A review of tobacco cessation services for youth in the dental clinic

Abstract
Tobacco use is one of the leading preventable causes of illness and death. The most powerful predictor of adult smoking is smoking during adolescence. While general and pediatric dentists have a positive attitude regarding tobacco cessation counseling, the same is not extrapolated into practice. Several barriers to counseling in the dental clinic have been identified and research into some of these has been conducted. Evidence-based cessation programs are still in the nascent stage, but this should not hinder dental professionals from rendering these services to the child and adolescent populations. Brief interventions, self-help materials, and nicotine replacement therapy for established nicotine dependence form the mainstay of therapy. The purpose of this paper is to identify the several barriers encountered in providing cessation and discuss the current status of its implementation in the dental clinic.

Key words
Adolescent, counseling, nicotine, oral health, smoking

Introduction
Tobacco use is growing fastest in low-income countries, due to steady population growth coupled with tobacco industry targeting, ensuring that millions of people become fatally addicted each year. More than 80% of the world’s tobacco-related deaths will be in low- and middle-income countries by 2030.[1]

Tobacco use by Youth in India
Each day, 55,000 children in India start using tobacco and about 5 million children under the age of 15 are addicted to tobacco. The Global Youth Tobacco Survey (GYTS)[2] reported that in India

Effects of Tobacco use
Smoking during pregnancy increases the chance of a low-birth-weight baby, miscarriage, premature birth, stillbirth, sudden infant death syndrome (SIDS), and six times greater chance of cleft palate formation.[4]

Second hand (passive) smoke from parents puts
the children at an increased risk of developing colds, pneumonia, bronchitis, middle-ear infections, increased severity of symptoms in asthmatic children, reduction in lung function, and delayed development of permanent teeth by as many as 4 months.[5]

Although the most serious health outcomes associated with smoking typically emerge later in life, adolescent smokers show evidence of airway obstruction, slowed growth in lung function, and higher rates of cough and other respiratory symptoms, compared with non-smokers. In addition, the earlier individuals begin to smoke, the higher their risk for heart disease, stroke, and chronic obstructive lung disease nicotine addiction, and possibly their risk of developing anxiety disorders and depression.[6]

Several studies point out that tobacco use is the root of many oral health problems, including tooth loss, bone loss, and periodontal diseases. Half the cases of adult periodontitis are attributable to smoking. Moreover, tobacco use impedes the effectiveness of periodontal therapy and wound healing.[7] Smoking a pack of cigarettes a day or using smokeless tobacco quadruples the risk of developing oral cavity or oropharyngeal cancer, which kills 49% of its victims within 5 years of diagnosis. In India, a vast majority of oral cancers are preceded by precancerous lesions and conditions caused by the use of tobacco in some form.[8] These can be more easily seen because of their peculiar oral location, making oral cancers particularly amenable to prevention.

**Adult vs Children/Adolescent Tobacco use**

Adolescent-type tobacco use is characterized by being driven by relationships, activities, positive and negative emotions, and social ramifications, while adult-type smoking is defined by the dependence of nicotine. Although most youth do not become nicotine dependent until after 2–3 years of use, addiction can occur after smoking as few as 100 cigarettes[9] or within the first few weeks.[10] However, there are unique behavioral and social factors associated with their behavior and unlike adults, nicotine dependence may not be the primary reason reported for smoking.[11] Personal characteristics of adolescent tobacco users include low self-esteem, low aspirations, depression/anxiety, and sensation seeking. This is then associated with poor school performance, school absences, school drop-out, alcohol, and other drug use. Teens who smoke are three times more likely to use alcohol and several times more likely to use drugs. Illegal drug use is rare among those who have never smoked.[12]

**Do Pediatric or General Dentists Provide Tobacco Prevention and Cessation Services for Youth?**

A large population of dentists have a positive attitude about intervening for their adolescent patients. A study in Saudi Arabia[13] found that the majority of general dentists consider smoking cessation and prevention for adolescents and children as part of their responsibility. Members of the AAPD[14] found that over half of the respondents believed pediatric dentists should encourage, advice, and assist tobacco users to quit using tobacco. In addition, 80% reported that trying to reduce adolescent tobacco use was worth the time.

