

# Knowledge, Attitude and Behavior Regarding the Hazards of Tobacco Use and Cigarette and Other Tobacco Products Act among Parents Visiting Pediatric Dental Clinic: A Cross-sectional Questionnaire Survey

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## ABSTRACT

**Aim:** "Today's adolescents are tomorrow's citizens." Tobacco use in children and adolescents is reaching pandemic levels as they are the most vulnerable population to initiate tobacco use. It is well established that most of the adult users of tobacco, start the use of tobacco either in their childhood or adolescence. Parents are the best route to reach a child and can help lead to bring better outcomes for children. Hence, the aim of this study is to assess the knowledge, attitude, and behavior regarding the hazards of tobacco use and Cigarette and Other Tobacco Products Act (COTPA) among the parents visiting pediatric dental clinic.

**Materials and methods:** A cross-sectional survey was conducted using a self-administered questionnaire regarding knowledge, attitude, and behavior regarding the hazards of tobacco use and COTPA law. Samples size of 400 parents of adolescents aged between 10 and 16 years visiting to the department of Pediatrics and Preventive Dentistry were included in the study, data thus obtained was subjected to statistical analysis.

**Results:** Smoking tobacco product known to the parent population in the present study is cigarette (88.8%) and smokeless tobacco product is *pan masala* (65.2%). The tobacco health hazard known is cancer by 70.5 and 85.3% parent populations were aware of mandatory display of pictorial health warnings in COTPA law. Strict implementation of COTPA law was opted by 61.8%.

**Conclusion:** Knowledge, attitude, and behavior of parents is required to educate and motivate adolescents. Parents have given their positive attitude regarding the strict implementation of COTPA law in India and realize the role of tobacco as a causative factor for health hazards both in children and adults. COTPA law should be made aware for both young and old to educate and motivate and to prevent the use of tobacco in India.

**Keywords:** Attitude, Behavior, COTPA LAW, Hazards of tobacco products, Knowledge, Tobacco products.

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## INTRODUCTION

Adolescent is defined as a person who is in 10–19 years age-group by the World Health Organization (WHO) and constitutes about 22.8% of the Indian population. Initiation of Tobacco use is usually seen in the adolescents as they are the most vulnerable group of population to initiate the use of tobacco. Most of the new victims of tobacco initiators are usually children and adolescent rather than the adults. Hence, it is important to consider and understand the impact of various factors that influence and encourage adolescents to smoke or use other tobacco products.<sup>1</sup>

Adolescents trying tobacco products is a global issue which is causing serious health effects. The determinants of tobacco use among adolescents are associated with parental influence, school personnel, peer pressure, exposure to media advertisements, and sale of tobacco products near public places.<sup>2</sup> Cigarette and Other Tobacco Products Act (COTPA) includes prohibition of smoking in public places, ban on advertisements of tobacco products, and prohibition of sale of tobacco products to minors and within 100 yards of all educational institutions (EIs).<sup>3</sup> It is necessary to increase the awareness of COTPA law among the younger generation and effectively implement the legislation to the public awareness.<sup>4</sup>

Behind every young child who believes in himself is the parent who believed first. The relationship between the parents and the children builds a strong foundation in building their physical,

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mental, social, and emotional development which broadens the horizons of child development in their personality building, decision making, and overall holistic growth, and development. There is a gap of knowledge that exist between a parent and child hence parents were chosen as a bridge to connect the gap of knowledge, attitude, and behavior in our study.

There are very few studies in literature on hazards of tobacco use and awareness about COTPA law among the Indian parent population. Hence, to assess the Knowledge, Attitude, and Behavior regarding hazards of tobacco use and COTPA law and to create

awareness among parents and adolescents visiting pediatric dental clinic is the aim of this study.

### METHODOLOGY

The study was conducted on 400 parents of children aged from 10 to 16 years visiting the Department of Pedodontics and Preventive Dentistry. Data collection on Knowledge, Attitude, and Behavior of hazards of tobacco use and COTPA law was done using a self-administered structured questionnaire. Before the distribution of the questionnaire an informed consent was obtained from the parents. The parents were explained about the objectives of the study and were included to participate in the study out of their goodwill.

