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Status of health literacy on hazards of tobacco cigarettes and other tobacco products act among students of selected college, Puducherry

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Abstract
Introduction: Tobacco is one of the leading causes of premature deaths worldwide. India has adopted and put forward Act/Legislation to carve the menace of its harmful effects towards the end. Awareness about the hazards of tobacco has been increased overtime with an increasing media but its role alone remains questionable to make India free from tobacco.
Materials and Methods: This is a cross sectional, descriptive study to measure the status of health literacy on hazards of tobacco and cigarettes and other tobacco products act among students of selected colleges, Puducherry. For this purpose, 525 college students were selected as study sample by multistage cluster sampling technique. Kupuswamy scale were used for collecting socio-demographic variables and Health Literacy questionnaire and awareness of COTPA implementation questionnaire were used to measure the health literacy and COTPA. The data were analysed using descriptive and inferential statistics.
Results: The result showed that among 525 samples, 294 (56%) students had desirable health literacy, 215 (40.95%) had moderate and 16 (3.05%) had poor knowledge of health literacy on hazards of tobacco. The overall status of health literacy among the college students were found to be adequate in 340 participants which is 64.8% and not adequate among 185 participants (35.2%). Participants residing within 3 kilometres of medical institution (p=0.018) has shown statistically significant association with status of health literacy. Awareness of COTPA implementation was found adequate among 390 (74.3%) and not adequate among 135 (25.7%). College students who belonged from professional background (P=0.051) and those whose residences is within 3kms of medical institution (p=0.053) has shown statistically significant association with COTPA implementation.
Conclusion: The present study concluded that measuring health literacy is an important tool to predict an individual's health status and is significant component of his/her health behaviour, health quality and access to health care.

Keywords: Health literacy, COTPA implementation, kupuswamy scale, hazards

Introduction

Tobacco use is a major cause of preventable disease and deaths in developed and developing nations [1]. It is one among most important modifiable risk factors common to major non communicable diseases like cancer, cardiovascular diseases, chronic respiratory diseases and diabetes causing 1 in 6 of Non-Communicable Diseases (NCD). Deaths due to tobacco is expected to increase to eight million a year by 2030. [2]

Tobacco control requires a multidisciplinary approach across sectors. India enacted the Cigarettes and Other Tobacco Products Act (COTPA) in 2003 to curb the menace of tobacco use. Despite its enactment, implementation and compliance to the act varies across different states due to poor knowledge and understanding among people [2-4].

Ever since tobacco was introduced 400 years back by Portuguese into India, it remains deeply rooted in the culture of South-East Asia causing serious public health problems. Despite widespread awareness campaigns in media, prevalence of tobacco use among adults aged 15 years and above is as high as 35% with 38% in rural areas and 25% in urban areas [4].

India have become one of the first few nations that ratified the FCTC

(Framework Convention on Tobacco Control). On May 18, 2003, the Government of

India has formulated "The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply, and Distribution) Act (COTPA)". The policies concerning Cigarettes and Other Tobacco Products Act had been notified in 2004. As in keeping with the act, smoking is un lawful in all the public places, bans are positioned on commercial of tobacco merchandise products and prohibition of sale of tobacco to minors and prohibition of sale of tobacco inside 100 yards of any academic institutions [5].

About 80% of tobacco related death occurs in the low- and middle-income countries. India is among the second largest consumers and third largest producers of tobacco in the world. In India the prevalence of tobacco use ranges from 14% among aged 13-15 years and 57% among the age 18-49 years. Youth and adolescent are a very delicate and vulnerable age when exposed to the harmful and damaging culture of the society [6, 7].

Despite the existence of anti-tobacco regulations in India, tobacco dependence in youths and adolescent raise an alarm for the Indian community and stringent steps are required to remove their menace [8, 9].