Despite a positive attitude, practice was found to be lacking in most of the studies. A recently undertaken study in Colorado, USA[15] concluded that most dentists and hygienists did not counsel 8- through 12-year-old children to prevent tobacco use. Clear evidence of a lack of confidence and doubt about the effectiveness of their smoking intervention efforts were reported.[13] These findings are backed up by data collected from the youth wherein only 20% reported that a dentist counseled them about the dangers of tobacco use, and among students who smoked in the past year, 11.6% received advice from a dentist to quit.[16]

Several barriers have been identified by dentists in providing these services to the youth.[13-20] Some of the consistently reported barriers are lack of time, lack of reimbursement or incentives, resistance from the patients or parents, lack of skills or formal training translating into lack of confidence, and perception of poor effectiveness. Children and adolescents also underreport tobacco use on health history forms that ask them to specify whether they use tobacco products[21] making it difficult to identify them in the first place.

In an attempt to address these issues, a few studies have been conducted. For instance, evaluating parents attitude toward tobacco counseling by pediatric dentists in children averaging 8.2 years, it was found parents were more likely to approve than disapprove of the dentist counseling the child (about 80% vs. 8%) and the parent (74% vs. 11%). Tobacco status of parent did
A large survey of the youth in India reported that 68.5% (average) of students who smoked wanted to stop, whereas 71.4% (average) had already tried to stop smoking during the past year. This is a strong indicator that quit attempts are common in youth and they should be helped with the same.

The lack of training at the graduate level is also an important barrier that hinders large-scale involvement of dentists. Analyzing tobacco cessation efforts by dentists, pediatric dentists with tobacco counseling training were more likely to accept their role in tobacco prevention and cessation efforts and were more confident in their ability to do so than were their counterparts. Continuing education programs are needed to enhance the knowledge and skills of pediatric dentists to promote tobacco control behaviors.

Best Practices

Studies show that if people do not begin to use tobacco during adolescence, there is a good chance they never will. While tobacco cessation for adults is an extensively researched topic, few have addressed cessation among youth. Thus, with no evidence based conclusions available, the current guidelines by and large extrapolate the findings of adult studies onto youth.

Tobacco cessation methods can be broadly classified into:

a. Cognitive behavioral therapy (CBT) includes methods such as self-help and brief interventions which can be provided by health professionals,
b. Intensive therapy at smoking cessation centers,
c. The pharmacological means including nicotine replacement therapy (NRT) and antidepressants like bupropion.

A host of alternative means are available such as hypnosis, acupuncture, lasers, Allen Carr’s Easy way, St. John’s wart, nicobrevin but a thorough review of several studies on them have failed to justify their scientific usage.

W hile intensive therapy is not in the realm of dentists providing brief interventions and NRT hold plenty of promise. Even though theoretically these methods may seem exclusive of each other, the existing data suggest that a combination of the two are often essential to achieve good success rates.
Brief Interventions

Available evidence suggests that behavioral interventions for tobacco use conducted by oral health professionals incorporating an oral examination component in the dental office and community setting may increase tobacco abstinence rates among smokeless tobacco users.[28] Dental treatment often necessitates frequent contact with patients over an extended period of time, providing a mechanism for long-term contact and reinforcement, coupled with visible changes in the oral cavity in response to counseling.[29]

Brief interventions typically involve an assessment of tobacco use, dependence, and motivation to quit; advice on the benefits and methods of quitting; and assistance with quitting, including referrals to other treatment.