### RESULTS

Distribution of responses for knowledge-based questions regarding the types of tobacco smoking. The most common product known to the parent population was cigarettes by 88.8%, beedis by 74%, hookah by 35.5%, hookli by 14.2%, chutta was known to 17.8% parent population and it is statistically significant because very few parents were aware about it. Dhumti by 14% and Chillum was the least common tobacco product known to the parents by 13.5%. Distribution of responses for knowledge-based questions regarding the types of smokeless tobacco products. *Pan masala* was the most

common product known to parents by 65.2%, Khaini by 28.4% which is statistically significant, Mawa by 26.5%, Snuff by 31.6%, and Gutka was known to 51.6% which is also statistically significant (Table 1).

Distribution of responses for knowledge-based questions regarding the health hazards of tobacco products. Cancer was the most common health hazard known to the parent population by 70.5%. Lung and heart diseases by 68%, kidney diseases by 32.5%. The impact of mental illness caused by these tobacco products was known to only 26.3% of the parent population (Table 2).

Showing responses for knowledge-based questions regarding the health hazards of tobacco in the oral cavity. A nonhealing lump in the mouth was known to be 61.5%, white patch in the mouth was known to 49.5%. About 31.8% knew about tightening of inner cheeks and 46.3% of parents knew about the difficulty in chewing and swallowing food (Table 3).

Showing distribution of responses for knowledge-based questions regarding COTPA law which was given in 2003. About 85.3% parent populations were aware of mandatory display of pictorial health warnings on tobacco product packages which were statistically significant. About 85% parent populations were aware about the prohibition of sale of tobacco products to and by minors. About 75.5% parent populations were aware about the testing of all tobacco products for tar and

**Table 1:** Showing distribution of responses for knowledge-based questions regarding hazards of tobacco products

*Comparison of distribution of responses for knowledge-based questions regarding on hazards of tobacco products use using Chi-square Test*

Questions	Responses	Males [n = 250]		Females [n = 150]		Total [N = 400]		$\chi^2$ value	p-value
		n	%	n	%	n	%		
<i>Types of tobacco smoking</i>									
Cigarettes	No	29	11.6%	16	10.7%	45	11.3%	0.082	0.78
	Yes	221	88.4%	134	89.3%	355	88.8%		
Beedies	No	71	28.4%	33	22.0%	104	26.0%	1.996	0.16
	Yes	179	71.6%	117	78.0%	296	74.0%		
Hooka	No	154	61.6%	104	69.3%	258	64.5%	2.449	0.12
	Yes	96	38.4%	46	30.7%	142	35.5%		
Hookli	No	210	84.0%	133	88.7%	343	85.8%	1.671	0.20
	Yes	40	16.0%	17	11.3%	57	14.2%		
Chutta	No	197	78.8%	132	88.0%	329	82.3%	5.435	0.02*
	Yes	53	21.2%	18	12.0%	71	17.8%		
Dhumti	No	213	85.2%	131	87.3%	344	86.0%	0.354	0.55
	Yes	37	14.8%	19	12.7%	56	14.0%		
Chillum	No	214	85.6%	132	88.0%	346	86.5%	0.462	0.50
	Yes	36	14.4%	18	12.0%	54	13.5%		
<i>Types of smokeless tobacco</i>									
Khaini	No	17.6%	49	82.7%	228	277	71.6%	6.250	0.01*
	Yes	28.4%	26	17.3%	97	123	28.4%		
Mawa	No	43.5%	120	56.2%	154	274	73.5%	2.169	0.14
	Yes	26.5%	30	20.0%	96	126	26.5%		
Snuff	No	45.4%	105	54.5%	126	231	68.4%	0.112	0.74
	Yes	31.6%	45	30.0%	124	169	31.6%		
Gutka	No	32.5%	55	67.4%	114	169	48.4%	5.238	0.02*
	Yes	41.1%	95	58.8%	136	231	51.6%		
Pan masala	No	34.8%	48	32.0%	135	183	34.8%	0.329	0.57
	Yes	65.2%	102	52.0%	115	217	65.2%		

**Table 2:** Comparison of distribution of responses for knowledge-based questions regarding the health hazards of tobacco products

