TOBACCO CESSATION IN DENTAL SETTINGS

REFERENCE MANUAL FOR DENTAL PROFESSIONALS

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MAULANA AZAD INSTITUTE OF DENTAL SCIENCES, NEW DELHI-110002

NATIONAL ORAL HEALTH PROGRAMME (NOHP)

National Resource Centre Oral Health & Tobacco Cessation, NOHP, MoHFW, GoI
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MAIDS

BACKGROUND

Tobacco consumption is a huge public health issue and its impact is especially devastating among the poor. Tobacco is the second major cause of death in the world. It is currently responsible for the death of one in ten adults worldwide. Every 6.5 seconds one tobacco user dies from a tobacco-related disease somewhere in the world.

One third of the Indian population consumes some form of tobacco. This addiction is deep rooted and presents differently across the country. Evidence from GATS-2 Survey presents 55.4% Smokers and 49.7% Smokeless tobacco users are interested or planning to quit the addiction.

India has been in the forefront of tobacco control activities and played a leadership role in bringing region specific issues like smokeless tobacco into the fray. Government of India has made tremendous strides in tobacco control efforts by implementing various initiatives from Advocacy leading to the signing and ratification of the WHO Framework Convention on Tobacco Control (FCTC) in 2004; conducting the Global Youth and Adult Tobacco Surveys.

The recognition of associations between tobacco use and oral health, as well as the benefits of tobacco cessation on oral health outcomes makes it imperative for national oral health programmes to actively support tobacco control efforts at both the clinical and community levels. The National Oral Health Program (NOHP) under the Ministry of Health and Family Welfare, Govt. of India reinitiated its activities in 2014 and has made rapid developments in promoting oral health across the country and strengthened systems. In order to generate evidence that could be translated to policies the NOHP proposed and now is developing National Resource Centres across the country by partnering with imminent Dental Institutions who could support and translate evidence to policies. Further building resource capacities at national level is another important goal of National Resource Centres.

The National Resource Centre for Oral Health & Tobacco Cessation was established by at MAIDS with support from the Ministry of Health and Family Welfare, Government of India and Department of Health and Family Welfare Government of Delhi.

NRC for Oral Health and Tobacco Cessation envisions being a single point of contact in developing, implementing and advancing the scope of dental health professionals in tobacco cessation for addressing patient care, research and capacity building along with integration in dental education.

The National Resource Centre has now developed this tobacco cessation manual for dental professionals with the help of 18 Technical experts from various medical and dental specialties working in imminent institutions, who have provided their valuable as well as practical inputs in making this manual relevant to Indian Context.

As we are aware that dental health care providers have several roles to play in tobacco control, including preventing non-tobacco users from starting to use, assisting tobacco users in quitting, and protecting non-tobacco users from exposure to tobacco smoke. The manual

focuses on equipping dental professionals with knowledge, skills and confidence for applying best evidence for tobacco cessation. Despite the evidence on the effectiveness and cost-effectiveness of tobacco cessation interventions provided by the dental professionals, more than 50% of them, especially those in low- and middle-income countries, do not routinely deliver these interventions.

The lack of knowledge and skills about tobacco and tobacco control is a major barrier to the provision of tobacco cessation interventions. The literature evidence has also shown that dental professionals have a desire to receive formal training in patient counselling.

The manual is based on current empirical evidence, best practices and extensive clinical experience. The document aims to serve as a quick reference guide to help oral health care providers deliver tobacco cessation as part of their routine practice. This guideline provides information on the various forms of cessation support from brief intervention to the more detailed pharmacological interventions. The efforts are an attempt towards making the community tobacco free.

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Message

It gives me immense pleasure in introducing the manual titled "Tobacco Cessation in Dental Settings- Reference Manual for Dental Professionals" which is developed by National Resource Centre for Oral Health and Tobacco Cessation under National Oral Health Programme at Maulana Azad Institute of Dental Sciences, New Delhi.

Convergence of sincere efforts made by multiple healthcare professionals for tobacco cessation is really commendable. As a signatory to FCTC 2004, India is abide to develop her own guidelines to prevent develop accessible, affordable, and effective cessation programs in a variety of settings such as educational institutions, healthcare facilities, workplaces, and sporting activities.

Use of tobacco-containing products has been associated with both immediate and long-term adverse oral and systemic effects. Tobacco use lead to tobacco dependence. It is critically important that prevention and cessation programs should be available to help people break their tobacco addiction for good.

The document will serve as a guideline and develop greater confidence for dental professionals in imparting evidence based tobacco cessation services.

On the release of this manual, I extend my good wishes and hope that manual will also be a guide for technical training of dental professionals.

(Satyendar Jain)

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Azadi Ka Amrit Mahotsav

MESSAGE

Tobacco use is a major public health challenge and requires collaboration among different healthcare professionals to address its impact holistically. The adverse effects of tobacco use on oral health are quite evident and dental professionals are in an ideal position to advice users about tobacco cessation. Sensitization and structured training of Dental healthcare professionals in Tobacco Cessation can play a vital role in strengthening those services.

Tobacco Cessation in Dental Settings- Reference Manual for Dental Professionals is intended for providing evidence based cessation services at all the levels of healthcare. It has been developed to enhance the competence and skills in scaling up the challenging task of tobacco cessation in dental settings, across the country.

To achieve the goal of expanding tobacco cessation services in India, this manual has to be widely disseminated to reach all relevant stakeholders. I convey my best wishes to the Core Committee of the technical experts, National Resource Centre for Oral Health and Tobacco Cessation at MAIDS, Delhi and National Oral Health Program Division for the release of the reference manual and wish them all the success in their future endeavors.

(Rajesh Bhushan)

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MESSAGE

Tobacco use is the world's most significant scourage that is responsible for numerous preventable morbidity, most of which have the potential to kill its consumers prematurely. While Medical Professional deal with a variety of systemic disorders related to tobacco in virtually every field, including internal medicine, surgery, and otorhinolaryngology, dental professionals find themselves in a unique position whereby, they can have an access to the ill effects of tobacco us at an early stage as their outreach to a large number of tobacco user with a considerable potential in terms of persuading the user to quit tobacco use (both by oral intake and smoking).

The development of the Manual has followed an iterative process of drafting, review and discussion and is based on recent scientific evidence and best practices from around the world. I hope that the Manual will help to further strengthen tobacco cessation services through providing interventions tailored to local needs in Indian context.

I congratulate National Resource Centre for Oral Health & Tobacco Cessation and National Oral Health Programme for developing this document and look to their implementation at all levels of healthcare across country. I wish that this manual becomes an important link in tobacco cessation. It would be in order that this manual is available in a PDF format on the mobile phones of users for ready reference as required.

(Atul Goel)

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FOREWORD

Tobacco cessation in India needs to be implemented in multiple healthcare settings. Training and capacity building of dental health professionals will be an added advantage in reducing the burden of tobacco use.

This manual lays down guidelines for dental professionals to build capacity and strengthen tobacco cessation services. The document has been divided in to various sections to make it user friendly. The document describes behavioural, pharmacological interventions and develops a comprehensive outline for tobacco cessation interventions pertinent to health professionals at the individual and community level.

I request all the stakeholders to ensure that these guidelines are widely disseminated and implemented across the country. I am very sure that the reference manual will help in setting global standards for tobacco cessation intervention provided by Dental Professionals.

Roli Singh 23/5/22.
(Roli Singh)

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MESSAGE

Tobacco epidemic in India and the South East Asia region differs from other developed countries. Tobacco use in India is prevalent among 28.6% of tobacco users with higher prevalence among males (42.4%) and (14.2%) in females. Many tobacco users are willing to quit tobacco but remain unsuccessful due to lack of professional support.

Dental healthcare professionals are an integral part of the human resource in the healthcare delivery system in the country. Dental Professionals can reform the delivery of structured tobacco cessation services to all its patients who consume tobacco.

The content of the manual are evidence based, practical and designed for effective tailor made interventions for tobacco users in dental settings. I am confident that this document will be valuable for improving the quality of tobacco cessation services and reducing the burden of tobacco use in India.

I would like to acknowledge the efforts put by National Resource Centre for Oral Health and Tobacco Cessation at Maulana Azad Institute of Dental Sciences in preparing the document.

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MESSAGE

Greetings to All

Tobacco Cessation is an integral part of Tobacco Control strategy. Dental Healthcare Professionals have been identified as key stakeholder in imparting tobacco cessation services within the practices as well as communities. Tobacco Cessation in dental set up should not be elective but should be available to all tobacco users. Dental Council of India (DCI) has always envisioned Dental Institutions as potential available resource for promotion of oral health and delivering cessation services to all.

To further upscale the Tobacco Cessation Services, National Oral Health Program, MoHFW, GoI & Dental Council of India released the Operational Guidelines for "Establishment of Tobacco Cessation Center at Dental Institutions in India". The Dental Council has strongly recommended implementation of TCCs across Dental Institutions. The National Resource Center for Oral Health and Tobacco Cessation (NRC OH-TC) is the nodal center for establishment of TCC, capacity building of dental professionals & Research for tobacco cessation.

The structured Training Module will enable standardized capacity building of the dental professional across the country and effective implementation of TCC services in India.

(Dr. Dibyendu Mazumdar)

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MESSAGE

Tobacco use and impact on Oral diseases pose a major health burden in India. There is adequate evidence which confirms or suggests that tobacco use has a causal relationship with many oral diseases and conditions including oral cancers and other mucosal lesions, periodontal diseases, dental caries, and premature tooth loss. Further dental treatment outcomes remain affected gravely. The current manual augments the efforts to integrate the existing guidelines which are best suited for dental settings.

This manual has been put together with the efforts of technical experts from various esteemed organizations with vast experience in tobacco cessation in multiple settings. This manual will serve as handy technical guide for enabling dental professionals to expand the tobacco cessation services. I congratulate the Core Committee and Team NRC at the Institute and hope that this manual will promote structured training of dental professionals while improving treatment outcomes across the country. Tobacco Cessation should be universally available to all tobacco users.

Talwar

(Sangeeta Talwar)

ACKNOWLEDGEMENT

The "**Tobacco Cessation in Dental Settings: Reference Manual for Dental Professionals"** has been successfully completed as a result of the collective efforts of the partner organizations and the dedication displayed by Core Committee Members and Project Team.

The National Resource Centre of Oral Health and Tobacco Cessation at MAIDS expresses its gratitude to the National Oral Health Program, Ministry of Health and Family Welfare, Government of India for entrusting us with this very responsibility of conducting this unique survey for the first time in the Country at this scale.

We gratefully acknowledge the productive and valuable contributions of the Core Committee Members from different parts of country for their commitment and efforts towards the development of this reference manual.

We also acknowledge the valuable guidance and timely support provided by Dr. L Swasticharan, Addl, DDG, National Oral Health Program, Ministry of Health and Family Welfare. We are thankful to Dr. Ankita Piplani, for the unwavering support through all times of development of this manual. We thank the National Oral Health Program Division for continued administrative support.

We would like to acknowledge the contributions by Dr. Priya Kumar, Professor, Department of Oral & Maxillofacial Pathology, MAIDS and Dr. Farrukh Faraz, Professor, Department of Periodontology & Implantology for providing Clinical Photographs. We also sincerely record our appreciation Shri. Chetan Negi, Artist and Designer, Maulana Azad Institute of Dental Sciences (MAIDS) for his creative artwork for the manual.

This massive effort would not have been possible without the unstinting support and leadership of the dynamic Director-principal, Dr. Sangeeta Talwar. A special thanks is due to Dr. Aswini Y.B. Professor, Dr. Kavita Rijhwani and Dr. Puneet Chahar, Senior Residents of Department of Public Health Dentistry, MAIDS.

Last, but not the least, we thank the project team, who worked really hard to collect, organize and present pertinent information to the readers. I would like to place on record and acknowledge the contributions of Dr. Amit Kumar, Research Officer, Dr. Vedha V.P.K. Research Officer, Dr. Komal Balwani, Senior Research Fellow, Ms. Shinon Ashley Samuel, Clinical Psychologist and Ms. Arsha Mirza, Medical Social Worker. Also the technical and administrative support extended by Mr. Ankit and Mr. Shankar from the project team.

We shall be falling in our duty if we do not thank the support of each and every individual who directly and indirectly helped in formulating the document. We thank almighty to have given us this opportunity to serve the community and make a difference for generations ahead.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

BD	Bis in Die, twice a day
BI(s)	Brief Intervention(s)
CDC	Centers for Disease Control and Prevention
CDS	Cigarette Dependence Scale
CI	Confidence Interval
CME	Continued Medical Education
CO	Carbon Monoxide
COTPA	Cigarette and Other Tobacco Products Act
CVD	Cardiovascular Disease
DSM	Diagnostic and Statistical Manual of Mental Disorders
ENDS	Electronic Nicotine Delivery System
ENNDS	Electronic Non-Nicotine Delivery Systems
FAQ's	Frequently Asked Questions
FCTC	Framework Convention on Tobacco Control
FDA	Food and Drug Administration
FRAMES	Feedback Responsibility Advice Menu of Alternative Change Options
FTND	Fagerstrom Test for Nicotine Dependence
FTND-ST	Modified Fagerstrom Test for Nicotine Dependence-Smokeless Tobacco
GABA	Gamma-Aminobutyric Acid
GATS	Global Adult Tobacco Survey
GP	General Practitioners
GYTS	Global Youth Tobacco Survey
HCP	Health care Professionals
HIS	Heaviness of Smoking Index
HTP	Heated Tobacco Products
ICD	International Classification of Diseases
IEC	Information Education Communication

IVR	Interacted Voice Response
MI	Motivational Interview
MoHFW	Ministry of Health and Family Welfare
MPOWER	Monitor tobacco use and prevention policies; Protect people from tobacco smoke; Offer help to quit tobacco use; Warn about the dangers of tobacco; Enforce bans on tobacco advertising, promotion and sponsorship; and Raise taxes on tobacco
NAChR	Nicotinic Acetylcholine Receptor
NCD	Non-Communicable Disease
NDSS	The Nicotine Dependence Syndrome Scale
NRT	Nicotine Replacement Therapy
NTQL's	National Tobacco Quit-Line Services
OD	Once a Day
OFC	Orbitofrontal Cortex
OSMF	Oral Submucous Fibrosis
SHS	Second Hand Smoking
SLT	Smokeless Tobacco
TCC	Tobacco Cessation Counselling
TDS	Tobacco Dependence Screener
TOFEI	Tobacco Free Educational Institution
TTM	Transtheoretical Model
VBA	Very Brief Advise
VMPFC	Ventromedial Pre-fontal Cortex
VTA	Ventral Tegmental Area
WHO	World Health Organization
WISDM	Wisconsin Inventory of Smoking Dependence Motives

1. ROLE OF DENTAL HEALTH PROFESSIONALS IN TOBACCO CESSATION

1

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Scope of Tobacco Cessation in Dental settings
- Role of dental health professionals in tobacco cessation
- Approach to provide tobacco cessation intervention in dental settings

INTRODUCTION

The Government of India ratified the WHO Framework Convention on Tobacco Control (WHO FCTC) in May 2004, the first ever international, overarching public health treaty focusing on the global public health issue of tobacco control.

Article 14 of WHO FCTC: Tobacco dependence and cessation

Requires Parties to develop accessible, affordable, and effective cessation programs in a variety of settings such as educational institutions, healthcare facilities, workplaces, and sporting activities. Cessation activities include diagnosis and treatment of tobacco dependence, as well as counselling services.

Tobacco dependence is a chronic condition that frequently necessitates professional intervention. Various health care professionals are involved in tobacco control and cessation activities world-wide. Dental settings provide an excellent site for providing tobacco intervention services since 1970s. In developed countries, more than 60% of tobacco users see their dentist or dental hygienist annually. Evidence from the Cochrane database has proven that professional intervention for tobacco cessation conducted by dental health professionals increase the odds of tobacco abstinence rates by 1.71 (95% CI = 1.44-2.03) among tobacco users.

Tobacco epidemic in India and South East Asia region differs from other developed countries. Tobacco use in India is prevalent among 28.6% of tobacco users with higher prevalence among males (42.4%) and 14.2% in females. Smokeless form of tobacco is more prevalent in developing countries

like India. Khaini is used most commonly (11.2%) followed by bidi (7.7%), gutka (6.8%) and betel quid with tobacco (5.8%)

Global Adult Tobacco Survey (GATS-2) was conducted in the year 2016-17 and covered 30 states and 02 Union Territories of India. The nationally representative survey revealed that 52% of tobacco users are willing to quit tobacco. However the penetration of different methods to support cessation by health professionals remains low. Most users are attempting to quit, but without any support. Most users who are attempting to quit are unsuccessful to sustain the quit status for even a month. A small proportion of smokers (4.1%) even make the wrong choice of switching to smokeless tobacco as an approach to quitting.

Tobacco users who had been advised by a health care provider during the past 12 months has 1.11 odds of quitting tobacco compared to those who were not advised by health care provider.

SCOPE OF TOBACCO CESSATION IN DENTAL SETTINGS

Dental professionals are in the unique position in helping tobacco users as they can reach large numbers of tobacco users and have considerable potential in persuading them to quit. Dental patients are particularly receptive to health messages at periodic check-ups, and oral effects of tobacco use provide visible evidence and a strong motivation for tobacco users to quit. Oral manifestations can assist customize interventions and boost their effectiveness, especially among young users in the early stages of tobacco initiation.

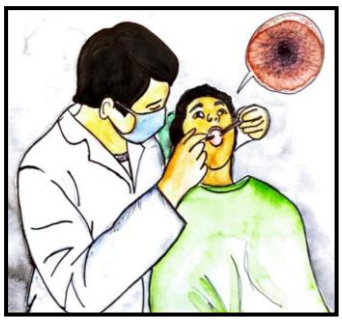

Fig. 1.1: Oral Health examination

One unique aspect of dentistry is that some of the adverse health effects of tobacco use are clinically apparent in the oral cavity at an even relatively early stages of use. Further dentist spend chair side time diagnosing and treating patients which can be utilized as “Teachable Moments” for bringing about health behaviour change effectively.

As emphasized in the World Oral Health Report 2003, there are also ethical, moral and practical reasons why oral health professionals can play an important role in helping tobacco users to quit:

- They are especially concerned about the adverse effects caused by tobacco use in the oral cavity.
- They typically have access to children, young people and their caregivers, thus providing opportunities to influence individuals to quit or never begin using tobacco.
- They often have more time with patients than many other health professionals, providing opportunities to integrate tobacco cessation interventions into their clinical practice.
- They often treat women of childbearing age, and are thus able to explain the potential harm to babies from tobacco use.
- They can build their patient’s interest in discontinuing tobacco use by showing actual effects of tobacco in the mouth.
- They are as effective as other health professionals in helping tobacco users quit.

In addition to helping current users quit in clinical settings, dental health care professionals can play a vital role in providing community-based tobacco cessation services, building capacity and creating relevant information regarding tobacco use and its ill-effects.

At the community level, local dental societies and dentists can become involved in local tobacco control coalitions, which function to mobilize and empower the community to make the changes that support non-use of tobacco.

Community-based programs may include activities such as educating the public on the health hazards of environmental tobacco smoke, promoting smoke-free restaurants, and encouraging policies and programs that support prevention and cessation of tobacco use.

APPROACHES TO PROVIDE TOBACCO CESSATION INTERVENTION BY DENTAL PROFESSIONALS

- Tobacco intervention must be viewed as an integral part of quality dental care. Many tobacco users visit a dental office every year, so it is important that dentists be prepared to provide effective and structured interventions.

- Dental health professionals can assist their patients in a number of ways using the evidence-based approaches in the form of brief interventions and pharmacotherapy to quit tobacco use.

- With reference to the brief intervention, to those who are willing to quit, the five major steps ("5 As") in the dental care setting plays an important role. It is important for the dental care provider to Ask the patient if he or she uses tobacco, Advise him or her to quit, Assess willingness to make a quit attempt, Assist the patient in making a quit attempt and Arrange for follow-up contacts to prevent relapse. The strategies are designed to be brief, requiring three minutes or less of direct clinician time.

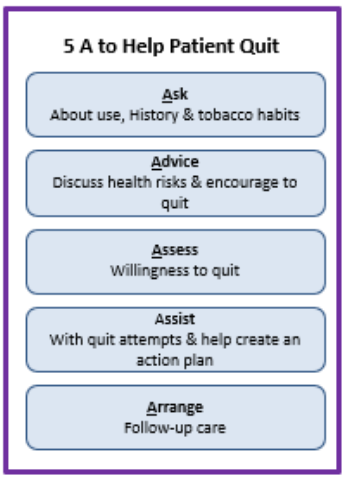

Fig. 1.2: 5A's (Five Major Steps Help Patient to Quit)

- For those who are not ready to make a quit attempt, may respond to a motivational intervention built around the "5Rs"; Relevance, Risks, Rewards, Roadblocks and Repetition. Dental Professionals should inform about the Relevance of quitting tobacco, Risk of continuing tobacco use, Rewards of quitting tobacco, Identify Roadblocks in quitting habit, Repetition at every visit.

- Pharmacotherapy for tobacco dependence treatment is safe and effective and significantly increases the chance for long-term tobacco abstinence compared with quit attempts unaided by pharmacotherapy.

- Interventions that combine pharmacotherapy and behavioral support increase tobacco cessation success rates compared to single intervention. Use of lifestyle modifications by including

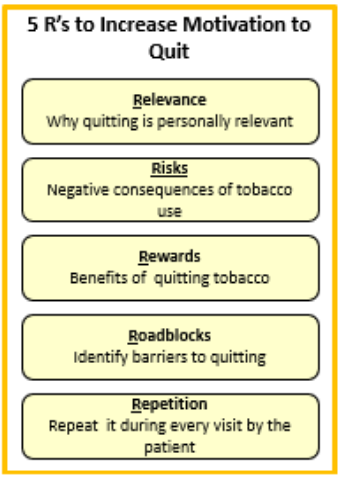

Fig. 1.3: 5R's (Five Major Steps:- Increase Motivation to Quit)

yoga, exercises, healthy sleep practices and dietary habits modifications under supervision by trained health professionals would yield better treatment outcomes

CONCLUSION

If all dental care providers routinely ask about tobacco use and advise tobacco users to quit, they have the potential to reach more than 80% of all tobacco users per year, trigger 40% of cases to make a quit attempt; and help 2-3% of those receiving brief advice quit successfully. Helping patients quit tobacco as a part of routine practice takes only three to five minutes which is feasible, effective and efficient. All dental healthcare professionals should also promote tobacco-free workplace strategies.

Dental health professionals can fulfill to become a role model in many ways in quitting tobacco from being an advocate of change, researcher, health educator and clinician, which will not only help individuals but also change community health behaviour.

KEY TAKEAWAY

- One unique aspect of dentistry is that some of the adverse health effects of tobacco use are clinically apparent in the oral cavity in even relatively early stages of use.
- Dental professionals are in the unique position in helping tobacco users as they can reach them out in large numbers and have considerable potential to pursue and motivate them to quit.

PROFESSIONAL INSIGHT

Oral health professionals should routinely offer three-to-five-minute brief tobacco interventionsto all tobacco users in primary care through the 5As and 5Rs models- **WHO**

Do's and Don'ts for Tobacco Cessation Counselling	
DO'S	**DON'TS**
1. Ask about tobacco use to every individual **2. Clear and strong advice to quit for the tobacco-user** **3. Active Listening** **4. Providing the needed guidance and support** **5. Plan follow-up and educate the family/friends about second hand smoke and to maintain social support**	**1. Judge the patient or label a person** **2. Give moralistic advice** **3. False assurance or promises** **4. Provide incorrect information** **5. Focus on the negatives**

Table-1.1: Tobacco Cessation Counseling for the Dental Professionals-Do's & Don'ts

2. INTRODUCTION, EPIDEMIOLOGY OF TOBACCO USE IN INDIA AND TYPES OF TOBACCO PRODUCTS

LEARNING OBJECTIVES

At the end of this chapter, the professionals will be able to understand the

- Different forms of tobacco products
- Epidemiology of tobacco use in India

INTRODUCTION

Tobacco use is the world's most significant single cause of preventable deaths and illness, which kills half of its consumers prematurely. According to the World Health Organization (WHO), although there is a decline in many high-income countries, the epidemic continues to ravage low- and middle-income countries. It has been estimated that between 2005 and 2030, 175 million people across the globe will die from tobacco-related disease if immediate steps aren't taken to curb the epidemic.

The tobacco plant was a new world plant. It grew wildly (Nicotiana Rustica), but was also cultivated (Nicotiana Tabacum) by Native Americans. Tobacco cultivation in India was introduced by the Portuguese in 1605. Initially tobacco was grown in Kaira and Mehsana districts of Gujarat and later spread to other areas of the country. Wild Tobacco was used by Shamans for religious, or spiritual, purposes. It naturally contains nicotine content of up to 9%; this is about 3 to 9 times more nicotine than cultivated tobacco, which contains about 1% to 3% nicotine content. The leaves of cultivated tobacco are typically processed into tobacco products (e.g., cigars, cigarettes, etc.)

TYPES OF TOBACCO

India is a culturally diverse nation with a huge variety of tobacco products available. It is the second largest consumer of tobacco globally, and accounts for approximately one-sixth of the world's tobacco-related deaths. The tobacco problem in India is peculiar, with consumption of a variety of smokeless and smoking forms or dual use of tobacco. A brief summary of the various tobacco products available is mentioned below.

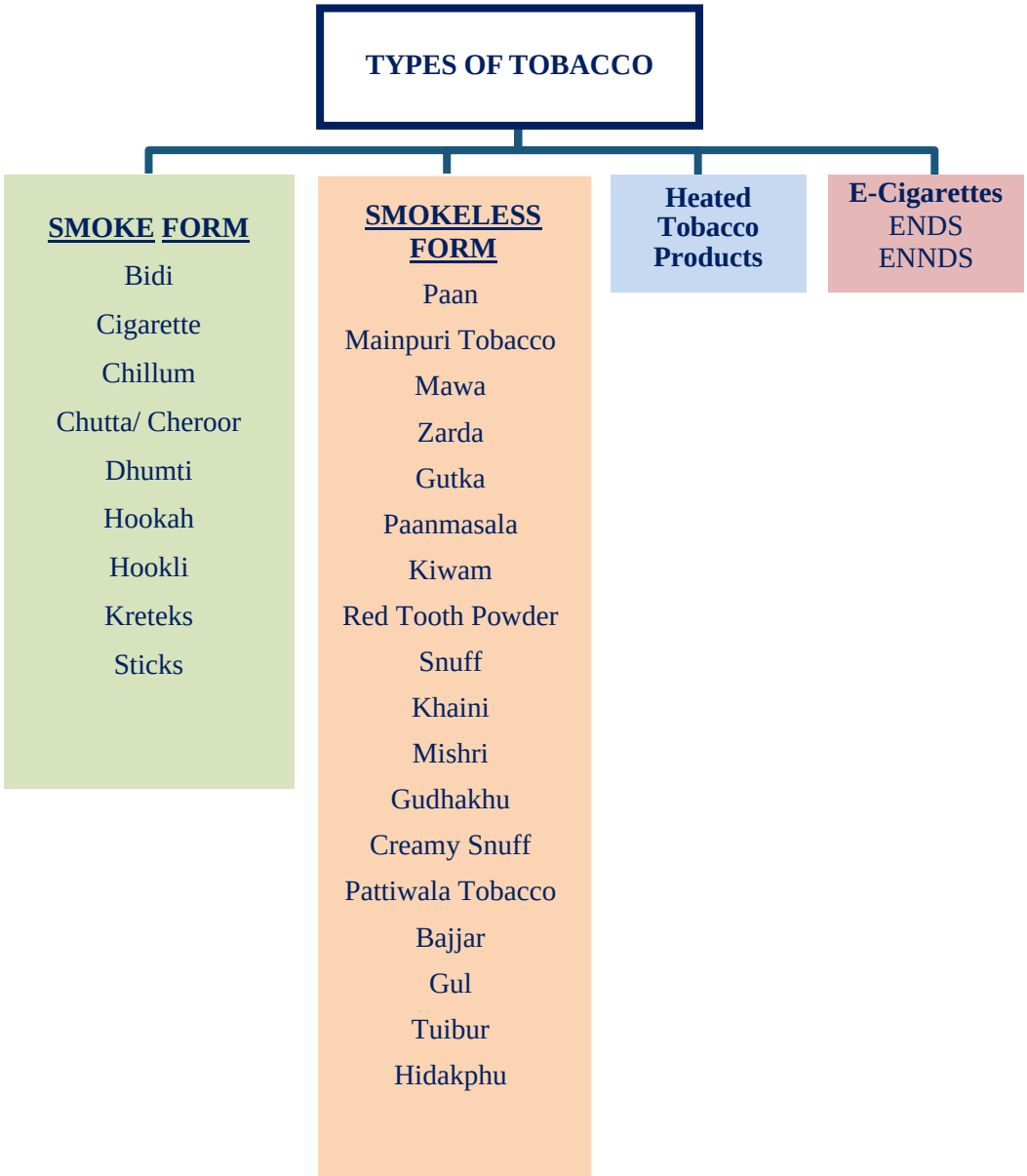

Fig. 2.1: Types of Tobacco Products

SMOKELESS FORM OF TOBACCO

Smokeless tobacco, whether of the chewing variety or snuff, masheri contain several carcinogens of which tobacco specific nitrosamines are the most significant. The major smokeless forms of tobacco available in India are as follows:

1. PAAN

- Most common form dating back to more than 2000 years. Paan refers to betel leaf (from piper betel wine).
- Quid (also called beeda, tambula) contains areca nut which may be used raw, baked or boiled lime obtained from lime stone or sea shells, and according to local customs may include aniseed, catechu, cardamom, cinnamon, coconut, cloves, sugar and tobacco.

Fig. 2.2: Paan

2. MAINPURI TOBACCO

- Includes tobacco, slaked lime, finely cut areca nut,camphor and cloves. All this was made into a paste andsmeared on betel leaf and chewed.
- Mainpuri name comes from a place in U.P near Agra, where it is usually chewed and famous among locals. Ahigh prevalence of oral leukoplakia and oral cancer has been found in this place and among these people who regularly chew mainpuri paan.

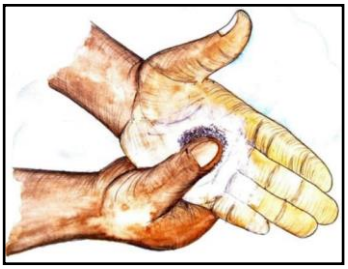

Fig. 2.3 Mainpuri Tobacco

3. MAWA

- Mawa is a mixture of thin shavings of areca nut with addition of slaked limeand tobacco. It is usually wrapped in cellophane paper and tied in theshape of a small ball.
- Commercially available in small ball form packed in a pouch. Before consumption the pouch is vigorously rubbed in the palm to mix the contents. Consumed in Gujarat, Bihar and eastern India.

Fig. 2.4 Mawa

4. ZARDA

- Tobacco leaf boiled in water along with lime and spices untilevaporation.
- The residual tobacco is then dried and colored with dyes.
- Zarda may be chewed by itself, with arecanut or in betel-quid.

Fig. 2.5 Zarda

5. GUTKHA

- It is prepared by crushing betel nut, tobacco and adding some sweet or savory flavor.
- Gutkha originated in India, but because of its sweet flavor it is taken up by western countriesand widely used.

Fig. 2.6 Guthka

6. PAN MASALA

- Pan masala comes in attractive foil packets (sachets) and tins, whichcan be stored and carried conveniently.
- Carrying a pan masala tin has even become a status symbol, and offering pan masala is accepted as implying hospitality and equality.

Fig. 2.7 Pan Masala

7. KIWAM

- Kiwam is a thick paste prepared from tobacco leaf extract, spices (e.g., saffron, cardamom, aniseed), and additives such as musk. Kiwam is placed in the mouth and chewed or used as an optional tobacco ingredient in betel quid.

Fig. 2.8 Kiwam

8. RED TOOTH POWDER

- It is a commercially available dentifrice that contains tobacco. These nicotine-containing toothpowders (*dant manjan)* lack pictorial warning which implies that these are disguised as a dentifrice.

Fig. 2.9 Red Tooth Powder

9. SNUFF

- Dry snuff is a finely powdered tobacco that is inhaled through the nose or taken by mouth. Oncewidely used now has declined. Moist snuff is a powdered tobacco finely ground, held betweencheek and gums.
- Other parts of moist snuff include khaini, shammahand Naas or naswa.

Fig. 2.10 Snuff

10. KHAINI

- It is powdered sun-dried tobacco; slaked lime paste mixture occasionally used with arecanut. This form is used widespread in Maharashtra and several states in North India like Uttar Pradesh, Bihar etc.
- The ingredients are vigorously mixed with thumb to make the mixture alkaline, and are placed in the premolar region of the mandibular groove.

Fig. 2.11 Khaini

11. MISHRI

- Prepared by roasting tobacco on a hot metal plate until it is uniformly black. It is then powdered andused with catechu.
- Catechu is a residual extract obtained from soaking bark of a hard wood tree Acacia Catechu in boiling water.
- Used in Maharashtra especially by women, who cleans their teeth initially, soon apply Mishri several times.

Fig. 2.12 Mishri

12. GUDHAKHU

- Tobacco Paste powdered and mixed with molasses and otheringredients.
- Available commercially and is carried in a metal container. Applied to the teeth and gums with finger, predominantly bywomen.
- In Singhbhum district, Bihar, 1% of the men and 16% of the womenuse gudhakhu.

Fig. 2.13 Gudhakhu

13. CREAMY SNUFF

- It is a tobacco marketed in toothpaste like tubes. This tobaccohabit is popular among children in Goa.

Fig. 2.14 Creamy Snuff

14. PATTIWALA TOBACCO

- Sun-cured tobacco leaf used with or without lime.

Fig. 2.15 Pattiwala Tobacco

15. BAJJAR

- It is dry snuff used commonly in women in Gujarat on the teeth and gums. The material is carried in a small metal container, and a twig is dipped into the snuff and used to apply.

Fig. 2.16 Bajjar

16. GUL

- Gul is commercially manufactured using very fine tobacco dust. It is an oral tobacco powder which is rubbed over the gum and the teeth.

Fig. 2.17 Gul

17. TAIBUR & HIDAKPHU

- Tuibur and hidakphu are watery tobacco products made by passing tobacco smoke through water Tobacco water is tobacco-smoke infused eater. It is a unique smokeless product that is liquid.

18. DOHRA

- Dohra is a wet mixture of tobacco, slaked lime, areca nut, and other ingredients like catechu (katha), peppermint, and cardamom.

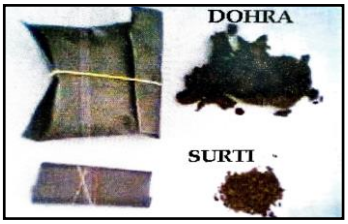

Fig. 2.18 Dohra

SMOKING FORM OF TOBACCO

1. BIDI

- Bidis consists of a small amount of tobacco, hand wrapped indried temburni leaf and tied with strings. Bidis are widely used throughout South East Asia and mainly in India.
- 34% of total production
- 0.2-0.3gm sun dried tobacco flakes hand rolled in temburni / tendu leaf & tied in thread.
- Nicotine content - 1.7 to 3mg.
- Tar content – 45-50mg

Fig. 2.19 Bidi

2. CIGARETTE

- Cigarettes consist of shredded or reconstituted tobacco processed with hundreds of chemicals. They are the predominant form of tobacco used worldwide,1 gram of tobacco cured in the sun or artificial heat is covered with paper.

Fig. 2.20 Cigarette

- Tobacco is generally treated with sugars, flavoring andaromatic ingredients
- 1-1.4mg of nicotine and 19-27mg tar
- 31% of tobacco grown in India is used for manufacture of cigarettes

3. CHILLUM

- Chillum is held vertically to prevent tobacco from entering the mouth, a pebble or a stopper is introduced into the chillum. It is a straight, 10-14cm long conical clay pipe.
- Filled with coarsely cut tobacco pieces and a glowing charcoal is
- kept on top of tobacco.

Fig. 2.21 Chillum

4. CHUTTA/CHEROOR

- It is a cylindrical coarsely prepared cheroot. Cured tobacco is wrapped in a dried tobacco leaf. The name is reported to be derived from a tamil word ‘Shruttu’ which means ‘to roll’. Most wide spread in Andhara Pradesh and Tamil Nadu. It is also called ‘cheroor’ or ‘cigar’. Cigars are made of air cured, fermentedtobacco usually in modern factories. Cheroors are small cigars made of heavily bodied tobacco.

Fig. 2.22 Cherrot

5. DHUMTI

Somewhat conical cheroots (cigar with both ends open). It is made by rolling tobacco inside the leaf of a jackfruit tree, a banana plant, or a local shrub, hansali. Dhumti smoking was practiced exclusivelyby the Christian community and reverse smoking was more common among women.

Fig. 2.23 Dhumti

6. HOOKAH

Also called water-pipe or hubble-bubble. Used in place with a strong Mughal culture influence. Purely of Indian origin, this corresponds with the introduction of tobacco in INDIA. The tobacco smoke is drawn through the water in the base of the hookah which cools and filters the smoke.

Fig. 2.24 Hookah

6. HOOKLI

- Short clay pipe 7-10 cm. with a mouth-piece and bowl.
- Sometimes, a wooden stem is used, with a detachable clay bowl,presumably to reduce the heat.
- Tobacco is placed in the bowl, and the smoke is inhaled through thestem.
- Commonly used in Bhavnagar district of Gujarat.

Fig. 2.25 Hookli

7. KRETEKS

1. They are indigenous cheroots containing tobacco, clove and cocoa, which give the characteristic flavor and 'honey' taste to the smoke.
2. Kretek smoking originated in Indonesia in 1824; the word kretek appears to have come from the sound and sparks produced when it is inhaled.

Fig. 2.26 Kretek

8. STICKS

These are made from sun-cured tobacco as brus and wrapped in cigarette paper.

Fig. 2.27 Stick

9. CIGARS

Cigars are made up of air-cured and fermented tobaccos with a tobacco- leaf wrapper. The long aging and fermented process produces high concentration of carcinogenic compounds that are released on combustion. The concentrations of toxins and irritants in cigars are higher than in cigarettes

Fig. 2.28 Cigar

REVERSE SMOKING

The habit of smoking cigarettes or cigars in reverse fashion, i.e., keeping the burning end inside the mouth, is reported from the Caribbean islands, Colombia, Panama, Venezuela, Sardinia, the Philippines and India.

- In India, reverse smoking is practiced on the east coast, particularly in Visakhapatnam and Srikakulam districts, Andhra Pradesh (A.P) and to a lesser extent along the west coast in Goa.
- In the coastal areas of A.P, a coarsely prepared cigar called chutta is smoked in this fashion, more often by women.
- The temperature of the palatal mucosa may go up to 580-degree C.

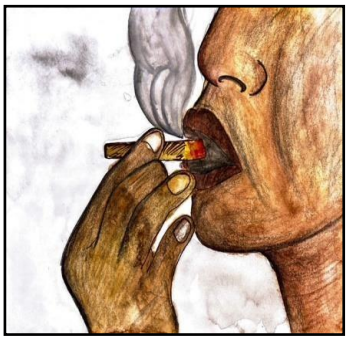

Fig. 2.29 Reverse Smoking

OTHER FORMS OF TOBACCO

Heated tobacco products (HTPs)

HTPs are like all other tobacco products, inherently toxic and contain carcinogens. HTPs produce aerosols containing nicotine and toxic chemicals upon heating of the tobacco, or activation of a device containing the tobacco. They are marketed as "Heat Not Burn" products and available as iQOS, Ploom, glo and PAX vaporizers. The aerosols are inhaled by users during a process of sucking or smoking involving a device. They contain the highly addictive substance nicotine, non-tobacco additives and are often flavored. There is not enough evidence to suggest that they are less harmful than conventional cigarettes and their effects of second-hand emissions produced by HTPs.

