: Distribution of study subjects showing Fagerstrom rating/Mondor scale/reason for quitting smoking.

1.	**Fagerstrom dependence rating (n=66)**					
	No dependence	Low dependence	Low to moderate dependence	Moderate dependence	High dependence	
	3 (4.5)	20 (30.3)	16 (24.2)	23 (34.8)	4 (6.1)	
2.	**Reasons for possibility for future quitting of smoking (n=66)**					
	Family's health	Other people's pressure	Smoking cost	Worried about my future health	Health is already suffering	NA
	2 (3)	4 (6.1)	2 (3)	18 (27.3)	26 (39.4)	14 (21.2)
3.	**Motivation to quit smoking due to health reasons vs other reasons (n_1=52)**					
		Frequency			Percentage (%)	
	Health related cause	44			84.6	
	Other	8			15.4	
4.	**Mondor scale of motivation to quit smoking (n=66)**					
	Low motivation		High motivation			
	24 (36.4)		42 (63.6)			

Figure in parenthesis indicate percentage.

Table 5: Distribution showing relationship between effect of HW and motivation to quit and quitted smoking.

1.	**Motivation vs effect of health warning (n=66)**					
		Effect of health warning				
		No	Yes	Total	P	Chi-Sq
	Low motivation	24 (100)	0 (0)	24	0.010	6.735
	High motivation	32 (76.2)	10 (23.8)	42		
2.	**Quitted smoking versus effect of health warning (n=66)**					
		Effect of health warning				
		No	Yes	Total	P	Chi-Sq
	Quitted smoking	10 (90.9)	1 (9.1)	11	1.000	0.377
	Smoking	46 (83.6)	9 (16.4)	55		
3.	**Motivation to quit smoking due to health reasons versus other reasons (n_1=52)**					
		Frequency		Percentage		
	Health related cause	44		84.6		
	Other	8		15.4		
	Total	52		100		

Figure in parenthesis indicate percentage.

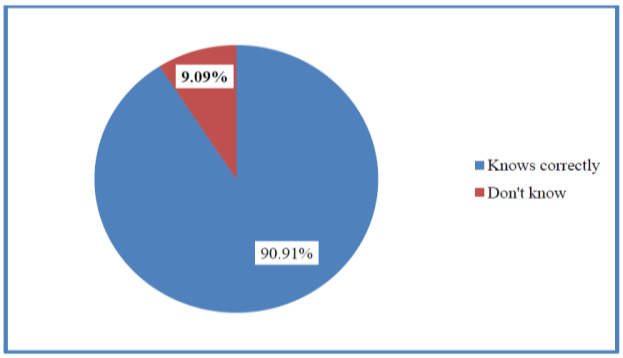

Figure 1: Distribution of subject according to knowledge about health warning.

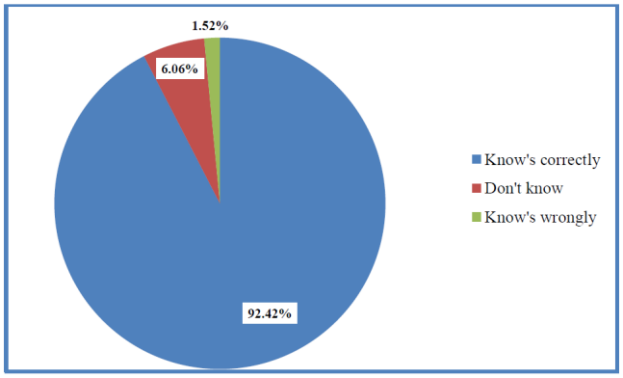

Figure 2: Distribution of study subject according to knowledge about hazards of smoking.

Fagerstrom dependence rating showed moderate dependence in 34.8% and with low dependence in 30.3%. Mondor scale of motivation to quit smoking showed 63.6% were having high motivation to quit smoking. Mostly reason for possibility for future quitting of smoking was found out to be self-health related cause i.e., future health (27.3%) and present health (39.4%) (Table 4). Health warning is definitely motivating the subjects to quit smoking (p=0.01) but it was not resulting in actual quitting smoking (1.000) and the main reason for motivation for quitting smoking was self-health related factor (84.6%) (Table 5).

DISCUSSION

Only 9% actually quitted smoking due health warning as compared to similar study by Layoun et al, in which textual warnings have actually triggered a smoking cessation trial for at least 1 month and a reduction in the number of cigarettes smoked a day in 21% and 19.1% of cigarette smokers respectively.[6] In a study by Bittencourt et al women with elementary education or below and those some/complete high school think about quitting smoking after seeing pictorial warning than women with higher education (OR=4.85; p=0.0028 and OR=2.91; p=0.05), respectively).[15] Similarly 74.2% smokers felt that it is necessary to keep health warning on cigarette packets compared to above study by Layoun et al.[6]

According to a study by Vanishree et al 22.9% of the tobacco users had positive attitude towards the pictorial warnings and in this study also 86.4% of the study subject believed in risk of the disease as shown in health warning on cigarette packets.[16] According to a study by Heydari et al smokers had a significantly higher knowledge about the pictorial warning labels on cigarette packs (p<0.001) and no significant difference was observed between the Iranian or foreign brands in terms of smoking rate after applying the pictorial warning labels.[17] In the present study 90.9% of the study subjects know correctly about the HW and 84.8% found no effect of HW on their change in smoking habit.

In a literature review by Raith et al among the articles reviewed it was found pictorial health warnings were more effective in encouraging in smoking cessation compared to textual warnings but in this study no such effect was found and only 1.5% of the study subject stopped smoking permanently.[18]

According to a study by Drovandi et al, done in Australia, Canada, UK and US smokers found cigarette packet warning minimally effective in prompting smokers to quit.[19] In a systemic review done by Noar et al, it was found that with strengthening the cigarette pack warnings cigarette consumption decreased in three of the eight studies, quit attempt increased in four of the seven studies and smoking prevalence decreased in six of the nine studies.[20] In the present study also it was found that 84.8% of the subject had no effect of HW on their smoking habit. Due to HW present on cigarette packets only 1.5% of study subject stopped smoking permanently, only 1.5% stopped smoking for one month and 12.1% reduced the number of cigarettes.

Health warning on cigarette have increased the awareness about ill effects of smoking according to this study as 86.4% actually have belief about risk of disease as shown in Health warning. It is definitely motivating the subjects to quit smoking (p=0.01) but it was not resulting in actual quitting smoking (1.000) and the main reason for motivation for quitting smoking was self-health related factor (84.6%).

CONCLUSION

Health warning on cigarette packets have increased the awareness of the people about the health hazards of smoking and they are convinced about those hazards. HW were motivating the study subject to quit smoking. But despite of motivation they didn't actually quit smoking due to HW thus making HW on cigarette packets ineffective in changing their behaviour which the government aimed to do by compelling health warnings to be printed on cigarette packets.

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