Questions	Responses	Males [n = 41]		Females [n = 59]		Total [N = 100]		$\chi^2$ value	p-value
		N	%	N	%	n	%		
<i>Health hazards related to tobacco products</i>									
Lung and heart disease	No	81	32.4%	47	31.3%	128	32.0%	0.049	0.83
	Yes	169	67.6%	103	68.7%	272	68.0%		
Kidney diseases	No	170	68.0%	100	66.7%	270	67.5%	0.076	0.78
	Yes	80	32.0%	50	33.3%	130	32.5%		
Mental disorders	No	187	74.8%	108	72.0%	295	73.8%	0.380	0.54
	Yes	63	25.2%	42	28.0%	105	26.3%		
Cancer	No	77	30.8%	41	27.3%	118	29.5%	0.542	0.46
	Yes	173	69.2%	109	72.7%	282	70.5%		

**Table 3:** Comparison of distribution of responses for knowledge-based questions regarding the health hazards of tobacco products used in the oral cavity

Questions	Responses	Males [n = 41]		Females [n = 59]		Total [N = 100]		$\chi^2$ value	p-value
		N	%	n	%	N	%		
<i>Harmful effects of using tobacco products in the mouth</i>									
Nonhealing lump in mouth	No	95	38.0%	59	39.3%	154	38.5%	0.070	0.79
	Yes	155	62.0%	91	60.7%	246	61.5%		
White patch in mouth	No	131	52.4%	71	47.3%	202	50.5%	0.963	0.33
	Yes	119	47.6%	79	52.7%	198	49.5%		
Tightening of inner cheeks	No	168	67.2%	105	70.0%	273	68.3%	0.339	0.56
	Yes	82	32.8%	45	30.0%	127	31.8%		
Difficulty in chewing and swallowing food	No	137	54.8%	78	52.0%	215	53.8%	0.296	0.59
	Yes	113	45.2%	72	48.0%	185	46.3%		

nicotine content which is also statistically significant. About 83% parent populations were aware about the prohibition of smoking in public places which is also statistically significant. About 80.8% parent populations were aware about the prohibition of sale of products within 100 yards of all EIs. About 75.0% of parents knew about the penalty for violation of COTPA law. Among the parents who knew about the penalty amount of Rs. 200 were 37.3%, 17.1% knew about Rs. 5,000, 8.3% knew about Rs. 10,000 and 37.3% of parents knew about fine and imprisonment for violation of COTPA law (Fig. 1).

Showing distribution of responses for attitude-based questions regarding the COTPA law 2003. Among the steps to help victimized children to quit tobacco habits 39% of parents agree for early detection, 47% for moral, social, and psychological support, 73% for inculcating strong principles which is statistically significant and 25% for de-addiction centers. About 13.6% of parents are not sure of strict implementation of COTPA law, 18.8% agree, 61.8% of parents strongly agree whereas 3.8% strongly disagree and 2% disagree (Fig. 2).

Showing distribution of responses for behavior-based questions regarding the COTPA law 2003. About 10% of parents send their children to purchase tobacco products for them. About 93.2% agree that tobacco products are harmful to health. About 83.2% would you like to quit smoking if they are a smoker which is statistically significant. About 73.7% have educated their children regarding the hazards of tobacco products and COTPA law. About 2.5% parents strongly disagree, 0.5% disagree, 9.5% are not sure which is statistically significant, 16.8% agree, 70.7% strongly agree for abstinence from tobacco products for a healthy living (Fig. 3).

## DISCUSSION

Adolescents are conjugator of childhood and adulthood as they are motivated to experiment in all spheres of life to expand their capacity of autonomous decision making on major factors of life. Factors that influence and encourage adolescents to pick-up these destructive habits at a very young age should be taken into consideration, because there is not only biologic, cognitive, emotional, and social development of an adolescent during the developmental era but also the relationships to family, culture, and society as a whole. These habits have deleterious effect on overall well-being of adolescent which can hamper them to bloom to their full potential. Hence, children from the age group of 10 to 16 years were involved in our study.