Fig. 2.30 Heated Tobacco Product

E-cigarettes

Electronic nicotine delivery systems (ENDS) and Electronic Non-Nicotine Delivery Systems (ENNDS), commonly referred to as e-cigarettes, are devices which heat a liquid to create an aerosol which is then inhaled by the user, these may or may not contain nicotine. Process of using e-cigarettes is known as Vaping. The main constituents of the solution by volume are propylene glycol, with or without glycerol, and flavoring agents.

All ECs have three basic components: a battery, atomizer, and fluid reservoir, which stores the e-liquid. With time, E- cigarettes have evolved from basic to complex designs with the cig-a-like (first generation), clearomizer (second generation), mod (third generation), and Pod Mods (fourth generation).

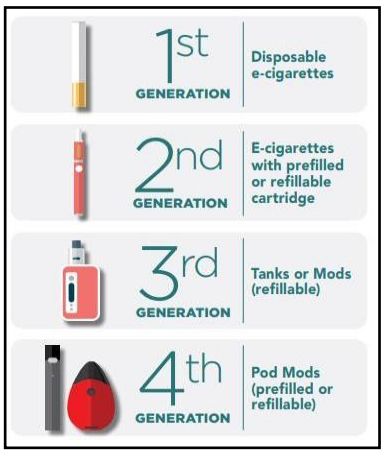

Fig: 2.31 Generations of E-cigarette

EPIDEMIOLOGY OF TOBACCO USE IN INDIA

Nationally representative surveys and community-based studies have shown the socio-economic, cultural, demographic, religion-based correlates of tobacco consumption. Smoking and smokeless forms of tobacco are significantly higher in the rural areas, among uneducated poor people, and the socially disadvantaged population. Global Youth Tobacco Survey, 2019 reports that around 8.5% of 13-15 years (9.6% of boys and 7.4% of girls) currently used any tobacco product, 7.3% smoked tobacco, and 4.1% respectively smokeless tobacco.

Fig. 2.32 Forms of E-Cigarette

As per Global Adult Tobacco Survey-2, 2016- 17, 19.0% of men, 2.0% of women and 10.7% (99.5 million) of all adults currently smoke tobacco. Around 29.6% of men, 12.8% of women and 21.4% (199.4 million) of all adults use smokeless tobacco. Around 42.4% of men, 14.2% of women and 28.6% (266.8 million) of all adults use any form of tobacco (smoked and/or smokeless tobacco. Khaini (a form of SLT) and beedis are the dominant forms of tobacco consumed in India, at 11% and 8%, respectively. Around 55.4% of current smokers are planning or thinking of quitting smoking and

49.6% of current smokeless tobacco users are planning or thinking of quitting smokeless tobacco use. 48.8% of current smokers were advised by health care providers to quit smoking and 31.7% of current smokeless tobacco users were advised by health care providers to quit use of smokeless tobacco.

CONCLUSION

Tobacco-use in India is clearly a big burden in terms of its magnitude and use in different forms. All forms of tobacco are addictive in nature due to the presence of nicotine. Dual users are at much higher health risks than those who consume the individual tobacco product. Also, for achieving a higher quit rate, they require longer follow-up. The tobacco control programs need more targeted interventions for

specific groups in the population. The tobacco users should be strongly encouraged to quit tobacco to eliminate long-term detrimental effects on their health.

PROFESSIONAL INSIGHT

Are Heated Tobacco Products the same as Electronic Cigarettes?

No, Heated Tobacco Products heat actual tobacco leaf. By contrast, E-cigarette's heat liquids that typically contain nicotine derived from tobacco, as well as flavourings and other ingredients-

Centres for Disease Control and Prevention (CDC)

KEY TAKEAWAY

- The tobacco problem in India is peculiar, with consumption of a variety of smokeless and smoking forms.
- In India tobacco is mainly used either in smoking form like cigarette, beedi, hookah, and other pipes like chillum, chutta, dhumti, cherrot and cigar or in smokeless form like chewing plain tobacco, khaini, zarda, kiwam, bajjar/tapkheer (dry snuff), masheri/mishri, and gutka.
- Heated tobacco products and E- cigarettes (Vaping) are the newer forms of tobacco products used nowadays.
- According to WHO, people in the region of South East Asia use both smoking and smokeless forms of tobacco. India, Indonesia, Bangladesh and Thailand – are among the top 20 tobacco-producing countries in the world. India is next to China in both tobacco production and consumption in the world.
- Reverse smoking is common in coastal areas of Andhra Pradesh; coarsely prepared cigar called chutta are smoked commonly, more often by women.
- 42.4% of men, 14.2% of women and 28.6% (266.8 million) of all adults currently use tobacco (smoked and/or smokeless tobacco)
- Only 21.5% smokers and 19.5% users of smokeless tobacco are planning/thinking to quit in next 12 months; the rest have either decided quit sometime in future but not in next 12 months or stayed undecided.

ASSESSMENT

Tick the correct answer:

1. Pick the Smokeless form (SLT) of tobacco:

a) Dhumti

b) Bidis

c) Chillum

d) Zarda

2. Reverse smoking is common in which part of India:

a) Punjab

b) Tamil Nadu

c) Andhra Pradesh

d) Gujarat

3. What is hubble-bubble?

a) Dhumti

b) Chumta

c) Hookah

d) Hookli

4. As per GATS -2 (2016-17), what percentage of men smoke tobacco?

a) 2%

b) 25%

c) 19%

d) 95%

5. ENDS stands for:

a) End nicotine delivery systems

b) Electronic nicotine delivery systems

c) Electronic non- nicotine delivery systems

d) External nicotine delivery systems

6. What is Vaping?

a) Smoke induced by tobacco

b) Process of using e-cigarettes

c) Second Hand smoking

d) Chemicals released from smoke

7. Tobacco was bought in India by:

a) Japanese

b) Africans

c) Portuguese

d) Americans

8. Which are the dominant forms of tobacco consumed in India?

a) Khaini & Beedi

b) Zarda & Beedi

c) Khaini & Mawa

d) Hookah & Khaini

9. Conical cigar with both ends open refers to

a) Chillum

b) Chutta

c) Dhumti

d) Kreteks

10. Smokeless forms of tobacco are less harmful than smoke forms like bidi, cigarettes etc.

a) True

b) False

3. IMPACT OF TOBACCO ON HEALTH AND ORAL HEALTH

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Health, economic and social impact of tobacco use
- Health, economic and social benefits of quitting tobacco
- Various screening techniques for Oral Potentially Malignant Disorders

INTRODUCTION

Tobacco kills more than 7 million people every year. Tobacco threatens health, economics, and social development. According to the World Health Organization (WHO) estimates, globally, there were 100 million premature deaths due to tobacco in the 20th century, and if the current trends of tobacco use continue, this number is expected to rise to 1 billion in the 21st century.

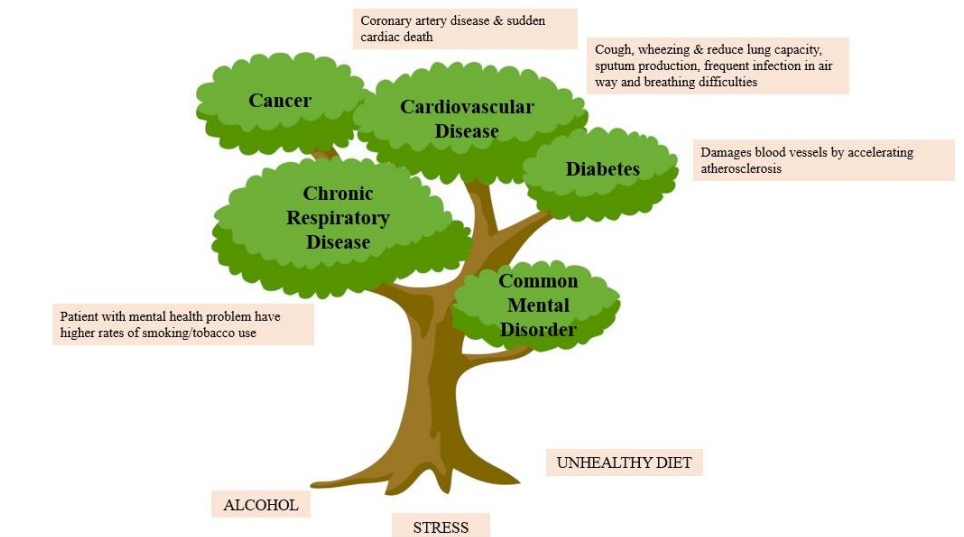

Fig 3.1: Interrelationship between tobacco and other risk factor and NCD (Source: Handbook for counsellors: Reducing Risk Factors for Non-Communicable Disease)

Tobacco use is an important modifiable risk factor common to major non-communicable diseases (NCDs)-cancer, cardiovascular diseases, chronic respiratory diseases and diabetes, causing 1 in 6 of all NCD deaths (Figure 3.1). Tobacco is a risk factor for six of the eight leading causes of death in the world (Figure 3.2) Tobacco kills and disables more people than any other disease-causing agents.

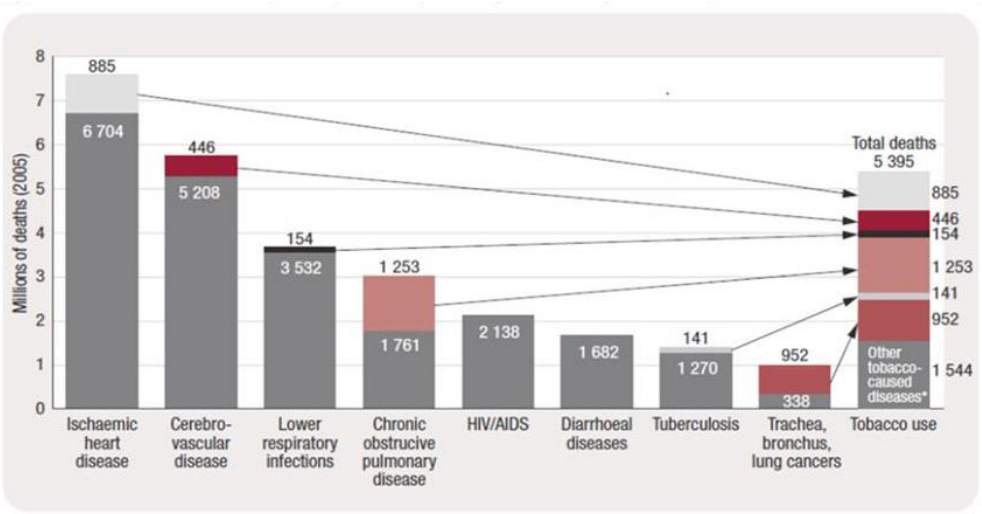

Fig 3.2: Tobacco is a risk factor for six of eight leading causes of death in the world (Source: WHO Brief Intervention for Tobacco Cessation, 2014)

Tobacco-use is currently recognized as a major preventable factor for developing and aggravating CVDs along with raised body lipids (cholesterol and triglycerides), hypertension, obesity, physical inactivity, poor nutrition and excessive alcohol consumption. Smokers have a two to threefold greater risk of suffering sudden cardiac death than non-smokers, the risk increasing with increased exposure to cigarette smoke.

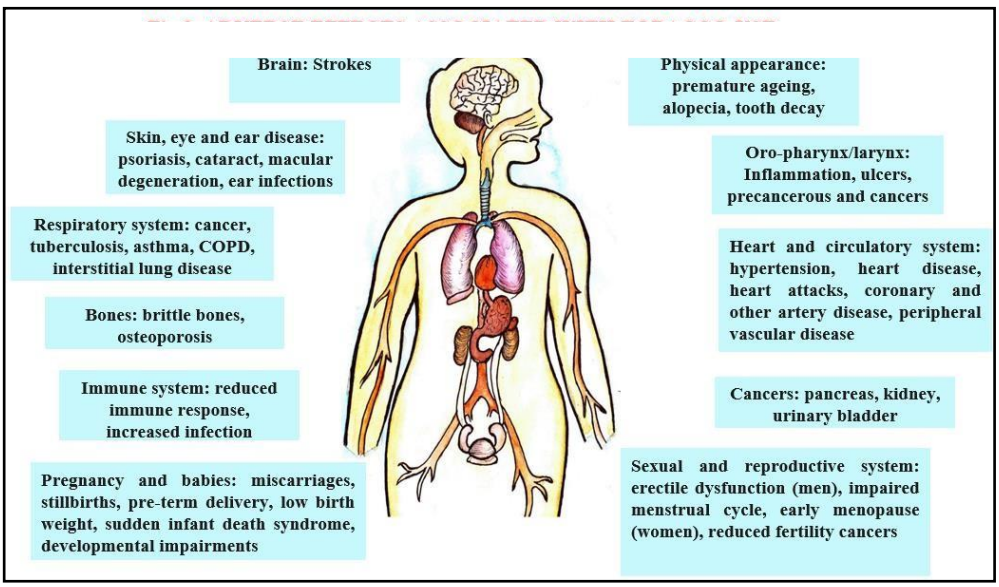

Fig. 3.3: Adverse Effects Associated With Tobacco-Use

I. HEALTH IMPACT OF TOBACCO-USE

The professional must be familiar with the health risks of tobacco use to be able to relate smoking to your patient's condition. Many smokers, especially those in developing countries, do not completely understand the dangers of tobacco smoking due to tobacco companies' misleading information that distort the true facts aboutsmoking.

Fig. 3.4: Content of Cigarette

Tobacco products are made of extremely *toxic materials*.

➔ Tobacco smoke contains more than 7000 chemicals, of which at least 250 are known to be harmful and at least 69 are known to cause cancer.

➔ Nicotine is classified as a Class Ib toxin. There is no safelimit for tobacco use, and even for second-hand smoke exposure.

➔ Tobacco causes immediate damage to the body, causing many acute medical conditions such as shortness ofbreath, exacerbation of asthma and respiratory infections, as well as many chronic diseases including heart disease, strokes, cancer and chronicrespiratory diseases.

A. Health Conditions Caused Due To Tobacco Use

1. ***Lung cancer:*** Smokers are ten times more likely to die from lung cancer than non-smokers, and heavy smokers are 15 to 25 times more at risk than non-smokers. Thus, the duration andintensity of smoking can influence the risk of developing lung cancer.

Adverse Effects of Tobacco Use
Lung cancer
Laryngeal cancer
Oropharyngeal cancers
Oesophageal cancer
Stomach cancer
Pancreatic cancer
Urinary tract cancers
Peripheral vascular disease
Respiratory Disease
Diabetes
General ill health
Premature aging
Sexual dysfunction and impaired fertility
Tuberculosis

Table 3.1: Health Condition due to Tobacco Use

2. ***Laryngeal cancer:*** Heavy smokers have up to 20 times the risk of developing laryngeal Cancers compared with non-smokers. The risk of developing cancer increases with the duration of smoking and the number of cigarettes smoked.

3. ***Oropharyngeal cancers:*** The average risk for developing an oral or pharyngeal cancer is 10 times higher among male smokers and five times higher among female smokers than lifetime non-smokers. Oral and pharyngeal tissues come into direct contact with carcinogens present in smokeless tobacco products and tobacco smoke.

4. ***Oesophageal cancer:*** Smokers have up to seven or eight times the risk of developing esophageal cancer than non-smokers. Use of alcohol with tobacco increases the risk of this cancer manifold.

5. ***Stomach cancer:*** Smoking may also be related to the development of cancers in other sites within the stomach ("non-cardia gastric cancers"), possibly by interaction with the *helicobacter pylori* infection.

6. ***Pancreatic cancer:*** Heavy smokers have three to five times the risk of developing pancreatic cancer than non-smokers. Cancers of the pancreas most commonly arise in the cells that line the pancreatic ductules.

7. ***Urinary tract cancers:*** Heavy smoking (more than 40 cigarettes a day) doubles the risk of developing kidney and bladder cancers.

8. ***Peripheral vascular disease:*** Smoking can both directly cause chronic heart failure as well as contribute to other factors leading to it. Lower tar and nicotine cigarettes have not been shownto reduce the incidence of CHD, and they do not provide a lower risk alternative for smokers who cannot or do not wish to quit.

9. ***Respiratory Disease:*** Smoking contributes to several acute respiratory illnesses including bronchitis, bronchiolitis, influenza and pneumonia in individuals who do not already have smoking-related lung disease. It is also associated with chronic respiratory diseases including symptoms such as phlegm production, cough and wheezing, and reduced lung capacity.

The Mechanism of Action:

Tobacco fumes:

➔ Impair ciliary activity and mucociliary clearance.

➔ Promote mucosal and submucosal mucus gland hypertrophy and hyperplasia leading tochronic hypersecretion of mucus.

➔ Have deleterious effects on immune cell function.

10. ***Diabetes:*** A major review and meta-analysis of published data has found that current smokersare more likely to develop Type-2 diabetes than ex-smokers and never-smokers, and that smokers of 20 or more cigarettes a day are at greater risk than less frequent smokers. Overall, current smokers are estimated to have a 44% greater risk, and ex-smokers a 23% greater risk ofdeveloping Type-2 diabetes than people who have never smoked. Effects on insulin sensitivity, glucose tolerance and the risk for diabetes from smokeless tobacco use are plausible.

The Mechanism of Action:

➔ Smoking increases insulin resistance, alters insulin secretion.

➔ Smoking impairs pancreatic function.

11. ***General ill health:*** Smokers also report higher levels of tiredness or fatigue, reduced well-beingand satisfaction with life, slightly lower self-reported measures of mental well-being, and increased incidence of psychological symptoms such as depressed mood and anxiety. Smokersare also more likely to experience sleep disturbances, including taking longer to fall asleep, being less likely to stay asleep, and having less total sleep time than non-smokers. Frequency of snoring increases with the amount of tobacco smoked. Chemicals in tobacco smoke produce hyposmia, duodenal reflux and altered production of gastric secretions.

12. ***Premature aging:*** It is postulated that smoke affects the skin fibroblasts (cells present in connective tissue that form collagen and elastin), thereby accelerating the appearance of aging. Increased wrinkling of the skin and altered complexion have been attributed to smoking, as have elastosis and, in men, telangiectasia in women.

13. ***Sexual dysfunction and impaired fertility***: The use of smokeless tobacco causes reproductive and developmental toxicity, and its use during pregnancy increases the risks for preeclampsia and premature birth, causes increased placental weight and reduces mean birth weight. Smokeless tobacco use by men causes reduced semen volume, reduced sperm count, reduced sperm motility and an increased frequency of abnormal spermatozoa.

14. **Tuberculosis:** Most of the cases of tuberculosis in the world are to be found in the South-East Asian region. This region accounts for 50 lakh tuberculosis cases and 5 lakh deaths from Tuberculosis each year. A causal association has been found between active and passive tobacco smoking and a range of TB outcomes including infection, development of disease, treatment outcomes, relapse as well as mortality. Current smoking is associated with a doubled risk of developing tuberculosis. TB is about 3 times more common among ever smokers than among never smokers and mortality due to TB is 3-4 times greater among smokers than non- smokers.

Mechanism of Action:

➔ Damage to pulmonary mucosa by tobacco smoke makes it more susceptible toinfection.

➔ Accompanying weight loss and malnutrition in smokers.

B. Oral Health Conditions Due To Tobacco-Use

Tobacco use, including tobacco smoking and smokeless tobacco use, causes a wide spectrum ofdiseases including oral diseases. The oral conditions include:

Oral Health Conditions Due to Tobacco-Use	Oral Potentially Malignant Disorders
Dental Caries	Pre leukoplakia
Dental calculus	Leukoplakia
Tooth discoloration	Erythroplakia
Gingival abscess	Oral submucous fibrosis
Gingival melanin pigmentation	Tobacco quid keratosis
Oral malodor (Halitosis)	Smoker's Palate
Periodontal disease	Palatal Erythema
Change in taste	Central papillary atrophy of the tongue
Premature tooth loss	Oral Candidiasis
Smoker's lip	Oral Cancer
Oral melanosis	
Oral Potentially Malignant Disorders	
Oral cancer	

Table 3.2: Oral Health Conditions due to Tobacco Use and Oral Potentially Malignant Disorders

Oral Potentially Malignant Disorders

1. *Pre leukoplakia*

Initially a "low-grade" or mild reaction of the oral mucosa, appearing as a grey or greyish white lesion. It has a slight lobular pattern and an indistinct border blending into the adjacent mucosa. It lacks the clear-cut margins, elevation and whiteness that is characteristic of leukoplakia.

About 7% to 15% progress to leukoplakias.

Fig. 3.5 Pre-Leukoplakia*

2. *Leukoplakia*

Leukoplakia (white patch) is defined as a raised white patch of the oral mucosa measuring 5 mm or more, which cannot be scraped off or be attributed to any other diagnosable disease. It is the most common precancerous lesion, and it occurs six times more commonly among smokers than non- smokers. One subtype of leukoplakia (nodular leukoplakia) has a great risk of progressing to malignancy (20%–46% progress to cancer).

Fig. 3.6 Leukoplakia*

*Courtesy: Dr. Priya Kumar, Professor, Dept. of Oral Pathology& Microbiology, MAIDS

3. *Erythroplakia*

Fig. 3.7 Erythroplakia*

It is a bright red velvety plaque which cannot be characterized clinically or pathologically as due to any other condition. In India, its prevalence is 0.2% to 5.2% and the rate of malignant transformation is higher than leukoplakia.

4. *Oral submucous fibrosis or OSMF*

Fig. 3.8 Oral Submucous Fibrosis of

It is a premalignant condition characterized by slowly progressive chronic fibrotic disease of the oral cavity and oropharynx in which the oral mucosa loses its elasticity and develops fibrous bands, which ultimately lead to difficulty in opening the mouth. While OSMF is attributed to areca nut chewing and ismost commonly seen in old people, it has shown a recent dramatic increase among the young in India attributed to *gutkha* and *paan masala* chewing. Upto 5%–7% of OSMF cases progress to becoming oral cancer.

5. *Tobacco quid keratosis*

Fig. 3.9 Tobacco Quid

In its mildest form, the lesion may just be noted as wrinkles at the site of application. Among the highconsumption white and leathery lesions might develop, which sometimes contain ulcerations. It may be easily scraped off.

6. *Smoker's palate*

Fig. 3.10 Smoker's Palate*

The development of a smoker's palate is perhaps the most common reaction of the palate to all forms of smoking. It consists of a diffuse white palate with numerous excrescences having central red dots, corresponding to the orifices of the minor salivary glands. It may begin as a grayish discoloration.

7. *Palatal erythema*

Fig. 3.11 Central Papillary Atrophy of the Tongue*

This lesion consists of diffuse erythema on the hard palate that occasionally extends upto the soft palate. It is mainly observed in *bidi* smokers and chewers.

8. *Central papillary atrophy of the tongue*

This consists of a well-defined oval, pink area in the center of the dorsumof the tongue, which is devoid of lingual papillae. A similar lesion (erythematous candidiasis) may also be seen among persons with HIV infection and must be ruled out. This is again most commonly seen in *bidi*smokers.

9. *Oral Candidiasis*

Fig. 3.12 Oral Candidiasis*

The habit of tobacco has been recognized as an important predisposing factor for Oral Candidiasis because it provokes increased keratinization in oral epithelium, in addition, the smoke constituentsincrease fungal virulence.

10. *Oral Cancer*

India has one of the highest rates of oral cancer in the world, with over 50% attributable to smokeless tobacco use mainly chewing of betel-quid with tobacco. According to the WHO, cancer has been growing at a rate of 11 percent annually in India due to widespread tobacco consumption.

Fig. 3.13 Oral Cancer

- ➔ Tobacco affects cancer production through its effect on metabolism and enzyme activity.
- ➔ Many of the metabolites in tobacco smoke have mutagenic activity and alter the DNA of cells lining the organs and structures with which it comes in contact.
- ➔ Over time the altered cells replicate themselves leading to tumor formation.

II. ECONOMIC IMPACT OF TOBACCO USE

Tobacco smoking takes away not just the smoker's health but wealth. It is estimated that 5-15% of a smoker's disposable income is spent on tobacco, which could be an enormous economic burden on themand their family.

Tobacco and poverty- a vicious cycle: There is an inextricable relationship between tobacco and poverty. Tobacco has social disadvantages, people who are strained financially are more likely toconsume tobacco and making them poorer thus they are neglected in society leading to loss of income, productivity and death.

The cost calculator below can be used to help patients find out how much money they have spent oncigarettes.

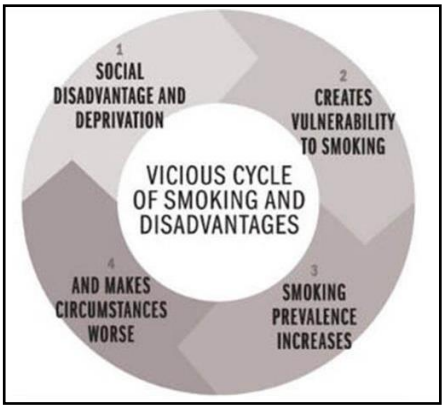

Fig. 3.14 Vicious Cycle of Smoking & Disadvantages

*Courtesy: Dr. Priya Kumar, Professor, Dept. of Oral Pathology& Microbiology, MAIDS

	Calculation	Example (INR)
No. of cigarettes (packs) you smoked per day	N	20 (1 pack)
Money spent on tobacco per day	N x Pack price (Rf. 40)	1 X 40
Money spent on tobacco per month	X 30	1,200
Money spent on tobacco per year	X 12	14,400
Amount spent in 10 years	X 10	144,00
Amount spent in your lifetime (e.g. 17 years)	Per year X 17 years	244,800

Alternatively, the following calculation tables can also be used:

The smoke cost calculator (2)						
Number of Packs you smoke a year	X	Number of yearsyou have smoke	X	The average cigarette packprice	=	How much you have spent on cigarette during your lifetime
	X		X		=	

**For days to years conversion, see below tables*

1 pack a day	1 ½ packs a day	2 packs a day	2½ pack a day	3 pack a day
365 pack a year	548 pack a year	730 packs a year	913 pack a year	1095 pack a year

Table 3.3: Smoking Cost Calculator

III. SOCIAL CONSEQUENCES OF TOBACCO USE

- It is important to understand the social context of tobacco use to develop interventionpromoting its cessation.
- Community survey and intervention in India have shown that tobacco use is often learnt from parents, other older, and peers.

- Studies at work places and in educational institutions have reported similar findings.

IV. HEALTH RISKS TO THE FAMILY

Passive smoking or Second Hand Smoke (SHS) is the inhalation of tobacco smoke or environmental tobacco smoke by persons other than the intended "active" tobacco user. It occurs when tobacco smoke enters an environment, causing its inhalation by people within that environment. Smoking tobacco puts families of tobacco users at risk.

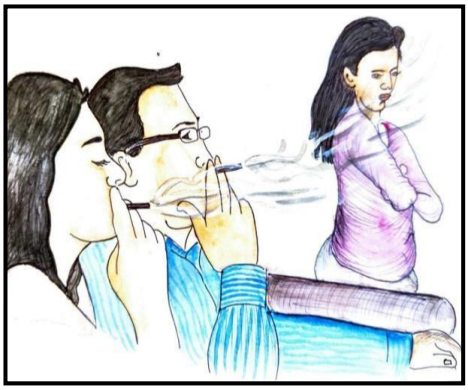

Fig. 3.15 Second Hand Smoking

Second Hand Smoke (SHS) is the smoke exhaled by a smoker (Mainstream smoke) or smoke emanating from the burning end of cigarette / bidi/cigar etc. (Side stream smoke). Side stream smoke is known to contribute to 80% of smoke in SHS. Second hand smoke costs dearly to India-8.1% of the total healthcare cost and 0.33% of the GDP of India.

Moreover, as the awareness regarding harmful effects of second-hand smoke on health is low, the exposure remains high in the absence of any attempts to remain away or even ask the smokers not to smoke, when others are around them. Smokingputs the smoker's family at risk. Second Hand Smoke exposure increases the risks of having the following diseases.

Diseases in Children	Diseases in Adults
• Sudden infant death syndrome • Acute respiratory illnesses • Middle ear disease • Chronic respiratory symptoms • Early childhood caries • Gingival pigmentation	• Coronary heart disease • Nasal irritation • Lung cancer • Reproductive effects in women (low birthweight and cleft lip and palate) • Periodontal disease

Table: 3.4- Diseases and adverse effects caused by second hand smoke

Dental health professionals should promote smoke-free policies, particularly where dental services are delivered in clinical settings or community-based programs so that patients will not be exposed to secondhand smoke in the health facilities. By having a smoke free facility, they can encourage their patients to live in a smoke free home and work in a smoke free workplace, which will help them avoidexposure to secondhand smoke.

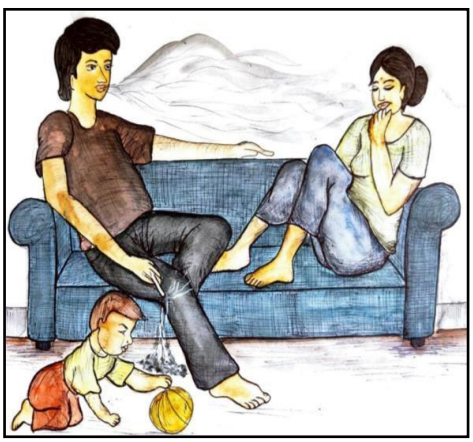

Fig: 3.16 Third Hand Smoking

Third hand tobacco smoke/ Residual tobacco smoke/ Aged tobacco smoke

It is the tobacco smoke contamination that remains after

the bidi/cigarette has been extinguished. The residue from tobacco smoke that clings to virtually all surfaces long after a bidi/cigarette has extinguished could prove to be a potential health hazard. The biggestrisk is to young children.

Dermal uptake of nicotine through a child's skin is likely to occur when a smokerreturns and if nitrous oxide is in the air, which it usuallyis, then TSA's (Tobacco specific Nitrosamines) will beformed. TSAs are known to be some of the most potentcarcinogens.

IV. SCREENING METHODS

Most Conventional method for examining oral mucosal lesions is visual examination. Visual inspection of the oral cavity is a simple, acceptable, and accurate screening test for oral neoplasia.The sensitivity of oral visual inspection to detect lesions varied from 57·7%–61·4% and the specificity ranged from 98·6 to 98·8%. Oral visual screening has the potential to prevent at least 37 000 deaths from oral cancer worldwide every year. Biopsy remains the gold standard for diagnosis of oral cancer. But the disadvantage of biopsy is that it is painful, time consuming, technique sensitive and invasive. Many effective diagnostic tools have been developed with advances in oral cancer research.Some of them have been discussed below.

A. Toluidine blue (TB) is a member of the thiazine group of metachromatic dyes, which binds to DNA and is partially soluble both in water and in alcohol. Theoretically, dysplastic and malignant cellshave higher nucleic acid content than normal, and thus, staining of suspicious lesions with this dye can aid recognition of mucosal changes. Toluidine Blue has been used as a vital stain to highlight potentially malignant oral lesions since the early 1980s. A positive staining of toluidine blue may appear as a dark royal blue. The Toluidine blue test appears to be highly sensitive (97.8%– 93.5%) but less specific (92.9%–73.3%), mainly because of high false positive results. Steps of toluidine blue stainapplication for detection of oral cancer and oral premalignant lesions.

Method of Application

1. The patient is asked to rinse for 20 seconds with 1% acetic acid to clean the area followedby plain water for another 20 seconds.

2. Then 1% aqueous toluidine blue solution is rinsed for 60 seconds followed by 1%acetic acid for another 20 seconds and finally rinsed with water for 20 seconds.

3. Lesions that exhibited dark blue (or) stippled staining were considered as a "positive"test. Those that stained faintly (or) not at all were considered as "negative" test.

Fig. 3.17: White lesion on the Tongue*

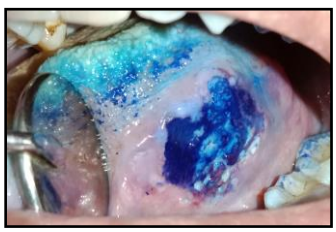

Fig. 3.18: Blue stained lesion after toluidine blue rinse showing dysplastic changes*

B. **Chemiluminescence** is another method to detect early stages of oral cancer. Chemiluminescence for use in oral cavity is available in the market by the names of Vizilite, Vizilite Plus and

MicroLux DL. While the Vizilite Plus uses a disposable chemiluminescent light packet, the MicroLux unit offers a reusable, battery powered light source. The ViziLite® (Zila Pharmaceuticals, Phoenix, AZ) was approved as adjunctive technology by U.S. Food and Drug Administration (FDA) in November 2001.The device emits light in the wavelengths of 430 nm, 530nm and 580 nm . This improves the visual examination procedure.

C. **Autofluorescence** is another method of screening of oral mucosal lesions. Normal oral mucosa appears pale green due to the tissue autofluorescence resulting from stimulation with intense blue lightexcitation at 400–460 nm wavelengths. Due to dysplasia, there are changes in absorption and scattering of light. The mucosa with dysplastic changes with this procedure appears dark. **Velscope** is the marketed product.

D. **Magnivisualizer** gives a complete white light spectrum (equivalent to daylight 5500-6000 A°) andprovides magnification with interchangeable lenses, from 1 to 5 dioptre. This instrument not only improved the detection rate of lesions having a potential for progression and most of the early cancerous lesions of the oral cavity.

VI. BENEFITS OF QUITTING TOBACCO

A. HEALTH BENEFITS

Helping your patients quit is the best thing the professional can do to improve their health. There are immediate and long-term health benefits of quitting for all smokers. The professional can extend the patient's life up to 10 years by quitting. It is important to help your patients quit smoking as soon as possible so they can achieve these beneficial health changes and can live a longer and healthier life.

	Health risks	Cessation benefits
Oral Cancer 	• Smoking is a leading cause of oral cancer. Smokers are 5-10 times morelikely to develop oral cancer than non-smokers. • In South Asia, smokeless tobacco user are 5 times more likely to develop oral cancer	• 5 years after quitting smoking, the risk of developing oral cancer is cutin half.
Leukoplakia 	• Smoking and smokeless tobacco canlead to leukoplakia, a precancerous condition in which thickened white patches form on the gums and other areas in the mouth.	• Quitting smoking and smokeless tobacco can reduce the risk of developingleukoplakia lesions.

Periodontal disease 	• Smokers are 2-4 times more likely tohave periodontitis destructive inflammatory disease of periodontal tissue. • After treatment for periodontal disease, smoker do not heal as well as nonsmokers	• Quitting smoking reducesthe risk of periodontal disease over time and improve the treatment outcome.
Tooth loss 	• Smokers are 2 times more likely to lose tooth. • Accumulation of tooth, if left untreated, may impair quality of laterlife.	• Quitting smoking reducesthe risk of tooth loss overtime.

Table 3.5: Benefits of Quitting Tobacco

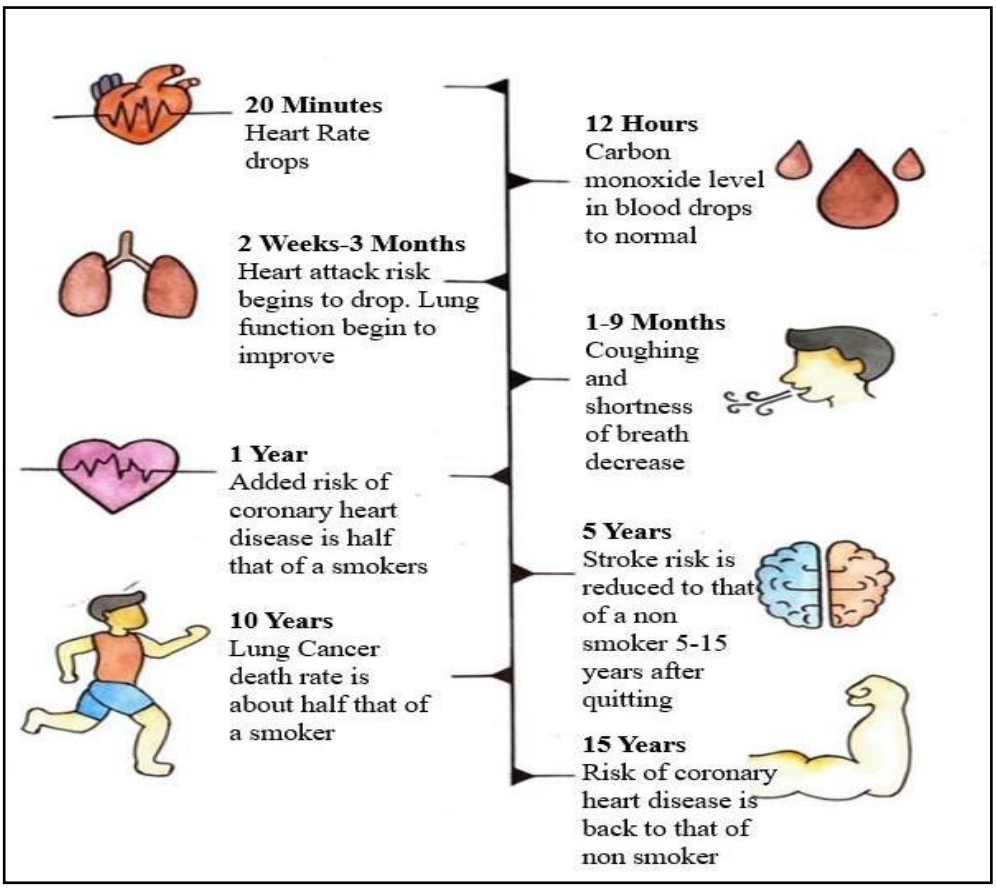

Fig. 3.19: Immediate and Long Term Benefits of Quitting

Benefits in comparison with those who continued:

- At about 30: gain almost 10 years of life expectancy.
- At about 40: gain 9 years of life expectancy.
- At about 50: gain 6 years of life expectancy.
- At about 60: gain 3 years of life expectancy.
- After the onset of life-threatening disease: rapid benefit, people who quit smoking after having a heart attack reduce their chances of having another heart attack by 50%.

B. ECONOMIC BENEFITS

Quitting also has very clear and tangible financial benefits to smokers. You can use the quit & save exercise to help patients understand how much money they can save if they quit.

Quite & Save		
How much money can you save if your quite?		
	Calculation	**Example (INR)**
No. of cigarette (packs) you smoked per day	**N**	**20 Cigs (1 pack)**
Money spent on tobacco per day	**N x Pack price (Rf. 40)**	**1 x 40**
Money spent on tobacco per month	**X 30**	**1,200**
Money spent on tobacco per year	**X 12**	**14,400**
Amount spent in 10 year	**X 10**	**144,000**
Amount spent in your lifetime	**Per Year X 17 Years**	**244,800**
What can you buy with the money saved?		
				