- It is important to note that studies report that adolescents consistently rank physical attractiveness, dental concerns, and oral health as greatly important.[30,31]
- Relating smoking to short-term adverse effects such as staining of teeth, bad breath, loss of taste may be more relevant and meaningful to an adolescent smoker than relating smoking to long-term health effects such as cardiovascular or lung diseases.[14]
- Peer influences play a critical role as do role models. Highlighting personalities abstaining from smoking and making the dental clinic adopt a no tobacco policy can be used to guide them away from tobacco use.
- Enhancement of athletic ability and concentration powers, being ‘cool’ have been associated with tobacco use. Such common myths with tobacco use need to be dispelled.
- Few brief messages that can be effective are
  - Eating healthy foods and exercising is a better way to lose weight than smoking.
  - Smoking a pack a day costs more than that a CD.

Clinicians are currently encouraged to develop their own systems to deal with adolescents. However, it is important to realize that tobacco cessation is a process and a number of stages are encountered in the process. Some of the attributes required for the clinician are (a) not to give up, (b) to be persistent, and (c) be supportive.[29]

The "5 A's" for brief intervention are used in cases where the adolescent wishes to quit and include[24]
- Ask about tobacco use.
- Identify and document tobacco use status for every patient at every visit.
- Advise to quit. In a clear, strong, and personalized manner urge every tobacco user to quit.
- Assess willingness to make a quit attempt.
- Is the tobacco user willing to make a quit attempt at this time?
- Assist in quit attempt.
- For the patient willing to make a quit attempt, use counseling and pharmacotherapy to help him or her quit.
- Arrange follow-up.

Anticipatory guidance—the practice of providing counsel regarding potential problems—is a key part

<table>
<thead>
<tr>
<th>Intervention goals</th>
<th>Interventions to consider to meet your goals</th>
<th>Interventions least suited to meeting your goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>To serve youth with significant psychological and/or physical comorbidities (e.g., depression, substance abuse, asthma, eating disorders)</td>
<td>Face-to-face counseling</td>
<td>self-help, non-interactive; self-help, computer interactive; telephone counseling</td>
</tr>
<tr>
<td>To serve youth who need more individualized or tailored interventions</td>
<td>Face-to-face counseling; Self-help, computer interactive Telephone counseling</td>
<td>Self-help, non-interactive</td>
</tr>
<tr>
<td>To serve youth who prefer one on one interactions</td>
<td>Face-to-face counseling; telephone counseling</td>
<td>Group counseling</td>
</tr>
<tr>
<td>To reach youth who want anonymity when seeking help</td>
<td>Self-help, non-interactive; self-help, computer interactive; telephone counseling</td>
<td>Face-to-face counseling; group counseling</td>
</tr>
<tr>
<td>To serve youth who are self-motivated and directed</td>
<td>Self-help, non-interactive; self-help, computer interactive; telephone counseling</td>
<td></td>
</tr>
<tr>
<td>To serve youth with little motivation to quit</td>
<td>Brief interventions that use motivational techniques</td>
<td>Self-help, non-interactive; self-help, computer interactive</td>
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<tr>
<td>To serve youth who are comfortable with and have access to computer technology</td>
<td>Self-help, computer interactive</td>
<td></td>
</tr>
<tr>
<td>To reach youth with low levels of literacy</td>
<td>Telephone counseling; face-to-face counseling</td>
<td>Self-help, non-interactive. self-help, computer interactive</td>
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of health care for the young, and can be considered an additional and important 'A' of this process. If dentists provide messages about tobacco use that are appropriate to the patient's age and developmental stage, the potential for broad public health impact is great. \[32,33\] A congratulatory message positively reinforced can truly enhance the chances of a child desisting from tobacco use in the future.

The 5 R's is recommended in the event that tobacco quitting is not being contemplated:

Relevance
Encourage the patient to indicate why quitting is personally relevant, being as specific as possible.

Risks
Dentist can help the patient to identify potential negative consequences of tobacco use. Suggest and highlight those that seem most relevant to the patient.

Rewards
Dentist should ask the patient to identify potential benefits of stopping tobacco use.

Roadblocks
The clinician should ask the patient to identify barriers or impediments to quitting and note elements of treatment.

Repetition
The motivational intervention should be repeated every time an unmotivated patient visits the clinic setting.

