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Original Research Article

Are good knowledge and positive attitudes regarding the cigarettes and other tobacco products act prevalent among rural Indian adults?

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ABSTRACT

Background: Cigarettes and other tobacco products (COTPA) Act is a legislation passed to curb tobacco use in India by imposing restrictions on tobacco products. This study appraised knowledge and attitudes regarding COTPA Act among adults in a rural area and elicited socio-demographic predictors of knowledge and attitudes regarding COTPA Act among study participants.
Methods: A cross-sectional study was conducted from September to December 2014 on adults (aged ≥18 years) in a rural area of Coastal Karnataka. A pre-designed, pre-tested proforma was used to collect information from study participants regarding their knowledge and attitudes about COTPA Act. Knowledge and attitude scores were computed. A score of ≥4 was good knowledge and ≥3 was regarded as positive attitudes.
Results: Nearly 49.14% had good knowledge, while 51.29% displayed positive attitudes. Those belonging to upper and upper middle socio-economic class (Class I+Class II) had higher odds for good knowledge (AOR=2.09, 95% CI=0.82-5.92), when compared to their counterparts belonging to other socio-economic classes. Age ≥60 years (AOR=3.80, 95% CI= 0.30-9.98), education beyond primary school (AOR=2.88, 95% CI=1.24-6.19), upper and upper middle class socio-economic status (AOR=3.68, 95% CI=1.34-7.02) were the key predictor variables for positive attitudes.
Conclusions: Nearly half the study participants had good knowledge and positive attitudes towards COTPA Act. High socio-economic status could predict good knowledge, while age ≥60 years, education beyond primary school and a high socio-economic status were the key variables predicting positive attitudes. Educational campaigns can help improve knowledge. Assessment of knowledge and attitude is imperative prior to implementation of policies to ensure effectiveness.

Keywords: COTPA, Coastal Karnataka, Prevalence, Tobacco

INTRODUCTION

Tobacco use is regarded as one of the major causes of mortality and morbidity in the world. Globally, tobacco causes 5 million deaths worldwide every year, of which 2.43 million deaths occur in the developing countries.[1] In India, tobacco use is considered as a major public health challenge with more than 275 million adults consuming different tobacco products. Moreover, it has been reported that more than half of men and 20% of women in India consume tobacco in any form. Furthermore, nearly two in five adults in rural areas and one in five adults in urban areas use tobacco in some form. This enormous challenge posed by tobacco has been countered by different countries through various methods.[2] Anti-tobacco legislation is considered as one of the key

methods to address this menace of tobacco related morbidity and mortality.[1] In this regard, the Government of India has passed an act called the cigarettes and other tobacco products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003 or COTPA, in the year 2003 to control tobacco use by prohibiting smoking in public places, banning advertisements of the tobacco products, banning sale of tobacco products to minors and near educational institutions, prescribing strong health warnings including pictorial depiction on tobacco products and regulation of tar and nicotine contents of tobacco products. The Act imposed restrictions on tobacco products including cigarettes, gutka, pan masala (containing tobacco), cigar, cheerot, beedi, snuff, chewing tobacco, hookah and tooth powder containing tobacco.[3] A study carried out in rural Haryana concluded that awareness regarding legislative measures for tobacco use was insufficient amongst adults, while the attitude of the study participants was found to be supportive toward various provisions under COTPA Act.[4] However, there is a paucity of studies which assess the knowledge and attitudes regarding this act in the general population. In this context, we conducted this study to appraise the knowledge and attitudes regarding COTPA Act among adults residing in a rural area, elicit the socio-demographic predictors of knowledge and attitudes about COTPA Act among the study participants and determine the prevalence of self-reported tobacco use among the study participants.

METHODS

We adopted a cross-sectional study design to achieve the study objectives, from September to December, 2014. We carried out this study in a rural area named Harekala, which is inhabited by 6,814 people residing in 1,144 households. Harekala is the rural field practice area attached to a Private Medical College in Mangaluru, a coastal city located in Karnataka State, India. The Department of Community Medicine of the aforementioned Medical College delivers primary health care to the residents of the study area on a regular basis. We sought to conduct face-to-face interviews on adults (individuals aged ≥18 years), residing in the study area for more than a year. Those aged <18 years were excluded from the study. A study participant whose house was locked and could not be contacted despite two visits was regarded as a non-respondent.