Table 3.6: Quit & Save! Smoking cost calculator (Source: Tool Kit for Oral Health Professionals to Deliver Brief Tobacco Interventions)

C. SOCIAL BENEFITS

- After quitting, patients will feel less isolated - quitting means they can go anywhere, not justwhere they can smoke.
- They will improve their relationships with their family, friends and employers.
- They will be more productive - they don't have to keep stopping what they are doing to have asmoke.
- They will be able to expand and improve the quality of their social interactions (contrary totheir beliefs, as they become more socially acceptable).
- Many patients also find their mental health improved after quitting.
- They find themselves less stressed than when they smoked, and no longer feel bad about harming or being a nuisance to others.
- When patients quit smoking, their children become less likely to start smoking and more likelyto quit if they already smoke.
- It is useful to emphasize to smokers who are parents or grandparents that "Stopping smoking may be one of the most important things you can do for your children (or grandchildren) by being a healthy role model".

CONCLUSION

Oral Cancer is a big public health problem with high prevalence in South East Asian countries. Effective primary and secondary prevention strategies are critical in delivering the World Health Organization's (WHO) resolution that oral cancer should be an integral part of national cancer. Tobacco use is known as a major risk factor for oral and many other cancers. All tobacco products, including cigarettes, cigars, pipe tobacco, chewing tobacco, and snuff, contain the following: poisonous substances (toxins), cancer-causing agents (carcinogens) and Nicotine, an addictive substance.

KEY-TAKEAWAYS

- Tobacco use, including tobacco smoking and smokeless tobacco use, causes a wide spectrum of diseases and oral conditions like Dental caries, tooth discoloration, halitosis, periodontal diseases, smoker's palate etc.
- Tobacco's harmful effects are caused by its 69 known carcinogens. Smokeless tobacco contains over 2000 chemicals, five of which have been directly related to causing cancer.
- Chewing tobacco causes precancerous lesions and conditions like leukoplakia, erythroplakia, oral sub mucous fibrosis and other oral health conditions.
- Tobacco use increases the risk of second-hand smoke to family and also third hand smoking, especially to young children.
- Various screening methods to detect oral lesions include toluidine blue, chemiluminescence, auto fluorescence, and magnivisualizer.
- The various health benefits of quitting include rapid and long-term benefits, and economic and social benefits.
- When patients quit their tobacco habit, they feel more energized, healthy, increase in appetite and a better way of living.
- Quitting tobacco is a win-win situation for all concerned, engaged and participating stakeholders- Patients, Dentists (Health workers), Dental (Health) Institutes, State Medical Health Department and Ministry of Health and India."

ASSESSMENT

1. **Tobacco smoking is the most common cause of lung cancer**.

   A. True
   B. False

2. **Tobacco Chewing results in _____**

   A. Mouth Cancer
   B. Lung Cancer
   C. Bone Cancer

3. **Which of the following can improve your health if you have COPD**?

   A. Not Smoking
   B. Exercise Regularly
   C. Drinking alcohol
   D. A and B

4. **Chewing Tobacco stains your teeth.**

   A. True
   B. False

5. **Women who use Tobacco are more likely to have miscarriage or a low-birth-weightbaby.**

   A. True
   B. False

6. **What is Passive smoking?**

   A. Smoking occasionally
   B. Smoking everyday
   C. Breathing in other people's tobacco smoke
   D. Chewing tobacco

7. **Third hand smoking refers to.**

   A. Smoking within 3 persons
   B. Smoke from other person smoking
   C. Tobacco smoke residues on the surface.
   D. Any of above

8. Nicotine is classified as

A. 1a toxin
B. 1b toxin
C. 2b toxin
D. 1c toxin

9. Gold standard for diagnosis of oral cancer is

A. Biopsy
B. FNAC
C. Visual Examination
D. Toluidine blue

10. What is a Velscope ?

A. Device to detect oral malodor
B. Oral cancer screening device
C. Electronic tobacco cigarette
D. Device to detect smoking

4. IMPACT OF TOBACCO ON DENTAL TREATMENT OUTCOMES

4

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Impact to tobacco use on dental treatment outcome

INTRODUCTION

Tobacco smoking is linked with many serious illnesses, such as cancer, cardiopulmonary diseases, low birth-weight, as well as with many health problems. It is also linked to a detrimental impact on oral health, such as increasing risk of periodontal diseases. In addition, dental implant failure is more common among smokers than among non-smokers, and peri-implantitis among smokers is also more prevalent. Tobacco use contributes to increased tooth mobility and tooth loss occurs. Tooth loss reduces the oral chewing function and quality of life and leads to the subsequent demand for tooth replacement, such as dentures or implant supported prostheses. Dental treatment outcomes may be unpredictable for patients who continue to smoke. The financial burden may be increased when a more intensive treatment plan is required to achieve oral health.

Adverse Effects of Tobacco on Oral Health

Increased plaque accumulation, higher incidence of gingivitis and periodontitis, higher rate of tooth loss, and increased resorption of the alveolar ridge have been found in the oral cavity of tobacco users. Tobacco has adverse effects on oral as well as general health of an individual and it negatively affects the outcome of almost all therapeutic procedures performed in the oral cavity in the following ways:

- Dry Socket
- Implant Failure
- Delayed Wound healing
- Non-surgical treatment of gingival bleeding
- Surgical and non-surgical periodontal therapy
- Staining and Fracture of Restorations
- Effect on Distraction osteogenesis
- Dental pain
- Progression of oral manifestations of diabetes

TOBACCO AND DENTAL TREATMENT OUTCOMES

1. Effect on a Surgical Wound

The negative impact of smoking on the healing surgical wound may be related to the deleterious cellular effects of nicotine on fibroblasts and polymorphonuclear leukocytes. Cotinine, a destructive by-product of nicotine, has been detected in the bloodstream and in the gingival crevicular fluid. Smoking may also cause vasoconstriction of the gingival blood vessels, diminishing the healing response. Tobacco smoking reduces the short-term oxidation-reduction potential of dental plaque, which can enhance the proportion of anaerobic bacteria. This data makes it evident that cigarette smoking adversely affects the clinical outcome of intra-bony defects treated with grafts.

Cigarette smoking has long been suspected to adversely affect wound healing. Tobacco affects postoperative wound healing following surgical and non-surgical tooth extractions, routine maxillofacial surgeries, implants and periodontal therapies. Smoking tobacco is also associated with catecholamine release resulting in vasoconstriction and decreased tissue perfusion. Smoking is believed to suppress the innate and host-immune responses, affecting the function of neutrophils, the prime line of defense against infection. Thus, the association between smoking and delayed healing of oral tissues following surgeries is evident.

2. Effect On Dental Implants

Implant failure rate was higher among smokers, 5.6%, compared to non smokers, 3.5%, $p < 0.001$. There is a tendency to higher failure rate with the increasing number of cigarettes per day, 4.3% amongsmokers of 1–10 cigarettes a day and up to 9.2% among those who smoked 31–40 cigarettes a day, $p = 0.059$.

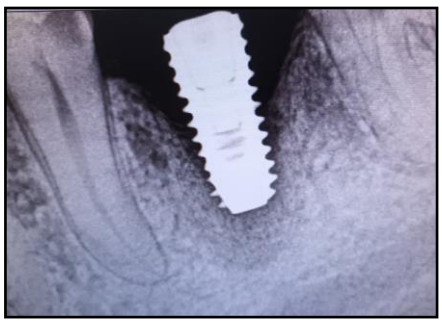

Fig. 4.1 Implant Failure

A significant correlation was found between the implant failure rate and the following variables: smoking years, exposure to passive smoking in non-smokers, smoking status and to the number of pack years. Influence of Smoking on Early Implant Survival Early failure rates, prior to loading, were evaluated by various studies, who reported early implant failure was high (6.5% - 31%) in smokers versus (1%-9%) in non-smokers.

Effect of smoking on outcomes following immediate Implant placement and delayed implant placement was also studied and found that more complications were reported in smokers than non-smokers, regardless of the time of implant placement. Smokers have a higher risk of occurrence of Peri-implantitis compared to non-smokers. Studies reporting on the occurrence of peri-implantitis had a follow-up ranging from 1 to 14 years.

Studies reporting marginal supporting bone loss reported a statistically significantly greater risk of bone loss over time in patients who smoked when compared to non-smokers. Studies reporting on marginal bone loss had a follow-up time ranging from 1 to 24 years. Tobacco smoking is a significant risk factor for implant placement and may lead to failure of implant osseo-integration.

*Picture Courtesy: Dr. Kamal, Senior Resident, Dept. of Periodontics & Implantology, MAIDS

3. Smoking And Wound Healing

Smokers have a higher incidence of infectious and non-infectious healing complications after surgery compared with non-smokers across all surgical specialties. Former smokers appear to have a lifetime higher risk of healing complications compared with patients who never smoked. Smoking cessation for at least 4 weeks before surgery reduces surgical site infections, but not other healing complications. Patients should be encouraged to stop smoking at least 4 weeks before surgery to reduce the risk of surgical site infections.

Across cohort studies, necrosis was 4 times more frequent in smokers than non-smokers, whereas surgical site infection, dehiscence, healing delay, and lack of fistula and bone healing occurred 2 times more frequently in smokers.

The following pathophysiological mechanisms for defective healing in smokers appear to be involved:

(1) an acute detrimental vasoactive effect of smoking leads to postoperative necrosis in tissues with fragile blood supply, such as reconstructive tissue flaps and colorectal anastomoses.

(2) attenuation of the inflammatory healing response and impairment of oxidative bacterial killing mechanisms lead to surgical site infection.

(3) delay of the proliferative healing response and alteration of collagen metabolism lead to dehiscence and lack of fistula or bone healing.

4. Effect on non-surgical treatment of gingival bleeding

The reduction in gingival bleeding is significantly less pronounced in smokers even after mechanical removal of plaque. The reasons for such a reduced improvement of gingival inflammation after plaque removal in smokers are not known. However, since gingival bleeding primarily reflects the vascular reactions of gingival inflammation, the suppression of bleeding may be attributable to the vascular effects of cigarette

smoking. Smoking is known to produce peripheral cutaneous vasoconstriction. Nicotine has been shown to possess a powerful constrictive effect on gingival vessels, which might beresponsible for the less evident reduction of gingival bleeding. Besides a systemic effect, there might in addition be a direct local influence of smoking on the gingival vasculature. Thus, findings suggest that the healing response to non-surgical treatment in terms of gingival bleeding might be suppressed under the influence of smoking.

5. Effects on surgical and non-surgical periodontal therapy

Smokers respond less favorably than non-smokers to periodontal therapy. Patients with moderate to advanced periodontitis were treated according to a split-mouth design involving the following treatment modalities: coronal scaling, root planning, modified Widman surgery, and flap with osseous resectional surgery. Data collection of various clinical parameters was done and data analysisdemonstrated that smokers exhibited significantly less reduction of probing depth and less gain of probing attachment level when compared to non-smokers immediately following active therapy and during each of the 6 years of maintenance ($p < 0.05$). A greater loss of horizontal attachment level wasevident

in smokers at each yearly exam during maintenance therapy ($p<0.05$). In general, these findings were true for the outcomes following all 4 modalities of therapy and were most pronounced in the deepest probing depth category (7 mm). The results also concluded a tendency for smokers to have slightly more supra-gingival plaque and bleeding on probing.

6. EFFECT ON DENTAL RESTORATIONS:

Long term clinical success of dental restorations depends on various factors, including the physical properties of the material,clinical proficiency of the treating dentist, and proper maintenance and patient care. Understanding whether there is a change in surface roughness is important because "irregularities in surface texture enhance bacterial adhesion, and roughened materials may suffer from increased staining." Increased bacterial adhesion increases the incidence of recurrent decay and defective restorations.

Fig. 4.2 Dental Pain

A study assessing the effect of smokeless tobacco on the surface roughness of dental restorations showed a significant change in color and clinical roughness existing in all restorations when viewed clinically. The three restorative materials studied were amalgam, composite and resin-modified GIC. This study only takes into account the effect a smokeless tobacco mix has on the surface roughness of dental restorations solely from a chemical perspective. Although the average pH of tobacco is more neutral to basic, the large amount of sugar, preservatives, and chemical carcinogens of smokeless tobacco have an association with restoration wear. Objectively, smokeless tobacco use has more than just a chemical effect. The largest effect is abrasive in nature. The natural state of the tobacco is a graininess, which contributes to the abrasive effects.

Recent study done in 2019, has concluded that red wine and Cigarette Smoking cause significant tooth discoloration and color mismatch in enamel and resin restorations that are not reversible by whitening treatments.

7. Effect on distraction osteogenesis

Nicotine is the main chemical component in tobacco products and its effect on bone healing remains controversial. Distraction osteogenesis is an endogenous tissue engineering technique which provides an excellent platform to study bone healing and regeneration. In an animal-based experimental study, 60-day time release nicotine pellets or placebo pellets were implanted in the neck subcutaneous tissue of the rabbits one week before osteotomy was performed. Then after distraction osteogenesis, the animals were sacrificed and subjected to examinations by radiography, micro-computed tomography and histological analysis. The significantly lower bone volume and appearance of chondrocytes in the nicotine group indicated that the bone regeneration of distraction osteogenesis was compromised by nicotine exposure.

8. Effect on root coverage procedures

Heavy smoking is correlated to failure in obtaining root coverage. Smokers have small root coverage which is associated with bad vascularity of periodontal tissues. The mechanism by which smoking affects periodontal plastic surgery outcomes remains unclear, but smoking interferes with several physiological mechanisms and cellular functions. The large number of tobacco toxins may impair periodontal healing. Smoking also decreases periodontal blood

flow, compromising graft vascularization and sub epithelial connectivity issue graft (SCTG) outcomes.

9. Smoking can cause patients to experience increased pain

Wound healing can be achy for anyone, but pain gets exacerbated in patients with smoking habits. The American Orthopedic Foot & Ankle Society noted that cigarette-related chemicals have been shown to negatively impact the way bodies understand "pain signals." Smoking can also aggravate inflammation, which can boost pain and add to the difficulties of the healing process.

Since tobacco dependence and chronic pain represent two highly prevalent conditions that independently generate substantial challenges within the domains of psychology, medicine, public health, and economics, not to mention the personal toll exacted at an individual level, their co-existence will be more detrimental.

10. Tobacco raises blood sugar levels

Raised blood sugar levels have numerous medical consequences, one of which is a deceleration of the wound healing process. According to Wound Care Centers, high blood sugar, which can be caused by smoking, creates arterial stiffness and narrows the blood vessels.

KEY TAKEAWAY

- Tobacco has adverse effects on oral as well as general health of an individual and it negatively affects the outcome of almost all therapeutic procedures performed in theoral cavity leading to dry socket, Implant Failure, Delayed Wound healing, Staining and Fracture of Restorations, Dental pain etc.
- Tobacco is deadly in any form either be smoking or smokeless; scientific evidence has proved that tobacco leads to disease, disability, and death.
- Tobacco smoke contains more than 7000 chemicals, of which at least 69 are known to cause cancer.
- Smokeless tobacco contains over 3000 chemicals, 250 of which are toxic and 30 of these are carcinogens that cause mainly cancers of oral cavity, oropharynx, esophagus, pancreas, urinary bladder and uterine cervix.

CONCLUSION

Tobacco has adverse effects on oral as well as general health of an individual and it negatively affects the outcome of almost all therapeutic procedures performed in the oral cavity leading to dry socket, Implant Failure, Delayed Wound healing, Staining and Fracture of Restorations, Dental pain.

It is also linked to a detrimental impact on oral health, such as increasing risk of periodontal (gum) diseases. In addition, dental implant failure is more common among smokers than among non-smokers, and peri-implantitis among smokers is also more prevalent. Tobacco use contributes to increased tooth mobilityand tooth loss occurs leading to reduced oral chewing function and quality of life. Dental treatment outcomes may be unpredictable for patients who continue to smoke tobacco.

ASSESSMENT

1. What is the addictive substance in tobacco?

   a. Toluene
   b. Nicotine
   c. Arsenic
   d. Methyamin

2. What is the destructive by-product of nicotine?

   a. Cotinine
   b. Nicotinine
   c. Alkaloid
   d. Any of above

3. What is one pack year of smoking?

   a. 10 Cigarettes per day for one year
   b. 20 Cigarettes per day for one year
   c. 30 Cigarettes per day for one year
   d. 40 Cigarettes per day for one year

4. The reduction in gingival bleeding is significantly more pronounced in smokers evenafter mechanical removal of plaque.

   a. True
   b. False

5. Smokers to have slightly more supra-gingival plaque and bleeding on probing thancompared to non-smokers

   a. True
   b. False

6. Tobacco smoking reduces the blood sugar levels leading to decreased wound healing.

   a. True
   b. False

7. Smoking can aggravate inflammation.

   a. True
   b. False

8. Water-pipe or hookah smoking is safer than cigarettes.

   a. True
   b. False

9. Nicotine is the main chemical component in tobacco products and delays wound healing.

   a. True
   b. False

5. ADDICTION PROCESS AND MEASUREMENT OF NICOTINE DEPENDENCE

5

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Nature of nicotine as a substance and its effects
- Neurological mechanism of nicotine addiction
- Processes that maintain addiction
- Various screening tools used for assessing nicotine dependence

INTRODUCTION

Tobacco is a plant product obtained from an important member of the Solanaceae family of the plant kingdom, which carries in its leaf's quantities of an alkaloid, nicotine, which gives it, instead, power over man's mind. Tobacco leaves are processed into smokeless and smoked products after harvesting and curing. Nicotine acts on the brain and other parts of the nervous system. From tobacco smoke the nicotine enters the bloodstream through the lungs and in smokeless tobacco it passes through the mucosal membrane of mouth and nose or the skin. Pulmonary absorption, which is the most favoured and perhaps commonest, occurs in a matter of seconds. From the lungs, chemicals in the smoke are absorbed into the body's systems and carried quickly to different parts of the body. Oral, snuffs and other smokeless tobacco products are absorbed more gradually.

After absorption, nicotine travels rapidly and reaches the brain within seven seconds; it readily crosses the blood–brain barrier. Due to action of the resultant release of dopamine from mid-brain and its effect on pre-frontal cortex, there is sudden release of glucose and increase in respiration, heart rate, constriction of arteries and increased alertness. These psycho-active rewards occur quickly and these rewards are highly reinforced. This forms the basis of nicotine addiction in an individual. Thus, broadly using b*ehavioural* perspective, *addiction* in generalcan be understood as an impaired ability to inhibit drug seeking in response to environmental information that should normally suppress the behaviour.

Neurobiologically, addiction is linked to alterations in reward and other circuitry that may precede initial drug use (e.g., genetic risk factors) and/or be caused by chronic drug exposure itself. The role of nicotine as the pharmacologic agent that maintains tobacco addiction is well supported. It is indeed associated with many well-known pleasurable psychoactive effects, such as arousal, relaxation, and improved mood. The following section will highlight the role of nicotine and the neurobiological mechanism in tobacco dependence.

NICOTINE AND ITS EFFECTS

Nicotine is derived from the leafy green tobacco plant (Blum, 1984). Nicotine is absorbed through the membranes of the mouth, nose, and lungs (Blum, 1984). Once in the bloodstream, it is metabolized by the liver. **The half-life of nicotine is 20 to 30 min.** Nicotine exerts its effects on the body by altering the operation of norepinephrine and acetylcholine. Nicotine provides the pick-me-up feeling to the tobacco-users. A new smoker or tobacco chewer may experience nausea and dizziness from first using tobacco. But with repeated use he/she becomes tolerant to these effects. The tobacco user needs to take the "drug" repeatedly to maintain the nicotine levels and the "rewarding" experience it produces e.g., changing the puff frequency or degree of inhaling.

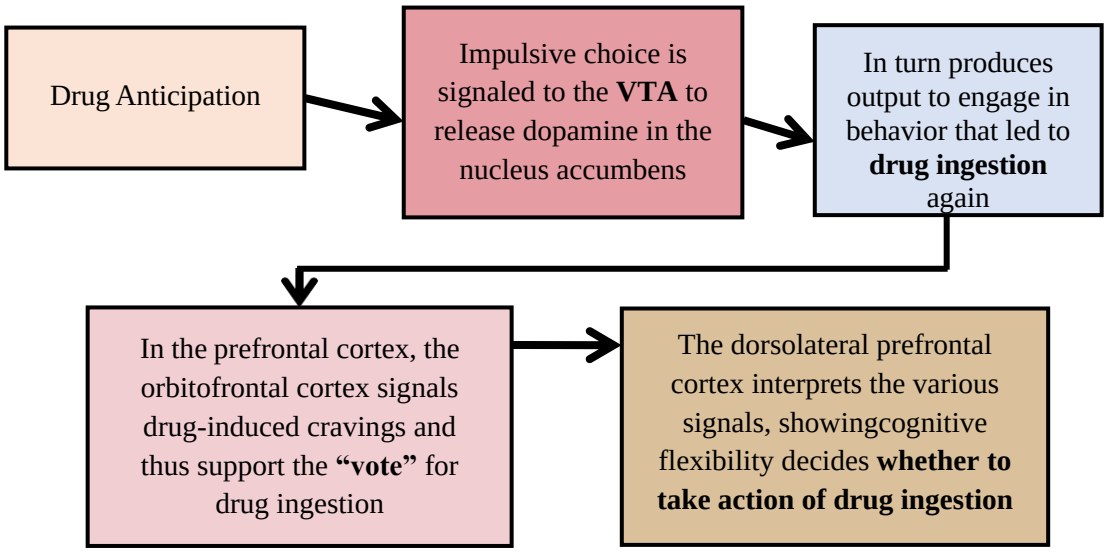

Fig. 5.1 Mechanism of Action

Over time, most people need an increasing level of nicotine to produce the same response, which results in using tobacco more frequently or changing to a stronger brand or type of tobacco to fulfil the addiction. For these reasons, tobacco experts and recent guidelines must emphasize the reframing of previous perceptions and understand that tobacco dependence is a chronic disease.

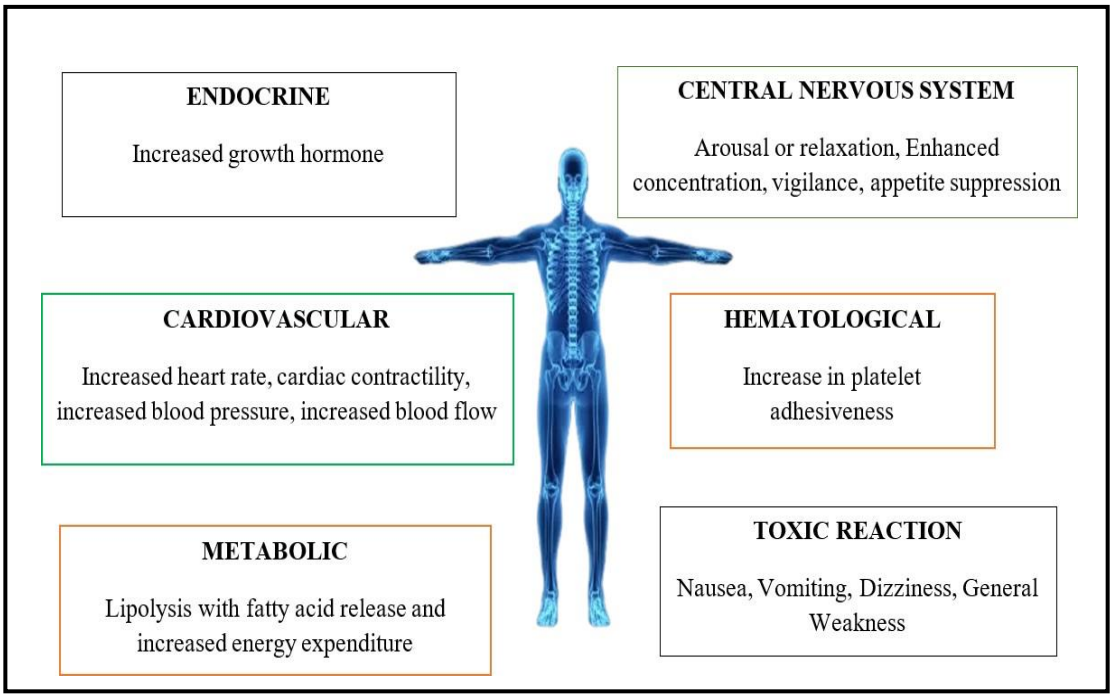

Fig. 5.2 Effects of Nicotine

NICOTINE ADDICTION

Nicotine interacts with the nicotinic acetylcholine receptors (α4β2 nAChR) and stimulates dopaminergic transmission. This in turn stimulates the reward center and is responsible for the mood elevation and apparent improvement in cognitive function. With chronic stimulation by nicotine the GABAergic neurons are desensitized and thus lose their inhibitory effect on dopamine. This in turn reinforces the addiction by inducing craving. Nicotine not only causes damaging effects, it also leads to tolerance to its own action like other dependence producing drugs.

NEUROBIOLOGY OF ADDICTION

Drugs of abuse activate brain reward systems; Reward is defined herein as any event that increases the probability of a response with a positive hedonic component. Dopamine neurotransmitter has been assigned the central role and regulates the reward pathway, the mesolimbic pathway from the ventral tegmental area (VTA) to the nucleus accumbens seems to be crucial for reward. The activation caused by drugs of abuse can eventually cause changes in reward circuitry that are associated with a vicious cycle of drug preoccupation, craving, addiction, dependence, and withdrawal. There are two mechanisms: that direct the reward system:

- The ***reactive*** **reward system** comprising of systems such as the *VTA, nucleus accumbens* and *amygdala,* are involved in triggering the drug-seeking behavior using internal cues such as craving and withdrawal

- The ***reflective*** **system** receives projections from the *orbitofrontal cortex (OFC)* which is involved in regulating impulses, then projections from the *dorsolateral prefrontal cortex (DLPFC)* regulating whether an action takes place, and projections from the *ventromedial prefrontal cortex*

(VMPFC) involved in regulating emotions. This system is built and maintained over time based on various influences; including genetics, peer pressure, learning of social rules etc.

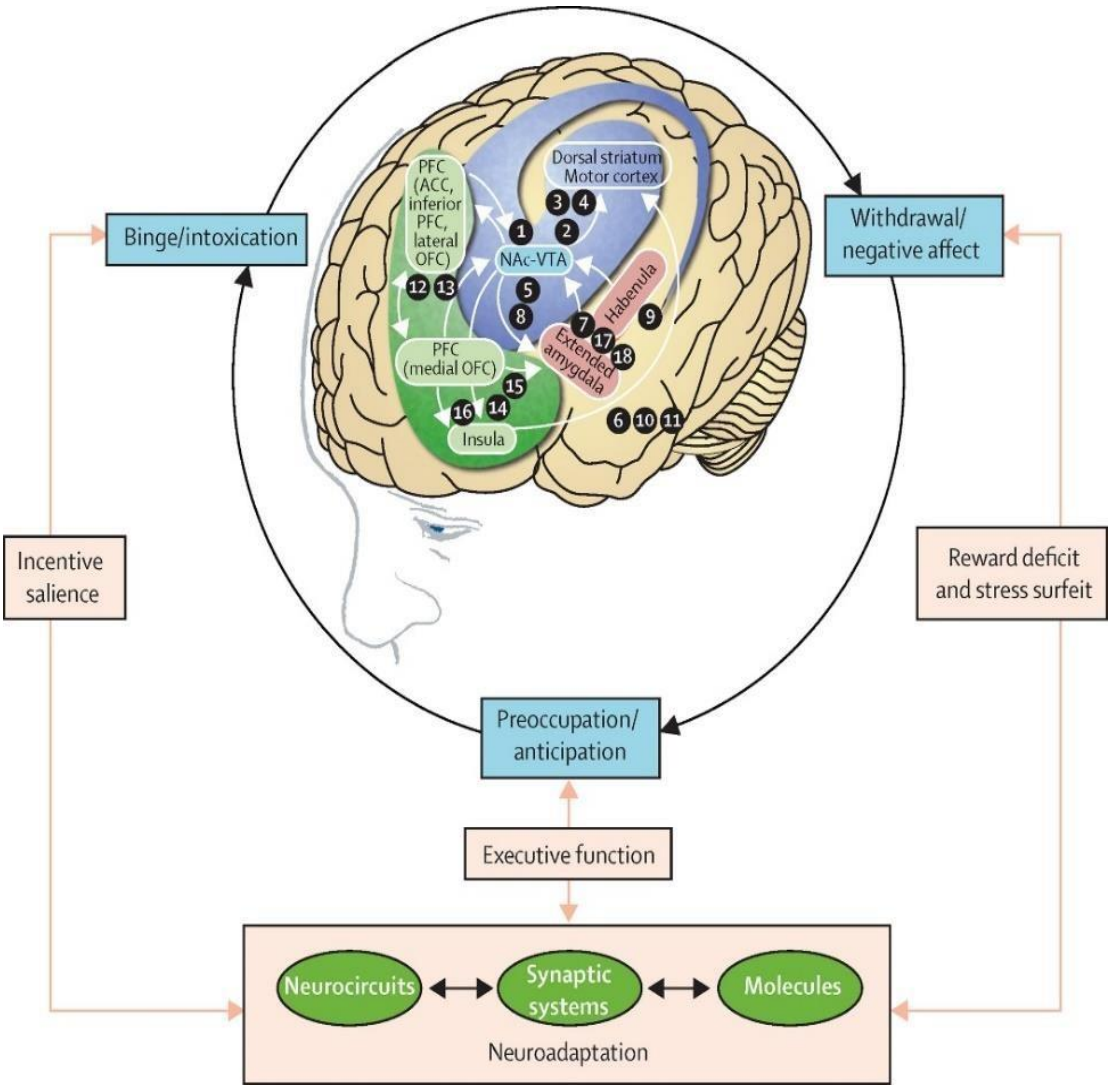

Fig. 5.3 Neurological Effects of Nicotine

Addiction can be conceptualized as a **three-stage, recurring cycle—binge/intoxication, withdrawal/negative affect, and preoccupation/anticipation (craving)**—that worsens over time and involves neuroplastic changes in the brain reward, stress, and executive function System (*Koob et al, 2016).*

Binge/Intoxication
(reward and incentive salience)
Steep release to dopamine as a result of drug-use is associated with the subjective feeling of "so-called high", which then becomes conditioned and leads to cravings for the substance.

Withdraw/Negative Affect
(As tolerance and withdrawal develop, brain stress system recruited in the extended amygdala andcontribute to the development of negative emotional states.)

Preoccupation/Anticipation
This is driven by the prefrontal cortex (executive funtions) is heightened by drug cue-inducedreward seeking impacting functions such as self-regulation and inhibitory control leading to craving.

Fig. 5.4 Stages of Development of Nicotine Addiction

The initiation and development of tobacco-use progresses in stages:

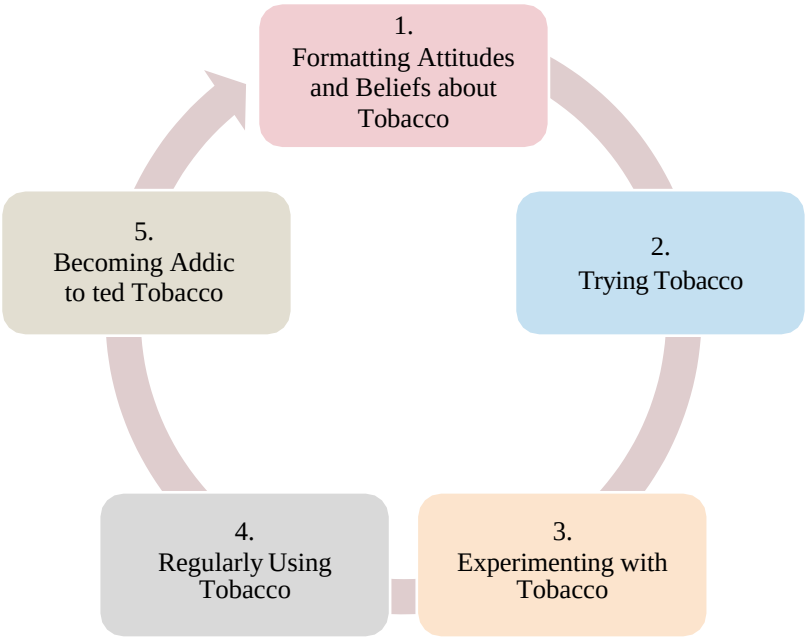

Fig. 5.5 Addiction Cycle

Processes that Maintain the Addiction Cycle

We have understood the neurobiological bases of addiction and the role of the different neurotransmitters in the addiction process. It is also important to understand the various psychological mechanisms/processes that maintain the substance taking behavior of the individual.

- When the nicotine is supplied regularly to the brain it starts to yearn for more, this phenomenonis called **craving.**
- If the brain does not receive its dose of nicotine while it craves, the body develops **withdrawal symptoms.**
- Once the person satisfies his/her brain's urge to have the next fix of nicotine, withdrawal symptoms subside temporarily. This cycle continues and this is when one is said to be having ***biological dependence***

The other important processes that maintain the substance-taking behaviour of the individual are called **habituation** or **conditioning**; these are based on the learning principles of Behavioural perspective.

- Tobacco-use is accompanied by certain activities, which may vary among individuals. These activities often become associated with the act of using the substance and become *conditioned-cues* as they are repeatedly paired with the act itself. The association between tobacco-use and other events repeated many times causes the environmental situations to become powerful cuesfor the urge to use tobacco
- Conditioning develops because of a pairing of the pharmacologic actions of the drug with behaviours and events.
- Likewise, aspects of the drug-taking process, such as the manipulation of smoking materials, or the taste, smell, or feel of smoke in the throat, become associated with the pleasurable effects of substance-use. Even unpleasant moods can become conditioned cues for consuming tobacco. For example, a smoker may learn that not having a cigarette provokes irritability (a common symptom of the nicotine abstinence syndrome) and smoking a cigarette provides relief.

In a nutshell, the process of Nicotine Addiction and the underlying mechanisms can beunderstood through the following flowchart:

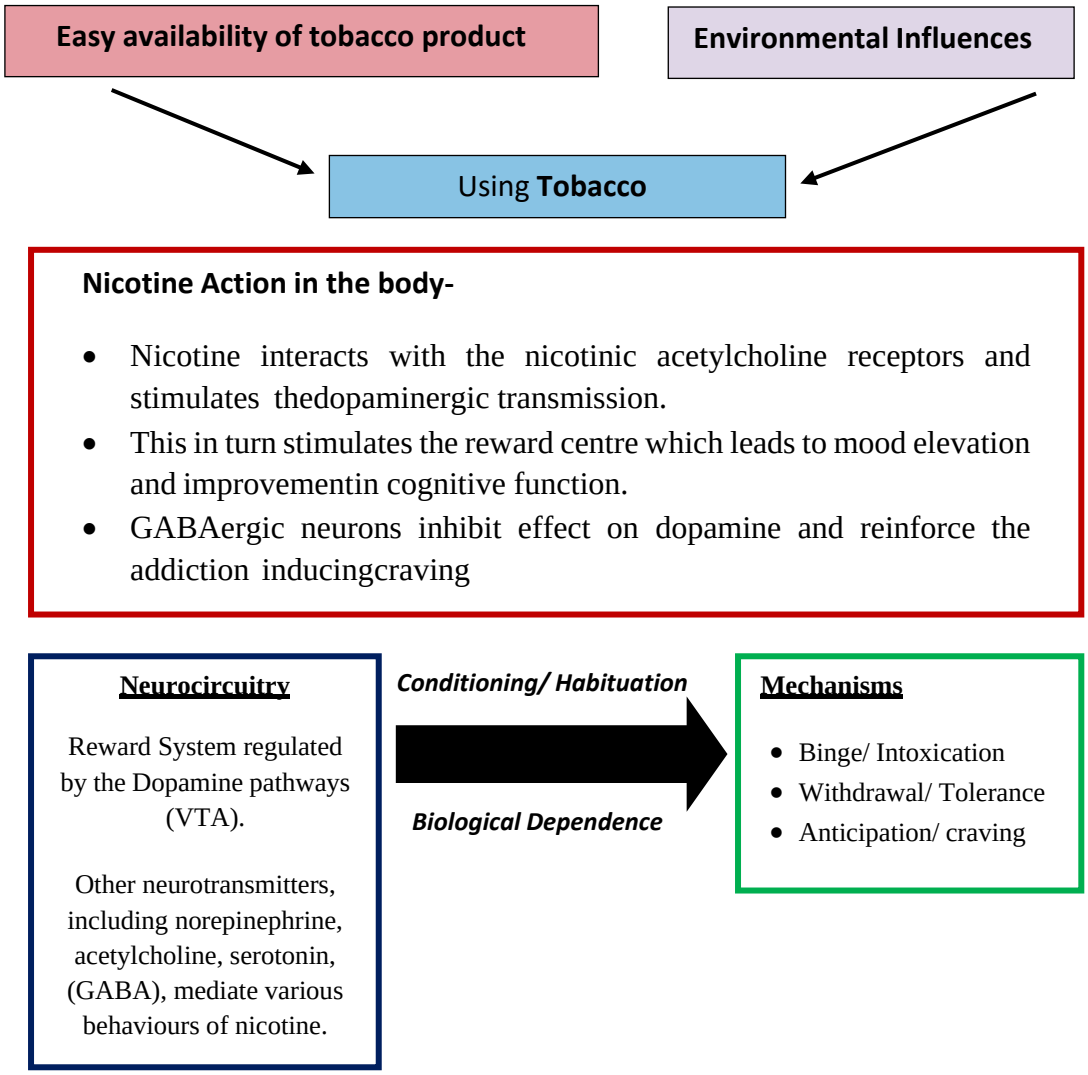

Fig. 5.6 Nicotine Addiction and Mechanism

DIAGNOSTIC CRITERIA FOR TOBACCO USE DISORDER

(Diagnostic and Statistical Manual of Mental Disorders, fifth edition) (DSM-5)

According to the **Diagnostic and Statistical Manual of Mental Disorders,** *5th Edition (American Psychiatric Association)* there are three Criterion with 15 sub features, and four specifiers to diagnose Tobacco Use disorder: **A problematic pattern of tobacco use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:**

A. Larger quantities of tobacco over a longer period than intended are consumed.

1. Unsuccessful efforts to quit or reduce intake of tobacco
2. Inordinate amount of time acquiring or using tobacco products
3. Cravings for tobacco
4. Failure to attend to responsibilities and obligations due to tobacco use
5. Continued use despite adverse social or interpersonal consequences
6. Forfeiture of social, occupational or recreational activities in favor of tobacco use
7. Tobacco use in hazardous situations
8. Continued use despite awareness of physical or psychological problems directly attributed to tobaccouse

B. Tolerance for nicotine, as indicated by:

9. Need for increasingly larger doses of nicotine in order to obtain the desired effect a noticeablydiminished effect from using the same amounts of nicotine

C. Withdrawal symptoms upon cessation of use as indicated by

10. The onset of typical nicotine associated withdrawal symptoms is present
11. More nicotine or a substituted drug is taken to alleviate withdrawal symptoms

The clinician may also add the following specifiers:

1. Early remission- No use of Tobacco products for 3-13 months.
2. Sustained remission- No use of Tobacco products for > 12 mos.
3. On maintenance therapy- e.g., transdermal nicotine.
4. In a controlled environment- e.g., hospital or correctional facility where smoking is forbidden.