Children are backbone of a Nation on their health and prosperity depends the progress of a nation.<sup>5</sup> Children are like wet cement whatever falls on them makes an impression hence good habits formed in adolescents makes a great difference in adulthood.<sup>6</sup> Therefore education is not only a tool for development of an individual, community, or a nation but a foundation of our future.<sup>7</sup>

Wright in 1975 gave the "Pedodontics Treatment Triangle" in which the child is at the apex of the triangle and the dentist and parents are at the base. The child is the focus of attention and all the efforts are toward providing a better oral health care to the child and to prevent them from acquiring tobacco habits by creating awareness in both parents and children. The arrows in the triangle indicate that the relationship between the three corners of the triangle are reciprocal hence knowledge, attitudes, and behavior can also be reciprocated. The target sample size of 400 of parent population was met by distribution of sociodemographic

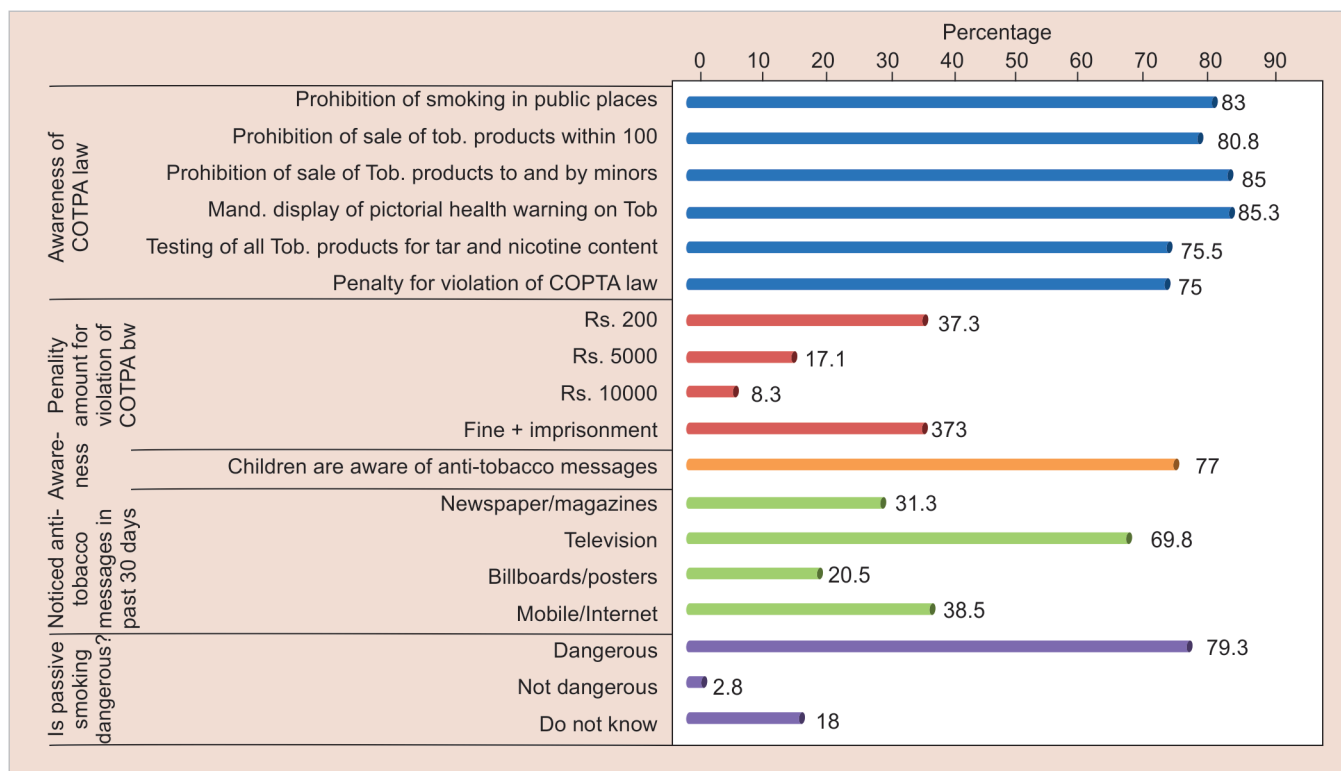


Fig. 1: Comparison of distribution of responses for knowledge-based questions regarding COTPA law