The sample size was estimated by using the formula, $n=4pq/L^2$.[4] Here "n" is the required sample size, "p" is the population proportion of positive character, "q" is 1-p and L is the Allowable Error. The knowledge of anti-tobacco measures among adults, "p", was considered to be 45.70%,[5] "q"= 1-p was 54.30% and "L" was set at 15%. Using this formula which considers 95% confidence limits and on addition of a 10% non-response rate, the sample size was estimated to be 232.

Simple random sampling method was applied to select the study participants, we carried out a house to house survey. A face to face interview using a pre-designed, pre-tested and validated proforma was conducted to collect the data. Information pertaining to the socio-demographic profile of the study participants like age, gender, education, occupation, marital status and socio-economic status was collected. Education status of the study participants was further sub-divided during analysis into 2 categories namely: till primary school and beyond primary school, while the occupation was regrouped into working at present and not working at present. Modified BG Prasad Classification according to the All India Consumer Price Index (AICPI) of November 2014 was used for socio-economic status stratification.[6] The study participants were further regrouped into 3 categories: Upper and Upper Middle Class (Class I+ Class II), Middle Class (Class III) and Lower Middle and Lower Class (Class IV+ Class V). To determine the knowledge of the study participants regarding the salient provisions of COTPA Act, 7 questions were asked and for every correct response a score of 1 was given, while no score was given for any other response. Knowledge scores were computed. Those having a knowledge score of ≥4 were considered to have good knowledge, while those with a score of <4 were graded as poor knowledge. This categorization was based on the median value of 4.0.

To assess the attitude of the study participants towards COTPA Act, all participants were asked if they agreed to the 5 provisions of COTPA act which included prohibition of smoking in public places, ban on tobacco advertisements, ban on sale of tobacco products to minors, ban on sale of tobacco products within 100 yards of educational institutions and mandatory depiction of statutory warning in tobacco products. Every affirmative response was scored with 1 point, whereas negation was scored with 0 point. The final attitude scores were computed and ranged from a score of 0 to 5. Attitude was graded into "positive attitude" (score of ≥3) and negative attitude (score of <3), based on the median value of 3.0.

Additionally, information regarding self-reported tobacco use was incorporated in the proforma. Besides, the participants were asked for current consumption of tobacco (≤1 month) and the mode of tobacco consumption (smoking, smokeless tobacco and tobacco use in both smoking and smokeless forms). After the conduct of the interview, the salient provisions of COTPA Act were verbally communicated to all the participants in the local language.

Statistical analysis

Data so gathered was analyzed using Statistical Package for the Social Sciences (SPSS) Inc., Chicago, USA and version 17.0. Categorical variables were expressed as proportions and percentages, while continuous variables were expressed as means. The dependent variables included knowledge and attitude towards COTPA Act,

while socio-demographic factors were considered as independent variables. Univariate analysis was conducted by applying Chi-square test to capture the differences in knowledge and attitudes of the study participants regarding COTPA Act across variables like age, gender, education, occupation, marital status, socio-economic status and tobacco use. A $p<0.05$ was considered for statistical significance. Multiple logistic regression analysis was done on the outcome variables that were found to be statistically significant in the univariate analysis. Adjusted odds ratios (AOR) with 95% CI were computed for adjustment of the confounding variables and to explain the net bearing effect of the different independent variables.

RESULTS

A total of 232 adults participated in this study. The non-participation rate was found to be 7.56%. Majority of the study participants (55.17%) were males. A good number, 102 (43.96%) were in the age group of 40-59 years. When the education status of the study participants was assessed, 25.86% were found to be illiterates. Nearly 25.0% were found to be in Class I, according to Modified BG Prasad classification for socio-economic status.[6] The socio-demographic profile of the study participants is depicted in Table 1.

Table 1: Socio-demographic profile of the study participants (n=232).

Socio-demographic factors	Numbers	%
Age in years		
18-39	89	38.36
40-59	102	43.96
≥60	41	17.68
Gender		
Male	128	55.17
Female	104	44.83
Occupation		
Homemaker/housewife	79	34.05
Retired	32	13.79
Unemployed	17	7.33
Labourer/farmer	61	26.29
Private	21	9.05
Government employee	18	7.76
Others	4	1.73
Marital Status		
Married	111	47.84
Widowed/separated	48	20.69
Unmarried	73	31.47
Socio-economic status[†]		
Class I	58	25.0
Class II	25	10.78
Class III	62	26.72
Class IV	51	21.98
Class V	36	15.52

[†]Modified BG Prasad Classification, November 2014

We also assessed the prevalence of self-reported tobacco use among the study participants. A total of 33.62% ever consumed tobacco, while 31.03% were current consumers of tobacco (≤1 month), as depicted in Table 2.