Additional specifiers indicate the level of severity of Tobacco use disorder

1. ***305.1 (Z72.0) Mild: 2-3 symptoms are present.***
2. ***305.1 (F17.200) Moderate: 4-5 symptoms are present.***
3. ***305.1 (F17.200) Severe: 6 or more Symptoms are present.***

6C4A Disorders due to use of nicotine

Disorders due to use of nicotine are characterized by the pattern and consequences of nicotine use. Nicotine is the active dependence-producing constituent of the tobacco plant, Nicotiana tabacum. Nicotine is used overwhelmingly through smoking cigarettes. Increasingly, it is also used in electronic cigarettes that vaporize nicotine dissolved in a carrier solvent for inhalation (i.e., “vaping”). Pipe smoking, chewing tobacco and inhaling snuff are minor forms of use. Nicotine is a highly potent addictive compound and is the third most common psychoactive substance used worldwide after caffeine and alcohol. Nicotine Dependence and Nicotine Withdrawal are well described and Nicotine-Induced Mental Disorders are recognized.

Diagnostic Categories that Apply to Nicotine

Following is a list of specific diagnostic categories of that apply to nicotine:

- 6C4A.0 Episode of Harmful Use of Nicotine
- 6C4A.1 Harmful Pattern of Use of Nicotine
- 6C4A.2 Nicotine Dependence
- 6C4A.3 Nicotine Intoxication
- 6C4A.4 Nicotine Withdrawal
- 6C4A.Y Other Specified Disorder Due to Use of Nicotine
- 6C4A.Z Disorder Due to Use of Nicotine, Unspecified

6C4A.2 Nicotine dependence

Nicotine dependence is a disorder of regulation of nicotine use arising from repeated or continuous use of nicotine. The characteristic feature is a strong internal drive to use nicotine, which is manifested by impaired ability to control use, increasing priority given to use over other activities and persistence of use despite harm or negative consequences. These experiences are often accompanied by a subjective sensation of urge or craving to use nicotine. Physiological features of dependence may also be present, including tolerance to the effects of nicotine, withdrawal symptoms following cessation or reduction in use of nicotine, or repeated use of nicotine or pharmacologically similar substances to prevent or alleviate withdrawal symptoms. The features of dependence are usually evident over a period of at least 12 months but the diagnosis may be made if nicotine use is continuous (daily or almost daily) for at least 3 months.

Exclusions:

Episode of harmful use of nicotine (6C4A.0)Harmful pattern of use of nicotine (6C4A.1)

- **6C4A.20 Nicotine dependence, current use**

Current nicotine dependence with nicotine-use within the past month.

Exclusions:

Episode of harmful use of nicotine (6C4A.0)Harmful pattern of use of nicotine (6C4A.1)

- **6C4A.21 Nicotine dependence, early full remission**

After a diagnosis of nicotine dependence, and often following a treatment episode or other intervention (including self-help intervention), the individual has been abstinent from nicotine during a period lasting from between 1 and 12 months.

Exclusions:

Episode of harmful use of nicotine (6C4A.0), Harmful pattern of use of nicotine (6C4A.1)

- **6C4A.22 Nicotine dependence, sustained partial remission**

After a diagnosis of nicotine dependence, and often following a treatment episode or other intervention (including self-help intervention), there is a significant reduction in nicotine consumption for more than 12 months, such that even though intermittent or continuing nicotine use has occurred during this period, the definitional requirements for dependence have not been met.

Exclusions:

Episode of harmful use of nicotine (6C4A.0)Harmful pattern of use of nicotine (6C4A.1)

- **6C4A.23 Nicotine dependence, sustained full remission**

After a diagnosis of nicotine dependence, and often following a treatment episode or other intervention (including self-intervention), the person has been abstinent from nicotine for 12 months or longer.

Exclusions:

Episode of harmful use of nicotine (6C4A.0)Harmful pattern of use of nicotine (6C4A.1)

- **6C4A.4 Nicotine withdrawal**

Nicotine withdrawal is a clinically significant cluster of symptoms, behaviours and/or physiological features, varying in degree of severity and duration, that occurs upon cessation or reduction of use of nicotine (typically used as a constituent of tobacco) in individuals who have developed Nicotine dependence or have used nicotine for a prolonged period or in large amounts. Presenting features of Nicotine withdrawal may include dysphoric or depressed mood, insomnia, irritability, anger, anxiety, difficulty concentrating, restlessness, bradycardia, increased appetite, and craving for tobacco (or other nicotine-containing products. Other physical symptoms may include increased cough and mouth ulceration.

SCREENING FOR NICOTINE DEPENDENCE

Screening or assessment of tobacco-use makes it possible to detect the presence and severity of the same in a cost and time efficient manner. It also provides a baseline assessment along with periodic checkpoints as the patient moves in the process of cessation. The diagnosis of Nicotine Dependence can be based on diagnostic criteria provided by the Diagnostic and Statistical Manual (DSM) of the American Psychiatric Association and the International Classification of Disease 10th revision (ICD-10) from the World Health Organization (WHO).

Additionally, there are several tools that can be helpful in assessing the level of severity, dependence or tolerance to the substance used. Following are some of the most commonly used tools for screening/assessment of substance-use:

S.NO.	NAME OF THE TEST	DESCRIPTION
1.	**Fagerstrom Test for Nicotine Dependence (FTND)**	The Fagerstrom test for nicotine dependence (FTND) is widely used as a screening test for the physical aspects of nicotine dependence. There are scales for both smoking and smokeless tobacco. Based on the score, the level of addiction can be low (score less than 4), medium (score 4– 6) or high (score greater than 6).
2.	**Modified Fagerstrom Test for Nicotine Dependence-Smokeless Tobacco (FTND-ST)**	The Fagerstrom test for nicotine dependence (FTND) for Smokeless Tobacco consists of 6 items and the total score comes out to be 10. Based on the score, the level of addiction can be low (score less than 4), medium (score 4–6) or high (score greater than 6).
2.	**Tobacco Dependence Screener (TDS)**	The Tobacco Dependence Screener (TDS) is a 10-item questionnaire for screening tobacco/nicotine dependence according to these criteria.
3.	**Wisconsin Inventory of Smoking Dependence Motives (WISDM-68)**	The Wisconsin Inventory of Smoking Dependence Motives (WISDM-68) is a multidimensional measure of dependence based on theoretically grounded motives for drug use. The measure has 68 items consisting of 13 domains that identify separate motives for tobacco use.
4.	**Cigarette Dependence Scale (CDS)**	The Cigarette Dependence Scale was developed by asking smokers via mail and through a web site to assess signs indicating a dependence on cigarettes. There are two types of scale, the CDS-12 and the CDS-5, each of which is ratedusing a 5-point scale. The CDS-12 is a 12-item instrument covering the main components of the DSM-IV and ICD-10and some of the FTND.
5.	**The Nicotine Dependence Syndrome Scale (NDSS)**	The Nicotine Dependence Syndrome Scale (NDSS) is a multidimensional questionnaire based on Edwards's syndromal conceptualization of dependence. The essential elements of syndrome that Edwards proposed are as follows:a narrowing in the repertoire of drug use behaviour, an increased salience of drug-seeking behaviour, an increased tolerance to the drug, repeated withdrawal symptoms, repeated relief or avoidance of withdrawal symptoms by further drug use, subjective awareness of a compulsion to use the drug, and rapid reinforcement of the syndrome after relapse. With these concepts applied to nicotine dependence, a 23- item questionnaire was developed.

Table 5.1 Tools for Screening/ Assessment of Substance Use

KEY TAKE-AWAYS

- Addiction is linked to alterations in reward and other circuitry that may precede initial drug use (e.g., genetic risk factors) and/or be caused by chronic drug exposure itself.
- Drugs of abuse activate brain reward systems; *reactive mechanism* which is a reward system comprising systems such as the *VTA, nucleus accumbens* and *amygdala* focus ontriggering the drug-seeking behavior and *reflective* mechanism depends on how an actionwould take place.
- Addiction mechanism is characterized by disturbances in three major neurocircuits: (i) basal ganglia-driven binge/intoxication stage, (ii) extended amygdala-driven prefrontal cortex-driven withdrawal/negative affect stage, and (iii) reoccupation/anticipation stage.
- Screening or assessment of tobacco-use makes it possible to detect the presence and severity of the same in a cost and time efficient manner.

ASSESSMENT

Q1) Nicotine is responsible for addiction of:

a) Tobacco
b) Cannabis
c) LSD
d) Smack

Q2) Effects of nicotine on human body include:

a) Increased heart rate
b) Nausea, vomiting, relaxing effect
c) Both a and b
d) Only b

Q 3) Drugs of abuse activate the brain:

a) Reward pathways
b) Stress circuits
c) Reflective pathways
d) None of the above

Q 4) The neurotransmitters involved in the Nicotine Addiction are:

a) Dopamine, GABA, acetylcholine
b) Dopamine and serotonin
c) Norepinephrine and Epinephrine
d) Both a and b

6. BEHAVIOURAL INTERVENTIONS FOR TOBACCO CESSATION IN DENTAL SETTINGS

6

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Need for Behavioural Interventions in Tobacco Cessation
- Basic counselling techniques used for Tobacco Cessation
- Types of Behavioural Interventions in Dental Clinical Settings
- Application of evidence-based Behavioural Interventions (5A's, 5R's, 4D's etc.)
- Technique of Motivational Interviewing in Behavioural Interventions

INTRODUCTION

According to GATS-2 (2016-17), 55% of smokers and 50% of smokeless tobacco users are planning or thinking of quitting tobacco use. However, quitting is challenging and most smokers makemultiple attempts before successfully quitting . There is significant evidence that has highlighted that both behavioural therapies and pharmacotherapy can help quit, either on their own orin combination with one another.

Behavioural interventions (BI) in tobacco cessation vary widely in their content, delivery and availability. Typically, they focus on, informing the user, giving advice to quit or a combination of both, using different theoretical models to achieve these aims. BIs can also range from brief advice to providing Information Education and Communication (IEC) material, to more intensive programmes involving multiple counselling sessions. Factors that seem to prompt quit attempts are typically related to motivation, such as concern over thelong-term health effects or the financial cost of tobacco-use. The factors associated with long-term success after a quit attempt mostly relate to the strength of the underlying addiction to tobacco. However, most attempts are made without the aid of appropriate behavioural support. Hence, in order to maintain motivation and improve resilience through the quitting process, various components of BI can play a vital role.

Dentists are well suited to engage patients in tobacco cessation counselling because of the relative ease with which they discuss the dental concerns during the interactive chairside communication.

Tobacco-use mostly reflects during the oral examination and the time spent during dental care with the dental professional can be used as an effective opportunity to promote cessation. In an Indigenous study, 44% of interns reported that they had not been taught Tobacco-use Cessation in the institutions. Furthermore, a higher level of oral cancer awareness did not have a positive impacton the perception of Tobacco Cessation Counselling. This enormous demand needs to be catered and the professionals have to be well equipped with the techniques of tobacco cessation.

NEED FOR BEHAVIORAL INTERVENTIONS

1. *Tobacco dependence is a chronic condition that for the majority of tobacco users requires repeated and persistent effort to overcome.* Hence, it can be understood as a powerful biological and social process that strongly impedes achieving and sustaining cessation.

2. The second is that tobacco dependence is often accompanied by unrealistic fears about treatment as well as the assumption that treatment really is not needed. This is typical across addictions and is sometimes referred to as the "denial" or "rationalization" factor because of the tendency of addicted persons to deny that they are truly addicted and need help, and becausethey may assume that treatment is riskier than the disease.

PROFESSIONAL INSIGHT

Qualities of an Effective Counsellor:

1. Expressing Empathy
2. Keeping Confidentiality
3. Respecting others
4. Maintaining warmth
5. Being non-judgmental

BASIC COUNSELING TECHNIQUES

Guidance in counselling focuses on helping people make important choices that affect their lives, such as choosing a preferred lifestyle. According to the **20/20: A Vision for the Future of Counselling** consortium, counselling is defined as a professional relationship that empowers diverse individuals, families, and groups to accomplish mental health, wellness, education, and career goals.

According to the American Counselling Association (ACA), professional counselling is the process of building relationships with individuals that empower them to accomplish mental health and wellness, education, and career goals. It is a collaborative relationship between the counsellor and their client. The skills that every counsellor should possess include; communication skills, listening and attending skills, focusing and paraphrasing, validating and encouraging in a non-judgmental manner. Dental professionals in clinical practice with patients due to the nature of care and communicate regarding routine dental care and plans with patients.

The following explains the characteristics of counselling in detail:

1. **Attending and Active Listening**: Maintain eye contact, have a kind tone to your voice, express interest by leaning forward, nodding. During a session with a client, counsellor must also project that they have a vested and genuine interest in the patient's wellbeing. Positive attending behaviours open up communication and encourage free expression. In contrast, negative attending behaviours inhibits free expression. Ivey and Ivey (1999) identify four dimensions of simple attending behaviour that have been studied, to some extent, cross - culturally. They include:

    a. **Eye contact:** eye contact is just one method of making interpersonal contact; itusually does not involve intense scrutiny of pupil dilation

b. **Body language:** Two aspects of body language are known technically as kinesics and proxemics. Kinesics has to do with variables associated with physical features and physical movement of any body part, such as eyes, face, head, hands, legs, and shoulders. Proxemics refers to personal space and environmental variables such as the distance between two people and whether any objects are between them.

c. **Vocal qualities:** Paralinguistics consists of voice loudness, pitch, rate, and fluency. Effective interviewers use vocal qualities to enhance rapport, communicate interest and empathy, and emphasize specific issues or conflicts.

d. **Verbal tracking:** It is crucial for counsellors to accurately track what clients say. Counsellors also demonstrate they are tracking the content of their clients' speech by occasionally repeating key words and phrases.

2. **Questioning:** Using more *open-ended questions* (questions that give the person a chance to further explain- for e.g., "what makes you want to use tobacco?", "what happens if you don't chew tobacco after having a meal?", "When do you experience cravings the most?"), elicits more relevant information and enhances interviewer control. It also allows the clients to talk orencourage them or to reflect on something specific to the problem.

3. **Paraphrasing:** it involves restating or rewording another person's verbal communication. In clinical interviewing, the paraphrase is sometimes referred to as a reflection of content (this refers to the fact that paraphrases reflect the content of what clients are saying, but not process or feelings). A paraphrase or reflection of content is a statement that accurately reflects or rephrases what the client has said. [For e.g., the patient said that when the job becomes overwhelming, I tend to take several smokes, the counsellor rephrased it as, *"When you feel experience stress, you end up taking multiple smokes."*]

4. **Summarization:** Summarization demonstrates accurate listening, enhances client and interviewer recall of major themes, helps clients focus on important issues, and extracts or refines the meaning behind client messages. It should be informal, interactive, and supportive. Instead of saying, *"Here is my summary of what you've said,"* something like this can be said, *"Let's make sure I'm keeping up with the main things you've talked about.*

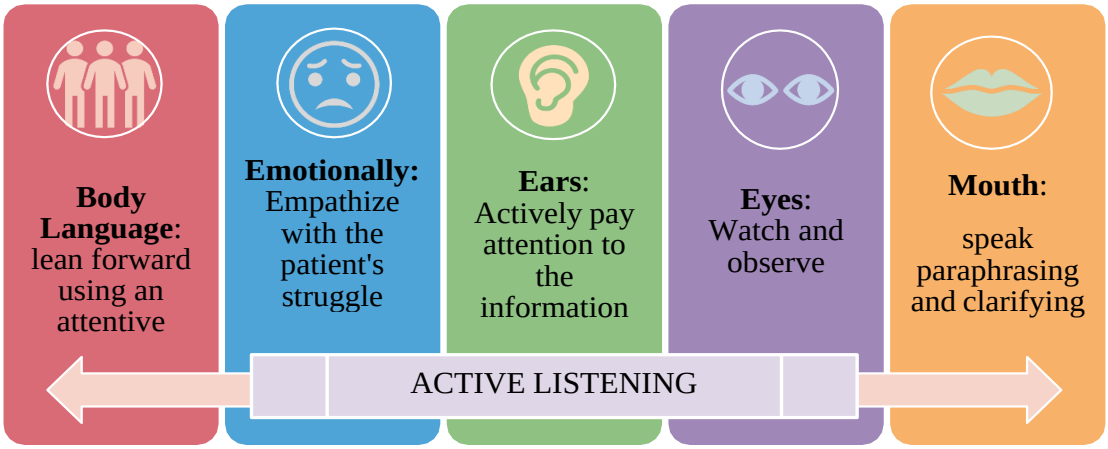

Fig. 6.1 Active Listening

STRUCTURE AND STAGES IN TOBACCO CESSATION COUNSELLING

Structure in counselling is defined as "a joint understanding between the counsellor and client regarding the characteristics, conditions, procedures, and parameters of counselling". Structure helps clarify the counsellor–client relationship and give it direction; protect the rights, roles, and obligations of both counsellors and clients; and ensure the success of counselling. Counselling progresses through systematic stages starting from the initial session, which focuses on building rapport followed by problem identifying and later progressing to the working stage and terminating by emphasising relapse.

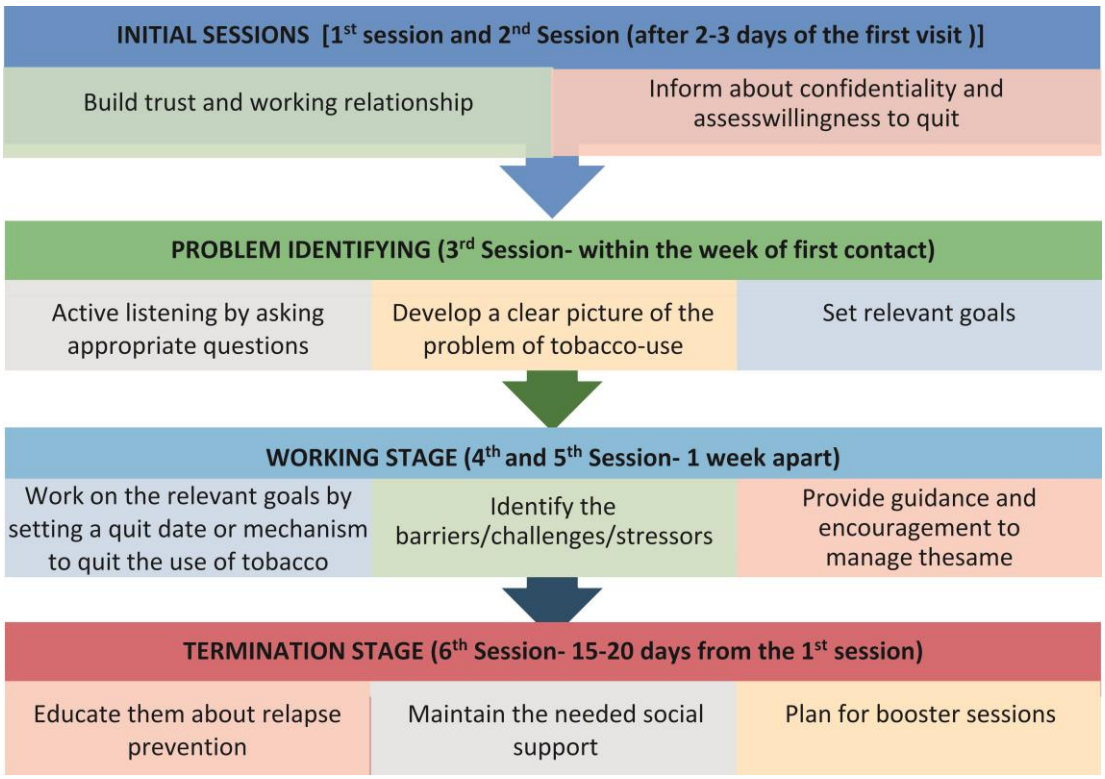

Fig. Chart-6.2: Stages In Tobacco Cessation Counseling

TYPES OF BEHAVIORAL INTERVENTIONS

Behavioural interventions take the form of advice, discussion, encouragement, and otheractivities designed to help quit attempts succeed. Interventions generally employ behaviour change techniques, addressing factors such asself-efficacy and motivation (often using motivational interviewing techniques). Brief advice for tobacco cessation from a dental health care professional is effective in promoting cessation. This form of advice, particularly from general practitioners (GPs), leads 1 to 3 out of 100 smokers receiving it to stop smoking for at least 6 months. Depending on the time at hand and the structure of intervention, the ***two types of Behavioural interventions are:***

PROFESSIONAL INSIGHT

Most clinicians feel discouraged when patients they are working with show resistance or have nodesire to quit. It is important to understand why people don't want to change. Following could be some of the reasons:

- Happy/satisfied with the current behaviors
- They feel it is easier to keep using and don't want to face the discomfort
- They are unaware of the risks and problems associated with their behavior
- They feel that the risks and problems are only limited to few people, they are not among them.

1. Very Brief Intervention (VBA)

It is an evidence-based intervention designed to increase quit attempts among people who smoke. It is designed to deliver effective advice without taking up too much time or harming relationships with patients

2. Brief Interventions (BI)

Brief advice/intervention using the 5As approach or the 5R's for the resistant quit. Dentists and other oral health professionals also have an ideal opportunity during dental health checks to ask about their patients' smoking status and provide smoking cessation information and advice.

Fig. 6.3 Brief Intervention

These are discussed in more detail below:

1. **Very-brief Advice (VBA)**- is a simple, person/patient centered approach that dental professionals can deliver effectively in less than 60 seconds if time pressures are such. When using VBA, professionals are encouraged to ask patients about their tobacco use,acknowledging that they may have tried to stop many times in the past, and to discuss the options that exist to support a quit attempt, that is, behavioural support and pharmacotherapy.

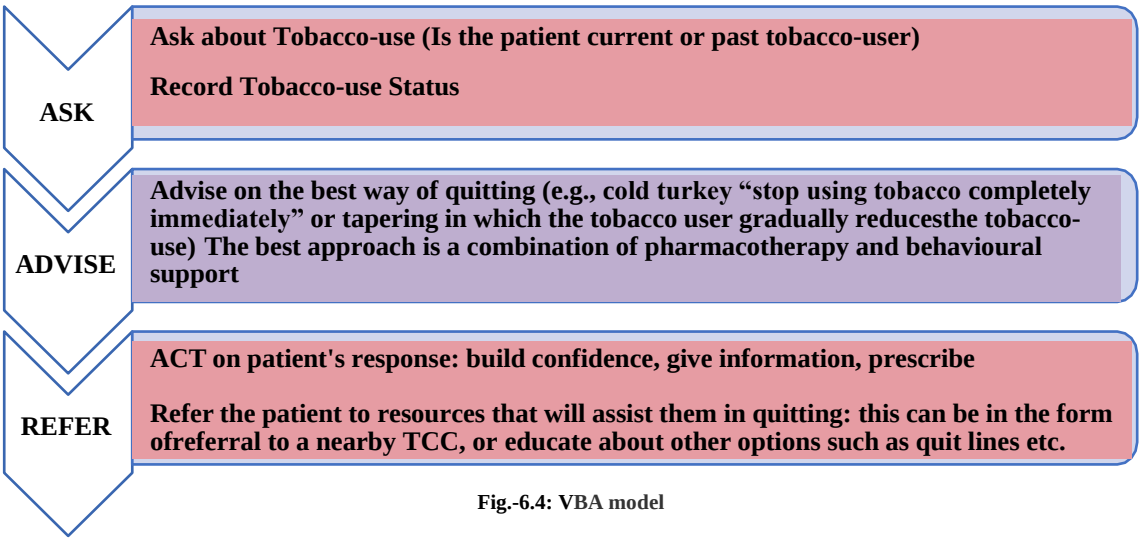

Fig.-6.4: VBA model

2. **Brief Interventions**- These interventions are delivered in the form of advice which primarily triggers a cessation attempt. Simple advice from a physician has been shown to increase abstinence rates significantly (by 30%) compared to no advice (Fiore et al., 2000).

   The Brief Interventions include FRAMES model, 5A's approach, 5R's:

   a. Brief interventions aim to identify current or potential problems with tobacco use and motivate those at risk to change their tobacco use behaviour.

   b. Brief interventions in primary care can range from 5 minutes of brief advice to 15-30 minutes of brief counselling.

   c. The aim of the intervention is to help the patient understand that their tobacco use is putting them at risk and to encourage them to reduce or give up their tobacco use.

   d. Brief interventions should be personalized and offered in a supportive, non-judgmental manner.

   e. Tobacco cessation interventions by more than one type of health professional (including dentists) have the potential to substantially increase the cessation rate and promote the readiness to quit in the general population.

   f. A study reported that incorporation of an oral examination component in the dental clinic or community setting as part of behavioural interventions for tobacco cessation conducted by oral health professionals may increase tobacco abstinence rates among both cigarette smokers and smokeless tobacco users.

   g. In another study, brief intervention by dental professionals, performed by utilizing feedback on oral symptoms and dental treatments specifically relevant to smoking, potentially motivated smokers with respect to their attempts to quit smoking; furthermore, it promoted behavioural changes toward quitting.

Research into effective brief interventions for tobacco use have found that they include a number of consistent features which appear to contribute to their effectiveness. These have been summarized using the acronym ***FRAMES***:

F- FEEDBACK

The provision of personally relevant feedback is a key component of brief intervention and generally follows a thorough assessment of tobacco use and related problems. Feedback can include information about the individual's tobacco-use and problems from a screening instrument, information about personal risks associated with current tobacco-use patterns, and general information about tobacco use related risks and harms. The patient can be educated about various dental concerns such as staining, loose teeth, bleeding gums, white patch etc.

Fig. 6.5 FRAMES (Effective Brief Interventions for Tobacco)

R- RESPONSIBILITY

A key principle of intervention with tobacco users is to acknowledge that they are responsible for their own behaviour and that they can make choices about their tobacco use. The message that "What you do with your tobacco use is up to you" and that "Nobody can make you change or decide for you" enables the patient to retain personal control over their behaviour and its consequences. This sense of control has been found to be an important element in motivation for change and to decrease resistance.

A- ADVICE

The central component of effective brief interventions is the provision of clear and personalized advice regarding the harms associated with continued use. Patients are often unaware that their current pattern of tobacco use could lead to health or other problems or make existing problems worse.

Providing clear advice that cutting down or stopping tobacco use will reduce their risk of future problems will increase their awareness of their personal risk and provide reasons to consider changing their behaviour.

M- MENU OF ALTERNATIVE CHANGE OPTIONS

Providing alternative strategies to cut down or stop their tobacco use, allows patients to choose the strategy most suitable for their situation and which they feel will be most helpful. Providing choices reinforces the sense of personal control and responsibility for making change and can help to strengthen the patient's motivation for change.

These options can include:

- Keeping a diary of tobacco-use (where, when, how much, who with, why)
- Identifying high-risk situations and strategies to avoid or overcome them
- Identifying other activities instead of tobacco-use – hobbies, sports etc.

- Providing information about other self-help resources, written information and informing aboutthe national Quitline.

E- EMPATHY

A consistent component of effective brief interventions is a warm, reflective, empathic and understanding approach by the dental professional delivering the intervention. Use of a warm, empathic style is a significant factor in the patient's response to the intervention and leads to reduced tobacco use at follow-up.

S- SELF-EFFICACY (CONFIDENCE)

The final component of effective brief interventions is to encourage patients' confidence that they are able to make changes in their tobacco-use behaviour. It is particularly helpful to elicit self-efficacy statements from patients such as "I know I have the strong will to quit tobacco" "I know I can manage my desire to use tobacco with adequate help and social support" and "I believe it is my inner strength that can help me quit the tobacco habit".

MODES OF DELIVERY

The most common and readily available interventions take the form of:

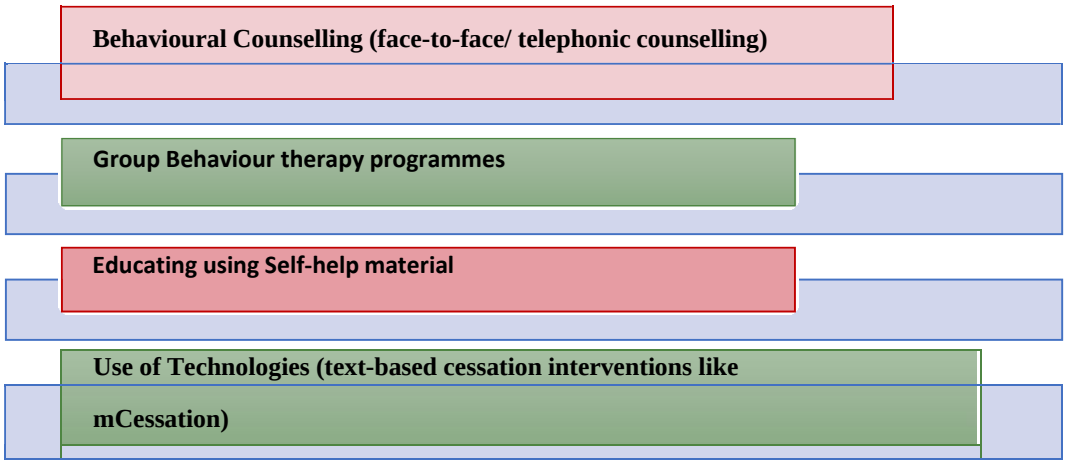

Fig. 6.6: Intervention Strategies

The Transtheoretical Model (TTM) (The Stages of Change Model)

Prochaska, DiClemente and Norcross (1992) provide a comprehensive model for conceptualizing patients' motivation for change. In case of tobacco users, they move from being content in consuming tobacco, to thinking about quitting, planning to quit, maintaining cessation or having a relapse. It proposes that **people move through various stages while making a behavior change** and that the whole process can take anywhere from 6 months to 5 years.

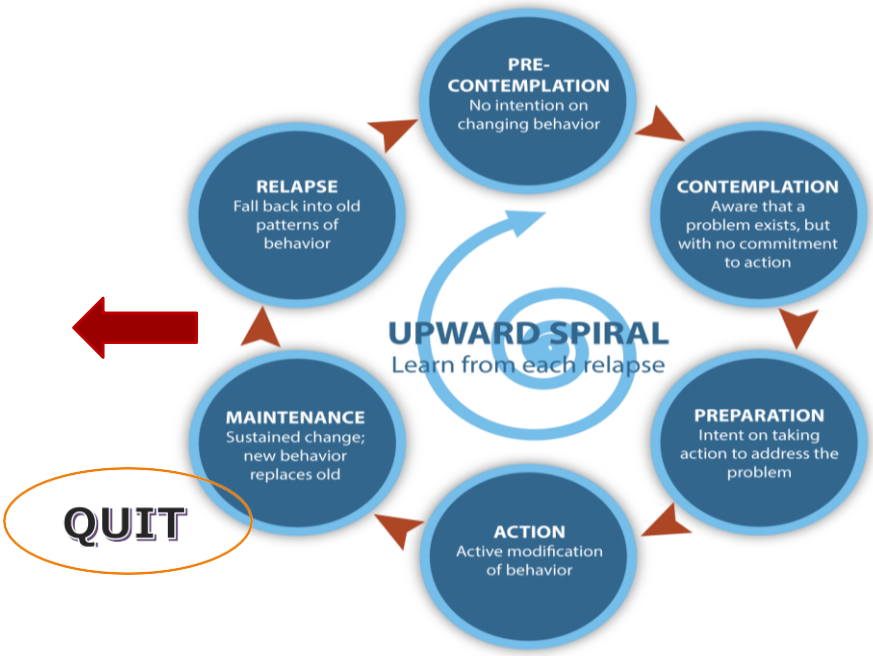

Fig. 6.7: Stages of Change Model by Prochaska and DiClemente'

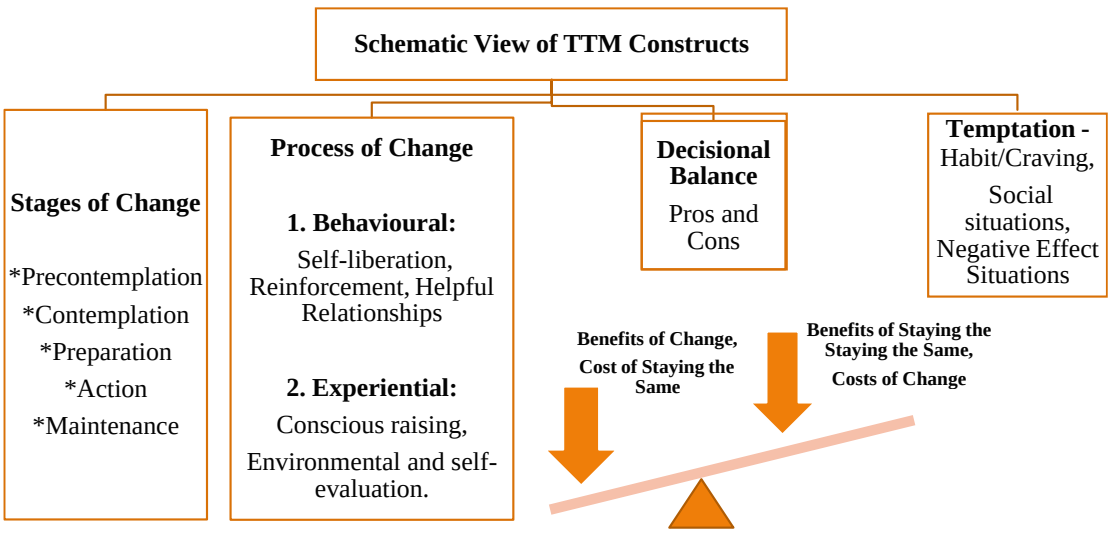

Fig. 6.8: Schematic View of TTM Constructs

Individuals progress through the various stages of change and it is essential that the intervention provided is relevant to the stage of change. The patient may quit after the stage of maintenance or go to the stage of relapse. The specific interventions for relapse management will be discussed in the following chapter. Below the relevant ways of intervention are mentioned below as per the requirement per stage:

Stage 1. PRE-CONTEMPLATION (Not really thinking about changing)	
DESCRIPTION	**INTERVENTION**
D Individuals at this stage were "happy-users" D They do not have any worries about their Tobacco-use of and do not wantto change. D They don't see it as risky orproblematic.	D Individuals in this stage are unlikely to respond to advice to change theirbehavior. D They may be receptive to **information**about the **risks associated** with their tobacco-use.

Table 6.1: Stage 1 Pre-Contemplation Stage of TTM

Stage 2. CONTEMPLATION (Thinking about cutting down or stopping Tobacco-use)	
DESCRIPTION	**INTERVENTION**
D Individuals at this stage are ambivalent about their tobacco use. D They can see both the pros and cons of use. D They have some awareness of the problem associated with tobacco-use	D At this stage the focus is on providing information about their tobacco-use related risks, advice to cut down or stop. D The aim is to encourage them to talkabout the pros and cons. D A helpful tool at this stage is to see ambivalence about substance use as abalance

Table 6.2: Stage 2 Contemplation Stage of TTM

Stage 3. PREPARATION (Ready to cut down or stop Tobacco-use)	
DESCRIPTION	**INTERVENTION**
D These tobacco users are planning to quit in the next 30 days and have usually made a 24- hour quit attempt in the past year. D This group is motivated to quit soon and is the group most likely to actually attempt to quit in the near future.	D This stage is a window of opportunity, which may only openfor a short time, and is the group most likely to ask for help with quitting. D The focus should be on developing **a quit plan** and identifying the possible factors that are the cause of tobacco-use for the individual.

Table 6.3: Stage 3 Preparation Stage of TTM

Stage 4. ACTION (Doing something about changing their behavior)	
DESCRIPTION	**INTERVENTION**
D The individual may be abstaining or cutting down, or have decided to change their established behaviour. D People in this stage are likely to continue to feel ambivalent about theirsubstance use and to need encouragement and support to maintain their decision.	D Negotiating **aims and goals** for **changing risky** behaviors together by suggesting a range of strategies. D Identifying high risk situations D Discussing the plan of action and emphasizing self-efficacy and self-confidence**.**

Table 6.4: Stage 4 Action Stage of TTM

Stage 5. MAINTANENCE (Keeping on with the new behavior)	
DESCRIPTION	**INTERVENTION**
D The person is attempting to maintain the behavior changes that have been made. D Long-term success means remaining in this stage.	D Individuals **need affirmation** that they are doing a good job and **encouragement** to continue. D Providing **praise** for successes and reinforcing the patient's strategies for avoiding situations where they are at risk of relapse or helping them to move on after a small lapse.

Table 6.5: Stage 5 Maintenance Stage of TTM

STEPS IN EVIDENCE-BASED INTERVENTIONS

Clinical Practice Guideline concluded that there is a dose-response relationship between the intensity of counselling and quitting success—that is, the greater the intensity of counselling, the higher the likelihood an individual will quit. **Behavioural** treatment approaches equiptobacco users with practical strategies to avoid and/or cope with triggers, manage cravings, and reducewithdrawal symptoms. These interventions often cover a wide variety of topics— including advice on quitting smoking; assessment of prior quit attempts and lessons that can be drawn from them; assessment of current motivation to quit; identification of cues and triggers for smoking and ways to avoid or manage them. The most effectiveintervention can be provided by professionals when they come in contact with the patient in hospital, OPD or community setting in a brief opportunistic and time-limited manner. It is essential that the intervention must be tailor-made as per the needs of the patient. The following diagram is a helpful resource for dental professionals in assessing the treatment needs of the patients as per nicotine addiction:

Fig. 6.9 Steps in Evidence-Based Interventions

The standard interventions mentioned below include:

- ✓ The 5A's approach to tobacco cessation
- ✓ The 5R's approach to tobacco cessation for patients not willing to quit
- ✓ Motivational Interviewing Intervention

I. The 5A's Model for Brief Intervention

As a framework, **the 5A's** method is considered the gold standard for delivering a brief tobacco cessation intervention. Implementation of the 5A's by physicians is effective in increasing tobacco cessation and quit attempts among patients and in increasing engagement among patients in other empirically validated cessation treatments (Quinn et al. 2009).