College students in their late adolescence make transition from school to college life. In addition to the vulnerabilities due to transition, they are also exposed to newer risk factors in the new environment. They experience higher levels of psychological distress than the nonstudents due to like increased academic responsibilities, building new social affairs, financial concerns, living adjustments and peer pressure [7-10]. This psychological stress along with curiosity and newly gained freedom makes them prone to substance abuse including tobacco products. However, if trained adequately they can be an ideal vector for the transmission of health messages to the younger generation and the community. Thus, improving the health literacy of college students about tobacco and COTPA can prevent them from harmful effects of tobacco and also improve health awareness of the society. In our study, we aimed to assess the knowledge, attitude and practice of college students about tobacco use and COTPA and its implementation status in Puducherry.

Materials and Methods

Study design and study setting

A cross sectional analytical study was conducted among the college students of Puducherry with a validated structured questionnaire. There are seven government colleges in Pondicherry offering engineering and arts and science courses. All College students except those pursuing medical and paramedical courses were considered eligible for the study.

Assuming the proportion of students with health literacy about hazards of tobacco to be 65%, with 95% confidence interval, 5 % absolute precision and a design effect of 1.5 sample size was calculated to be 525. College students were selected using a multi stage cluster random sampling. In stage I, three colleges were chosen from seven government colleges in Puducherry by simple random sampling. In stage II 15 students from each department were chosen from the three colleges by simple random sampling.

The study was approved by Nursing Research Monitoring Committee, JIPMER and the Institute Ethical Committee Human Studies. Reg No.JIP/CON/IEC/M.Sc/2019/CHN/5 JIPMER. Written permission was obtained from the heads of the college and written informed consent were obtained from the students after explaining the purpose and procedure of the study. Data collection was done using a validated structured questionnaire with three components namely socio-demographic details, health literacy about hazards of tobacco and health literacy about COTPA. Standard questionnaires on health literacy were modified according to the subject and cultural context and validated by field experts. It consisted of 12 positively stated Likert questions to determine the health literacy about hazards of tobacco and 10 questions on knowledge, attitude and practice related to COTPA.

Statistical analysis: Statistical analysis

Data was collected and entered in Microsoft excel and analysed using STATA version14 [11]. Categorical variables were summarised as frequency with percentages. Continuous variables were summarised as mean with standard deviation and median with IQR based on the normality of distribution.

Results

This study is a cross sectional, descriptive research meant to assess the status of health literacy on hazards of tobacco and COTPA among students of selected colleges, Puducherry in 2021. For this purpose, the students were selected from 3 Government colleges by multistage cluster sampling method. SPSS software version 22 and STATA were used for the data analysis. To collect the data, a questionnaire was designed. This consisted of three parts: the first part consisting of sociodemographic variables for which Kuppusamy scale was used. The second part was consisting of 12 positively stated Likert questions to measure the health literacy of the students while the third part consisted 10 questions to measure the knowledge, attitude and practice of COTPA implementations. The health literacy questionnaire and COTPA implementation questionnaire were developed and approved by the nursing and medical department. Data was collected from 525 samples. The information was fed into SPSS software and analysed using the descriptive statistics.

Results

Table 1: Gender among college students

Gender	Frequency (N)	Percentage (%)
Male	139	26.5
Female	386	73.5
Total	525	100.0

Table 2: Total health Literacy of the participants

Total health literacy	Frequency	Percentage
Strongly agree	294	56
Agree	215	40.95
Disagree	16	3.05
Strongly disagree	0	0
Total	525	100.0

Table 3: Adequate and not adequate HL among students

Health literacy	Frequency	Percentage
Adequate	340	64.8
Not adequate	185	35.2
Total	525	100.0

Table 4: Frequency and Percentage distribution of total COTPA

COTPA	Frequency	Percentage
Adequate	390	74.3
Not adequate	135	25.7
Total	525	100.0

Table 5: Association of Health Literacy with socio demographic variables of the participants

