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Review Article

Role of dental health professional in tobacco cessation: a review

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ABSTRACT

Dental health professionals are large untapped resource, still have not been utilized to its full capacity. Even brief chair side-based interventions can come a long way in motivating and assisting tobacco users to quit. Many studies have highlighted the potential barriers in utilization of dental health professional to their full potential and capacities in tobacco cessation. Continuous repeated emphasis on incorporation of tobacco cessation training at the undergraduate level and after completion of dental degree is important. Much has been focused in the first three of 5A's in the previous years. Step are needed to prioritize tobacco cessation activities focusing in last two (assists and arrange) of 5A's in the coming years to come. The present study tries to understand the role of dental health professional and their contribution in controlling this global tobacco use problem. Understanding the multifaceted approaches to tobacco cessation by the dental health professionals so as to achieve higher "quit" rates and delivering of comprehensive counseling.

Keywords: Dental health professional, Tobacco cessation, NTCP, MPOWER

INTRODUCTION

Doctors, nurses, midwives, dentist, pharmacist, chiropractors, psychologist and all other professional dedicated to health can help people to change their behaviour. They are on the frontline of the tobacco epidemic and collectively speak to millions of people.[1] A comprehensive approaches to smoking cessation is an essential strategy to reduce tobacco related mortality and morbidity, as the lack of which may result in an additional 160 million global deaths amongst smokers by 2050.[2] Burden of tobacco use is huge, global to local. Every stakeholder has their role in reducing this burden and dental health professionals are no different to it. Tobacco use is a modifiable risk factor for oral and systemic diseases.[3]

Tobacco related manifestation have negative effect on the general health and quality of life. Dental professionals are able to reduce the burden of oral and overall health by influencing tobacco use. The manpower of dental health professionals in the form of private practitioners, faculty in the teaching institutions and dentists in the government hospitals creates both vast and missed opportunities in tobacco intervention.[3,4] Dental health professionals can overcome this mounting challenge of tobacco cessation interventions and the global burden of tobacco use. Dental health professionals have the greatest access to apparently healthy tobacco users for the fact even in the absence of tobacco-related diseases in the mouth; the dentist can easily recognize patient's tobacco status. They assess the risk by taking dialogue health histories, using radiographs and making clinical evaluation, thereby developing treatment plans and providing oral health intervention as a regular and normal part of the oral care appointment. The adverse health effects of tobacco use are clinically apparent in the form of precancerous oral lesion in relatively early stages of use. In the gamut of social, economic and political purview, the role dental health professional is expanding in the creation of teachable moments and their voices are being heard in the community.[4-6] The gold standard for tobacco cessation

worldwide is treating tobacco use and dependence. The centre piece of this is the use of the 5A's and 5R's justifying the role of dental health professionals as a counselor.[6] Dental health professional are effective in helping their patients who smoke by proactively referring them to quit line. The collaborative interactions shared by them can facilitate appropriate information. They encourage patient to explore health behaviour change from their own experience and maintaining control of their own health choices by honouring their autonomy. Brief intervention and encouragement by the dental health professional at each visit by giving resource information, emphasizing the use of the tobacco quit free lines. Multiple chair side dental visits are conducive for initiation, reinforcement and support in tobacco cessation activities. These frequent counselling contacts overtime increases the success quit attempts and retain the quit state.[7,8] This reinforcement is essential due to the chronic nature of tobacco dependence with susceptibility to relapse over years. The process of cessation requires several years, before the patient is ready to set a quit date. Success lies in successful quit, but success also lies in the process of moving the patient to the ultimate goal of quit. The quit interventions are designed to be brief, requiring three minutes or less of direct clinician time. The efficacy and feasibility of oral cancer screening and tobacco cessation counselling by dental health professionals in dental or community settings have been intensively evaluated and indicated.[8,9] Dental professional associations also play a leading role in advocating for the implementation of a comprehensive tobacco control policy. These associations by virtue of public health advocacy use media mobilize civil society and community groups to create mass awareness about tobacco interference. The present study tries to understand the role of dental professional and their contribution in controlling this global tobacco use problem. Role of dental health professionals as an interdisciplinary team member in tobacco cessation. Understanding the multifaceted approaches to tobacco cessation by the dental health professionals so as to achieve higher "quit" rates and delivering of comprehensive counselling.