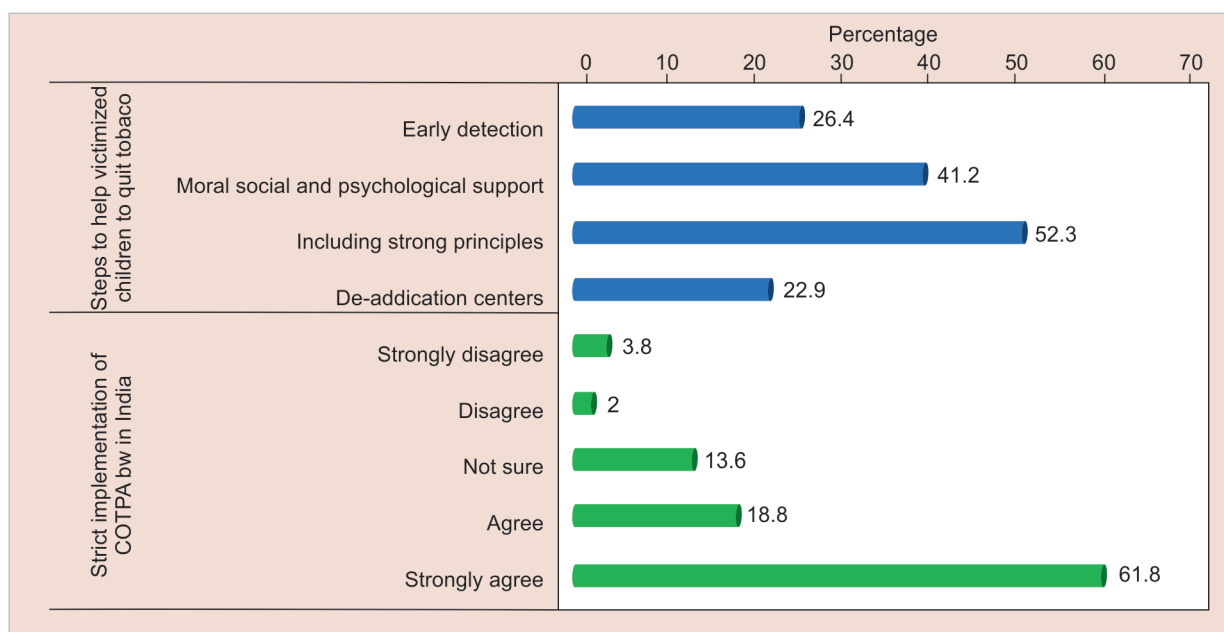


Fig. 2: Comparison of distribution of responses for attitude-based questions regarding COTPA law 2003 and steps to help victimized children to quit tobacco

characteristic among the parents age group ranging from 28 to 64 in both the genders, where males dominated by 62.5% and females by 37.5%. Literature has a very few studies done on parents to assess the knowledge, attitude, and behavior of adolescents bringing out the uniqueness of this study.

India has a wide variety of smoking tobacco products like cigarettes, beedies, hookah, hookli, chutta, dhumti, chillum, and smokeless tobacco products like khaini, mawa, snuff, gutka,

panmasala, etc. The most common hazardous substance used in India is tobacco as it is legally available, widely consumed and heavily promoted.<sup>8</sup>

The most common smoking product known to the parent population in our study is cigarette and beedis because of the easy availability and wide use in the urban areas of Bangalore. Chutta, dhumti, and chillum were least known and statistically significant because of the nonavailability of the product in the