Table 2: Self-reported tobacco use among the study participants (n=232).

Study variables	Numbers	%
Ever consumed tobacco	78	33.62
Current consumption of tobacco (≤1 month)	72	31.03
Smokers only	31	13.36
Tobacco chewers only	23	9.91
Both smokers and tobacco chewers	18	7.76

Assessment of knowledge and attitude regarding COTPA Act among the respondents revealed a good knowledge (score of ≥4) in 114 (49.14%) and positive attitudes (score ≥3) in 119 (51.29%).

Table 3: Knowledge about the provisions of COTPA Act among the study participants (n=232).

Study variables	Numbers	%
Aware of anti-tobacco legislation in India		
Yes	128	55.17
No	104	44.83
Heard about COTPA Act		
Yes	32	13.79
No	200	86.21
Smoking is prohibited in public places		
Yes	141	60.77
No	91	39.23
Advertisements for tobacco products are banned		
Yes	127	54.74
No	105	45.26
Sale of tobacco products to minors are banned		
Yes	129	55.60
No	103	44.40
Sale of tobacco products within 100 yards of educational institutions are banned		
Yes	97	41.81
No	135	58.19
Statutory warnings should be displayed on tobacco products		
Yes	129	55.60
No	103	44.40

Knowledge about COTPA Act was found in a mere 13.79% while a good proportion (60.77%) were aware that smoking in public places was prohibited. As many as 129 (55.60%) study participants knew about the ban on sale of tobacco products to minors (Table 3).

We observed that a good number, 129 (60.77%) agreed to a ban on smoking in public places. Moreover, majority (54.74%) agreed that there should be a ban on advertisements for tobacco products (Table 4).

Table 4: Attitudes regarding the provisions of COTPA Act among the study participants (n=232).

Study variables	Numbers	%
Smoking should be prohibited in public places		
Agree	129	60.77
Disagree	103	39.23
Advertisements for tobacco products should be banned		
Yes	127	54.74
No	105	45.26
Sale of tobacco products to minors should be banned		
Yes	127	54.74
No	105	45.26
Sale of tobacco products within 100 yards of educational institutions should be banned		
Yes	122	52.58
No	110	47.42
Statutory warnings should be displayed on tobacco products		
Yes	121	52.15
No	111	47.85

We found a statistically significant association between male gender and good knowledge (p=0.0447). Those belonging to upper and upper middle class displayed a statistically significant association with good knowledge, when compared to those from the middle and lower classes (p<0.001) (Table 5). Additionally, chi-square test revealed significant association between positive attitudes regarding COTPA act and socio-demographic variables like education above primary school and upper, upper middle class socio-economic status (Table 6). Current tobacco use (≤1 month) had no association with knowledge and attitudes towards COTPA Act (Table 5 and 6).

Statistically significant socio-demographic predictors on univariate analysis were included in the model for multiple logistic regression to study their net influence on knowledge and attitudes. It was observed that those belonging to the upper and upper middle class were 2.09 times (AOR=2.09, 95% CI=0.82-5.96) more likely to have good knowledge regarding COTPA Act. We also found that elderly individuals (≥60 years) had 3.80 times odds for positive attitudes towards COTPA Act when compared to their younger counterparts. Those educated beyond primary school had 2.88 odds (AOR=2.88, 95% CI=1.24-6.19), while those belonging to the upper and upper middle class had 3.68 odds (AOR=3.68, 95% CI=1.34-7.02) for positive attitudes when compared to their other counterparts (Table 7).

Table 5: Association between socio-demographic variables, tobacco use and knowledge about COTPA Act (n=232).