Understanding the reason of tobacco use

Men and women, young and old have multiple reasons for indulging in the use of tobacco products.[10] Tobacco use is often justified because people believe it had calming effects, controls mood swings and body weight. Studies suggest that factor which induced smoking and reason for continuing smoking among students were style (58.8%), relieves tension (17.6%), pleasurable (11.8%), friends reason (8.8%).[11] The adolescent ever smoking behaviour was found to be six times more likely if students had seen their sibling ever smoke, three times more likely if they saw their best friend ever smoke and two times more likely in students who had ever seen their father smoke.[12] Determinants of smokeless tobacco use include gender (men), wealth index (inverse association), belonging to schedule tribes, parental use, exposure to advertising and promotion of smokeless tobacco, lack of knowledge of health risk and a widespread misconception that smokeless tobacco is good for dental health.[13] History of tobacco gives a deep understanding and insight into social, cultural and economic engrossment of tobacco use.[10,14,15]

To understand tobacco addiction, we need to understand neurobiology of addiction. Drug addiction is chronic relapsing condition, characterized by compulsion to seek and take the drug, loss of control in limiting intake, and emergence of a negative emotional state (e.g. dysphoria, anxiety, and irritability) when access to the drug is prevented. Addiction can be conceptualized into three-stage, recurring cycle: binge/intoxication mediated by basal ganglia producing feeling of pleasure; withdrawal/negative effect mediated by extended amygdala producing fight/fight; and preoccupation/anticipation mediated by prefrontal cortex concerned with executive function producing craving.[16]

Moving from impulsivity (rapid, unplanned reactions to internal and external stimuli without regard for the negative consequences of these reactions to themselves or others) to compulsivity (repetitive actions that are excessive and inappropriate) and the drive for drug-taking behaviour is paralleled by shifts from positive to negative reinforcement. Nicotinic receptors are present on the cell bodies of dopaminergic neurons from the ventral tegmental area, and on their endings in the nucleus accumbens. Nicotine has a role in modulating the release of many neurotransmitters such as acetylcholine, nor epinephrine, dopamine, serotonin, γ-amino butyric acid (GABA) and glutamate through presynaptic nicotinic receptors. It is likely that neuroadaptations of these neurotransmitter systems contribute to the development of tolerance to nicotine and the maintenance of addiction.[16] Various neurotransmitter systems involved in the neurocircuitry of addiction stages and functional domains. During binge/intoxication stage the level of dopamine, opioid peptides, serotonin, γ-amino butyric acid and acetylcholine neurotransmitter is increased. During Withdrawal/negative affect stage, corticotrophin-releasing factor and norepinephrine neurotransmitter are increased and opioid peptide receptors, serotonin, endocannabinoids and neuropeptide Y neurotransmitters are decreased. During preoccupation/anticipation stage dopamine, glutamate and serotonin neurotransmitters are increased.[17]

Cessation intervention

Prochaska and Declemente trans theoretical model (TTM) given in 1983 has various stages which is aimed at understanding individual's behaviour changes. Movements through these dynamic changes occur in a cyclic rather than linear pattern to change their behaviour before they meet their goals and move to the next stage. People can use different strategies and technique depending on their goals and motivation to participate as they move to these stages.[18] These include: precontemplation or not ready stage (I like to smoke, I can

quit, it will not happen to me); contemplation or getting ready stage (I like to smoke but I know I need to quit); preparation or ready stage (I am ready to quit); action or adopting new habit stage (I am not smoking but I still think about smoking from time to time); maintenance or sustain change in behaviour stage (I used to smoke); and relapse (fall back to old pattern or behaviour).[18] Lapse is a person missing the behaviour once as using tobacco once in a while and Relapse is a person discontinuing the behaviour for considerable time and restarts again. The person can relapse to any of the above stages but not into precontemplation stage.

Various goals pertaining to these stages: to help patient begin to think seriously about quitting in the next 6 months; to help patient make a decision to stop smoking in the near future; to help patient feel more confident; offer personalized relevant feedback about the importance of quitting; and explore the individuals' perceived pro and cons of tobacco and quitting.