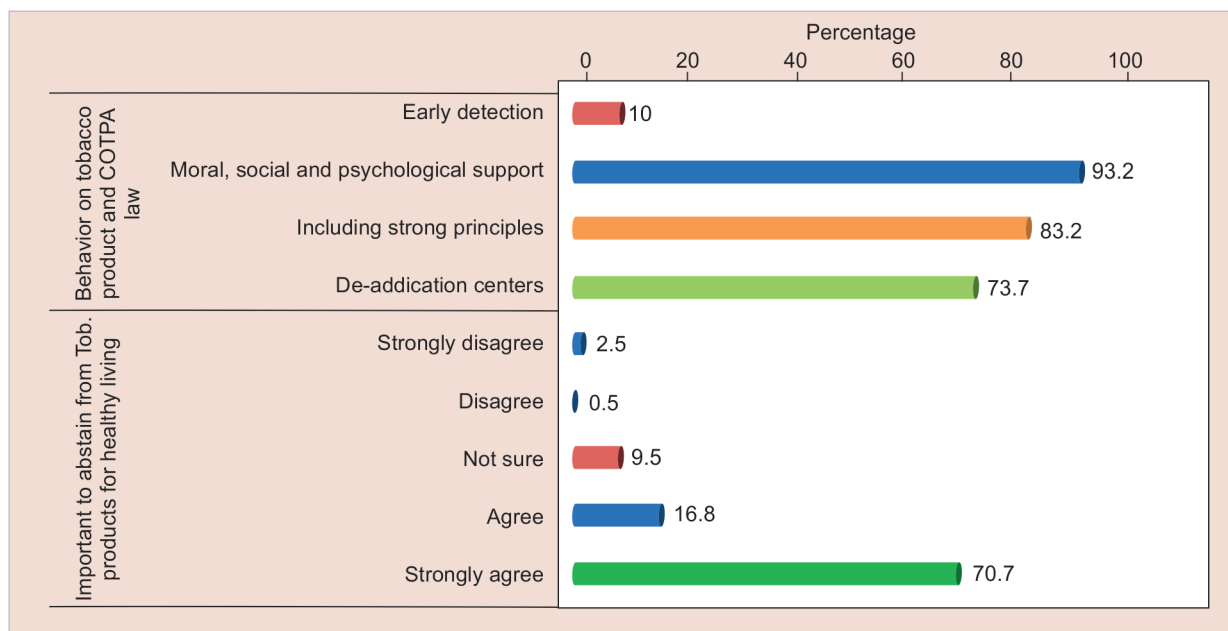


Fig. 3: Comparison of distribution of responses for behavior-based questions regarding COTPA law

urban areas. Hookah and hookli was known in moderation as its use of prevalence is high in eastern countries (Table 1). Chhabra SK et al. also conducted a similar study in which cigarette smoking was most common smoking product used in the higher income groups as they use filtered cigarettes and in contrast, the lower and middle-income groups who were illiterates and less educated beedi smoking was found to be common.<sup>9</sup> A study conducted by Narayan et al. similarly stated that Delhi urban population smoked cigarette commonly than beedis.<sup>10</sup> In contrast, Kumar et al. concluded that beedis are the most common form of tobacco used because of the pricing strategy as beedis cost less than cigarettes.<sup>11</sup> The most common type of smokeless tobacco product known to the parent population was *pan masala* and *gutka* again due the easy availability and wide use in urban areas, *mawa* and *snuff* were least known due to their rare use as they are crude forms of tobacco used in remote villages of north India (Table 1). In a similar study conducted by Sinor PN et al. *mawa* was the most common product known which is in contrast to our results.<sup>12</sup> Among the smokeless tobacco form *khaini* and *gutka* which was statistically significant in our study, Sinha DN et al. conducted another study among medical and dental students that also revealed high levels of smokeless tobacco forms used were *khaini* and *gutka*.<sup>13</sup>

Smoking tobacco is also associated with major cancer all over the body including respiratory tract, gastrointestinal tract, cardiovascular diseases, liver, pancreas, kidney, urinary bladder, oral cavity, nasal cavity, cervix, etc.<sup>10</sup> The major cause of cancer in the oral cavity is smokeless tobacco, risk of developing cancer increases with duration of use of tobacco, number and degree of inhalation. A total of 4% of all cancers in women 25% of all cancers in men and in developed countries it is about 16% in both sexes and in less developed countries it is about 10% overall. In recent studies, it has shown to cause renal and mental disorders as well.<sup>14,15,16</sup>