Self-help\[34\]
The self-help, non-interactive approach includes minimal interventions that do not require responses from the adolescent and are delivered through written or audio-visual materials or on a computer, while self-help, computer interactive support approach uses computer technology to assess a person’s tobacco use and motivation to quit.

Telephone counseling or support\[34\]
This approach delivers support or counseling by telephone rather than through face-to-face encounters. Telephone interventions can offer support of varying intensity while reducing many barriers associated with other cessation services (e.g. the need for transportation, the problem of scheduling appointments, confidentiality versus disclosure to supervisory adults). A general guideline can be adopted from the one suggested by the center for disease control- \[ Table 2 \].

Methods to avoid\[34\]
Two types of intervention approaches are generally deemed ineffective or inappropriate for youth.

- Sensory deprivation environment method, which requires that youth be placed in an environment that deprives them of sensory stimulation (e.g., a dark room) to help them clarify any conflicting feelings they have about tobacco use.
- The second method uses fear appeal tactics alone. This approach relies solely on “scare tactics” (e.g. showing pictures of diseased lungs, presenting people who have been disfigured by a tobacco related disease) to change tobacco behavior by evoking fear of the possible consequences of tobacco use.

Environmental Tobacco Smoke

The AAPD\[32\] has laid down the following guidelines for preventing ETS:

- Determine and document tobacco use by patients and smoking status of their parents, guardians, and caregivers.
- Educate patients, parents, and guardians on the serious health consequences of tobacco use and exposure to ETS in the home.
- Provide both prevention and cessation services using evidence-based interventions identified as “best practice” for treating tobacco use and nicotine addiction.

Nicotine Replacement Therapy (with or without Bupropion)

Adolescent smokers are different from older smokers in that their motivation to stop smoking tends to be more unstable. It is sensible, therefore, to check that they are fully committed to trying to stop smoking permanently before offering them NRT and to attempt to establish that they are dependent.\[35\]

In a randomized clinical trial,\[36\] it was found that a large majority of adolescents in both treatment groups of NRT with bupropion and NRT with placebo reduced their consumption to a few cigarettes per day or less and maintained this reduction over time. Similarly, by the end of treatment, many had managed to avoid a return to daily smoking. This finding is supported by
other studies\[37,38\] which report the nicotine patch to be safe as well.

Other studies have reported contrary to the above findings in that nicotine patch therapy plus minimal behavioral intervention did not appear to be effective for treatment of adolescent smokers.\[39\] Nicotine replacement therapy is used by both adolescent smokers and nonsmokers and is used for reasons other than trying to quit smoking. A report that NRT drugs were being sold on the pavement in India raises some concerns of NRT abuse.\[40\] However, this phenomenon is rare and although the long-term effect of nicotine replacement is unknown, this product is significantly less harmful than tobacco.\[41\]

The current data available indicate that NRT used by adolescents between 12 and 18 years is as well tolerated by teenagers as it is in adults and would certainly be safer than smoking. There is no evidence that indicated adolescents would abuse/ misuse NRT. However, if a teenager needs to use NRT for longer than 12 weeks, they should discuss this with a healthcare professional (such as a doctor, pharmacist, or nurse).\[35\]

Conclusions

Tobacco use is one of the leading preventable causes of illness and death. The most powerful predictor of adult smoking is smoking during adolescence. While both general and pediatric dentists hold themselves responsible for providing tobacco cessation services and encourage non-users to be tobacco free, few translate this into practice. Admittedly, there are several barriers in this process, both real and perceived, which should be addressed with further research. The evidence-based approach currently does not specify the best methods available to counsel the youth and methods used for adults that are currently adopted for youth as well. Screening for tobacco use, referring adolescents to additional resources for cessation, and establishing a follow-up system that will track each adolescent’s progress should be made mandatory. Encouraging non-users to remain so is an important area where progress should be made. Brief advice from a clinician for adolescents is cost-effective (because it is provided during a visit scheduled for another purpose) and has a potentially large reach.

“Let us not treat teeth alone, but learn to treat individuals who have teeth.”

References


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