Suggested intervention includes: gradual reduction of nicotine intake mainly for cigarette users, switching to a cigarette with lower level of nicotine so the addiction to nicotine can be brought down before quitting smoking; tapering off: reducing the nicotine level you reduce the amount of nicotine you are using e.g. fewer cigarettes or cigars, and less snuff; motivation; behaviour counselling plus medication plus NRT; and 5 A's and 5 R's.[19-21]

Legislation impact

Framework convention on tobacco control (FCTC) is evidence-based treaty adopted by World Health Assembly on 21 May 2003 and it came into force on 27 February 2005. Currently 182 countries are parties to the treaty including the European community. India is among first few countries to ratify the treaty. India signed on 10th September 2003 ratified on 05 February 2004. WHO introduced the MPOWER package in 2008 which is evidence based policies intended to assist country level implementation of effective intervention to reduce the demand for tobacco as contained in WHO FCTC.[1]

National tobacco control programme

It was launched in 2007-2008 during the 11th five-year plan as a pilot project started in 9 states covering 18 districts in phase-I. In second phase it covered 21 states and 42 districts. In the 12th five-year plan, it is subsumed under NHM (NCD flexi pool). Currently it is implemented in all 36 states/union territories (UT) in 677 districts of the country, with tobacco cessation centre active in more than 477 districts.[22]

Components of NTCP include: monitoring of tobacco control laws and reporting, training and capacity building, information, education and communication (IEC) activities, school programmes, and tobacco cessation.

ACHIEVEMENT OF NTCP

Tobacco cessation clinics

Tobacco cessation clinic is an initiative by the WHO and the Ministry of Health and Family Welfare of India (MoHFW). Tobacco cessation activities formally began with the opening of 13 tobacco cessation clinics in Anand, Bhopal, Bangalore, Chandigarh, Chennai, Cuttack, Delhi, Goa, Jaipur, Lucknow, Mumbai, and Patna in 2002. Tobacco cessation clinics were renamed to tobacco cessation centres in 2005. Five more tobacco cessation centres were established in Mizoram, Guwahati, Kolkata, Hyderabad and Trivandrum, which makes a total of 18 centres. Himachal Pradesh has 14 tobacco cessation centres in all districts hospitals and 2 medical college have TCC facilities in addiction to De addiction facilities by 2018.[23,24]

Activities at tobacco cessation clinics: awareness, community-based counselling, promotion and publicizing tobacco cessation facilities, and pharmacological treatment.

National tobacco quit line

Ministry of Health and Family Welfare Government of India set up a toll-free national tobacco quit line under NTCP to provide telephonic counselling to those desirous to quit tobacco. It can be accessed from all tele-service providers both in English n Hindi language from 8.00 am to 8.00 pm six days a week except on Monday.

M-cessation programme

Can register by giving a missed call 011-22901701 or by registering at http://www.nhp.gov.in/quit-tobacco. Currently available in English and Hindi as part of digital India initiative. It provides evidence based behavioural change (short text message on mobile phones) which includes: health information on tobacco use hazard, tips on quitting, encouragement for those attempting to do so, and some public awareness campaign on TV/radio.[25]

Potential obstacles to tobacco cessation

Many potential obstacles exist to providing tobacco cessation intervention. There are many barriers for tobacco cessation and effective prevention like lack of knowledge of health effects of tobacco use, [26,27] deeply ingrained cultural habits[28] and lack of tobacco cessation advice and support.[29] More than 40% percent of dentist do not ask routinely about the tobacco use. 60% do not routinely advise tobacco users to quit. [30] Treatment unable to address the physiological and the behavioural aspect of dependence. Counselling and cessation therapy is not accessible to large number of people in spite of tobacco control programs. Unwillingness to enhance skills for tobacco cessation like communication, motivation, clinical knowledge, assessment and problem solving among dental

health professional. Approximately more than 313 dental college in India and 25000 plus UG students/ 3000 plus PG students pass out every year but lack of time, knowledge and awareness about the chair side counselling is hindrance in quit success.[31] This large number which is our strength has missed many opportunities in the tobacco cessation. Lack of effective referral system and NRT cost without financial reimbursement are threats and challenges to tobacco cessation. Dental students may see tobacco-related education as a less significant priority compared with dental core competencies because of the lack of clinical training in this area.[32] Adolescents substantially underestimate their personal risk of disease or death from the use of tobacco and overestimate the ease of quitting.