In our study among the various health hazards, cancer was the most common health hazard known to parent population followed by lung and heart diseases, kidney diseases, and impact on mental illness was the least known by the parents (Table 2). Research evidence of the diseases has created awareness about

the knowledge of the health hazards but the awareness about kidney and mental diseases have not yet caught much attention of public as little light has been thrown on its effects. Hence, creating awareness about it is essential. Ramadas K et al. conducted a study which had similar results as our study where cancer was the most common health hazard known to the participants.<sup>17</sup> In contrast, Evins AE et al. concluded that smoking has been associated with a range of mental disorders including schizophrenia, anxiety disorders, and depression. People with mental illness have high rates of morbidity and mortality from smoking-related illnesses such as cardiovascular disease, respiratory diseases, and cancer.<sup>18</sup> S Fareeda Begum et al. found decreased levels of total proteins in kidney diseases leading to renal glomeruli albuminuria and significant amount of globulins was present in urine of *gutkha* (27.40%) and *khaini* (28.88%) users.<sup>19</sup> Magidson JF et al. concluded that smoking causes psychiatric disorders such as attention deficit, conduct disorder, depression, anxiety, mood swings, and alcohol or illicit drug dependencies.<sup>20</sup>

India has one of the highest rates of oral cancer in the world, with over 50% attributed towards smokeless tobacco use.<sup>21</sup> The incidence of oral cancer is highest in Asian countries like India, Sri Lanka, Pakistan, and Taiwan.<sup>22</sup> Wani et al. reported a significant number of oral cancer patients in Agra, Allahabad, Manipur, Varanasi, and Moradabad belt of Uttar Pradesh in north India.<sup>23</sup> Baram et al. conducted a survey in Chennai, Trivandrum, and Bangalore in southern India where the incident cases of cancer of the oral cavity were identified in three south Indian centers.<sup>24</sup> Pan chewing is one of the most important cause of oral cancer in either gender. Among men, however, 35% of cases can be accountable for smoking and alcohol drinking where it may play a synergistic effect as well. The tissue of the lips are the most common site for development of oral cancer. It may also involve the tongue, floor of the mouth, cheek lining, gingiva, palatal roof of the mouth and tend to spread rapidly.<sup>25</sup> A precancerous condition known as Oral submucous fibrosis (OSF) is caused by the use of *areca nut* in various forms of tobacco. Ranganathan K et al. published reports on *areca nut* use and OSF from Chennai, south India in which there was

tightening of the inner cheek.<sup>22</sup> Leukoplakia is also most common premalignant lesion of the oral cavity which causes white patches in the oral mucosa. It is scientifically proved that tobacco is the main culprit.

Among the harmful effects of using tobacco in the mouth, a nonhealing lump in the mouth was known to parents, followed by white patch in the mouth, difficulty in chewing, and swallowing food, but only few parents knew about the tightening of inner cheeks in the present study (Table 3). There is evidence of lack of knowledge in parents regarding the precancerous lesions like tightening of the inner cheeks and white patch which may be the precursors of cancers in the mouth. They are aware of the advanced symptoms but not the early symptoms this is largely reflected by the fact that most cases are in advanced stages when diagnosed even though there is a way when it can be diagnosed early during regular examination.

India is a signatory to Framework Convention on Tobacco Control since September 2003. Indian parliament has passed COTPA in 2003 to prohibit advertisement of tobacco and to provide for regulation of trade and commerce in the production of tobacco.<sup>26</sup> COTPA is the principal law governing tobacco control in India which includes prohibition of smoking in public places, within 100 yards of all EIs, sale to and by minors, mandatory display of pictorial health warning. A continual effort has to be made to increase the awareness of the act amongst the adolescents.<sup>27</sup>

Prohibition of smoking in public places and mandatory display of pictorial health warnings on tobacco product packages was statistically significant in our study. They were also aware about prohibition of sale of products within 100 yards of all EIs, prohibition of sale of tobacco products to and by minors. The testing of all tobacco products for tar and nicotine content was least known which is also statistically significant (Fig. 1).

Goel et al. found a very high compliance rate of 92.3% for COTPA in a district of north India was better in health-care facility and EI and was worse in bus stands, railway station, and markets in his study.<sup>28</sup> Pimple et al. in their cohort study reported that only 28.2% EI displayed such a board at a noticeable place outside the institution.