Variables		Health Literacy		X^2	P value
		Adequate	Not adequate		
Age in years	18 years	86 (66.2)	44 (33.8)	.314	0.957
	19 years	146 (63.5)	84 (36.5)		

	20 years	80 (65.6)	42 (34.4)		
	21 years	28 (65.1)	15 (34.9)		
Gender	Male	136 (97.84)	3 (2.16)	0.5061	0.477
	Female	373 (96.63)	13 (3.73)		
Education of Head of the Family	Professional	18 (90.0)	2 (10.0)	3.4013	0.065
	Others	491 (97.23)	14 (2.77)		
Occupation of Head of the Family	Professional	28 (96.5)	1 (3.45)	0.0167	0.897
	Others	481 (96.98)	15 (3.0)		
Per Capita Family Income per month	Lower	26 (100.0)	0 (100.0)	1.3311	0.856
	Upper lower	203 (96.67)	7 (3.33)		
	Lowermiddle	228 (97.02)	7 (2.98)		
	Uppermiddle	45 (95.74)	2 (4.26)		
	Upper	7 (100.0)	0 (0.00)		
Type of Family	Nuclear	328 (64.6)	180 (35.4)	0.261	0.609
	Joint	12 (70.6)	5 (29.4)		
Residences: nearest to medical institution	<3	262 (67.7)	125 (32.3)	5.570	0.018
	>3	78 (56.5)	60 (43.5)		
Family History of Smoking	Yes	68(97.14)	2 (2.86)	0.0099	0.921
	No	441 (96.92)	14 (3.08)		
Use of any tobacco products	Yes	7 (100.0)	0 (0.00)	0.2230	0.637
	No	502 (96.1)	16 (3.09)		
Factors influencing use of tobacco products	Peer pressure	6 (100.0)	0(0.00)	1.0712	0.784
	Media influence	23 (100.0)	0 (0.00)		
	Fashion	3 (100.0)	0 (0.00)		
	None	477 (96.75)	16 (3.25)		
Sources of information about ill effects of tobacco	Doctors	83 (56.1)	65 (43.9)	13.740	0.17
	Television	217 (70.7)	90 (9.3)		
	Friends	19 (52.8)	17 (47.2)		
	Family	19 (63.3)	11 (36.7)		
	Any Other	1 (33.3)	2 (66.7)		

Table 6: Association of COTPA with socio demographic variables of the participants

Variables		**COTPA**		**X^2**	**P value**
		Adequate	**Not adequate**		
Age in years	18 years	102 (78.5)	28 (21.5)	6.200	0.102
	19 years	162 (70.4)	68 (29.6)		
	20 years	89 (73.0)	33 (27.0)		
	21 years	37 (86.0)	6 (14.0)		
	Male	78 (56.52)	60 (43.48)	0.7094	0.400
	Female	233 (60.62)	152 (39.38)		
Education of Head of the Family	Professional	15 (75.0)	5 (25)	2.0627	0.151
	Others	297 (58.93)	207 (41.07)		
Occupation of Head of the Family	Professional	26 (89.7)	3 (10.3)	3.796	0.051
	Others	481 (96.98)	15 (3.0)		
Per Capita Family Income per month	Lower	13 (50.0)	13 (50.0)	4.8818	0.300
	Upper lower	118 (56.19)	92 (43.81)		
	Lowermiddle	145 (61.97)	89 (38.03)		
	Uppermiddle	30 (63.83)	17 (36.17)		
	Upper	6(85.71)	1 (14.29)		
Type of Family	Nuclear	272 (59.65)	184 (40.35)	2.8475	0.241
	Joint	6 (40.0)	9 (60.0)		
	Extended	34 (64.15)	19 (35.85)		
Residences: nearest to medical institution	<3	296 (76.5)	91 (23.5)	3.731	0.053
	>3	94 (68.1)	44 (31.9)		
Family History of Smoking	Yes	268(58.90)	187 (41.10)	0.5892	0.443
	No	44 (63.77)	25 (36.23)		
Use of any tobacco products	Yes	3 (42.86)	4 (57.14)	0..8199	0.365
	No	309 (59.77)	208 (40.23)		
Factors influencing use of tobacco products	Peer pressure	5 (83.33)	1 (16.67)	6.378	0.095
	Media influence	12 (52.17)	11 (47.83)		
	Fashion	0 (0.00)	3 (100.0)		
	None	295 (59.96)	197 (40.07)		
Sources of information about ill effects of tobacco	Doctors	112 (75.7)	36 (24.3)	2.736	.741
	Television	227 (73.9)	80 (26.1)		
	Friends	24 (66.7)	12 (33.3)		
	Family	23 (76,7)	7 (23.3)		
	Any Other	3 (100.0)	0 (0.0)		