DISCUSSION

Dental health professionals are large untapped resource, still have not been utilized to its full capacity. Even brief chair side-based interventions can come a long way in motivating and assisting tobacco users to quit.[5] Studies conducted in primary care settings have demonstrated that simple advice from a physician increases abstinence rates significantly (by 30%) compared to no advice.[33] The window of opportunity available during the recurring contact with patients is another added advantage.[34,35] Incorporation of smoking cessation intervention as a routine component of dental care is missing in usual dental practices.[36] Though studies indicate that it is the duty of the dental health professionals.[37-40] All dental institutions have responsibilities to provide necessary professional skills required by the dental health professionals to provide smoking cessation counselling confidently. Learnt skills during the dental curriculum could be reinforced with time-to-time continued dental education programmes, as the need of training is expressed in various studies.[37,38,41-43] These skills so developed is easily adapted and incorporated fast in the routine dental practices.

Potential barriers observed in tobacco cessation were time, perceived complexity of cessation protocol, confidence in employing various behavioural management techniques, being pessimism about patient's ability to quit, health professional tobacco habits, lack of strength between provider-patient relationship, reimbursement issues, poor education and lack of further postgraduate training, and poor coordination of dental and smoking cessation services.[44-46] Every barrier is a missed opportunities in the field of tobacco cessation. Addressing each barrier with a possible practical solution fills the gap of quit success rate in tobacco cessation. Dental chair time is managed by routine inclusion of the tobacco history, assessment of readiness to quit and providing the desired cessation therapy. The same is reinforced again in the subsequent visit. Perceived complexity of cessation protocol is addressed by developing of definitive guidelines for tobacco cessation activities in dental institutions, among dental health professional.[47] The lack of confidence in dental health professional employed in various behavioural management techniques is addressed by skill training at regular intervals. Pessimism about patient's ability to quit is addressed by understanding the pharmacology of patient's chronic addiction. Habit breaking takes long time and test clinician's patience in every step of cessation. Challenges to quit are not a one-day magic but takes toil of patience. The reimbursement issues can be addressed by understanding the fact that cost incurred on NRTs are less compared to the amount incurred in continuing the habit in the long run of cessation therapy. Every dental health professional must assist to quit by enrolling patient to the quitline services, even if they are less confident about the cessation intervention, addressing the potential challenge of poor coordination of dental and smoking cessation services. Each enrolment to quitline numbers is a major impetus to the ongoing efforts of the Government of India for providing cessation facilities to a larger population, especially in the remote and rural areas. It also offers an advantage to patients as it is more convenient & anonymous than face to face management and reduce the burden of providing cessation services on busy dental health professionals.[6] Proactive telephone counselling increases the probability of quitting smoking to about 13 percent as reported by Zhu et al.[48]

A multidisciplinary team approach, has the following multipronged components of biochemical monitoring at each session, assessment of nicotine dependence, spirometry for lung function, pharmacologic and individualized behavioural change communication therapy, social and family support, short and long-term follow-up and relapse prevention and management. Dental health professional is no different and are important part of this 'multidisciplinary team approach in tobacco intervention that is easily included in their routine and daily practice.

As far as dental health professionals' approach towards the use of nicotine replacement therapy has been found to be discouraging with only 12.5% of the dentist and 5.8% of the dental hygienist had ever used NRT for tobacco counselling. This could be attributed to lack of knowledge about the available products, inconsistent academic sensitization of the dental professionals' regarding these products by pharmaceutical companies and high cost of these products.[4] Regarding the knowledge about preventive measures, more than 90% of the dentists were aware about different forms of nicotine replacement therapy in the study by Aggarwal et al which is high as compared to study done by Sahoo et al which was approximately 50% and 19% by Sujatha et al.[43,49,50] These studies were able to find lacunae and evidence between knowledge and practices of dental health professionals. Comprehensive advocacy by these studies and systematic inclusion of TCC in undergraduate curriculum becomes quintessential. Practical driven academic competency with adequate knowledge is the need of the hour for the upcoming dental health professional. Study by Vinod et al found that only 5.4% of dental practitioners had taken additional training pertaining to tobacco cessation so there was a strong need for more training sessions.[51] Counselling

and advice by dental professional with 59.6% of the dentists reported change in the habit pattern of the patients along with 63.9% reporting positive feedback from their patients. Further only 24.7% dentists were referring the patients with heavy dependence of tobacco to psychiatrists for further evaluation which Geller et al had stated in his study of falling short on two aspects of 5A's assisting and arranging follow-up.[52]