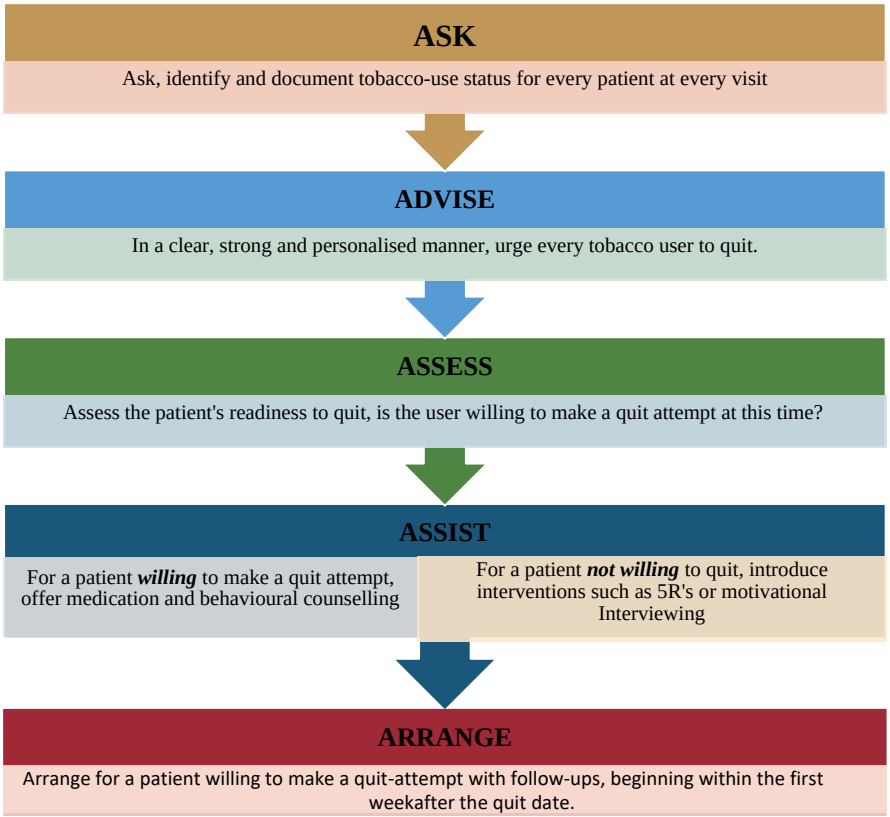

Fig. 6.10 5A's Model for Brief Intervention

STEP 1: ASK

STEP 1: ASK When to ASK: 1. As part of the vital signs at the beginning of a visit **2.** When taking a history **personal history** 3. During a physical examination	**Ask always while assessing the**
Ask ALL Individuals *Identify every tobacco user status.Identify the tobacco status of a child's parents/caregivers for conditions potentially impacted bysecond-hand smoke.*	*Determine if a person:* • *Does he/she smoke / chew* • *Does smoke/ chew* • *Recently quit (<1 year).* *Ask,* ***"Do you currently smoke or use tobacco?"*** *If no, ask* ***"Have youquit in the past year?"*** *Ask adults accompanying children,* ***"Does anyone in your / this child'shousehold smoke?"*** *Ask children over the age of 10,* ***"Have you ever smoked a cigarette ordo you use any variety of smokeless tobacco [specify]?"*** *POSITIVELY REINFORCE non-smoking, particularly with adolescents.*
ASK about Type, Quantity andHistory	***"What kind of tobacco do you use now?""How often do you smoke / chew?"*** ***"How many cigarettes (or how much smokeless tobacco) do you useduring a typical day?"*** Use the Fagerstrom Nicotine Dependence/Tolerance Questionnaire to better quantify severity of tobacco use.
ASK about first use and first dailyuse: ***Ask non-daily user/identify pattern/ typical day description***	***"How old were you when you first used tobacco?What kind of tobacco did you use?"*** ***"How old were you when you first started using tobacco daily?"***

Table 6.6: Step 1 Ask Strategy

STEP 2: ADVISE

STEP 2: ADVISE

Dental Health professionals are in a good position to help users to understand how the generalfacts about smoking and health apply to them personally and to consider their implications.

In a clear, strong, and personalized manner, every tobacco user should be urged to quit.

Advise those people who use tobacco toQUIT	*Adapt as per oral diseasesClear* ***"I think it is important for you to quit smoking and I can help you."***
Brief, repetitive, consistent, positive reminders to quit from multiple providers (or reinforcement of a recent quit attempt) double success rates.	*Strong* ***"As your doctor, I need you to know that quitting tobacco is the most important thing you can do to protect your health now and in the future. The staff here and I will help you."***
Advice and assistance are useful whatever the stage of change a tobacco user is at. Use messages that are clear, strong, personalized, supportive and non-confrontational.	*Personalized* *Tie tobacco-use to current health/illness, significant life events, social and economic costs, motivation level, readiness to quit and/or the impact of second-hand smoke on children and others in the household.* ***"I know you're concerned about your bleeding gums and stains around your teeth while you smile. If you stop chewing and get a dental professional cleaning of your teeth and maintain them, you*** ***might be able to maintain your smile.***

Table 6.7 Step 2 Advice Strategy

STEP 3: ASSESS

Assess the patients position on the Stages of Behavior Change Cycle (Prochaska's Model)

Assess the level of Nicotine Dependence

Fagerstrom Nicotine Dependence Scale for smoke or Modified formfor smokeless tobacco use

Assess willingness to Quit (For motivated Tobacco-user)

Readiness to Quit Ruler Confidence to Quit Ruler

The Readiness Ruler

The readiness ruler can be used at the beginning of a brief intervention to help target the intervention at the appropriate stage of change or it can be used during the intervention as away of encouraging the patient to talk about reason of change.

0	1	2	3	4	5	6	7	8	9	10
Not at all important										Extremely important

"How important is to you to cut down or stop your tobacco use?

On a scale of 0 to 10, where 0 is not all important, and 10 is extremely important, how wouldyou rate yourself?

The Confidence Ruler

"How confident are you that you could cut down or stop your tobacco use if you decided todo it? On a scale of 0 to 10 where 0 is not all confident and 10 is extremely confident, how would you rate yourself?

0	1	2	3	4	5	6	7	8	9	10
Not at all confident										Extremely confident

It is not necessary to actually show the patient a ruler, but it may be helpful, especially for patients with low literacy and numeracy. For some patient it may be enough to just describethe scale using word like those in the examples given above.

Fig. 6.11 Assess Strategy

STEP 3: ASSIST

A) ASSISTING PATIENTS WHO WANT TO QUIT

1. BUILDING AND STRENGTHENING THE MOTIVATION FOR CHANGE:

- Reinforcing potential benefits of change (For e.g., better overall health, money will be saved etc.)
- Build self-efficacy of the patient (For e.g., "I have the will to refrain from using tobacco)
- Explore alternative options (For e.g., avoiding tea breaks with tobacco users, engaging in yoga to manage stressors)

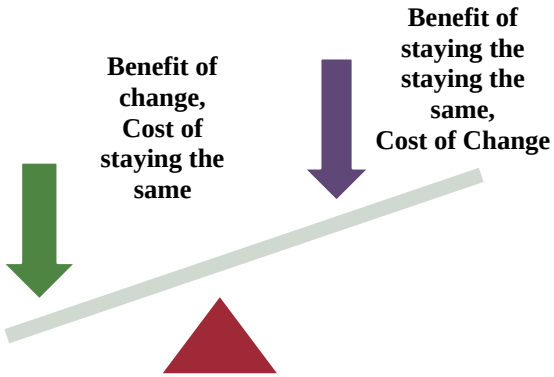

Fig. 6.12: Assisting Patient Who Want to Quit

2. DEVELOPING A "CHANGE-PLAN"

(Identify what works and what doesn't work, identifying triggers)

- Communicating free choice
- Information and Advise
- Consequences of Action and Inaction
- Managing triggers by substituting activities like; exercise, creative pursuits, meditation/yoga, journal writing, cooking, chewing gum, eating fruits or vegetables
- Rewarding desirable behaviour
- Managing environment

3. IDENTIFYING THE APPROACH

Option A: Tapering off slowly

Progressive reduction: Every day cut down on one or more cigarettes/*bidis*/packet than the previous day. Should not extend beyond 5-7 days

Postpone use: Try putting off the first use of the day by one or two hours. Don't stock. Should not extend beyond a week and the most important dose should be quitted in the last.

	Option B: Cold turkey – the abrupt and complete cessation of tobacco-use Set your "Quit Date". Before the "Quit Date", make the following changes: • Clean up the place! Get rid of reminders of smoking/chewing (Ash trays, empty pockets,etc.). • Change your routine. For example, don't smoke/chew during your regular tobacco using times (e.g., the after-lunch beedi or early morning chew) or at regular places (bathrooms, workplace, with friends, etc.). • Buy the brand you dislike. • Keep a record of the amount and frequencyof tobacco used. • Decrease the number of puffs while smoking. • Leave large stubs or buy smaller patches • Do not inhale deeply or spit away. ***Note: However, you may also clarify to the patient that the best evidence available is in favour of stopping altogether rather than trying to reduce gradually.***
4. Summarize the main steps of the plan and support self-efficacy (Empowering patient to believe in himself/herself that they are capable of behaviour change)	You may want to suggest that the **patient write down the main steps** of the plan and both sign it. **Give feedback, remind the person that you are here to help.**

Table 6.8: Step 3Assist Strategy

B) ASSISTING PATIENTS NOT-WILLING TO QUIT

A common situation encountered in the dental practice would be with patients who might not have thought about quitting, or may not be willing to quit. The 5 R's - relevance, risks, rewards, roadblocks, and repetition – are the content areas that should be addressed in a motivational counseling intervention applicable in such scenarios.

5R'S	STRATERGIES FOR IMPLEMENTATION	EXAMPLE
RELEVANCE	• Encourage the patient to indicate how quitting is personally relevant to him or her. • Motivational information has the greatest impact if it is relevant to a patient's disease status or risk, family or social situation (e.g., having children in the home), health concerns, age, sex, and other important patient characteristics (e.g., prior quitting experience, personal barriers to cessation).	"How is quitting P: *"I suppose smoking is bad formy health."*
RISKS	Encourage the patient to identify potential negative consequences of tobacco use that are relevant to him or her. Examples of risks are: • *Acute risks*: shortness of breath, exacerbation of asthma, increased risk of respiratory infections, harm to pregnancy, impotence, and infertility. • *Long-term risks*: heart attacks and strokes, lung and other cancers (e.g., larynx, oral cavity, pharynx, oesophagus), chronic obstructive pulmonary diseases, osteoporosis, long-term disability, and need for extended care. • *Environmental risks*: increased risk of lung cancer and heart disease in spouses; increased risk for low birth-weight, sudden infant death syndrome, asthma, middle ear disease, and respiratory infections in children of smokers.	C: "What do you know aboutthe risks of smoking To your health? What particularly worries you?" P: *"I know it causes cancer. That must be awful."* HCP: "That's right – the risk ofcancer is many times higher among smokers."
REWARDS	Ask the patient to identify potentially relevantbenefits of stopping tobacco use. Examples of rewards could include: • Improved oral health; • Food will taste better;	HCP: "Do you know affect your risk of cancer?" P: *"I guess it would be moresuccessful if I quit."*
	• Saving money	HCP: "Yes, and it doesn't

	• Feeling better about oneself • Home, car, clothing and breath will smell better • Setting a good example for children and decreasing the likelihood that they will smoke or chew tobacco • Feeling better physically • Performing better in physical activities • Improved appearance, including reduced wrinkling/ ageing of skin and whiter teeth	takelong for the risk to decrease. But it's important toquit as soon as possible"
ROADBLOCKS	Ask the patient to identify barriers or impediments to quitting and provide treatment (problem-solving counselling, medication) that could address barriers Typical barriers might include: • Withdrawal symptoms • Fear of failure • Weight gain • Lack of support • Depression • Enjoyment of tobacco • Being around other tobacco users • Limited knowledge of effective treatment options	DHCP: "So what would bedifficult about quitting for you?" P: "Going to the bathroom early in the morning as I suffer from Indigestion." DHCP: "Modifying your diet and regulating your sleep, would help you overcome alongwith medical support." P: "Wil it really help?" DHCP: "We will need to develop a plan, implement and see, this might improve your overall condition."
REPITITION	Repeat assessment of readiness to quit using the **Readiness to quit Ruler**. If still not ready to quit,repeat intervention at a later date. The Motivational Interviewing as an intervention should be repeated every time an unmotivated patient visits the clinic setting.	HCP: "So, now we've had a chat, let's see if you feel differently. Can you answer these questions again?" (Go back to the Assess stage of the 5A's. If ready to quit then proceed with the 5A's. If not ready to quit, end intervention positively by saying "This is a difficult process but I know you can get through it and I am here to help you".)

Note: At any point of time during the 5R's, the dental professional must assess the willingness toquit and revert back to the 5A's approach for tobacco cessation

Table 6.9: Step 4 5R'S of Strategies for Implementation for Unwilling Patients/ for Patients not willing to quit

STEP 5: ARRANGE

The follow-ups should be done for patients at **1st, 2nd week, at the end of 1 month and then 3-4 months, 6 months** to **1 year** for assessments of quit status, for managing cravings and preventing relapse. More often than not, theprocess of change may be quite difficult in actual practice.

The following ways can be used to address the common questions asked by patients in tobacco cessation counselling along with relevant responses:

S.NO	**Questions**	**Answers**
1.	*I have been tobacco for many years without any health problems, plus my grandfather smoked two packs a day and lived to be* *90. So how does it matter?*	There are certainly people who smoke for many years without apparent tobacco-related diseases. But it's also true that about half the people w ho smoke will die from a tobacco-related illness. It is also a fact that smokers live 6-10 years less than non-smokers. Some people are more sensitive to tobacco than others, and there is no single right answer that will fit everyone.please think if that is any reason to gamble with your health when you know that there is a 50% chance that you will die from a tobacco-related disease?"
2.	*If I am going to die 10years earlier, that's okay.* *If a non-smoker is* *likely to live till 80, thenthat means I'll live to be* *70. I think that's fine.Since* *I am going to die anyway; I might as well have the pleasure of smoking till* *70 and then die. I don'tmind!*	"You are absolutely right! Since we are all going to die someday, it's important to get what we want while we are stillalive. But consider this: how we die is also important. Smokingis known to cause a slow, painful death due to rotting lungs brought on by years of smoking. It's not funny to watch someone die from a heart attack or some other life-threatening illness. It's a very painful thing for the victim, as well as for theloved ones.

3.	Query: *I only chew tobacco. Since I'm not emitting smoke, I am not really harming my family or others.*	"Maybe not, at least, not directly. But tobacco, whether chewed or smoked, is known to damage health. Chewed tobacco, for example, can cause deadly oral lesions, including cancer. Oral cancers progress rapidly, and can cause a very painful death. Please remember, chewed tobacco is NOT a safe alternative to smoked forms. So, while you may be protecting others from lung cancer due to second-hand smoke, you will be exposing them to other losses. The most important of such losses is the loss of your health and life, the love and support you can give to your family, and the contribution you can maketo society."
4.	*I don't want to quit, but I would like to reduce tobacco use.*	In such cases, although total cessation is the goal, any change is welcome. At least it will reduce harm and disability. Help the person set targets, such as cutting down on the number of cigarettes smoked, or the amount of tobacco chewed, in a day. Who knows, you might still be able to help the person quit totally in future. Take it one step at a time.
5.	*What happens if nothingworks? Your patient justdoesn't seem to care, and you feel you have reacheda blank wall?*	It's okay! Just say "I can understand you are not ready yet. If you decide you want some help in the future, or if you just wantto talk to us, please call and fix an appointment. We would be glad to help you. Whether or not you decide to quit is a differentmatter altogether. But I have just given you some food for thought, so promise me that you will think along these lines.

Table 6.10: Step 5 Arrange Strategy

MOTIVATIONAL INTERVIEWING (MI)

Motivational Interviewing intervention—which can be delivered by dental healthcare providers, counselors, or Quitline coaches—aims to help people explore and resolve any ambivalence about making a behavior change, such as quitting tobacco. Motivational interviewing and its adaptations of this approach make use of a distinct style of Counselling that is directive, patient-centred, non-confrontational, non-judgmental, and highly collaborative.

Motivational Interviewing as an approach is based on the understanding that:

- Effective treatment assists a natural process of change,
- Motivation for change occurs in the context of a relationship between the patient and the therapist, and
- The style and spirit of an intervention is important in how well it works, in particular, an empathic style is associated with improved treatment outcomes

The spirit of Motivational Interviewing is based on the following key pillars:

- ✓ Partnership
- ✓ Autonomy
- ✓ Compassion
- ✓ Evocation

Relevance of MI:

- It is especially useful when working with patients in thepre-contemplation and contemplation stages but the principles and skills are important at all stages.
- It is useful to be used for patients who are not willing toquit, are stuck or are not making any progress.
- It promotes the basic idea that people are more likely to respond to behaviour change when it is their idea and not something that is forced on them externally.

Professional Sights

STARTING MOTIVATIONAL INTERVIEWING

- Listen for ChangeWords
- They are indication ofthe patient's desire forchange or at least contemplating change

CHANGE WORDS

- ➢ DESIRE: I want to
- ➢ ABILITY: I think, Ican
- ➢ REASON: I will not have a healthy life
- ➢ NEED: My familyneeds me
- ➢ COMMITMEN T:makes a plan

QUESTIONS TO ASK:

- ✓ Why do you want to dothis?
- ✓ How do you think youwill change your tobacco use?
- ✓ Why is this important?
- ✓ What steps can youtake today?

PRINCIPLES OF MI:

1. *Express empathy*

In the clinical situation empathy involves an accepting, non-judgemental approach which tries to understand the patient's point of view and avoids the use of labels such a 'tobacco addict'. It is especially important to avoid confrontation and blaming or criticism of the patient. Skilful reflective listening which clarifies and amplifies the person's own experience and meaning is a fundamental part of expressing empathy.

2. *Develop discrepancy*

People are more likely to be motivated to change their tobacco use use behaviour when they see a difference or discrepancy between their current tobacco-use and related problems. MI aims to create and amplify a discrepancy between current behavior and broader goals and values from the patient's point of view.

3. *Roll with resistance (avoid argument)*

A key principle of MI is to accept that ambivalence and resistance to change is normal and to invite the patient to consider new information and perspectives on their tobacco use use. When the patient expresses resistance, the professional should reframe it or reflect on it rather than opposing it.

4. *Support self-efficacy (confidence)*

As discussed above patients need to believe that reducing or stopping their tobacco use use is important and be confident that they are able to do so. Using negotiation and confidence building to persuade patients that there is something that they can do is an important part of motivational interviewing.

SKILLS IN MI

Motivational interviewing makes use of five specific skills. These skills are used together to encourage patients to talk, to explore their ambivalence about their tobacco use and to clarify their reasons for reducing or stopping their tobacco use.

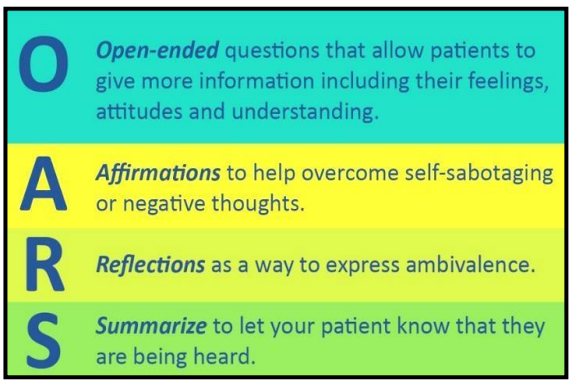

Fig.6.13 Motivational Interviewing

The first four skills are often known by the acronym **OARS – Open ended questions, Affirmation, Reflective listening, and Summarizing**. The fifth skill is **'eliciting change talk'** and involves using the OARS to guide the patient to present the arguments for changing their tobacco-use behaviour:

OARS: The basic skills of Motivational Interviewing	Descriptors
ASK OPEN-ENDED QUESTIONS ▪ The patient does most of the talking. ▪ Gives the practitioner the opportunity to learn more about what the patient cares about (e.g., their values and goals).	▪ "Are you concerned about your tobacco use?" ▪ "I understand you have some concerns about your tobacco use. Can you tell me about them?"
MAKE AFFIRMATIONS ▪ Can take the form of compliments or statements of appreciation and understanding. ▪ Helps build rapport and validate and support the patient during the process of change. ▪ Most effective when the patient's strengths and efforts for change are noticed and affirmed.	▪ "I appreciate that it took a lot of courage for you to discuss your habit with me today." ▪ "You appear to have a lot of resourcefulness to have coped with these difficulties for the past few years." ▪ "Thank you for hanging in there with me. I appreciate this is not easy for youto hear."
USE REFLECTIONS ▪ Involves rephrasing a statement to capture the implicit meaning and feeling of a patient's statement. ▪ Encourages continual personal exploration and helps people understand their motivations more fully. ▪ Can be used to amplify or reinforce desire for change.	▪ "You enjoy the effects of tobacco in terms of how it helps you unwind after a stressful day at work and helps you interact with friends without being too self-conscious." ▪ "But you are beginning to worry about the impact tobacco is having on your health." ▪ "In fact, until recently you weren't too worried about how much tobacco you
	use because you thought you had it under control."

	▪ "Then you found out your health has been affected and your family members and friends said a few things that have made you doubt that tobacco is helping you at all."
USE SUMMARISING ▪ **Links discussions and 'checks in' with the patient.** ▪ **Ensure mutual understanding of the discussion so far.** ▪ **Point out discrepancies betweenthe person's current situation and future goals.** ▪ **Demonstrates listening and understand the patient's perspective.**	▪ "If it is okay with you, just let me check that I understand everything that we've been discussing so far." ▪ "You have been worrying about how much tobacco you've been using in recent months because you recognisethat you have experienced some health issues associated with your tobacco intake, and you've had some feedback from your family that they aren't happy with the tobacco habit." "But the few times you've tried to stop it have not been easy, and you are worried that you can't stop."

Table 6.11 Basic Skills of Motivational Interviewing

CONCLUSION

Behavioural interventions in tobacco cessation vary widely in their content, delivery and availability. The skills that every counsellor should possess include; communication skills, listening and attending skills, focusing and paraphrasing, validating and encouraging in a non-judgmental manner. The same skills should be used by dental healthcare professionals in providing effective tobacco cessation counselling to tobacco-users. Behavioural Interventions can be divided into two types: very brief and brief interventions depending upon the time available for delivery by the professional. The evidence-based interventions include the 5A's and 5R's approach, delivered systematically in a step-by-step manner. Motivational interviewing—which can be delivered by dentists, healthcare providers, counsellors, or Quitline coaches—aims to help people explore and resolve any ambivalence about making a behaviour change, such as quitting tobacco-use.

KEY TAKEAWAY

- Brief interventions in dental clinical settings can range from 5 minutes of brief adviceto 15-30 minutes of brief counselling
- It has been shown that nurses and healthcare workers have been effective in tobacco cessation in cases where simple advice, administered alone, has produced quit rates of5%–10% per year
- The various Brief interventions that have been found to be evidence-based include 5A's (Ask, Advice, Assess, Assist, Arrange) , 5R's (Relevance, Risks, Rewards, Roadblocks, Repetition) and comprehensive approach called FRAMES (Feedback, Responsibility, Advice, Menu of Options, Empathy & Self-efficacy)
- Motivational interviewing is an evidence-based approach which can be used along with 5R's to work with non-resistant patients
- Effective strategies implemented by dental and other healthcare professionals in a standard manner can promote effective outcomes in terms of tobacco cessation.

CASE- STUDY ON APPLICATION OF BRIEF INTERVENTIONS FOR TOBACCO CESSATION

Patient Mr. H, 42-year-old male, Hindu, educated up to 10th Standard, working as an auto-rickshaw driver came to the hospital OPD with complaints of bleeding gums. At the OPD screening, he was identified as a chronic tobacco-user, consuming 15-20 beedi's in a day and was referred to the Tobacco Cessation Clinic for management. Following are the details of the consultation:

FIRST VISIT (Time duration: 15-30 mins.)

Patient was identified as a tobacco user by initiating the 5A's approach "**ASK".** Patient received behavioral counseling at the TCC in the form of Brief Behavioral Intervention, along with follow-up visits which were planned along with his Dental treatment.

- At the first point of contact, the dental professional welcomed the patient, he was made to feelcomfortable, and rapport was established.
- Patient was strongly ADVISED to discontinue tobacco-use and a clear message was given
- His willingness to quit was ASSESSED by asking him "Do you want to quit?"
- His position on the Stages of Change model was identified, he was in the PREPARATION stage, which means that he desired to quit in the next 30 days and had a 24-hour quit attempt in the past. He was also assessed on FTND on which he received a score 6, indicating medium severity of dependence.

- Detailed Interview was conducted with the patient using the TCC Performa and the details of tobacco-use, from quantity, duration, types was established. Patient was educated regarding the benefits of quitting and using motivational interviewing style, he was encouraged to discontinueuse.
- The following Monday was set as his QUIT-DATE and he was told to generate social supportto become abstinent. He was asked to maintain his tobacco-use diary and record his usage, cues and triggers. He was also provided guidance to manage the same. Next visit was plannedafter a few days from the quit date.

SECOND VISIT (15-20 mins.)

- The patient came for follow-up. He has quit smoking completely along he reported havingunbearable cravings and headaches.
- He was praised and reinforced positively for his successful attempt.
- Patient was educated about the withdrawal symptoms of Tobacco-use along with managinghigh-risk situations that can lead to relapse.
- He was also educated using the 4D's approach (Delay, Distract, Drink Water, Deep breathing)and was asked to practice these strategies.
- **Follow-up would be conducted after 2 weeks Mention follow-up strategy.**
- **If patients cannot follow-up physically, the follow-up can be done telephonically.**

ASSESSMENT

I. Select the correct response

Q.1) What are the 5 A's?

a) Ask, Assess, Arrange, Acquire, Accommodate
b) Ask, Assess, Advice, Alert, Assign
c) Ask, Advise, Assess, Assist, Arrange
d) Ask, Advise, Attempt, Arrange, Accommodate

Q.2) If the patient is considering quitting in the next 6 months, he/she is at which stage ofchange?

a) Pre-contemplation
b) Contemplation
c) Preparation
d) Action

Q.3) Q.8 Once a smoker has quit smoking for over a year, they are no longer in themaintenance stage according to the Stages of Change Model?

a) TRUE
b) FALSE

Q.4) What are the possible approaches to cessation?

a) Cold Turkey
b) Tapering Down
c) Behavioral Counseling
d) d) Nicotine Replacement Therapy
e) Both (c) and (d)
f) All of the above

Q. 5) What are the 5 R's?

a) Relevance, Role, Risks, Repetition, Reward
b) Relevance, Risks, Rewards, Roadblocks, Repetition
c) Relevance, Risks, Rewards, Reinforcement, Rejuvenation
d) Relevance, Risks, Rewards, Relationships, Remember

7. PHARMACOTHERAPY FOR TOBACCO CESSATION IN DENTAL SETTING

7

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Need and scope of pharmacotherapy in tobacco use cessation in dental settings
- Types of pharmacotherapeutic agents available
- Indications, contraindications and side effects of various pharmacotherapeutic agents

INTRODUCTION

Due to the addictive nature of nicotine, out of the many tobacco users who attempt to quit, only 3-5% succeed in complete quitting through behavioral intervention. To encourage tobacco cessation, pharmacotherapy, or use of approved drugs, has been widely accepted as an effective mechanism. It helps in reducing the symptoms of nicotine withdrawal and aids in cessation. The use of pharmacotherapy in treating tobacco dependence has been shown to double or even triple the cessation rates. A pharmacological treatment for tobacco cessation acts in dual ways: blocking the positive reinforcing effect of nicotine & preventing the development of withdrawal symptoms.

Experience of tobacco cessation clinics in India in over 30,000 patients (predominantly smokeless users) adds to the evidence that adding pharmacotherapy improves the likelihood of tobacco cessation. Even with established evidence of its potential, there are a few recognized barriers that impede the use of pharmacotherapy in the Indian scenario:

1. Limited availability
2. Limited knowledge
3. Little experience with using pharmacotherapy
4. Therapeutic nihilism (“nothing works”) for nicotine dependence.
5. Tobacco user’s hesitation to accept pharmacotherapy.

Indications for Pharmacotherapy

- All persons with severe dependence i.e., a score of more than 6 on the Fagerström Test for Nicotine Dependence Scale
- Past history of multiple failures without pharmacotherapy
- Tobacco users who are unable to abstain with behavioral intervention alone.
- Using tobacco within the first 30 minutes of waking up
- Using tobacco product/s for more than 10 times in 24 hours or uses tobacco while bed-ridden or suffering from a life-threatening illness such as MI, Cancer, COPD, etc.

(Note: The above-mentioned indications can be correlated with clinical conditions of the patient before prescribing pharmacotherapy)

PROFESSIONAL INSIGHTS

Special consideration should be given to Quit attempts only with behavior interventions initially among

1. **Pregnant/breast-feeding women-** Motivational interviewing—which can be delivered b by healthcare providers, counsellors, or Quitline coaches—aims to help people explore and resolve any ambivalence about making a behaviour change, such as quitting smoking
2. **Smokers with cardiovascular or pulmonary disease**: Care should be exercised with use of nicotine with patients who have had a recent myocardial infarction, experience severe or worsening angina, or have serious arrhythmias.
3. **Light smokers/chewers (<10 cigarettes/day), chewers (<1 sachet of SLT /day)-** Quit attempts without pharmacotherapy are initially preferred.

Various Drugs Used Under Pharmacotherapy for Tobacco Cessation

Drugs commonly used for tobacco cessation are categorized under First-line drugs and Second-line drugs. Three drugs are currently marketed as first line pharmacotherapy:

1. Nicotine replacement therapy (Nicotine gums, Nicotine patches, Nicotine lozenges, Nicotine inhaler, Nicotine nasal spray)
2. Bupropion hydrochloride (sustained release), and
3. Varenicline tartrate.

First-line treatments have been shown to be effective and safe for tobacco cessation. Clonidine and nor-triptyline are included as second line pharmacotherapies. Choice of pharmacotherapy should take into account evidence, patient preference, patient experience, patient needs, potential adverse effects as well as benefits. Considering many side effects associated with second line pharmacotherapies, it is advantageous to prescribe first line of pharmacotherapies.

1. **Nicotine Replacement Therapy (NRT)** (Nicotine gums, Nicotine patches, Nicotine lozenges, Nicotine inhaler, Nicotine nasal spray)

The general principle of replacement therapies is to present the patient with a safer and more therapeutically manageable form of the drug that directly alleviates the signs and symptoms of withdrawal and craving. NRT delivers plasma nicotine concentrations that are lower than those in conventional cigarettes and thereby reducing the behaviourally reinforcing effect of smoking.

NRTs increase the rate of long-term quitting by 50%–70% regardless of the type of behavioral therapy. NRT users were twice as likely to remain off tobacco compared to NRT non-users four years after treatment.

Commonly, NRTs are available in six forms, used worldwide. All forms of NRT appear to be equally effective; some are even sold as over-the-counter drugs:

I. **Nicotine chewing gums (short acting)**

II. **Nicotine skin patches (long acting)**

III. **Nicotine lozenges and sublingual tablets (short acting)**

IV. **Nicotine inhalers (short acting)**

V. **Nicotine nasal spray (short acting)**

Currently Nicotine chewing gums, Nicotine Skin patches and Nicotine Lozenges are available in India and are described in detail in this chapter.

Although the dosage varies clinically depending upon the dependence and requirement of patients, however the present manual has divided dosage on the basis of no. of cigarettes/bids per day and on the time to first cigarette of the day.

I. NICOTINE CHEWING GUM:

This is the commonest form of NRT available in India. The principal component of Nicotine Gum is Nicotine Polacrilex. It acts as an oral substitute and provides a constant source of nicotine. The gum is available in different strengths (2mg and 4mg) and can be used either at regular intervals or on an as needed basis.

Fig. 7.1: Nicotine Gums

Dosage: For patients who smoke around 1-24 cpd/bpd OR smokes 1st cigarette >30 minutes after waking - 2mg is prescribed up to 12 weeks.

For patients who smoke >25 cpd/bpd OR smokes 1st cigarette ≤30 minutes after waking -4 mg is prescribed up to 12 weeks. Chewers need about half or a quarter of the dose as prescribed for smokers.(Note: A user can consume up to a maximum of 24 pieces/day)

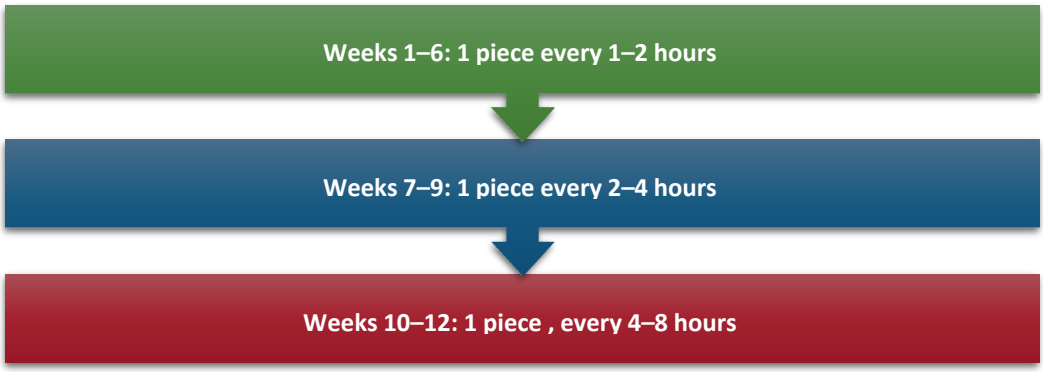

Fig. 7.2: Dosage of Nicotine Gums

(Adapted from: National Tobacco Control Programme, Ministry of Health and Family Welfare, Government of India. Training manual for Doctors, 2011)

Usage Method

Stop all tobacco products once the nicotine gum is started. The correct use of the gum is to use the "chew and park" method. The gum should be chewed until a "peppery" or "flavored" taste emerges, then park it between the cheek and gum to let the nicotine absorb. When the user can no longer taste the peppery or flavored taste, chewing should ensue once again. The "chew and park" method usually lasts until the taste leaves, which is estimated to take about 30 minutes.

Considerations while using Nicotine gums

- Don't chew nicotine gum too fast.
- Don't chew more than one piece of gum at a time.
- Don't chew one piece too soon after another.
- Don't chew more than 24 pieces of gum in a day
- Avoid eating and drinking (especially acidic beverages such as coffee or soft drinks) during and for at least 15-30minutes after chewing of nicotine gum to prevent reduced absorption of nicotine.
- The use of nicotine gum is to be titrated by the patients as per their needs but they may begin reducing the use after a fortnight to a month and stop altogether after 3 months. Rarely, successful quitters require it for longer duration.

Precautions

- Recent (≤2 weeks) myocardial infarction
- Serious underlying arrhythmias
- Serious or worsening angina pectoris
- Temporomandibular joint disease
- Pregnancy and breastfeeding
- Adolescents (<18 years of age)

Adverse Effect

Mouth/jaw soreness, Hiccups, Dyspepsia, Hypersalivation, Effects associated with incorrect chewing technique: Light headedness, Nausea/vomiting, Throat and mouth irritation.

NICOTINE GUMS	
ADVANTAGES	**DISADVANTAGES**
• Might serve as an oral substitute for tobacco • Might delay weight gain • Can be titrated to manage withdrawal symptoms • Can be used in combination with other agents to manage situational urges	• Need for frequent dosing can compromise adherence • Might be problematic for patients with significant dental work • Proper chewing technique is necessaryfor effectiveness and to minimize adverse effects • Gum chewing might not be acceptable or desirable for some patients

Table 7.1: Nicotine Gums - Advantages & Disadvantages

II. NICOTINE PATCH

These are simple to use and are reported with better compliance rates than other NRT products. However, they deliver nicotine more slowly and may not adequately protect against craving.

Fig. 7.3 Nicotine Patch

Usage Method

The patch is applied once daily to a clean, dry, hairless area. For some persons, wearing the patch at night can disturb sleep and cause vivid dreams. In such cases the day patch is more suitable. The most common side effects of the patch are a skin rash were applied and sleep disturbance.

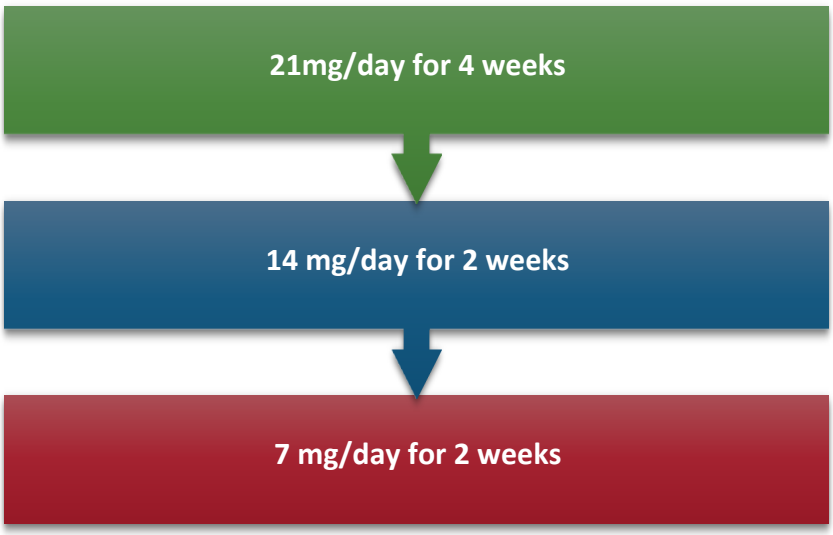

Fig. 7.4 Dosage of Nicotine Patch

(Adapted from: National Tobacco Control Programme, Ministry of Health and Family Welfare, Governmentof India. Training manual for Doctors, 2011)

Precautions

- Recent (≤ 2 weeks) myocardial infarction
- Serious underlying arrhythmias
- Serious or worsening angina pectoris
- Gastric ulcer
- Stroke
- High Blood Pressure
- Adolescents (<18 years of age)

Adverse Effect

- Local skin reactions (erythema, pruritus, burning)
- Headache
- Sleep disturbances (insomnia, abnormal/ vivid dreams); associated with nocturnal nicotine absorption

NICOTINE PATCHES	
ADVANTAGES	**DISADVANTAGES**
• Once-daily dosing associated with fewer adherence problems • Of all NRT products, its use is least obvious to others • Can be used in combination with other agents; delivers consistent nicotine levels over 24 hours	• When used as monotherapy, cannot be titrated to acutely manage withdrawal symptoms • Not recommended for use by patients with dermatologic conditions (e.g., psoriasis, eczema, atopic dermatitis)

Table 7.2 Nicotine Patches- Advantages & Disadvantages

III. NICOTINE LOZENGES

These are dissolved under the tongue. They come in two strengths: a 2-mg and 4-mg dose lozenge. They are easy to use and facilitate rapid nicotine absorption.

Dosage:

- For patients who smoke around 1-25 cpd/bpd OR smokes 1st cigarette >30 minutes afterwaking - 2mg is prescribed upto 12 weeks
- For patients who smoke >25 cpd/bpd OR smokes 1st cigarette ≤30 minutes after waking -4 mgis prescribed upto 12 weeks

(Taper as tolerated)

Maximum 20 lozenges/day,

Duration: up to 12 weeks,

Chewers need about half or a quarter of the doseas prescribed for smokers

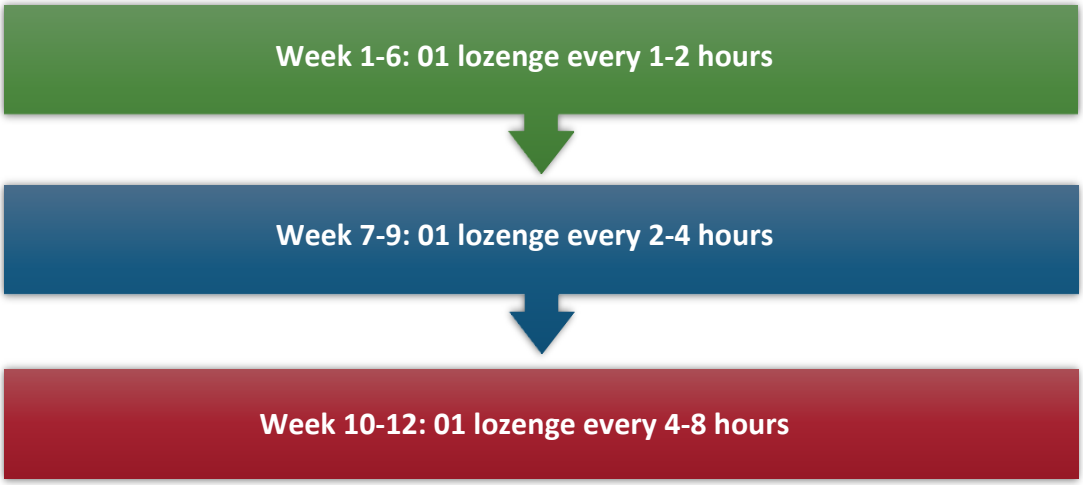

Fig. 7.5 Dosage of Nicotine Lonzenges

Precautions

- Recent (≤2 weeks) myocardial infarction
- Serious underlying arrhythmias
- Serious or worsening angina pectoris
- Pregnancy and breastfeeding
- Adolescents (<18 years of age)

Fig. 7.6 Nicotine Lozenge

Adverse Effect

Nausea**,** Hiccups**,** Cough, Heartburn, Headache, Flatulence, Insomnia

NICOTINE LOZENGES	
ADVANTAGES	**DISADVANTAGES**
• Might serve as an oral substitute for tobacco • Might delay weight gain • Can be titrated to manage withdrawal symptoms • Can be used in combination with otheragents to manage situational urges	• Need for frequent dosing can compromiseadherence • Gastrointestinal side effects (nausea, hiccups, heartburn) might be bothersome

Table 7.3: Nicotine Lozenges- Advantages & Disadvantages

BUPROPION

Bupropion is an atypical antidepressant non-nicotine drug for treating tobacco dependence commonly marketed as sustained release Bupropion Hydrochloride tablets.