The parents were not aware of the penalty for violation of COTPA law because of the poor implementation of the law. The penalty amounts are Rs. 200, Rs. 5,000, Rs. 10,000, Rs. Fine + imprisonment (Fig. 1). In similar studies conducted by Chaudhry et al., they found that the most common violation of point of sale was the advertisement boards that were larger in size than permitted by law.<sup>29,30</sup> In another study conducted by Pimple et al., they noted that there was only 25.2% compliance for display of health warning boards at the point of sale and nearly tobacco vendors. In a study conducted by Goel et al., they found that more than 25% were violating COTPA.<sup>27</sup> In the light of the existing evidence and the results of the present study, it is clear that the tobacco control policy in India is not geared adequately towards addressing the issue.

Attitude is a settled way of thinking and feeling about some concepts. A number of factors influence the use of tobacco by children and teenagers. Some of these may be family history of tobacco use, peer influence, experimentation, easy access to such products, underlying emotional, and psychological problems.

A Shah et al. suggests that early detection, moral, social, and psychological support for the adolescent victims who are already in the clutches of tobacco can be beneficial to support them to overcome the habit.<sup>2</sup> About 52.3% parents have the attitude that inculcating strong principles will help adolescents to overcome and

to reject these habits which is statistically significant in our study. Early detection was opted by 26.4% and providing moral, social, and psychological support can support the victims was opted by 41.2%. Very few about 22.9% agree that de-addiction centers may also provide help for the victims (Fig. 2). Attitude of parents regarding the strict implementation of COTPA law, 13.6% of parents are not sure of strict implementation of COTPA law. A total of 18.8% agree for strict implementation of COTPA law, 61.8% of parents strongly agree for strict implementation of COTPA law in India, only 2% disagree for it. Hence, parents have a positive attitude towards implementation of COTPA law for the good of the society.

Behavior is the sequence of actions and mannerisms made by an individual in conjunction with their environment. The behavior of parents, friends, and celebrities can also influence the behavior of children to initiate smoking habits. In the present study, friends behavior influences much by 33.6% which is statistically significant, followed by the influence of celebrities by 11.8% and parents by 10.3%. The behavior of parents regarding the COTPA Law can bring about behavioral changes in children as well. In the present study, 83.2% of parents would like to quit smoking which is statistically significant. Most of the parents were motivated with a positive behavior by knowing the health hazards on them and their children to quit the habit. About 10% of parents sent their children to purchase tobacco products for them but recognized the danger of introducing tobacco products to the young ones and desired to modify their behavior. About 93.2% agree that tobacco products are harmful to health and would like to stay away from the tobacco monster. About 73.7% have educated their children regarding the hazards of tobacco products and COTPA Law and the rest were motivated to educate their children regarding tobacco products, their health hazards to prevent children from initiating the habits, and COTPA Law to help them to be better citizens of the country.

## CONCLUSION

Knowledge, attitude, and behavior of parents is required to educate and motivate adolescents as it is easier to prevent bad habits in children than to break them once children initiate and adopt these habits. The best way to stop a habit is not to begin, because habits are easier to abandon today than tomorrow because we can build strong children than to repair broken men. Adverse health effects on children should be taken seriously and efforts of intervention should start prior to teen age before they could form their opinion and start consuming tobacco. Parents have given their positive attitude regarding the strict implementation of COTPA law in India and realize the role of tobacco as a causative factor for health hazards both in children and adults and agreed to change their behavior towards strong and sustainable measures to implement COTPA law as it should be made aware for both young and old to educate them and motivate them to prevent the use of tobacco in India.

There is an urgent need to take effective steps, especially to create awareness in the community by arranging school camps for the school children and public to educate them about the consequences of tobacco use and making them about their role as a responsible citizens in curbing the social nuisance called tobacco. It is also necessary to be aware of the international policies and conventions like WHO and other similar agencies on tobacco use, in order to utilize their expertise for curbing this problem.

We would like to conclude that the knowledge about the tobacco products, health hazards, and COTPA law is relatively less

when gauged in an urban area like Bangalore. The role of attitude and behavior is positive supporting the strict implementation of COTPA law among parents. Hence, awareness has to be created in order to obtain desired attitude and behavior from parents which may pass on to children. As pedodontists, let's educate them with right knowledge at the right time to create right attitude and behavior to be better citizens for the country.

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