Aggressive referrals by dental health professionals either to counsellors or quitlines, even if dental health professional lacks some confidence can come long way in increasing referrals for tobacco cessation. This lack of confidence and unpreparedness is a potential barrier as to what we want to achieve in tobacco cessation as reported by the studies.[42,43,53] 91% of the dentist and 79.2% dental hygienist supported the specific training programmes on tobacco cessation techniques in the study by Singla et al.[54]

Many studies on knowledge, attitude and practices use anonymous questionnaire, where there are chances of social desirability bias among respondents (dental health professionals) toward tobacco consumptions. The personal behaviour of tobacco use by dental health professionals acts as deterrence for self-motivation and becoming a role model for their patient in tobacco cessation. The significance of these dentists' habits should not be underestimated when the professionals should be involved in national anti-tobacco campaigns, especially with the youth of the country. Stopping tobacco use before the age of 40 years may be critical to improve health as younger people are more likely to be retained in treatment and have better outcomes, is an indicator to provide outreach to tobacco users at an early stage.[55]

The U.S. Department of Health and Human Services, recommended a counselling protocol known as the "5A's" to identify individual who wants to quit and providing best support in their attempt.[56] The "5A's" protocol, which consists of asking about the tobacco use, advising the benefits of quitting, assessing the motivation to quit, assisting in the quit attempt, and arranging for supportive follow-up, was developed based on comprehensive review of up to 6000 articles on tobacco addiction published from 1975 to 1999. The protocol was designed to be brief such that minimal counselling time is required, which was estimated to be only 3 min or less of direct clinician time.[57]

Very few dentists assist their patients to quit the tobacco using health education materials such as brochure, posters, and videos in their clinical practice. Studies by Stacey et al, Albert et al, and Parkar et al had few agreements of respondent dentist agreeing that too much time was spent on providing routine dental treatments such that it was almost impossible to give tobacco cessation counselling to their patients.[58-60] For this reason, majority of dentists thought it was better to refer smokers to a smoking cessation expert or quit-smoking clinics.[60,61] Such referral such as the free national quitline are evidence-based smoking cessation service and such referrals could be practiced by any dental health professionals.[62]

Behaviour counselling provides an enabling environment in rural settings, where access to pharmacotherapy may be limited. Studies from India and globe have shown that appropriate health education that is culturally sensitive to target population has helped in tobacco cessation. The lower socioeconomic stratum is underrepresented among treatment seekers. These groups would benefit more from cost-effective interventions and referrals at the community level.[61] Utilization of dental health professional catering to the rural population through primary health centres and community health centres by behavioural counselling is need of the hour. This would prevent clustering of TCC activities to the defined TCC. The existing TCCs are not sufficiently equipped to take care of any population-based cessation scale-up programme to an ecological model. It must be offered more widely in medical settings in both urban and rural areas inclusive of multi-session, tailor made, multi- strategic support and medication.[62]

CONCLUSION

Dental health professional plays a pivotal role in the multidisciplinary team of tobacco cessation. We have come a long way when tobacco cessation was in its nascent stage but the gap between what is desired to be achieved and what has been achieved in tobacco cessation is large. Many studies have highlighted the potential barriers in utilization of dental health professional to their full potential and capacities in tobacco cessation. Continuous repeated emphasis on incorporation of tobacco cessation training at the undergraduate level and after completion of dental degree is important. Much has been focused in the first three of 5A's in the previous years. Step are needed to prioritize tobacco cessation activities focusing in last two (assists and arrange) of 5A's in the coming years to come. Enhancing competences in tobacco cessation of dental health professional inclusive of overcoming all barriers of unpreparedness is essential in making tobacco cessation a routine reality and evidence-based practice.

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