As shown in this Table 1, out of 525 participants 139 (26.5%) of them were male and 386 (73.5%) were female.
Table 2, shows the total health literacy of the participants. 294 (56%) college students strongly agreed to health literacy, 215 (40.95%) agreed to health literacy while 16 (3.05%) disagreed to having knowledge on health literacy on hazards of tobacco.
Table 3, shows the participants adequacy on information of health literacy.
As shown in this table 340 (64.8%) participants had adequate health literacy status and 185 (35.2%) participants had not adequate health literacy.
Table 4, shows that 390 (74.3%) college students had adequate knowledge on implementation of COTPA while 212 (25.7%) college students had inadequate knowledge.
Table 5 shows that there is no association between the Health Literacy of the participants and their socio demographic variables. While the participants residing nearest to the medical institution (<3km) had significant P Value of 0.018.
Table 6 shows that there is an association between the COTPA and their Socio demographic variables like occupation of head of the family with P value of 0.051 and residences nearest to medical institution with P value of 0.053.

Discussion

In the present study, 56 % of the respondent had desirable health literacy on hazards of tobacco and 40.95% had moderate health literacy on hazards of tobacco while 3.05% had poor knowledge on their health literacy.
The study found that, 340 (64.8%) number of college students had adequate health literacy status while 185 (35.2%) college students had inadequate health literacy on hazards of tobacco.
Assessment on implementation of Cigarettes and Other tobacco products Act revealed that, out of 525 study sample, 390 (74.3%) had knowledge about COTPA implementation which was found to be adequate. While, 135 (25.7%) study sample had inadequate knowledge about implementation of COTPA.
The results of the present study indicated that the HL in the students was moderate, and the level of HL in more than one-third of the participating students was inadequate. The results of this study were in contrast with the results of the study by Ramezankhani *et al*. [14] in which the HL of more than two-thirds of the students was marginal and inadequate. Among the possible reasons for this discrepancy are the higher number of women than men, and the easier questions of the HL questionnaire compared to the Newest Vital Sign (NVS), in this study compared to the study by Ramezankhani *et al*. The results of the study by Vozikis *et al*. [15] in which the level of HL was moderate to high, seems to be consistent with the results of this study.
In the present study, there was no significant relationship between age and HL but there is evidence in the literature about the effect of age on health literacy among college students, measured using S-TOFHLA [16]. Similarly, age had a weak, positive correlation with the same scale of the HLQ in a study conducted in Denmark [17].
In the current study, there was no significant relationship between gender and HL, so that the prevalence of inadequate HL in males was in comparison with females and the prevalence of adequate and excellent HL was nearly equal in both females and males. These results were not consistent with the results of most studies [18-19]. Possible reasons for the higher level of HL of female students on other studies include greater female's interest in learning and obtaining health information. In this case, the results of the present study were not consistent with the results of Zhang and Cui [20] and Shah *et al*. [21], and there was a significant difference between the HL level of females and males.
The present study showed no significant relationship between family income and HL, but other studies shows that the level of health literacy of the participant is positively and statistically associated with the level of income. Specifically, individuals with higher family income are more likely to score higher in the health literacy questions. The findings are consistent with those of HLS-EU Survey Report for Greece [22], also with other studies [23-25].
In the present study, there was no significant relationship between family income and HL, but other studies shows that students whose fathers had a high-school education or more had significantly higher health literacy scores. A well-educated father is likely to have a higher income job, affording family members better access to information and services, as well as to better schools.