Mechanism of Action: Its action is likely mediated through the noradrenergic and/or dopaminergic pathways.

Dosage: A quit date is decided preferably within 7 to 14 days of starting treatment with bupropion. This is because the steady state plasma concentration of bupropion and its active metabolites are achieved in approximately 8 days after initiation of therapy.

- Begin therapy 1 week prior to quit date
- Days 1–3: 150mg OD every morning
- Days 4–7: 150mg BD
- Weeks 2–12: 150mg BD after discontinuing smoking (i.e 11 weeks)

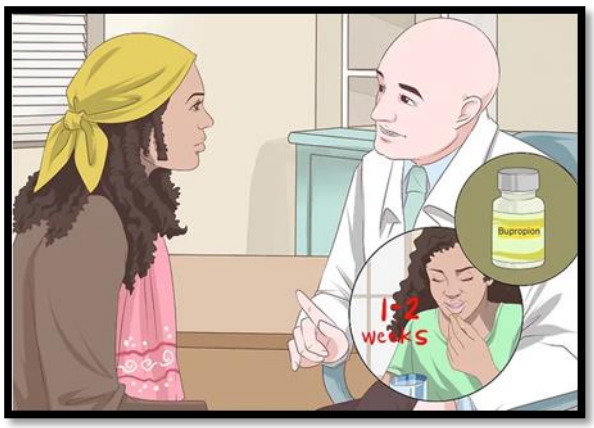

Fig. 7.7 Usage Method of Bupropion

Note:

- Do not exceed 300 mg/day
- Allow at least 8 hours between doses
- Avoid bedtime dosing to minimize insomnia
- Dose tapering is not necessary (May stop abruptly)
- Duration: 7–12 weeks, with maintenance up to 6 months in selected patients

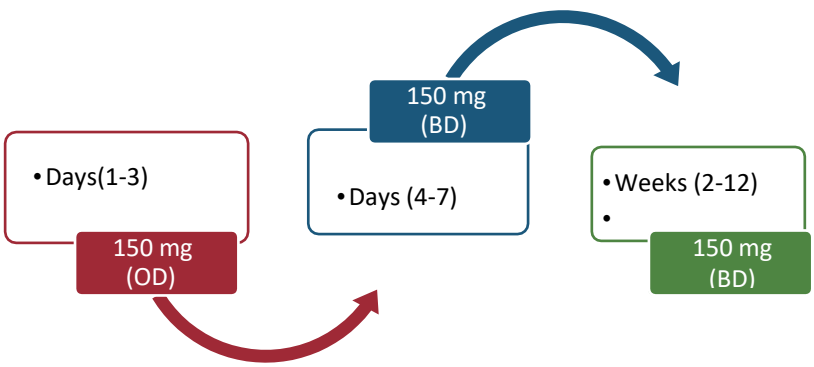

Fig. 7.8 Dosage of Bupropion

Precautions

- Concomitant therapy with medications/ conditions known to lower the seizure threshold
- Pregnancy (category C) and breastfeeding
- Adolescents (<18 years of age)
- Treatment-emergent neuropsychiatric symptoms: Boxed warning removed December 2016

Adverse Effect

Insomnia, Dry mouth, Nervousness/ difficulty concentrating, Nausea, Dizziness, Constipation, Rash, Seizures (risk is 0.1%), Neuropsychiatric symptoms (rare)

BUPROPION	
ADVANTAGES	**DISADVANTAGES**
• Twice-daily oral dosing is simple andassociated with fewer adherence problems • Might delay weight gain • Might be beneficial in patients withdepression • Can be used in combination withNRT agents	• Seizure risk is increased • Several contraindications and precautionspreclude use in some patients • Patients should be monitored for potentialneuropsychiatric symptoms

Table 7.4: Bupropion- Advantages & Disadvantages

VARENICLINE

Varenicline is derived from cystine with an active ingredient as varenicline tartarate.

Fig. 7.9 Varenicline Tablet

Mechanism of Action

Varenicline is a nicotinic receptor partial agonist (i.e., it binds to nicotinic acetylcholine receptors), which maintains moderate levels of dopamine to reduce withdrawal symptoms and the urge to smoke. It also acts as an antagonist by blocking nicotine binding to specific receptors, which may reduce the rewarding effects of smoking and reduce reactivity to smoking cues.

Dosage

Tobacco use may be stopped one week after initiating treatment with Varenicline. The recommended duration of treatment is 12 weeks. In persons with a high risk of relapse, tapering the dose while stopping is recommended.

Begin therapy 1 week prior to quit date and total duration should be 12 weeks. Dose tapering is not necessary (May stop abruptly). May reduce smoking over a 12-week period of treatment prior to quitting and continue treatment for an additional 12 weeks

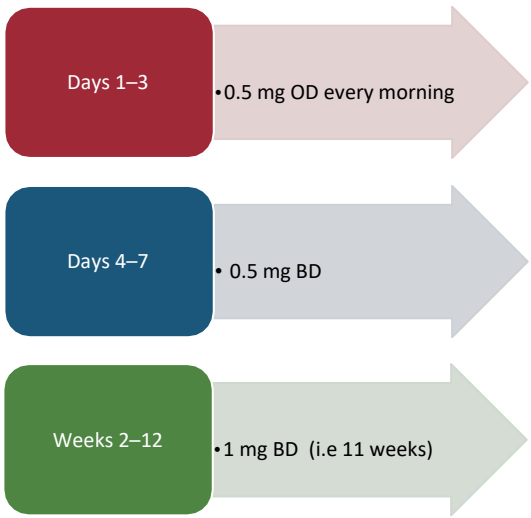

Fig. 7.10 Dosage of Varenicline

Precautions

- Severe renal impairment (dosage adjustment is necessary)
- Pregnancy and breastfeeding

- Adolescents (<18 years of age)
- Patient with history of neuro-psychiatry illnesses and suicidal tendency

Adverse Effect

- Nausea
- Sleep disturbances (insomnia, abnormal/ vivid dreams)
- Constipation
- Flatulence
- Vomiting
- Neuropsychiatric symptoms (rare)

VARENICLINE	
ADVANTAGES	**DISADVANTAGES**
• Twice-daily oral dosing is simple andassociated with fewer adherence problems • Offers a different mechanism of action for patients who have failed other agents	• Should be taken with food or a full glass ofwater to reduce the incidence of nausea • Patients should be monitored for potential neuropsychiatric symptoms

Table 7.5: Varenicline- Advantages & Disadvantages

Drug Combinations

Combining approved medications is one approach to potentially improving cessation outcomes. There is robust evidence that combining medications had superior results when compared to single medication. Combination of pharmacotherapy should be based on patients' failed attempt with monotherapy, level of dependence, multiple failed attempts and experiencing nicotine withdrawal etc.

Combining Therapy

Combined behavioral and pharmacological therapies appear to be the best approach for treating tobacco dependence. Because these therapies operate by different mechanisms, complementary and potentially additive effects may be expected. NRT therapy combined with supportive counseling is the most widely used and intensively reached treatment modality. Although self-help strategies alone marginally affect quit rates, individual and combined pharmacotherapies and counseling either alone or incombination can significantly increase cessation.

Monitoring and follow-up

All patients taking pharmacotherapy should be monitored carefully. The frequency of monitoring should be determined by:

1. Patient need

   The top priority for frequency of monitoring should be determined by patient needs. For example, patients with multiple or difficult quit attempts will likely require more support.

2. Type of pharmacotherapy

   Some types of pharmacotherapies may require more frequent monitoring, particularly if there is potential for adverse events (for example, drug interaction, side effects)

Success story in India:

In India tobacco cessation services were formally initiated in 2002 by the World Health Organization's Country Office and the Ministry of Health and Family Welfare, Government of India, through tobacco cessation clinics. Thirteen clinics were initially started in cancer, cardiology, respiratory, surgical, psychiatry and NGO settings and subsequently expanded. The experience with treating more than 34,000 tobacco users, primarily smokeless users (65%) showed that behavioral forms of intervention, which included health education, simple tips for quitting and counseling to improve motivation and prevent relapse, produced good results. Of those who maintained follow-up, nearly one-third had been abstinent at the six-week follow-up and nearly half had reduced tobacco consumption by 50% or more. Less than a third of treatment seekers had received pharmacotherapy and those who received combined pharmacotherapy and counseling did significantly better than those receiving only counseling.

CONCLUSION

The general principle of replacement therapies is to present the patient with a safer and more therapeutically manageable form of the drug that directly alleviates the signs and symptoms of withdrawal and craving. NRT delivers nicotine to address physical nicotine dependence without exposing the person who is trying to quit to the toxic constituents generated by combustion or other aadditives. NRT delivers plasma nicotine concentrations that are lower than those in conventional cigarettes and that rise more slowly, thereby reducing the behaviorally reinforcing effect of smoking.

ALGORITHM FOR PRESCRIBING PHARMACOTHERAPY

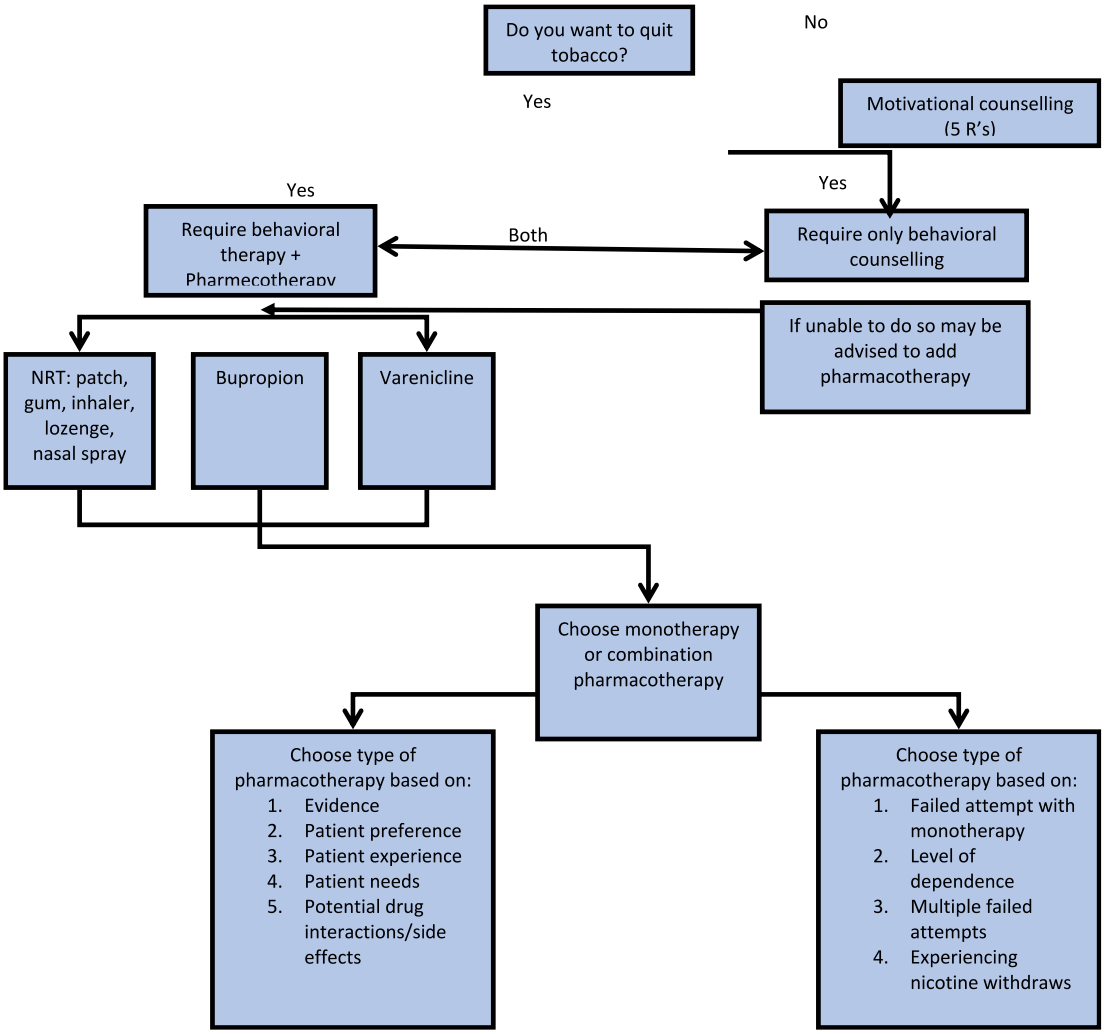

Fig. 7.11 Algorithm for Prescribing Pharmacotherapy (Source: Bader P, Mc Donald P, Selby P. An algorithm for tailoring pharmacotherapy for smoking cessation results from a Delphi Panel of International Experts)

KEY TAKEAWAY

- NRT is very safe and should be offered to all in proper dose and duration
- Pharmacotherapy for tobacco dependence treatment is safe and effective and significantly increases the chance for long-term smoking abstinence compared with quit attempts unaidedby pharmacotherapy
- Interventions that combine pharmacotherapy and behavioral support increase tobacco cessation success rates compared to single intervention.
- Combination of multiple form of NRT (long duration i.e., patch) with short duration (gum/spray) increases smoking abstinence
- Varenicline is the most effective agent for tobacco cessation (one and half time more than bupropion and twice more than NRTs) but must be regularly monitored for any neuropsychiatric adverse effects.
- NRT may be considered in pregnancy if the patient is unable to quit without medication, butonly after the risks and benefits have been carefully explained.

Cost Calculation

	Dose	Unit Price	Duration	Total cost
Nicotine Gum	2mg	Rs 8/-	12 weeks	Rs 7392/-
	4mg	Rs 10/-	12 weeks	Rs 9240/-
Nicotine Lozenges	2mg	Rs 9/-	12 weeks	Rs 7392/-
	4mg	Rs 10/-	12 weeks	Rs 9240/-
Nicotine Patch	Available as 7mg,14mg & 21 mg	Rs 85/-to Rs115/-	8 weeks	Rs 5810/-

Note: The cost calculation is tentative and can differ brand to brand

Table 7.6 Cost Calculation of Potential Drug

Nicotine replacement	Relative effect (95%CI)
Any form versus placebo/control	**1.55 (1.49 to 1.61); i.e., users of NRT were 1.55 times more likely to successfully quitthan placebo/control**
Nicotine gum versus placebo/control	**1.49 (1.40 to 1.60)**
Nicotine patch versus placebo/control	**1.64 (1.53 to 1.75)**
Oral tablets/lozenges versus placebo/control	**1.52 (1.32 to 1.74)**
Bupropion	
Versus placebo/control	**1.64 (1.52 to 1.77)**
Versus NRT (patch, lozenge, or a choice)	***0.99 (0.91 to 1.09)***
Versus varenicline	**0.71 (0.64 to 0.79)**
Varenicline	
Versus placebo/control	**2.24 (2.06 to 2.43)**
Versus NRT	**1.25 (1.14 to 1.37)**
Versus bupropion	**1.39 (1.25 to 1.54)**
Combination therapies	
Combination NRT (faster-acting form +patch) versus single form	**1.25 (1.15 to 1.36)**
Combination NRT versus varenicline	**1.06 (0.75 to 1.48)**
Bupropion + NRT versus NRT alone	**1.19 (0.94 to 1.51)**
Bupropion + varenicline versus varenicline alone2	***1.21 (0.95 to 1.55)***

FAQ'S for Pharmacotherapy	
Who should receive pharmacotherapy forsmoking cessation?	All tobacco users trying to quit except in the presence ofspecial circumstances. Special consideration should be given before using pharmacotherapy with selected populations: those with medical contraindications, those smoking less than 10 cigarettes/day, pregnant, and adolescent smokers.
What are the first-linepharma-cotherapies recommended in this guideline?	Varenicline, Bupropion SR, Nicotine gum, Nicotine patch and Nicotine Lozenges
What factors should a clinician consider when choosing among the first-line pharmacotherapies?	Because of the lack of sufficient data to rank-order these medications, choice of a specific first-line pharmacotherapy must be guided by factors such as clinician familiarity with the medications, contraindications for selected patients, patient preference, previous patient experience with a specific pharmacotherapy (positive or negative), and patient characteristics (e.g., history of depression, concerns about weight gain).
Are pharmacotherapeutic treatment appropriate forlighter smokers (e.g., 10- 15 cigarettes/day)?	Pharmacotherapy when used should be given with the basic principle of "Right Drugs in Right Doses at Right Times". Tobacco dependence should not be treated any differently.
What second-line pharmacotherapies are recommended in this guideline?	Clonidine and nortriptyline.
When should second-line agents be used for treatingtobacco dependence?	Consider prescribing second-line agents for patients unable to use first-line medications because of contraindications or for patients for whom first-line medications are not helpful. Monitor patients for the known side effects ofsecond-line agents.
Which pharmacotherapiesshould be considered with patients particularly concerned about weight gain?	Bupropion SR and nicotine replacement therapies (NRTs), in particular nicotine gum, have been shown to delay, but not prevent, weight gain.

Which pharmacotherapies should be considered with patients with a history of depression?	Bupropion SR and nortriptyline appear to be effective with this population.
Should nicotine replacement therapies be avoided in patients with a history of cardiovascular disease?	No. Nicotine replacement therapies are safe and have not been shown to cause adverse cardiovascular effects. However, the safety of these products has not been established for the immediate post-MI period or in patients with severe or unstable angina.
May tobacco dependence pharmacotherapies be used long- term (e.g., 6 months or more)?	Yes. This approach may be helpful with smokers who report persistent withdrawal symptoms during the course of pharmacotherapy or who desire long-term therapy. A minority of individuals who successfully quit smoking use ad libitum NRP medications (gum, nasal spray, inhaler) long-term. The use of these medications long-term does not present a known health risk. Additionally, the use of bupropion SR for a long-term maintenance indication may be evaluated in some cases.
May nicotine replacement pharmacotherapiesever be combined?	Yes. There is evidence that combiningthe nicotine patch with either nicotine gum or nicotine lozenge increase long-term abstinence rates over those produced by a single form of NRT.

Table 7.8: FAQ's for Pharmacotherapy

ASSESSMENT

1. Use of cessation medication has an additive effect on quit outcomes when combined withbehavioral counseling.

   A. True
   B. False.

2. Which statement about nicotine patches is TRUE?

   A. Higher dosages of nicotine (those exceeding 21 mg) are known to cause heart attacks.
   B. Patches can be used alone or in combination with other tobacco medicines.
   C. Patches completely eliminate withdrawal symptoms.
   D. Only healthy people can use nicotine patches.

3. Which tobacco cessation medicine is not advised for people who have seizures?

   A. Bupropion
   B. Inhaler
   C. Varenicline
   D. Lozenge

4. Which medication below is NOT considered first-line medication?

   A. Clonidine
   B. Patch
   C. Bupropion SR
   D. Varenicline

5. Twenty-four-hour formulation patches are available in which three different strengths:

   A. 24 mg, 16 mg, 8 mg
   B. 20 mg, 10 mg, 5 mg
   C. 21 mg, 14 mg, 7 mg

6. Dosages of NRT are determined by two commonly accepted mechanisms:

   A. Cpd (cigarettes per day) + ttfu (first-time use after waking)
   B. Years of using tobacco + cpd
   C. Cpd + ttfu + cigarette's nicotine content
   D. Years of using tobacco + ttfu

CASE STUDY

Patient # 1, A 32-year-old male, e-rickshaw driver belonging to lower socio-economic strata came to the OPD of the dental hospital with complaints of losing teeth and decay. On evaluation it was reported by the patient that he is a chronic smoker since the last 15 years and smokes around 20-25 beedi/ day. He was then referred to the Tobacco Cessation Clinic for intervention which would run parallel with his dental treatment. A detailed case history was elicited at the TCC followed by a few sessions of Behavioural Counselling. The patient reported that even after a few sessions of behavioural counselling, he is unable to quit the habit. On the FTND his score was found to be 8 indicating high dependence. He stated that the passengers who sit on his vehicle often smoke, making it even more difficult to resist the cravings. Pharmacotherapy advice is given below:

	Dose	**Quantity**	**Duration**
Nicotine Gums			

Patient # 2: Mr. X is a 55-year-old married male who has smoked two packs per day for the past 40 years. He has tried to quit several times. The only medication he has ever tried was patches. He used a 21 mg patch in the past. He said, “They helped”, but he was never able to remain abstinent for more than two days because the cravings were so strong. He is interested in the patch. He reports smoking his first cigarette immediately after waking up.

	Dose	**Quantity**	**Duration**
Nicotine Gums			

Patient # 3: Mr. Y is a 35-year-old male who has smoked approximately 15 cigarettes per day for the past 20 years. He usually smokes his first cigarette within an hour after he wakes. He tried behavioural intervention in the past but he is unable to quit. Please recommend pharmacotherapy for him.

	Dose	**Quantity**	**Duration**
Nicotine Gums			

8. UNDERSTANDING WITHDRAWAL SYMPTOMS AND RELAPSE MANAGEMENT

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Nature and mechanism of the Nicotine Withdrawal Syndrome
- Various techniques to deal with withdrawal symptoms
- Meaning of relapse, lapse and various triggers for relapse
- Prevention and relapse through various strategies

INTRODUCTION

Tobacco dependence is characteristically a chronic and relapsing disease. Maintenance of tobacco use is largely due to nicotine, which is the main addictive component found in tobacco. When tobacco-users discontinue use, an unpleasant withdrawal syndrome occurs in dependent individuals. Additionally, addiction to tobacco use depends not only on the positive reinforcing and hedonic actions of nicotine, but also on escape from the aversive consequences of nicotine withdrawal. Research has indicated that avoidance of the negative emotional state produced by nicotine withdrawal represents a motivational component that promotes continued tobacco use and relapse after smoking cessation. The nicotine withdrawal syndrome is considered to be one of the major causes of high relapse rate in individuals undergoing smoking cessation *(Le Foll and Goldberg 2009).*

NICOTINE WITHDRAWAL SYNDROME

Smoking cessation after chronic tobacco use produces a well characterized and defined withdrawal syndrome. The nicotine withdrawal syndrome in abstinent tobacco-users consists of 'physical' or somatic components, cognitive, and 'affective' components. The tobacco users experience and increase in blood nicotine levels after every use, which stay for a short duration of time and then drop. When nicotine level in the blood falls, the brain triggers "alarm bells" that compel the individual to use tobacco again. The unpleasant symptoms that occur when a person suddenly stops use of any psychoactive drug are known as *withdrawal symptoms*.

Nicotine withdrawal symptoms occur within a few hours of stopping tobacco use, are maximumduring the first week and usually last two to four weeks. Along with the 7 primary symptoms mentioned by DSM-5 (refer to the table below), The syndrome might also include constipation, dizziness, nightmares, nausea, and sore throat.

The Diagnostic and Statistical Manual of Mental Disorders(DSM-5)
(American Psychiatric Association, 2013)

- **Irritability/Anger/Frustration** & **Anxiety**
- **Depressed Mood**
- **Difficulty Concentrating**
- **Increased Appetite**
- **Insomnia**
- **Restlessness**

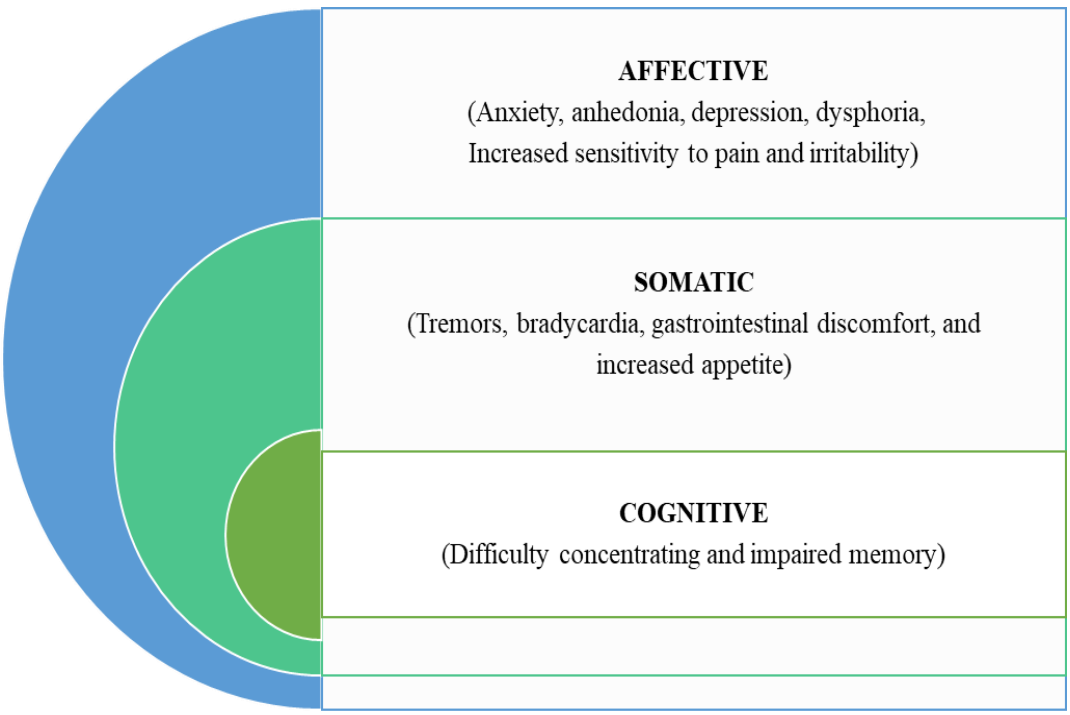

Fig. 8.1: For practical understanding the withdrawal symptoms can be classified into three categories

COMMON WITHDRAWAL SYMPTOMS AND WAYS TO COPE WITH THEM				
S.NO	**Withdrawal Symptoms**	**Manifestation**	**Timeline of Presentation**	**Management Strategy**
1.	**Craving for tobacco**	Body's craving for nicotine	**Most intense during first week but can linger for months**	Wait out the urge; distract yourself; takea brisk walk
2.	**Irritability, Impatience**	Body's craving for nicotine	**2-4 weeks**	Exercise, take hot bath, use relaxation techniques, avoid caffeine
3.	**Insomnia**	Body's craving for nicotine	**2-4 weeks**	Avoid caffeine after 6 p.m.; use relaxation techniques; exercise
4.	**Fatigue**	Body adjustingto lack of stimulation from nicotine	**2-4 weeks**	Take naps; do not push yourself
5.	**Lack of concentration**	Body adjustingto lack of stimulation from nicotine	**A few weeks**	Reduce workload; avoid stress
6.	**Hunger**	Craving for cigarette may be confused with hunger pangs	**Up to several weeks**	Drink water or low-calorie drinks; eat low calorie snacks
7.	**Coughing, Dry throat, nasal drip**	Body ridding itself of mucus in lungs and airways	**Several weeks**	Drink plenty of fluids; use cough drops
8.	**Constipation, Indigestion, Gas**	Intestine movement decreases with lack of nicotine	**1-2 weeks**	Drink plenty of fluids; add fiber to diet; exercise

Table 8.1: Common Withdrawal Symptoms and Coping Mechanism

STEP-BY-STEP APPROACH FOR MANAGING WITHDRAWAL SYMPTOMS

Withdrawal symptoms vary from every tobacco-user to user and hence it is essential to identify client specific withdrawal symptoms and manage them accordingly. Every tobacco-user who desires to quit experience physical as well as psychological withdrawal symptoms and to counter these, a wide array of techniques can be used in a step-by-step manner.

1. Identify and assess the nature of withdrawal symptoms (e.g., increased cravings, dry mouth, digestive issues etc.)

2. Identify the possible triggers, specific time/activities associated with cravings/withdrawal symptoms

3. Manage stressors and triggers (For e.g., avoiding interaction with peers or social influences that make abstinence difficult, managing the intake of tea if it is associated with smoking behaviour, keeping healthy food items as an alternative to chewing tobacco)

4. Emphasize and demonstrate the 7 D's strategy (Delay, Distract, Drink water, Deep Breathing and Discuss with family & friends to take the required social support. Additional "D" often suggests "Drugs & Diet" which mean pharmacotherapy and healthy diet at right times.

5. Practice yoga, meditation and relaxation exercises to manage stress.

6. Lifestyle modification is an essential to manage withdrawal symptoms, which includes having a stable and consistent sleeping pattern, avoid alcohol consumption and consume a healthy andbalanced diet.

7. Not all quitters get all symptoms, mostly these are self-limiting and manageable with symptomatic treatment only. And, lastly, these are not life-threatening.

RELAPSE PREVENTION

Tobacco users have risk of relapse when they are experiencing situations of wither extreme joy (celebrations, festivals, promotion in job, new arrival in the family, meeting an old friend with whom s/he was using tobacco, etc.) or extreme grief (loss in business, attrition from job, death in the family, isolation, etc.). Relapse prevention could be due to internal or external triggers, which can be referred to as high-riskstimuli (HRS) (Marlatt & Gordon, 1985). These triggers often activate the tobacco-use related beliefwhich can lead to cravings/urges and eventually lead to lapse.

INTERNAL TRIGGERS	EXTERNAL TRIGGERS
Emotional factors like, stress, depression, loneliness, anger, frustration, disappointments and physical pain	These can be related to situations, places and things related to drug use in some way

Table 8.2 Relapse Prevention- Internal Triggers & External Triggers

Hence, it is important to identify the possible HIGH-RISK SITUATIONS/STIMULI. This can bedone through troubleshooting dialogue between the counselor and the patient:

- What type of situations remind you of the feeling of wanting tobacco?
- Let's try to recall the last time you had the urge to use tobacco
- How do you feel when you have a specific urge?
- When do you experience the urge the most?
- Why is it difficult for you to control in a specific situation?

Change at the thinking level	• Recovered person gets back to old thought patterns; for example, starts thinking constantly about smoking a beedi/ chewing tobacco, and if it's possible to just take "one puff"or "one chew/dip".
Change in behaviour/ lifestyle	• Person starts relating again to the set of tobacco-user peers,places and activities which centre around tobacco use. • Include meeting with such people; a sense of overconfidence that relapse will never occur.
Return to tobacco-use	• Previously stated changes will definitely lead the person back to tobacco use. • Since relapse occurs in these stages, it is possible torecognize and arrest the process at any stage. • The key point here is: relapse is preventable if identifiedand treated early.

Fig. 8.2: Three distinct stages indicating the onset of a relapse

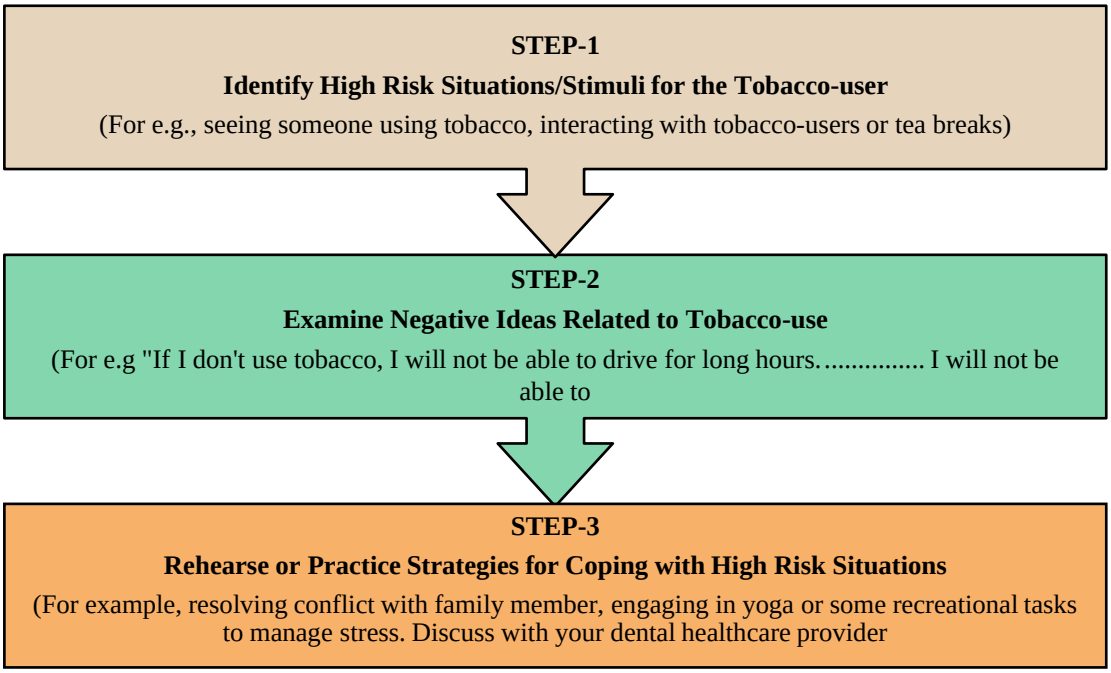

Fig. 8.3: Steps To Follow For Relapse Prevention And Its Management

RELAPSE PREVENTION TECHNIQUES TO BE USED

Tobacco dependence has a chronic relapsing nature, dental professionals should provide brief effective relapse prevention treatment. It is essential to reinforce the person's decision to quit, review the benefits of quitting, and assist inresolving any residual problems arising from quitting. Although most relapses occur early in the quitting process, some relapse might occur after a few months or even years after the quit date.

Therefore, dental professionals must engage in relapse prevention interventions even with former tobacco users who no longer consider themselves actively engaged in the quitting process.

PROFESSIONAL INSIGHTThe ACE MODEL

A: AVOID risky situations when possible. When avoiding a risky situation is notpossible:

C: COPE using a variety of behavioural, pharmacological and cognitive strategies. If coping is not working

E: ESCAPE the situation by leaving.

**This relapse prevention strategy is useful forrecently quit users as it provides them with a clearly defined set of actions to manage situations that may lead them back to active tobacco use.*

Relapse prevention interventions are especially important after quitting and can be delivered by means of scheduled dental clinic visits, telephone calls, or at any time the dental professional encounters an ex-tobacco use in a patient. A systematic, institutionalized mechanism to identify recent quitters and contact them is essential to deliver relapse prevention intervention effectively.

S.NO	PROBLEMS	RESPONSES
1.	**Strong or prolonged withdrawal symptoms**	Consider extending the use of an approved pharmacotherapy or adjuncts to reduce strong withdrawal symptoms.
2.	**Negative mood or depression**	Provide support, prescribe appropriate medications, orrefer individual to a specialist.
3.	**Lack of support for cessation**	Help the person to identify sources of support within his or her environment. Refer the person to an appropriate organization that offers cessation counselling or support.
4.	**Flagging motivation/ feeling deprived**	Reassure the person that these feelings are common. Recommend rewarding activities. Emphasize that beginning to smoke (even a puff) will increase urges and make quitting more difficult.
5.	**Weight gain**	Reassure the person that some weight gain after quitting is common and appears to be self-limiting. Emphasize the importance of a healthy diet and healthy lifestyle.

Table 8.3: Relapse Prevention- Problems & Responses

If the patient lapses, it is important to acknowledge and realize that a lapse has happened: The tobacco user must acknowledge that they have slipped. That does not mean thatthey are not tobacco dependent again. The dental professional must help the patient in remembering the positive quit time the patient had. Additionally, the focus should be on strengthening the coping skills. The following ways can be helpful:

a) **Understand the reason behind the slip***:* Identify the trigger (Ask relevant questions; understand exactly what was it that made you smoke/use tobacco? On the day of the lapse, what exactly happened? What warning signs were present – experiencing anger, irritability or stress?)

b) **Make a note of the learning experience***:*

The tobacco-user must note the positive ways that helped them from refraining tobacco-use. Seek help immediately or talk to your family or friends. Follow through with the plan that thepatient had made along with the dental professional initially when starting treatment.

c) **Do not discontinue medication without consulting the professional**: It is essential that the prescribed medication is tapered as per the physician's advice, otherwise it could lead to relapse among tobacco-users.

KEY TAKEAWAY

- Maintenance of tobacco use is largely due to nicotine, which is the main addictive component found in tobacco
- Relapse prevention could be due to internal or external triggers, which can be referred toas high-risk stimuli (HRS).
- High risk situations can be identified by using a identifying the trigger-and assessing dialogue between the patient and the counselor.
- Relapse prevention interventions are especially important soon after quitting and can be delivered by means of scheduled clinic visits, telephone calls, or any time the clinician encounters an ex-tobacco user.

ASSESSMENTS

Q.1 What are the three broad categories of withdrawal symptoms experienced by tobacco users?

a) Cognitive, Social, Cultural
b) Cognitive, Affective, Physical
c) Cognitive, Emotional, Social
d) Cognitive, Physical, Emotional

Q.2 Which of the following symptoms are NOT part of the Nicotine Withdrawal Syndrome?

a) Fatigue
b) Cravings
c) Disturbed Sleep and Appetite
d) Delirium

Q.3 Which of the following are the 4D's?

a) Delay, Distract, Decline, Deep Sleep
b) Delay, Distract, Drink Water, Deep Breathing
c) Delay, Decline, Discuss, Deviate
d) Delay, Discuss, Drink Water, Decline

Q.4 What is the most common reason for not quitting for Tobacco users?

a) It allows them to sleep better
b) They enjoy it too much
c) The craving is too strong
d) It is a good substitute to chewing gum while feeling bored

Q.5 How can one prevent a lapse from becoming a relapse?

a) Realize that one has slip and reach out to the professional for guidance and support
b) Realize that one has slipped, then inducing guilt and continuing to stay in the stressfulenvironment
c) Realize that one has slip and ignore the incident altogether
d) Realize that one has slip and continue the behavior till they see some consequences

ACTIVITY-I

CASE STUDY DEMONSTRATING TOBACCO CESSATION COUNSELLING FORRELAPSE MANAGEMENT

Patient came to the Dental Clinic/Dental hospital OPD with a relapse of tobacco smoking. He is a 33-year-old, male, currently working in the IT sector. He had a history of smoking 15-20 cigarettes per day. After seeking counselling at the dental clinic, he had been abstinent since the last 2 years. However, due to persistent stress at work he started smoking 6 months ago. During the follow-up session, the patient reported that since the lockdown started, he has been working from home and that has led to additional work pressure. The patient also reported that he has been having difficulty in managing work and personal life. He has difficulty working for long hours. He usually experiences the urge to smoke when there are some deadlines to meet and job demands become overwhelming.