Study variables	Good knowledge (n=114) (%)	Poor knowledge (n=118) (%)	$\chi^{2\dagger}$	P value
Gender				
Male	71 (62.28)	57 (37.72)	4.03	0.0447††
Female	43 (37.72)	61 (62.28)		
Age in years				
18-39	43 (48.31)	46 (51.69)	4.4	0.1108
40-59	45 (44.12)	57 (55.88)		
≥60	26 (63.41)	15 (36.59)		
Occupation				
Working at present	47 (45.19)	57 (54.81)	1.041	0.3076
Not working at present	67 (52.34)	61 (47.66)		
Marital status				
Currently married	59 (53.15)	52 (46.85)	1.082	0.2982
Unmarried/widowed/separated	55 (45.45)	66 (54.55)		
Socio-economic status†††				
Class I+Class II	52 (62.65)	31 (37.35)	11.39	<0.001††
Class III	30 (48.38)	32 (51.62)		
Class IV+Class V	32 (36.78)	55 (63.22)		
Tobacco use				
Current use (≤1 month)	38 (52.77)	34 (47.23)	0.36	0.5485
No current use	76 (47.50)	84 (52.50)		

†Chi-square; ††Statistically significant (p value < 0.05); †††Modified BG Prasad Classification, November 2014.

Table 6: Association between socio-demographic variables, tobacco use and attitudes towards COTPA Act (n=232).

Study variables	Positive attitudes (n=119) (%)	Negative attitudes (n=113) (%)	$\chi^{2\dagger}$	P value
Gender				
Male	64 (50.0)	64 (50.0)	0.09	0.7642
Female	55 (52.88)	49 (47.12)		
Age in years				
18-39	40 (44.94)	49 (55.06)	14.29	<0.001††
40-59	47 (48.04)	55 (51.96)		
≥60	32 (78.05)	09 (21.95)		
Education				
Till primary school	49 (39.84)	74 (60.16)	12.79	<0.001††
Beyond primary school	70 (64.22)	39 (35.78)		
Occupation				
Working at present	54 (51.92)	50 (48.08)	0.002	0.9673
Not working at present	65 (54.62)	63 (45.38)		
Marital status				
Currently married	57 (51.81)	54 (48.19)	0.01	0.92034
Unmarried/widowed/separated	62 (51.24)	59 (48.76)		
Socio-economic status†††				
Class I+Class II	58 (69.88)	25 (30.12)	44.84	<0.001††
Class III	41 (66.13)	21 (33.87)		
Class IV+Class V	20 (22.99)	67 (77.01)		
Tobacco use				
Current use (≤1 month)	40 (55.55)	32 (44.55)	0.53	0.4666
No current use	79 (49.38)	81 (50.62)		

†Chi-square; ††Statistically significant (p<0.05); †††Modified BG Prasad Classification, November 2014.

Table 7: Association of knowledge and attitudes with socio-demographic details by multiple logistic regression (n=232).

Study variables	Adjusted odds ratio	Confidence Interval	P value
Good knowledge			
Gender			
Male	1.25	0.68-3.32	0.108
Female	Reference		
Socio-economic status††			
Class I +Class II	2.09	0.82-5.96	0.042†
Class III	1.58	0.52-4.10	0.215
Class IV+ Class V	Reference		
Positive attitudes			
Age in years			
18-39	Reference		
40-59	1.45	0.48-8.60	0.350
≥ 60	3.80	0.30-9.98	0.019†
Education			
Till primary school	Reference		
Beyond primary school	2.88	1.24-6.19	0.024†
Socio-economic status††			
Class I +Class II	3.68	1.34-7.02	0.029†
Class III	2.54	0.94-8.43	0.213
Class IV+ Class V	Reference		

†Statistically significant (p<0.05); ††Modified BG Prasad Classification, November 2014.

DISCUSSION

As evidence about the ill-effects of tobacco use grew, the Government of India enacted various anti-tobacco legislations, like the COTPA Act which was passed in the year 2003.[7] A thorough assessment of knowledge and attitudes of adults towards the COTPA Act is necessary to further strengthen the legislation and bring about a reduction in the prevalence of tobacco use.[5] Thus, the present study was an attempt find out the knowledge and attitudes of adults about the COTPA Act and to explore the socio-demographic factors associated with the same.

The main findings of our study highlighted that nearly half of the study participants (49.14%) had good knowledge about the salient provisions of COTPA Act. A substantial proportion (51.29%) displayed positive attitudes towards the implementation of the Act. We were able to elicit the relationship between good knowledge, positive attitudes towards the Act and socio-demographic variables.