Other study results suggest that college students' smoking status is a significant determinant of health literacy. Compared to smokers, non-smokers had a higher level of health literacy on the HLQ. But our study doesn't show any significance it may be mainly due to large number of our participants are non-smokers.
In the present study, Participants who resided within 3 kilometres to the medical institution had higher Health Literacy as compared to those whose residences are more than 3 kilometres with P value 0.018.
In this study nearly 3/4th of the participants are having adequate knowledge about COTPA act. This is a positive aspect because if people are aware of the health problems caused by tobacco with a little more effort to implement the Act, we can expect the population to accept the Act and support it. Despite having good knowledge about the salient provisions of COTPA Act, most of the study participants were unfamiliar with the nomenclature, COTPA Act.
In the present study, there was no significant relationship between age and KAP of COTPA, but in studies conducted in community they found that the awareness of COTPA increased significantly with increasing age, Rao *et al* [26] and Sharma *et al*, [27] which was contradictory to the findings from Annadurai *et al* [28] in which the age group between 18-25 years, 92.0% was aware that there was age limit below which sale of tobacco products was banned. Of the age group above 61 years, 55.2% was aware of the age limit. So, young people were more aware of the age limit below which sale of tobacco products was banned.
Previous studies have shown that male gender had a significant association with adequate knowledge of COTPA Act [29], but in our study we were not able to find any association
In the present study, there was no significant relationship between family income and KAP of COTPA Act, but other studies have proven that as Socio-Economic Status improves the attitude towards COTPA also improves [30].
From literature we got to know that non users of tobacco (both ever and current) had significantly higher positive attitude towards COTPA compared to their counterparts

established in many previous studies. [30-31], but in this study we are not able to find any significant relationship.

In the current study, the significant relationship was found between occupation of head of the family and KAP of COTPA Act with P value 0.051 and Participants whose residences are nearest to medical institution with P value 0.053.

Strengths

An adequate number of participants were recruited. There were no dropouts of the participants

Limitations

The limitation of the study was the results of current study cannot be generalized to other students and other age groups. Therefore, the study is recommended to be conducted on different groups and populations. Furthermore, participants in the current study were undergraduates of arts and sciences, which are a group with higher HL than common people and this item may have an effect on the results of the study. Another limitation of this study was that the data collection, which was self-reported.

Conclusion

Overall, college students did value the importance of health literacy and thought they had adequate health literacy levels. This is a positive finding indicating that college students had been taught to value, the importance of understanding and utilizing health information to make health related decisions. Building on the value of health literacy is important, considering these college students will be asked to make health-related decisions throughout their lifetime. Keeping informed and valuing the skills necessary to be "health literate" becomes critical in maintaining health. Motivating college students to attain health literacy skills has been indicated.

People supported COTPA act and had a positive attitude towards stronger enforcement of the provision prohibiting the sale of tobacco products to minors, non-availability of tobacco products near educational institutions and increasing the tax of tobacco products will reduce the use of tobacco among youths. Efforts should be made to increase the awareness focussing on less educated, and those belonging to the low SES particularly on the health effects of second-hand smoking and the existence of the Act. As SES improves the awareness about COTPA also improves. We assume that in most cases low SES means less education and thus poor awareness. Awareness of COTPA was high among the non-users as compared to their counterparts. May be the non-users were not using tobacco because they knew about the ill effects of tobacco and also was aware of the Act.

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Conflicts of interest

There are no conflicts of interest

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