DETAILS OF THE INTERVENTION

Behavioral Counseling for Relapse Prevention

- After assessing the details of the patient's current use/duration/frequency/triggers and stressors,FTND was applied, the client obtained a score of 5 indicating moderate dependence. The stressors and triggers reported by the patient were addressed in the counseling session. The patient was currently in the preparation stage
- Quit date was set to 1 week from the day of the consultation, along with the same other interventions used to manage stressors.
- The patient was educated using the **4D's approach (Delay, Distract, Drink Water, Deep breathing and discussing with friends and family)** to manage urges and cravings.
- The patient was also educated using motivational interviewing emphasizing self-efficacy for the patient who is capable of remaining abstinen
- To address the difficulty faced by patient in managing work-life, he was asked to follow activity scheduling in which he was asked to engage in recreational tasks and separate family time fromwork responsibilities
- Patient was also advised to engage in some physical exercise like brisk walking and yoga to promote better overall health.
- Follow-up to be done after 2 days from the quit date, which could be done with the dental professional in-person or through telephonic consultation. (As per the need and comfort of thepatient, text message reminders were also sent 2-4 times a day in a structured manner.)

9. TECHNOLOGY INTERVENTIONS AND LABORATORY INVESTIGATION IN TOBACCO CESSATION

9

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Functioning of Quitline services in India
- The biomarkers used in laboratory investigations for tobacco cessation in dental clinical settings

INTRODUCTION

The quit line has been recommended as one of the population-wide approaches to support tobacco users in quitting by the guidelines for implementation of Article 14 of the WHO Framework Convention on Tobacco Control (WHO FCTC). Tobacco Quitline Services have the potential to reacha large number of tobacco users with the sole objective to provide telephone-based, information, advice, support, and referrals for tobacco cessation and is available free in most developed countries. India too now joins the international tobacco cessation movement with its own National level TobaccoQuitline Services (NTQLs) (1800-11-2356)

History of NTQLs in India

- 1980's- Testing of Quitline was started in early 1980s in Europe and the United States.
- 1985- Quit Victoria, the first tobacco quit line set up by the Australian government in 1985.
- 1988-After the good response of Quit Victoria second tobacco quitline U.K Quit set up by the U.Kgovernment in 1988
- 2009- American Cancer Society (the ACS) Quitline for Indian Workplaces was launched in WCTOH held at Mumbai.
- 2011- 2013- Population Services International (PSI) India Quitline based out of Chennai established through technical support of ACS.

- 2012- Nicorette started a helpline at Mumbai on 31st May 2012 to provide information/techniques tohelp tobacco addicts to quit smoking. However, the service stopped later.

- 2013- Quitline through Rajasthan State Medical Helpline (Ongoing).

- 2016- Government of India rolled out its first National Tobacco Quitline Services on the eve of the"World No Tobacco Day".

NTQL Services in India

The Government has established a National level tobacco cessation Quitline in Vallabhbhai Patel Chest Institute (VPCI), New Delhi and the services have been expanded to regional satellite centres since 2018 and counseling is now available in regional languages at Dr. Bhubaneshwar Borooah Cancer Institute (BBCI), Guwahati; National Institute of Mental Health & Neuro Sciences (NIMHANS), Bangalore; and Tata Memorial Centre (TMC), Mumbai. The quitline services

- Can be accessible from anywhere between 8AM to 8 PM. **(except Monday- Holiday)**

- Offers confidential, personalized and tailored support to motivate the quit attempts in an individual addicted to tobacco.

Types of Call in NTQL

A national toll-free quitline is a telephone counseling service that can provide both proactive and reactive counseling free of charge to the caller.

- A **reactive quit line** provides an immediate response to a call initiated by the tobacco user, but only responds to incoming calls. The reactive call includes the registration, present and past tobacco use history and personal details of the subjects and also about counseling session(s) whenever a caller feels the need for help.

- A **proactive quit line** involves setting up a schedule of follow-up calls to tobacco users to provide ongoing support. The proactive call comprises four outbound calls tailored to provide tobacco cessation service, usually complete within four to eight weeks depending upon the caller's tobacco quitting status**.**

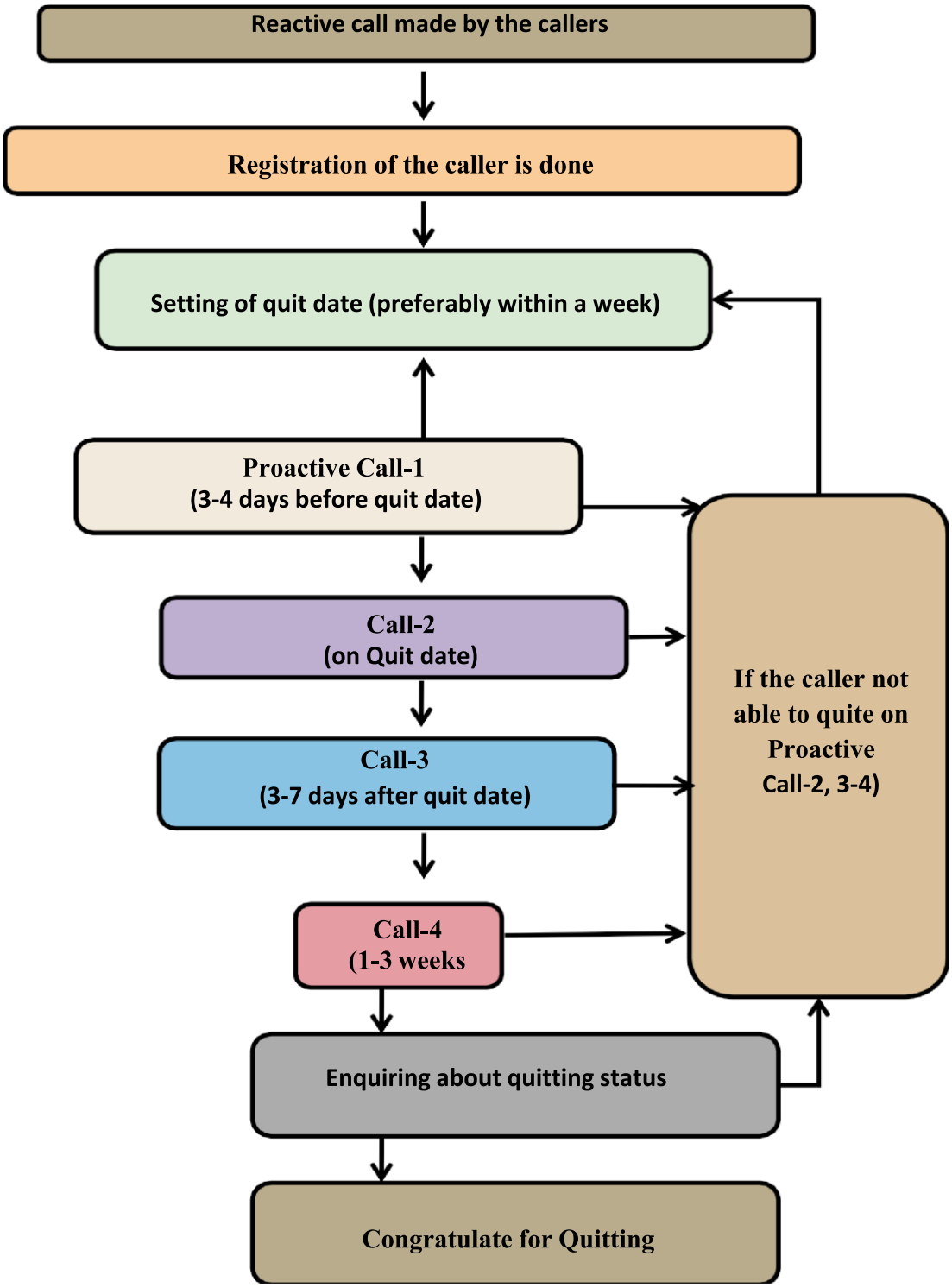

Fig. 9.1 Algorithm for Telephonic Tobacco Counselling in NTQL

Role of Professional/Counselor in NTQLs

The intervention is provided by a trained tobacco counselor who has been trained especially in theoretical and practical approaches of motivational interviewing, following the WHO telephone counseling protocols.

These include 5As (Ask, Advise, Assess, Assist and Arrange); 5Rs (Relevance, Risks, Rewards, Roadblocks, Repetition) in a time period of approximately 15-minute counseling session. The telephonic IVR counseling sessions can be further increased to moderate (≤30 minutes) and intensive counseling (30–40 minutes) sessions, depending upon the requirement of the tobacco user.

The Heaviness of Smoking Index (HSI) is being used to measure the tobacco dependency. Referral information such as nearest tobacco cessation clinic is provided to the interested participants.Tobacco quit pack consisting of tobacco quit calendar and tobacco quit guide are also mailed to the interested callers by post or e-mail. The quitting status is analyzed on 4th proactive call which is almostafter four weeks of follow-up post-tobacco cessation On 1 September 2018, 2 years later the launch of National Tobacco Quitline Services (NTQLS), new health warnings on tobacco products packets consisting of NTQLS toll-free number came into effect in India which resulted in 7.7 times calls hit on NTQL's IVR (Interacted Voice Response).

Benefits of Tobacco Quitline Services

- Can reach a large number of tobacco users in a cost-effective way.
- Can reduce access-related barriers to treatment.
- Serves as a gateway to other cessation resources
- Local health providers can refer tobacco user for quitting.
- Offers a treatment service that is appealing to a broad spectrum of people.

General Challenges of implementation of Tobacco Cessation in Quitline Services

- Patient follow up through telephone is difficult due to availability
- High attrition of tobacco users
- High footfall of callers
- Lack of motivation through Telephonic counselling
- Lack of clinical support services for tobacco cessation.

WHO TobLabNet methods

WHO TobLabNet methods are laboratory testing methods for tobacco and related products developed by part of WHO's global technical network on tobacco-product regulation.

National Tobacco Testing Laboratory

In exercise of the powers conferred by section 11 of the Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003 (34 of 2003), the Govt. of India recognizes the following testing laboratories for the purposes of testing the nicotine and tar contents in cigarettes and any other tobacco products,

1. The National Tobacco Testing Laboratory at National Institute of Cancer Prevention and Research,

2. The National Tobacco Testing Laboratory at Central Drugs Testing Laboratory, Mumbai

3. The National Tobacco Testing Laboratory at Regional Drugs Testing Laboratory, Guwahati, Assam

m-Cessation

Ministry of Health & Family Welfare, in partnership with World Health Organisation and the International Telecommunications Union, has started an initiative for utilising mobile technology for tobacco cessation. WHO-ITU's 'Be Healthy Be Mobile' initiative, aims to reach out to tobacco users of all categories who want to quit tobacco uses and support them towards successful quitting through constant text messaging on mobile phones.

Meet Florence*, WHO's digital health worker

Florence is a 24/7 virtual health worker able to provide digital counselling services to those trying to quit tobacco. She also shares WHO public health messages and recommendations on tobacco and COVID-19. After a short conversation via video or text, Florence can help build confidence to quit smoking, make a plan, and recommend toll-free quit lines or apps.

II. LAB INVESTIGATIONS

Introduction:

Nicotine can be measured in various biological specimens including plasma, saliva and urine. A number of biochemical markers have been used to validate claims of non-smoking, including measures based on thiocyanate, nicotine, cotinine, and carbon monoxide using gas chromatography, high performance liquid chromatography and immunoassays. They vary in terms of cost and ease of administration, specificity to tobacco, and half-life.

Indications

1. Participants with minimal level of smoking exposure (5 or 10 cigarettes per day)

2. Trials involving switching to alternative tobacco products (e.g., electronic cigarettes) thatrequire biochemical verification of reduced exposure.

Biomarkers of Tobacco exposure

a) Carbon Monoxide Levels ECO (ppm) COHb (%)

- **Nicotine (ng/ml)**
- **Plasma**
- **Saliva**
- **Urine**

b) Cotinine (ng/ml)

- **Plasma**
- **Saliva**
- **Urine**

c) Thiocyanate (µmol/l)

- **Plasma**
- **Saliva**
- **Urine**

Biomarkers of Tobacco exposure

Nicotine can be measured in various biological specimens including plasma, saliva, and urine.. Urine levels correlate fairly well with plasma and saliva nicotine. Because of the short half-life of nicotine levels are not useful in assessing tobacco use that occurred more than 8–12 h previously.

1. **Cotinine,** the major proximate metabolite of nicotine. However its specificity for tobacco use is limited for persons using nicotine containing medications. Some immunoassays overestimate cotinine concentrations because of cross-reactivity with other nicotine metabolites. There is a good correlation between levels of cotinine in biological fluids with nicotine intake from tobacco. The ratio of cotinine in saliva, compared to plasma, serum, or blood, averages about 1.3, with a range of 1.1–1.4 in various studies. Saliva cotinine concentrations are lower in stimulated compared to unstimulated. The relatively long half-life of cotinine facilitates detection for a few days after cessation of tobacco use. Plasma or saliva cotinine perform best,with 96–97% sensitivity and 99–100% specificity, respectively. The cut-off point widely used world-wide for Plasma or salivary cotinine is 15ng/ml and 50ng/ml for urinary cotinine. Cotinine in urine can also be detected qualitatively. The test is available for commercial uses in Indian market. It is easy, cheap and useful for biochemical confirmation of successful quitting.

Advantages

a) Highly specific

b) Fairly long half-life

c) Moderate cost for analysis

Disadvantages

Not sensitive when patient is on NRT

3. **Carbon monoxide (CO)** can be measured in expired air or in blood and are highly correlated. Instrumentation used for the measurement of expired CO measures the rate of conversion of CO to CO2 as it passes over a catalytically active electrode and is measured as (eCO) in parts per million. Blood CO level is estimated from carboxyhemoglobin (COHb) through spectrophotometric method. CO is reasonably specific for detecting heavy cigarette smoking but is of marginal utility for detecting light smoking because CO levels from smoking are low, and there are environmental sources of CO of similar magnitude. Measurement of CO is not applicable to detection of smokeless tobacco use because CO is a combustion product.

Disadvantages: Less sensitive for detecting light smoking

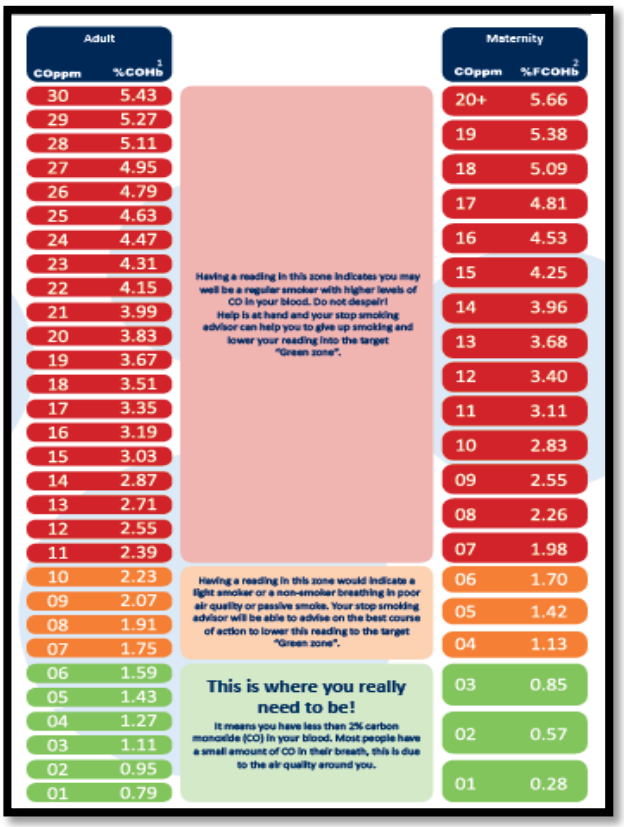

Fig. 9.2 Carbon Monoxide Measurement Scale

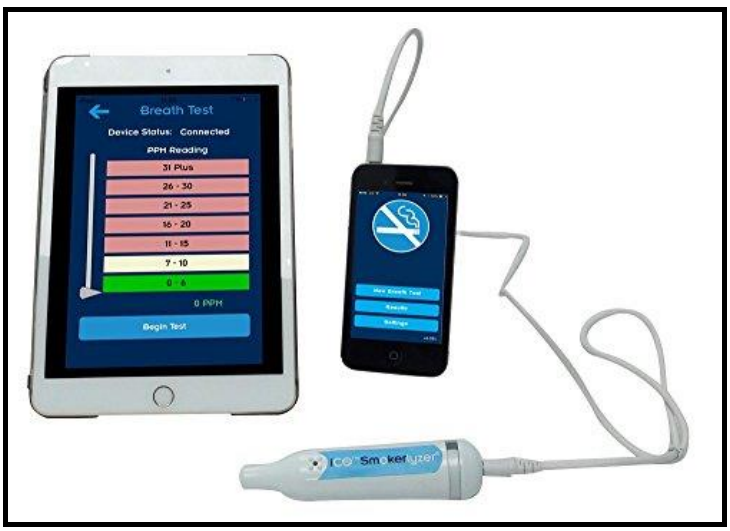

Fig. 9.3 Carbon Monoxide (CO) Instrument

3. Thiocyanate (SCN) can be measured in plasma, saliva, and urine. SCN is highly specific for heavy smoking. It is not applicable to detection of smokeless tobacco use because it is a metabolite of a combustion product, hydrogen cyanide.

Disadvantages

- Specificity is not good for detecting light smoking
- Not applicable for smokeless tobacco use detection

4. Anabasine and anatabine are two nicotine-related alkaloids present in tobacco. Concentrations in urine can be determined using combined gas chromatography – mass spectrometry (GC-MS) and is expensive. These alkaloids are very useful for detecting tobacco use in persons undergoing nicotine replacement therapy since these alkaloids are not present in nicotine- containing medications. After cessation of smoking, half lives are 16 h for anabasine and 10 h for anatabine.

Advantages

- Useful in patients undergoing NRT
- Not applicable for smokeless tobacco use detection

Cut-off point to differentiate smokers from non-smokers

BOX CONTENT	**Plasma or saliva cotinine- 15 ng/ml;** **Urinary cotinine- 50 ng/ml;** **Expired air- CO 8–10 ppm;** **Plasma SCN- 78–84 mmol/l.**

Table 9.1: Cut-off Point to Differentiate Smokers from Non- Smokers

TESTS

Various test that can be done for patients on tobacco use

- **Lung Function Test**
- **Risk Calculators (Framingham risk)**
- **Chest x-ray/CT Scan**
- **Lipid Profile**
- **Liver Function Test**
- **Diabetes screening**
- **Carotid ultrasonography**
- **ECG**

THE INTERVIEW SCHEDULE FOR THE QUITLINE CONSULTATION

I. FIRST CALL

QUESTIONS

Demographics: The caller is a 41-year-old female.

A) Tobacco use

She smokes within five minutes of waking up.She smokes 20 cigarettes per day.

B) Motivation and confidence

- She is motivated to quit because of a cough, her doctor's advice, the expense and the smell.
- Her confidence is low because she had a difficult time quitting once before. The quit lasted
- for about two weeks. She did not seek help with quitting or use a tobacco cessation medicinelike the nicotine patch or gum.

C) Triggers for smoking

She smokes after meals, socializing with friends, during work breaks. She doesn't want her children to smoke. Her friends smoke and there are smokers at work.

D) How the caller heard about the quitline

She calls the quitline after receiving a pamphlet at the doctor's office.

RESPONSE

Quitline experience

- When she calls the quitline the quitline counselor is friendly and greets her warmly.
- The quitline counselor provides an introduction to the programme so that the caller knows whatto expect.
- The quitline counselor shares expectations for the call.
- The quitline counselor transitions to assessment to learn about the caller's tobacco use, quithistory, motivation to quit, and triggers for smoking.
- The quitline counselor asks questions without judging and asks the caller if she has anyquestions or specific needs.
- The quitline counselor collaborates with the caller to plan for quitting, including:
- Setting a quit date;
- Helping the caller find coping strategies to avoid smoking after meals, when socializing withfriends and during work breaks;
- Selecting a tobacco cessation medicine;

- Seeking help from friends and family;
- Removing tobacco products from her surroundings
- The quitline counselor recommends resources (printed material) to support the caller.
- The quitline counselor closes the call by asking the caller to summarize action steps she willtake to quit. The next call is scheduled.
- The quitline counselor suggests topics that will be covered in the next call.

II. SECOND CALL

During the second call the quitline counselor checks on progress, including quit status, urge severity, use of medicines, and strategies the caller is using to cope with urges.

The quitline counselor reinforces success and helps the caller:

1. By problem-solving the management of urges that she is finding hard to control;
2. To learn about relapse prevention by educating her about avoiding, coping or escaping when feelingurges (ACE model);
3. By encouraging the caller to continue using her nicotine patch medication since it seem to be helping.

Ongoing Calls

During ongoing calls, the Quitline counselor follows up on progress, confirms quit status, reinforces success, provides practical problem-solving for any urges the caller is still experiencing, and plans for high-risk situations to ensure long-term success. The quitline counselor helps the caller to identify the benefits of being quit and ways to reward herself for staying quit.

KEY TAKEWAY

- Cotinine is highly specific and sensitive for tobacco use (in the absence of NRT) and has the advantages of a fairly long half-life and moderate cost for analysis.
- CO measurement is useful for determining smoking status. Its sensitivity is limited by the rapid elimination of CO, such that after 1 day of not smoking.
- CO levels are no different than those of non-smokers. Specificity is limited by endogenous and environmental sources of CO. For this reason, CO may not distinguish light smokers from non-smokers.
- SCN is not recommended as a biomarker for tobacco use because of inadequate sensitivity and specificity.
- Anabasine and anatabine are most useful for determining tobacco use in the presence oftreatment with NRT. A potential limitation is the relatively high expense of the assay.

10. TOBACCO CESSATION IN COMMUNITY SETTINGS

10

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Methods to engage with local community stakeholders for promoting health and tobacco control
- Strategies that can be implemented by the institutions at the community level for tobacco cessation and control

INTRODUCTION

Tobacco consumption is a public health concern in India and its impact is especially devastating among the lower socioeconomic status and rural areas. The use of tobacco in India is diverse from smoked or smokeless tobacco (SLT) products to its dual use with the majority of people using SLT products. Tobacco dependence is preventable and may be addressed by many ways and Dental Healthcare Professionals play an enormous role in rendering these services including individual as well as community-based interventions.

Well-planned and targeted community-based programmes developed and implemented based on community health needs could prove to be very successful. Moreover, it is critical that such programmes are socially and culturally acceptable. The various community-based interventions may be carried out are:

1. Addressing tobacco cessation through awareness and health education sessions, using innovativeand interactive strategies.
2. Using audio-visual aids and social media platforms for dispersion of health promotive messages ontobacco cessation and control.
3. Targeting the vulnerable groups; like youth, children and women through innovative strategies.
4. Targeting workplaces to raise awareness and promote tobacco-free workplaces.

5. Use and promotion of technological interventions of tobacco cessation such as mCessation, and National Tobacco Quit Lines among the community.

6. Organize training and capacity building programs with community health workers, civil societyorganizations, local health practitioners etc.

ROLE OF HEALTH EDUCATION AND PROMOTION PROGRAM IN TOBACCO CESSATION

Mass health education using appropriate audiovisual aids and social media is still one of the most effective ways of achieving tobacco cessation along with educational material that conveys anti-tobacco messages (both smoking and smokeless and second-hand smoke). Essential considerations for health education materials include:

- Identifying the target audience prior to the development of Health Education material
- Selection of theme/ health message
- Health education material should be:
- Simple and reader-friendly style to command and retain the attention of the public needs to bedeveloped.
- Preferably written in local language
- Information should be scientific and based on current evidence
- It must be scientifically validated with the feedback of public health experts and target audience following with the incorporation of suggested changes.
- Planning of health education and promotion programs should be done in accordance to the proper protocol and adherence at all levels. The evaluation process of health education intervention is equally important.

ROLE OF DENTAL COLLEGES, DENTAL CLINICS AND COMMUNITY BASED HOSPITALS IN COMMUNITY BASED TOBACCO CESSATION INTERVENTIONS:

Dental Colleges, Dental clinics and Community based Hospitals have immense potential to create an impact in their local communities along with wider impact utilizing simple and c**ost-effective strategies** in tobacco control.

1. Every Dental College and Dental Clinic

   a) Should understand the community health and dental health needs by carrying out regular healthregular surveys.

   b) They should have detailed information on the patterns of tobacco consumption, attitudes

towards tobacco use, social and economic environment (daily life activities, use of leisure time, occupations, housing, education and network of social contacts). This would give the Institutes an understanding of what could be the patterns, socio-cultural determinants and barriers to healthcare. Already lot of information is available through GATS 1 & 2, NFHS Surveys, etc. If necessary, the dental institutes should carry out some need-specific short sample surveys.

2. Utilizing HR of Dental colleges and Dental clinics in promoting Tobacco cessation:

   a) One way to accomplish community-level action would be to capitalize on the human resources like Dental specialists, General Dentists, Interns, Dental students and support staff available at the Dental Colleges and Dental clinics to branch out into the communities.

   b) The Dental Colleges/institutions must initiate structured tobacco use assessment and prevention activities for the Staff and students in the campus/hospital/clinics. This can be followed by assessing their attitudes towards tobacco use; knowledge about health risks involved. Once a staff member is identified with tobacco use, a structured tobacco cessation strategy can be initiated with them. Additionally, workplace-based staff mobilized from the local communities can be mobilized to connect with the communities and promote tobacco cessation at the grassroot level. They can organize specific dental hospital outreach programmes in collaboration with civil society organizations like, local clubs, educational institutions, philanthropic organizations, faith-based organizations, professional associations and recreational facilities to inform the public about the dangers of tobacco use.

3. Brief and focused programmes on tobacco cessation can be conducted in different settings likethe local banks, bus depots, post offices, schools/colleges, etc. In rural areas such meetings canbe held in schools, village panchayat meeting places, local administrative offices, fairs and weekly markets etc.

4. Motivating cancer survivors to sensitize everyone as role models, campaigning on local television or radio channels

5. Organizing and conducting regular community-based awareness campaigns throughout the year.

6. Developing a referral chain for tobacco use, oral precancerous lesion/ cancer and dental treatment needs from the community.

7. The Dental Colleges and Clinics must **display the local Tobacco Cessation Clinic's contact details along with timings and National Quitline (1800-11-2356)** at multiple locations of the campus to promote and mobilize patients. Every dental college, clinic and hospital should adhere to Tobacco Free Educational Institution (TOFEI) guidelines to make their campus tobacco free with regular monitoring and evaluation.

ROLE OF SCHOOLS, CHILDREN AND YOUTH IN TOBACCO CESSATION

Schools remain one of the best organized clusters to target and develop positive healthy behaviors early in their life. Childhood and adolescence is the period when peer influence is at its peak and many habits that usually last for a good part of one's lifetime are initiated. During these years, they are often targeted by tobacco industries through various attractive modalities like freebies, surrogate advertisements and sponsorships etc. Children and youth should also be targeted by the healthcare institutions, to promote health, dental health and prevent tobacco use.

Fig. 10.1 School Base Intervention in Tobacco Cessation

Tobacco control is a strategic broad-based intervention which can be implemented through strong legislation and other measures as suggested by the WHO MPOWER policy package. But meanwhile dental professionals and healthcare institutions, can empower children through education which is directed towards the children as well as their parents. Education system can be utilized to spread information, shape attitudes and strengthen skills relevant to tobacco control, preferably through the Tobacco-Free Educational Institution program (ToFEI). Use of schools and colleges for primary prevention as well as for early case-finding and active cessation efforts in a supportive manner amongthose who have already initiated the habit.

The flowchart below provides an outline for designing a School based Health Education Program for tobacco cessation:

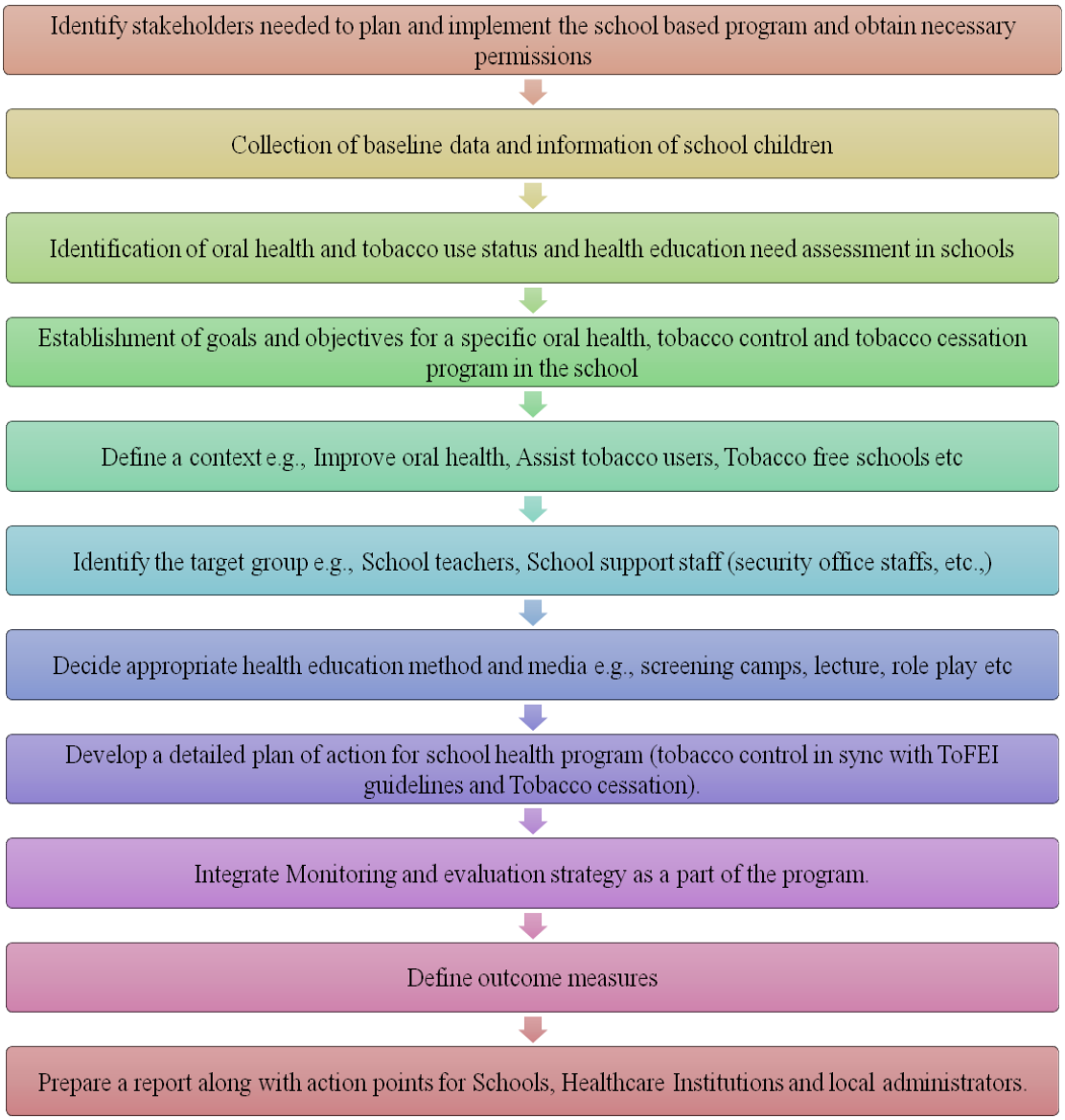

Fig. 10.2 School based Health Education Program for tobacco cessation

Workplace interventions for tobacco cessation:

The biggest challenge of a workplace initiative is employee time "on floor". Not many workplaces are willing to share this for the health of the employees. It should be stated along with proposal of a strategy to resolve this issue- a statement on return-on-investment (ROI) may help!

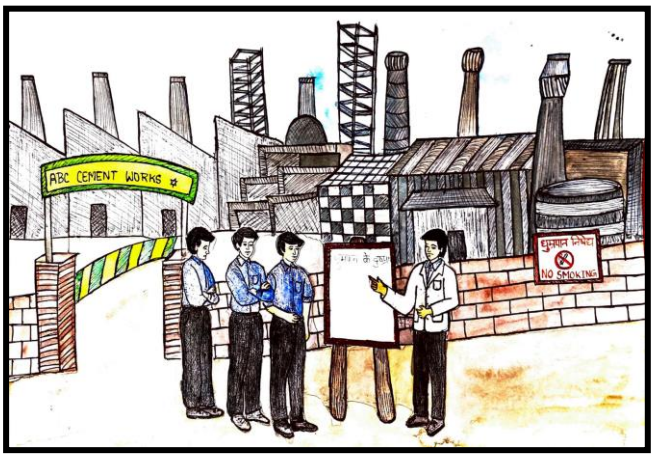

Fig. 10.3 Spreading Awareness among Factory Workers

Most adults spend about a third of their day in their respective workplace environment. Workplaces could have both positive as well as negative impact on one's health and oral health. Tobacco use has astrong group behavioral pattern wherein people residing or working in common environments influence each other. The workplace is therefore a setting through which large groups of tobacco userscan potentially be reached by health promotion. Workplaces as a setting to prevent tobacco use can be

used to great advantage with a targeted approach. The various advantages of workplace-based tobacco cessation strategies are:

- It provides access to a large number of people who make up a relatively stable population.
- It has the potential for higher participation rates than non-workplace environments.
- It may encourage sustained peer-group support and positive peer pressure.
- It provides a particular opportunity to target young men, who traditionally have low general practitioner consultation rates and are thus less likely to benefit from opportunistic health promotion activity in primary care.
- The employee generally is not required to travel to the programme or to dedicate their own personal time to it.
- Occupational health staff may be on hand to give professional support.

Cochrane based evidence suggests worksite-based individual counseling interventions demonstrated a benefit for the counseling programmes, with an OR of 1.96 (95% CI 1.51 to 2.54).

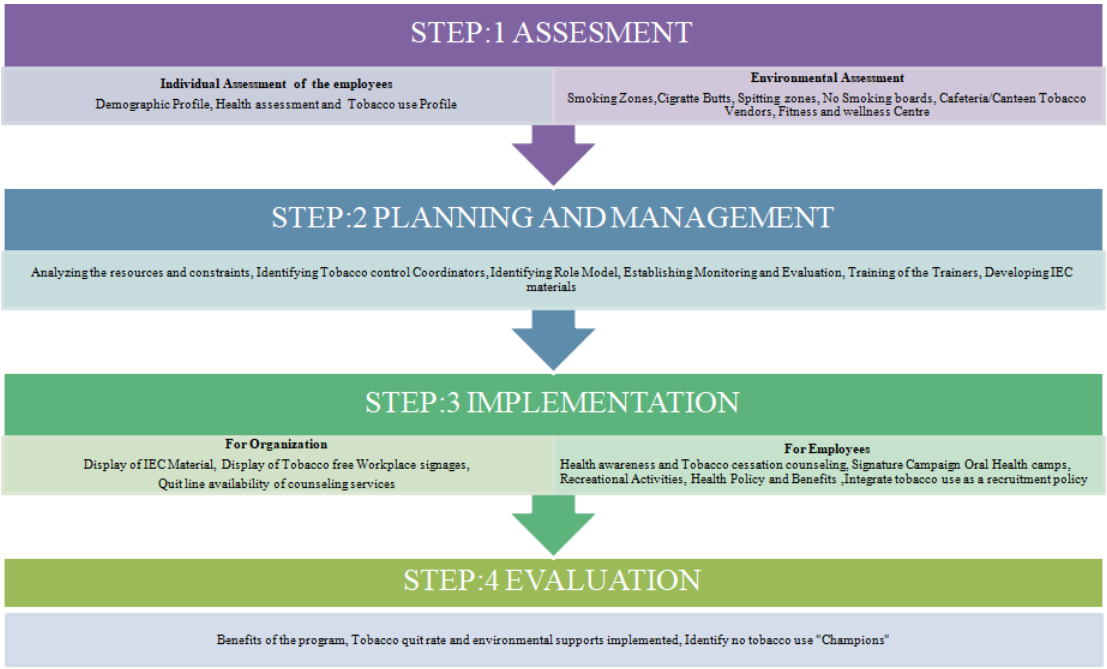

Fig. 10.4 Workplace based tobacco cessation algorithm

Tobacco cessation through Systems Approach (Screen, Treat and Follow-up):

In addition to the use of population-level approaches, the use of systems approach enables all health facilities and health care workers to deliver Tobacco Cessation to the individuals in a stepwise manner. Strengthening of existing cessation services at all levels of health care through the Systems approach can beachieved by:

- Establishing suitable infrastructure that identifies and records tobacco use among all new and follow-up patients attending any health facility through WHO ICD- 11 screening for their tobacco use currently or anytime in the past. Coding by and linking it to their health/insurance id for any reference in future through a real-time national dashboard.

- Capacity building among all cadres of in-service healthcare workers, especially doctors, nurses, counselors and pharmacists along with regular CMEs (continued medical education) both in the government and/or private health sector to treat a tobacco using patient optimally and promptly along with his/her primary ailment.

- Following them up on a regular basis for 6 months to a year to support their effort and to ensure their staying totally abstinent; at least in the very first month if the resources do not permit alonger follow-up (On 3rd and 7th days and at the end of 1 month).

CONCLUSION

Tobacco use is a public health concern in India, with a negative impact on all, especially for the people from lower socio-economic backgrounds and those living in rural areas. Tobacco addiction can be prevented and treated in a number of ways, as we've discussed in this chapter. Dental health professionals can play an important role in providing these services to both tobacco users and the general public. Dental colleges and community-based government dental clinics have enormous potential to make a difference in their local communities and beyond by implementing simple and cost-effective tobacco control strategies, especially by delivering tobacco cessation "at every clinical encounter with a tobacco using patient through Systems Approach". In this chapter we've discussed the roles of: (1) Health Education and Promotion Program; and, Schools, Children and Youth in tobacco control, which are still one of the best places to target and develop positive and healthy behaviours in children at a young age. It is undeniable that providing cessation services in community settings and involving the community in all aspects of the intervention improves and achieves better cessation outcomes, i.e. a higher quit rate and higher number of former than current users.

KEY TAKEAWAY

1. Tobacco use is a huge public health problem in India with specific negative effects on the poor or those living in rural areas.
2. The role of Dental Colleges and Dental Healthcare Professionals is critical in tobacco control, especially through the delivery of tobacco cessation to "every tobacco using patient and at every clinical encounter"; and by eliminating the myths s/he may have. Displaying the toll-free number of National Quitline (1800-11-2356) can add to their efforts.
3. Through Health Education and Promotion Programs being run in the schools such as ToFEI, the Dentists can outreach the community to contribute significantly in minimizing tobacco initiation bythe children and youth and help them quit if they are already tobacco users. Also, through oral screening, potential of serious dental ailments can be averted.

11. MONITORING AND EVALUATION IN TOBACCO CESSATION

LEARNING OBJECTIVES

At the end of this chapter, the professionals should be able to understand the

- Policies and programs developed by the Government to enhance tobacco control and cessation in India
- Various monitoring strategies implemented
- Importance of monitoring and evaluation in tobacco cessation
- Key performance indicators for institutions related to tobacco cessation

INTRODUCTION

Fig. 11.1 As per COTPA using tobacco products in public places is prohibited

India is the second largest tobacco consumer, and third largest tobacco producer, in the world. The current cost of tobacco use in India includes 1 million deaths per year (approximately 1/6 of all tobacco- related deaths worldwide), and crores of direct attributable health costs. The variety of tobacco products used in India is greater than elsewhere, and associated with additional complications including a high burden of oral cancers from smoke as well as smokeless tobacco use. The varied socio-cultural history and beliefs also has an impact, and there is complicated legislation addressing the various types of tobacco use, enforced to different extents at various administrative levels across the country. The government has been involved in various initiatives in the form of implementing policies and acts to monitor and regulate tobacco related initiatives in the country.

TOBACCO CONTROL INITIATIVES BY GOVERNMENT OF INDIA

The Government of India has become increasingly engaged with India's tobacco problem over recent years. Some relatively small-scale preventative policies were introduced between 1975 and 2000.