In our study, 55.17% were aware that anti-tobacco legislation exists in India. However, a mere 13.79% had heard about the COTPA Act. Despite this, 49.14% had good knowledge about the salient provisions of COTPA Act, when knowledge scores were computed. This indicates that most of the study participants were unfamiliar with the nomenclature, COTPA Act. This could be ascribed to the fact that a sizeable number, 123 (53.01%), were not well educated (educated till primary school). The study participants had reasonable knowledge regarding the salient provisions of the Act like ban on smoking in public places, ban on advertisements for tobacco products, ban on sale of tobacco products to minors and the display of statutory warnings on tobacco products, nevertheless. About 60.77% were aware of the existing ban on smoking in public places, while 54.74% knew about the ban on advertisements of tobacco products. Nearly 41.81% had awareness regarding ban on sale of tobacco products within 100 yards of educational institutions. This finding was similar to a study conducted among local self-government bodies in Kerala.[8] This finding was also in concordance with a study conducted by Sharma et al in Guwhati, which reported that 45.70% had good awareness about COTPA.[6] On the contrary, a study carried out in Haryana reported that none of the study participants were aware of the penalty for smoking in public places.[9]

The present study showed that a sizeable percentage (51.29%) displayed positive attitudes towards the COTPA Act. This indicates that if intense efforts are put in with regards to better implementation of the Act, the public acceptance may also improve. A vast majority (60.77%) were favourable of the ban on smoking in public places. Moreover, half of the study participants (52.58%), agreed to the ban on sale of tobacco products within 100 yards of educational institutions. A study conducted by Schumann et al also revealed similar findings.[10] Another study by Kumar et al reported that 62% of the study participants strongly agreed to the ban on smoking in public places, while 52% strongly believed that the sale of tobacco products should be banned within 100 yards of educational institutions.[11] Furthermore, 52.15% agreed to the display of statutory warnings on tobacco products. Depiction of health warnings on tobacco packets is regarded as a beneficial method to caution the user regarding the health hazards associated with the consumption of the product and is shown to have an overall positive impact on public health, as reported by a few researchers.[12-14] However, a study carried out by Danishevski et al in Russia, concluded that the public could not relate to the graphical messages displayed in the tobacco products.[15]

Our study also revealed that those belonging to the upper and upper middle class had higher odds for both knowledge as well as attitudes regarding COTPA Act when compared to adults belonging to lower socio-economic classes. This is in concordance with the findings of a study conducted by Rao et al in Andhra Pradesh, which reported that the odds for good awareness and positive attitudes towards COTPA Act was 3.9 and 4.58 respectively among those who belonged to the upper and middle classes.[16] Besides, elderly individuals (≥60 years) were found to have 3.80 odds of positive attitudes in contrast to individuals of younger age groups. This could be attributed to the fact that elderly people would have seen or experienced the harmful effects of tobacco use during their lifetimes. These observations may have led them to favour legislations for tobacco use more strongly when compared to individuals belonging to the younger and middle aged groups.

Through the present study, we were also able to highlight the prevalence of self-reported tobacco use. Nearly one-third of the study participants (31.03%), were current consumers of tobacco. This high rate of tobacco use is a cause for concern. Besides, in our study, 7.76% indulged in both smoking and consumption of tobacco in smokeless form. In comparison, studies conducted in Andhra Pradesh and Assam found a much higher prevalence of current tobacco use.[7,16] However, this finding of our study was akin to the Global Adult Tobacco Survey (GATS) India Report, 2009-2010, according to which more than one-third (35%) of adults in India use tobacco in some form or the other.

CONCLUSION

Through this study, we conclude that nearly half (49.14%) of the study participants had good knowledge regarding COTPA Act, while 51.29% displayed positive attitudes towards the Act. Additionally, an upper and middle socio-economic class was found to be a significant predictor for both good knowledge as well as positive attitudes about COTPA Act. Furthermore, an age group of ≥60 years was another key factor which predicts positive attitudes regarding COTPA Act. The findings of

our study emphasize the need for more collective efforts to understand the attitudes and knowledge of adults regarding COTPA Act and educational campaigns regarding anti-tobacco legislations, which would enhance their effectiveness in the long run.

Limitations

Our study is not devoid of a few limitations. We could not assess the study participants' practices regarding tobacco control. Moreover, minors (those aged ≤18 years), among whom tobacco use is widely prevalent, were excluded from the study. Nonetheless, our study provides valuable insights about the level of knowledge and attitudes towards significant anti-tobacco legislation, with identification of the key predictors.

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