- **Cigarette and Other Tobacco Products Act (COTPA):** The more comprehensive Cigarette and Other Tobacco Products Act (COTPA; addressing tobacco use in public places, tobacco advertising, and sale and packaging regulations)was introduced in 2003.

- **The Framework Convention of Tobacco Control (FCTC)** brought into force in 2005, in which the World Health Organization (WHO) treaty commits signatories for the implementation of wide-ranging measures to limit demand for tobacco, aid cessation of use, protect minors and non-users, regulate tobacco products, minimize the contraband market, andlimit the negative influence of the tobacco industry. It promotes various control strategies including pricing and taxation measures, smoke-free policies, tobacco product legislation, appropriate labeling of products (including health warnings), tobacco related education, prohibition of advertising and other promotion methods, provision of cessation programmes, control of illicit tobacco product trade, control of tobacco sale to/by minors, and support for alternative employment strategies for tobacco workers.

- Soon after committing to the FCTC, the Indian Government established the **National Tobacco Control Programme** to help achieve its provisions. The programme aims to establish tobacco cessation centres, training programmes forteachers, health workers and others, educational interventions for schools and the general population, and mechanisms to monitor enforcement of tobacco control legislation, at the district level. State and national-level monitoring of these initiatives has also been planned, along with research activities regarding alternative livelihood options, establishment of tobacco product testing facilities and production of mass-media awareness campaigns.

Fig. 11.2 Spreading Awareness among Community

MONITORING OF TOBACCO USE

Monitoring systems for tobacco use and exposure to tobacco smoke are essential components of any tobacco control programme and are critical to understanding and reversing the tobacco epidemic. Monitoring tobacco control policies is needed for better planning and implementation of necessary public health interventions. There are a number of cost-effective policy interventions incorporated into the MPOWER package that build on the demand-reduction measures contained in the WHO FCTC.

INDICATOR AND DESCRIPTION	
MONITOR	**Current tobacco users** Percentage of respondents who currently use any tobacco products or dual products (Smoked and smokeless) **Current tobacco smokers** Percentage of respondents who currently smoke any tobacco products **Daily tobacco smokers** Percentage of respondents who currently smoke tobacco products daily **Current smokeless tobacco users** Percentage of respondents who currently use smokeless tobacco **Daily smokeless tobacco users** Percentage of respondents who currently use smokeless tobacco daily **Current dual tobacco users** Percentage of respondents who currently use dual tobacco products **Daily dual tobacco users** Percentage of respondents who currently use dual tobacco products daily
PROTECT	**Exposure to second-hand smoke at home** Percentage of respondents who report that smoking occurs inside their home **Exposure to second-hand smoke at work** Percentage of indoor workers who were exposed to tobacco smoke at work in the past 30 days.
OFFER	**Tobacco use quit attempt in the past 12 months** Percentage of current tobacco users who tried to quit during the past 12 months **Health care provider's advice to quit using tobacco** Percentage of current tobacco users who visited a doctor or health care providerduring the past 12 months and were advised to quit tobacco use

WARN	**Awareness of anti-tobacco information in newspapers or magazines** Percentage of respondents who have noticed information about the dangers of tobacco use or that encourages quitting in newspapers or magazines in the last 30 days. **Awareness of anti-tobacco information on television and OTT platforms** Percentage of respondents who have noticed information on television and OTTplatforms about the dangers of tobacco use or that encourages quitting in the last30 days **Noticing health warning labels on tobacco packages** Percentage of current tobacco users who noticed health warnings on tobaccopackages in the last 30 days **Thinking of quitting because of health warning labels on tobacco packages** Percentage of current tobacco users who reported thinking about quitting tobacco use in the last 30 days because of the warning labels on tobacco packages
ENFORCE	**Awareness of tobacco advertising in stores** Percentage of respondents who have noticed any advertisements or signs promoting tobacco products in stores where tobacco products are sold in the last 30 days **Awareness of specific types of tobacco promotions** Percentage of respondents who noticed [free samples of tobacco products, tobacco products at sales prices, coupons for tobacco products, free gifts or discounts on other products when buying tobacco products, clothing or other items with a tobacco product brand name or logo, tobacco product promotions in the mail] in the last 30 days
RAISE	**Cost of manufactured tobacco products** Average amount spent on a pack of manufactured tobacco products (in localcurrency) **Tobacco product affordability** Average cost of 100 packs of manufactured tobacco products as a percentage ofGross Domestic Product (GDP) per capita

Source: WHO REPORT ON THE GLOBAL TOBACCO EPIDEMIC, 2017

Table 11.1: Monitoring of Tobacco Use- Indicator & Description

IMPLEMENTING TOBACCO CESSATION INITIATIVES

The **GATS** survey conducted in India in 2009–10 revealed that 47% of current smokers and 46% of current users of smokeless tobacco planned to quit tobacco use eventually, with more than half of these planning or considering doing so within the next 12 months. Considering the high interest in quitting among tobacco users, the Government of India launched a countrywide tobacco cessation programme in January 2016 and **National Toll-Free Quitline** in May 2016. Almost 40% of tobacco users who called the Quitline and registered for a cessation programme remained abstinent after 3 to 5 weeks, with 9% experiencing nicotine withdrawal symptoms for which they were referred to cessation clinics. The **2016 GATS fact sheet** released by India, further confirms the declining tobacco use prevalence due to adoption of key demand-reduction measures.

Recognizing the importance of tobacco cessation, the first formal **tobacco cessation clinics** were set up in 2002, as a joint initiative of the Ministry of Health and Family Welfare, Government of India and World Health Organization India Country office. Principal investigators from selected tertiary level health facilities were trained in tobacco cessation services in Thailand. Thirteen tobacco cessation clinics (TCC) were set up in psychiatry (3), cancer (5), surgical (2), cardiology (1), chest diseases (1) as well as in a non-government organizational setting (1). The TCCs were subsequently expanded to five more Regional Cancer Centers (RCC) in 2005. The objectives of these clinics are to evolve cessation strategies for smokers and smokeless tobacco users, to generate experience in tobacco cessation interventions and find out the feasibility of scaling up these intervention strategies.

Tobacco cessation needs to go beyond the health sector. The recent successful quit tobacco intervention carried out by teachers in the Indian State of Bihar is an excellent example of tobacco cessation intervention outside the health sector. The intervention comprised educational efforts, tobacco control policies and cessation support. Among teachers in the intervention group the quit rate of 20 per cent was significantly higher compared to the five per cent in the control group. Tobacco cessation in India needs to be implemented in multiple settings. Incorporating tobacco cessation training in medical and other health professional education, training of health professionals to offer cessation advice in their routine health care practice, disease specific counselling sessions in diabetes, TB and selected other specialties are likely to result in significant quit rates among current tobacco users. Effective implementation of the Framework Convention of Tobacco Control is likely to have impact not only on the prevention of initiation of tobacco use but also on tobacco cessation to a large extent.

EVALUATION

The effectiveness of tobacco cessation programs depends on the intensity of program effort and the use of multiple interventions. A rule of thumb is that the more programs implemented together as a package or campaign, the more successful the interventions will be. The Dental setting is an opportune time to help patients quit tobacco. A smoke-free environment and avoiding another adverse medical event can motivate patients to quit. Thus, developing an effective mechanism for evaluation of such programs is essential to establish their efficacy and outcomes. Following is an algorithm to be followed in Dental settings for the effective monitoring and evaluation of tobacco cessation initiatives:

I. Key Performance Indicators for the Dental Colleges and Dental Clinics under NOHP:

S. No	KEY PERFORMANCE INDICATORS	Half-yearly report
1.	Number of patients counselled physically	
2.	Number of patients counselled telephonically	
3.	Number of patients with Quit attempts (Both physically & telephonically)	
4.	Number of patients successful in Quitting (Both physically & telephonically)	
5.	Number of patients referred to Rehabilitation Centre	
6.	**Training & Capacity Building** Number of training sessions conductedNumber of Students/Faculties trained	
7.	Number of research conducted related to Tobacco control & cessation	

Table 11.2 Key Performance Indicators for Dental Colleges & Dental Clinics

II. Process Measures focus on measuring how services are provided.Examples include the number of:

- Staff trained
- Educational sessions held
- Calls to the Quit-line
- Partnerships the program has formed with other stakeholder organizations
- Meetings held with partners to assess progress and make changes
- Staff trained in program practices
- Patients enrolled in and/or served by the program
- Referrals to other services
- News stories covering tobacco control issues in the target area.

III. Outcome Measures focus on measuring the results or overall achievements of the program. The Centres for Disease Control and Prevention (CDC) developed a list of outcome variables for comprehensive tobacco control programs. Other examples include:

- Change in availability of health and social services in the community (for example, locations for tobacco cessation classes, providers regularly counselling patients on tobacco usage)

- Change in health behaviours over time (for example, number of cigarettes smoked in the last week, or number of quit attempts)
- Change in awareness of health topics (for example, lung cancer, hypertension)
- Change in policies and legislation related to health (for example, school policy change to ban/limit smoking on the property)
- Return on investment (ROI) in program examining social and healthcare cost savings

CONCLUSION

Remarkable progress has been made in global tobacco control since MPOWER was introduced a decade ago as a tool to help implement the World Health Organization's Framework Convention on Tobacco Control (WHO FCTC). Nearly two thirds of countries (121 of 194) – comprising 63% of the world's population – have now introduced at least one MPOWER measure at the highest level of achievement (not including Monitoring or Mass media campaigns, which are assessed separately). Tobacco control monitoring includes: monitoring tobacco use indicators (often understood as the surveillance of tobacco use patterns and trends); monitoring exposure to tobacco smoke; and monitoring policies designed to reduce tobacco use or exposure to tobacco smoke. The various initiatives by the Govt. of India in the form of COTPA act and further development of the National Tobacco Control Program have been steps further in the same direction. Additionally, theestablishment of Tobacco Cessation Centres has been further implemented to emphasize tobacco cessation in the various settings. Hence, the monitoring and evaluation of these systems is essential for the effective functioning of mechanisms of action.

KEY TAKEAWAY

- The Government of India has become increasingly engaged with India's tobaccoproblem over recent years
- The MPOWER initiative under the WHO, FCTC is major milestone in the process of promoting monitoring and evaluation of tobacco cessation
- Major Milestone in this direction include COTPA Act, formation of the National Oral Health Programme and the development of TCC's to promote tobacco cessation
- Developing an effective mechanism for evaluation of programme focusing on tobacco cessation in essential to establish their efficacy and outcomes.

12. ANSWER KEYS

ANSWER KEY

CHAPTER 2

Answer Key: 1(d), 2(c), 3(c), 4(c), 5(b), 6(b), 7(c), 8(a), 9(b)

CHAPTER 3

Answer Key: 1(a), 2(d), 3(d), 4(a), 5(a), 6(c), 7(c), 8(b), 9(a), 10(b)

CHAPTER 4

Answer Key: 1(b), 2(a), 3(b), 4(b), 5(a), 6(b), 7(a), 8(b), 9(a)

CHAPTER 5

Answer Key: 1(a), 2(c), 3(a), 4(a), 5(d)

CHAPTER 6

Answer key: 1(c), 2(b), 3(b), 4(f), 5(b)

CHAPTER 7

Answers: 1(a), 2(b), 3(a), 4(a), 5(c), 6(a)

CHAPTER 8

Answer key: 1(b), 2(d), 3(b), 4(c), 5(a)

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ADDITIONAL RESOURCES

Manuals on Tobacco Cessation

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8. National Tobacco Control Programme, Ministry of Health and Family Welfare, Governmentof India. Training manual for Doctors, 2011.
9. World Health Organization, A guide for oral disease patients to quit tobacco use; 2017.
10. WorldHealthOrganization,Toolkitfororalhealthprofessionalstodeliverbrieftobaccointervention s in primary care; 2017.
11. World Health Organization. Regional Office for South-East Asia. Helping people quit tobacco: a manual for doctors and dentists; 2010.
12. WorldHealthOrganization. Aguidefortobaccouserstoquit; 2014.
13. World Health Organization. WHO Monograph on Tobacco Cessation and Oral Health Integration; 2017.

VIDEO RESOURCES

1. Inside the Addicted Human Brain by Dr. Nora Volkow
   :https://www.youtube.com/watch?v=F-sfiQZqG24

2. How Do Drugs Enslave Our Brains? - Dr. Nora Volkow
   https://www.youtube.com/watch?v=BtKUQgTjs_4

3. Nicotine Addiction and Withdrawal (CDC)
   https://www.youtube.com/watch?v=LwJhiBSQr48

4. Harms of Tobacco Use and Benefits of Quitting (CDC)
   https://www.youtube.com/watch?v=z3C4xWplcag

5. Brief Tobacco Cessation Interventions (CDC)
   https://www.youtube.com/watch?v=2Phw5IN2TN4

6. The 5A's and Tobacco Cessation (Behavioural Health and Wellness Program)
   https://www.youtube.com/watch?v=iYCMIuD6djc

7. Motivational Interviewing for Tobacco Cessation (Behavioural Health and Wellness Program) https://www.youtube.com/watch?v=1jfH055byg4

8. Demonstration of Motivational Intervention for Tobacco Cessation (Behavioural Health and Wellness Program)
   https://www.youtube.com/watch?v=YfZXCGHZfvw&list=PL7ZcdN84H0Dia-dkHO_LFNOp4ummyMzgG&index=2

9. Nicotine Addiction and Withdrawal (CDC)
   https://www.youtube.com/watch?v=LwJhiBSQr48

10. Managing Cravings and Avoiding Triggers (CDC)
    https://www.youtube.com/watch?v=wXd9nWrgMGQ

11. Handling Setbacks (CDC)
    https://www.youtube.com/watch?v=7P2LZCmzW_8

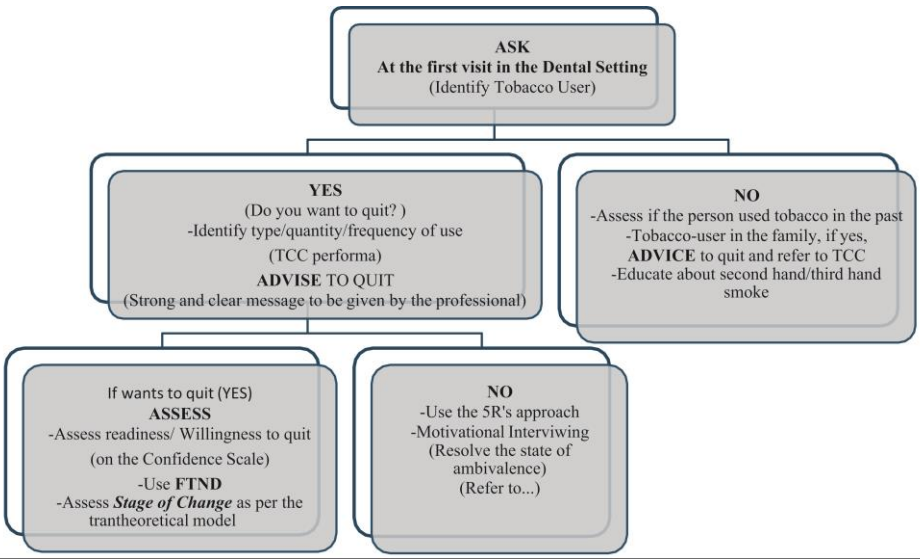
12. Counseling and Medication Can Help Your Patients Quit Smoking (CDC)
    https://www.youtube.com/watch?v=ZgmDDYcnIFA Resources That Work (CDC)
    https://www.youtube.com/watch?v=KtK3TsPk3oQ

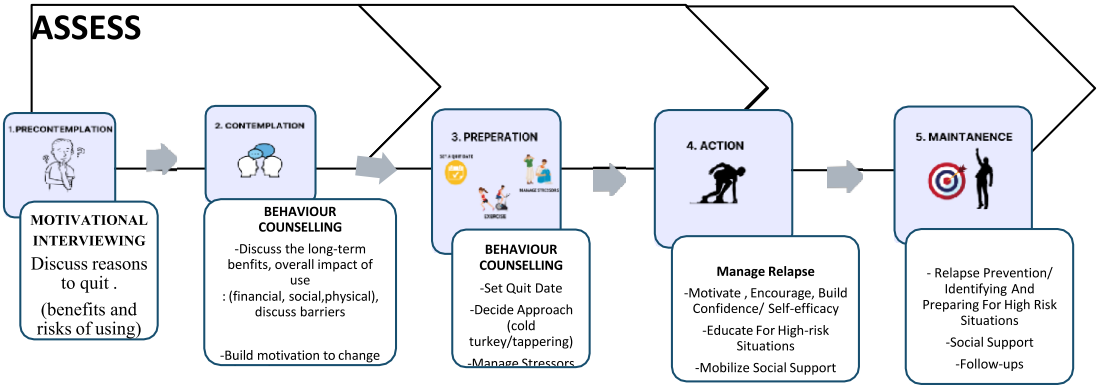
14. ANNEXURES

ANNEXURE-A

A) Step-by-Step Treatment Algorithm for Tobacco Cessation Counselling

1st FIRST VISIT





ASSIST

ELICIT

Reasons to quit, benefits, assessing the knowledge of the patient, challenges faced by the patient

EDUCATE

Regarding the Nicotine Addiction Cycle,

Withdrawal symptoms

ENLIGHTEN

Behavioural Counselling, Motivational Interviewing, Strengthening Behaviour change

ARRANGE

Follow-ups (1-4 weeks, post quit date) → Booster Sessions → Pharmocotherapy

2nd Session (1-2 weeks after first session and corresponding with the scheduled Dental Treatment)

RE-ASSESS

-Stage of Change

-Commitment tochange

-Confidence in self for change

Use Motivational Interviewing Stratergies

Empathetic Listening andnon-judgemental approach

PROBLEM SOLVING

-Discussing the "Change Plan"

-Guiding through stressors and triggers

-4D's

ASSESS---------- ADVISE---REFER

TOBACCO CESSATION IN 15 MINS.

S- Set a quit date, avoid Stressors

T- Tapering or Turkey approach, Tell your family

O- Options to delay cravings, Obstacle Identification, OptimisticThinking

P- Planning to deal with relapse, perseverance and patience

3rd Session (2-4 weeks after second session and corresponding with the scheduled Dental Treatment)

Assess the progress status of the patient, current status of Tobacco-use.

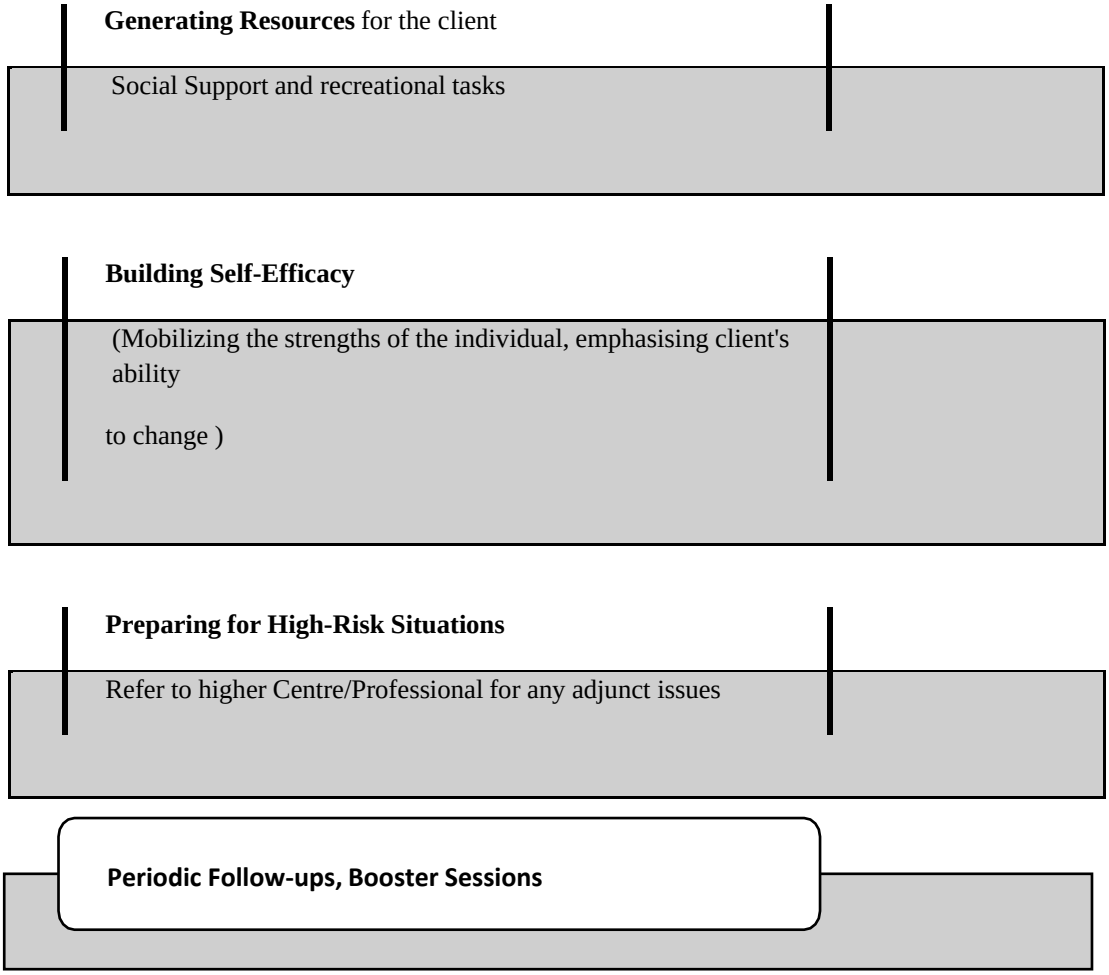
Illicit Challenges or Barriers faced by the patient and

Emphasise the benefits of quitting and educate for relapseprevention if quit.

Follow-up Sessions

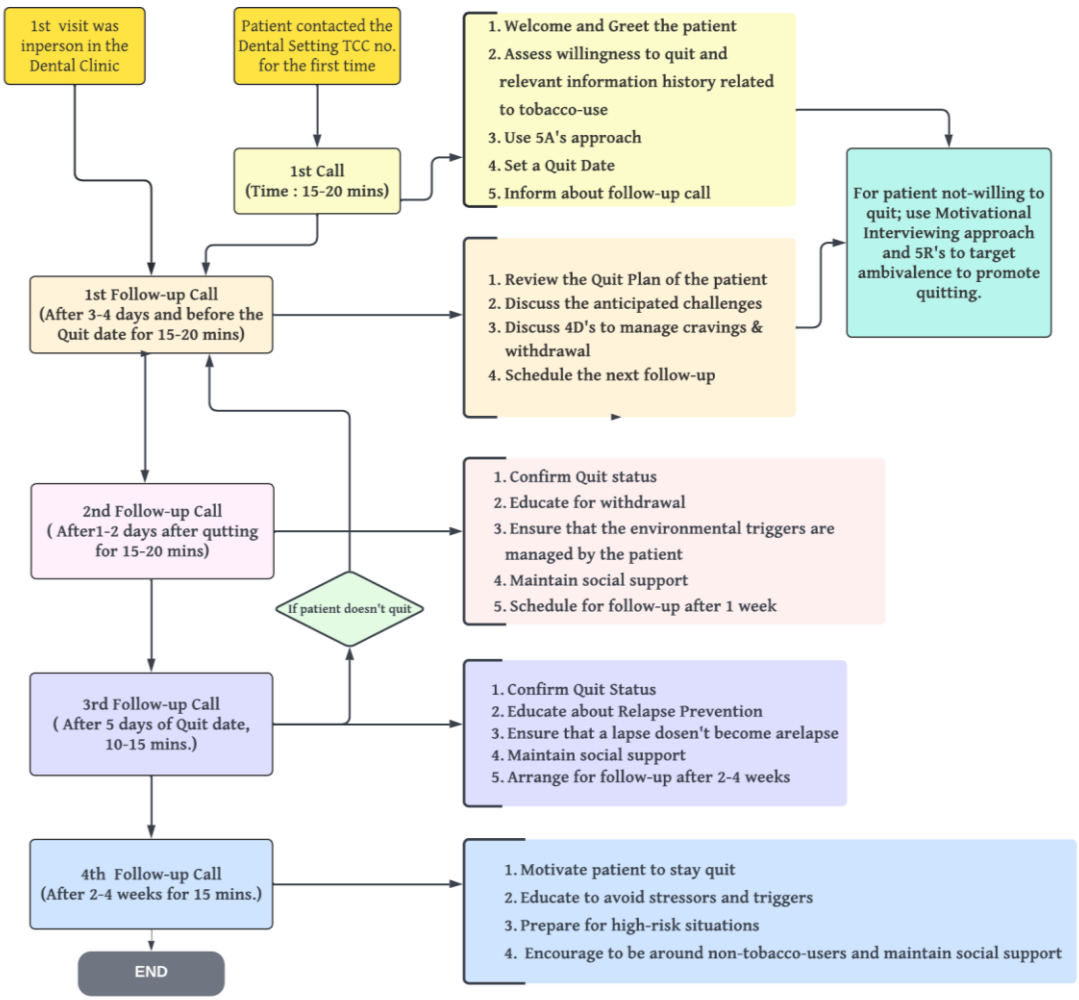
(NOTE: Treatment visits are flexible and can be modified based on patient needs)

Strategies for Relapse Prevention



ANNEXURE-B

Telephonic Tobacco Cessation Counselling Treatment Algorithm



ANNEXURE-C

TCC PATIENT REGISTRATION PERFORMA

DATE: **TCC REG. NO: MAIDS/TCC/PHD/20/_____**

OPD NO: **Referred from: _____**

Name:_____ **Age:_____**

Gender: Male/Female Address:_____

Telephone No: **Education Status**:
Marital Status:

Religion: **Occupation**:

No. of Working Hours:Income (Per month): Rs.

No. of members in Household: **No. of Dependents:**

TOBACCO USE PROFILE

DETAILS OF TOBACCO USE:

FORM	**TYPE**	**Quantity Consumed/Day**	**Duration**	**Sachet/Cigarette Years**
Smoke Form				
Smokeless Form				
Any Other Substance use				

DAILY TOBACCO USE PATTERN:

S.No	**Time**	**Daily Triggering factors/Cues (Friends/Meals/Tea breaks/Stress/Travel/Bowel/Any other)**
1		
2		
3		

1. Expense per month on tobacco (Average money spent/month) (INR):
2. Source of purchase of the tobacco: Near the Residence/Near the Workplace/Any Other
3. Order of purchase of tobacco: Bulk purchase/Daily Purchase/whenever it is needed/ Sharing withFriends
4. Any money spent on health-related problems due to Tobacco Use:Yes/No.

FAGERSTORM TEST FOR NICOTINE DEPENDENCE

TOTALSCORE: _____INFERENCE: HIGH (>7)/ MEDIUM (4-6)/ LOW (<3)

	FAGERSTROM TEST FOR SMOKING
1.	**How soon after you wake up do you smoke your first cigarette/beedi?** a) Within 5 minutes (3) b) 6 to 30 minutes (2) c) 31 to 60 minutes (1) d) More than 60 minutes (0)
2.	**Do you find it difficult to refrain from smoking in places where it is forbidden?** a) Yes (1) b) No (0)
3.	**Which cigarette/beedi would you hate to give up most?** a) The first one in the morning (1) b) All others (0)
4.	**How many cigarettes/beedis do you smoke per day?** a) 10 or less (0) b) 11-20 (1) c) 21-30 (2) d) 31 or more (3)
5.	**Do you smoke more frequently in the first hours after waking up than during the rest of the day?** a) Yes (1) b) No (0)
6.	**Do you smoke when you are so ill that you are in bed most of the day?** a) Yes (1) b) No (0)
Total Score:	

	MODIFIED FAGERSTROM QUESTIONNAIRE FOR SMOKELESS TOBACCO USERS *Highest possible score is 16. The closer to 0, the less dependent on tobacco, higher the score, the more strongly you are addicted.*
1.	**After a normal sleeping period, do you use smokeless tobacco withing 30 minutes of waking?** a) Yes (1) b) No (0)
2.	**Do you use smokeless tobacco when you are sick or have mouth sores?** a) Yes (1) b) No (0)
3.	**How many times do you use tobacco per week?** a) Less than 2 times (0) b) More than 2 times (1) c) More than 4 times (2)
4.	**Do you intentionally swallow your tobacco juices rather than spit?** a) Never (0) b) Sometimes (1) c) Always (2)
5.	**Do you keep a dip or chew in your mouth almost all the time?** a) Yes (1) b) No (0)
6.	**Do you experience strong cravings for a dip or chew when you go for more than two hours without one?** a) Yes (1) b) No (0)
7.	**On average, how many minutes do you keep a fresh dip or chew in your mouth?** a) 10-19 minute (1) b) 20-30 minutes (2) c) More than 30 minutes (3)
8.	**What is the length of your dipping day (total hours from first dip/chew in a.m to last dip/chew in p.m)?** a) Less than 14.5 hours (0) b) More than 14.5 hours (1) c) More than 15 hours (2)
9.	**On average, how many dips/chews do you take each day?** a) 1-9 times (1) b) 10-15 times (2) c) >15 times (3)
	Total Score:

5. Family History:

Tobacco Use: Yes/No

Any other Substance-use: Yes/No (Please specify details) _____

6. **Previous attempts at Quitting Tobacco:** 1. Yes 2.No

Type of Tobacco	Reasons for quitting	Reasons for relapse
Smoking		
Smokeless		

Reasons for Quitting: No reasons/ Referred from Other Dental departments /Social measures/Existing Health Problems (General/Dental)/Awareness about Health Problems during education programs / Lackof productive work/ Financial reasons/Any others _____

Reasons for Relapse: Craving/ Insomnia/ Irritability/ Headaches/ Constipation/ Social pressure/Lack ofproductive work or concentration / Stress/ Family tensions / Financial tensions/ Chronic illness/pain/ Any other reasons_____

7. STAGE OF BEHAVIOR CHANGE:

Stage of readiness: Pre-contemplation Contemplation
Preparation Action

Maintenance Relapse

CONFIDENCE SCALE

"How confident are you that you could cut down or stop your substance use if you decided to do it?"On a scale of 0 to 10, where 0 is not at all confident and 10 is extremely confident, how would you rate yourself?"

0	1	2	3	4	5	6	7	8	9	10
Not at all Confident						**Extremely Confident**				

8. Treatment Method used:

- **Cold Turkey** ☐
- Behavioral Counselling ☐
- Behavioral Counselling + NRT (Type of NRT_ ☐
- Referral to Higher Centre ☐

**Instructions for Side effects & Adverse drug reactions have been explained*
Yes ☐ *No* ☐

9. Details of Pharmacotherapy:

10. Follow up reminder Methods: Telephone/Email/SMS

Name of Doctor/Counsellor:_____

Signature: ____

PATIENT CONSENT FORM

I have been informed that the information shared by me will be kept confidential and will only be used for the purpose of treatment and research in the institute. I have been informed regarding the risks and benefits regarding the treatment in a language that is simple and understood by me. I am aware that I can withdraw from counselling at any point if I feel the needto do so.

Sign. of Patient **Sign. of Doctor/Counsellor**

FOLLOW UPDETAILS:

SCHEDULE	FOLLOW -UP TIME/ METHOD	STATUS (No change/ Reduced Use/ Stopped Use/Lost to follow up / Relapse)	Signature
First Visit			
0-2 weeks			
2-4 weeks			
6 weeks- 3 months			
3-6 months			

Any other follow-up done (in 6 months):

Remarks _____

ANNEXURE D

SCREENING TOOLS FOR NICOTINE DEPENDENCE

1. Fagerstom Test for Nicotine Dependence (FTND)

	FAGERSTROM TEST FOR SMOKING
1.	How soon after you wake up do you smoke your first cigarette/beedi? Within 5 minutes (3) 6 to 30 minutes (2) 31 to 60 minutes (1) More than 60 minutes (0)
2.	Do you find it difficult to refrain from smoking in places where it is forbidden? Yes (1) No (0)
3.	Which cigarette/beedi would you hate to give up most? The first one in the morning (1) All others (0)
4.	How many cigarettes/beedis do you smoke per day? a) 10 or less (0) b) 11-20 (1) c) 21-30 (2) d) 31 or more (3)
5.	Do you smoke more frequently in the first hours after waking up than during the rest of the day? Yes (1) No (0)
6.	Do you smoke when you are so ill that you are in bed most of the day? Yes (1) No (0)
Total Score:	

2. Modified Fagerstrom Test for Nicotine Dependence- Smokeless Tobacco (FTND-ST)

MODIFIED FAGERSTROM QUESTIONNAIRE FOR SMOKELESS TOBACCO USERS *Highest possible score is 16. The closer to 0, the less dependent on tobacco, higher the score, themore strongly you are addicted.*
After a normal sleeping period, do you use smokeless tobacco withing 30 minutes of waking? a) Yes (1) b) No (0)
Do you use smokeless tobacco when you are sick or have mouth sores? a) Yes (1) b) No (0)
How many times do you use tobacco per week? a) Less than 2 times (0) b) More than 2 times (1) c) More than 4 times (2)
Do you intentionally swallow your tobacco juices rather than spit? a) Never (0) b) Sometimes (1) c) Always (2)
Do you keep a dip or chew in your mouth almost all the time? a) Yes (1) b) No (0)
Do you experience strong cravings for a dip or chew when you go for more than two hours without one? a) Yes (1) b) No (0)

On average, how many minutes do you keep a fresh dip or chew in your mouth? a) 10-19 minute (1) b) 20-30 minutes (2) c) More than 30 minutes (3)
What is the length of your dipping day (total hours from first dip/chew in a.m to last dip/chew inp.m)? a) Less than 14.5 hours (0) b) More than 14.5 hours (1) c) More than 15 hours (2)
On average, how many dips/chews do you take each day? a) 1-9 times (1) b) 10-15 times (2) c) >15 times (3)
Total Score:

2. Tobacco Dependence Screener

Please answer the following questions either YES or NO:

1. Have you often had periods of days when you smoked a lot more than you thanyou intended to?
2. Have you ever tried to quit or cut down on tobacco and found you could not?
3. Did you crave tobacco after you quit or cut down on it?
4. Did you have any of the following problems when you quit or cut down on tobacco: irritation, nervousness, restless, trouble concentrating, headache, drowsiness, upset stomach, heart slow down, increased appetite or body weight,
5. Hand-shakes, or depression?
6. Did you ever start using tobacco again to keep from having such problems?
7. Have you ever continued to smoke when you had a serious illness that you knewmade it unwise to use tobacco?
8. Have you ever continued to use tobacco after you knew that it caused you yourhealth problems?
9. Did you continue to use tobacco after you knew that it caused you mentalproblems?
10. Have you ever felt like you were dependent on tobacco?
11. Have you given up work or social activities so you could use tobacco?

**** To get the total score for the TDS, add up all the points by giving each"yes" response 1 point, and each "no" response 0 points.***

4. Relapse Prediction Scale for Tobacco-Use

As we know that many situations can trigger an urge to use tobacco. The following scale allows the professional to: a) Determine the strength of the urge, b) Determine the likelihood of use. Listed below are the possible triggering situations. Ask each patient to assign a number according to what they think best applies to them:

None **Weak** **Moderate** **Strong** **Very Strong**

S.NO	STATEMENTS	STRENGTH OF URGES	LIKEHOOD OF USING
1.	I am in a place where I usually use tobacco		
2.	I am around people who usually use tobacco		
3.	I see my co-workers/ family members usingit		
4.	I am thinking of the last I used tobacco		
5.	I feel bored or happy		
6.	I have increased craving, urge or desire inmy mouth		
7.	I am having tea or engaging in a specific activity that I used to do earlier while usingtobacco		
8.	I feel stressed/ anxious or upset		
9.	I am offered tobacco by a friend		
10.	I pass by a tobacco vendor/shop		

ANNEXURE E

Myths and Facts Related to the Efficacy of Behavioral Interventions

MYTHS v/s FACTS ABOUT THE EFFICACY OF BEHAVIOURAL INTERVENTIONS		
S.NO	**MYTH**	**FACT**
1.	Behavioral interventions don't work because Tobacco Dependence is a physiological phenomenon and hence can only be managed by pharmacotherapy/ medication.	Tobacco Dependence is physiological in the sense that nicotine causes the release of certain neurotransmitters which allow for a calming effect and have an addictive nature. However, the cycle of addiction is marked by the principle of habituation and learning, where the act of using tobacco becomes associated to a specific object or situation and leads to cravings and hence maintains the vicious cycle of tobacco-use.
2.	Behavioral counselling is not as effective as medication.	Both Behavioral Counselling and medication have a role to play in the process of cessation. On one side where **medication** is helpful in managing the withdrawal symptoms of substance-use, **behavioral counselling** on the other focuses on facilitating behavior change by helping the individual to understand the
3.	Behavioral Counselling doesn't work because the Tobacco-user is responsible for own behavior and hold certain beliefs like; *"I can leave whenever I want to, how can someone help me leave it just by talking".*	Tobacco-use consistently leads to the development of a specific habit, which then becomes tied to different emotional states (like stress, anxiety, sad mood) and even certain everyday activities. These situations act as triggers, which need to be managed. The same are the focus of Behavioral Interventions.
4.	Most tobacco users don't like being asked about their substance taking behavior and hence would not benefit from behavioral interventions.	Patients have a positive view of health care providers who inquire about their smoking status; and believe the providers are not fulfilling their duty if they do not inquire.

ANNEXURE F

Myths Related to Tobacco-use

S.NO	MYTH	FACT
1.	**Smokeless forms of tobacco are less dangerous**	Smokeless forms of tobacco are equally carcinogenic and contain around 3000 harmful chemicals causing deadly damage. Hence, they are equally hazardous.
2.	**"If I don't use Hookah, Chew tobacco and Smoke, I will lose friends."**	Tobacco-use is promoted as a status symbol among the youth. This tactic promoted through social media plays a crucial role in emphasizing this incorrect belief among themases.
3.	**"If I smoke, I may be caught, but if I chewed tobacco, no one would know."**	With time, oral tobacco-use stains teeth and gums, causing tell-tale marks that often give the user away. Even if these are missed, when the oral cavity starts succumbing to the devastating impact of tobacco, the deterioration is evident in the form of different oral health conditions such as 'white lesions or tobacco pouch keratosis
4.	**Bidis, Smokeless tobacco and shisha, etc. are less dangerous**	These products are a different form of tobacco, and often do not include the same warning labels, or carry the same taxes and other restrictions slapped on standard cigarettes. This causes individuals to wrongly assume they are less dangerous. In fact, *bidis* produce three times more carbon monoxide and nicotine and five times more tar than regular cigarettes. Thus, like cigarettes, these products are also deadly.
5.	**Tobacco is good for the teeth, and helps in cleansing them**	Tobacco is used in various forms like tobacco containing powders like Gul and pastes like Gudakhu. These products are advertised locally and by word of mouth. These products target vulnerable populations like women, who

		arenlow on awareness and health priority. They are seen using such products to clean their teeth, and tending to hold them in their mouths, as they slowly become addicted to the nicotine content. In fact, manufacturers of tobacco pastes recommend letting the paste linger for a while in themouthbefore rinsing it out. It goes on to cause oral potentially malignant diseases like oral leukoplakia, oral submucous fibrosis etc.
6.	**Smoking improves sexual performance**	Smoking damages penile blood vessels, causing impotence. Improved sexual performance is next to impossible, no matter what these tobacco promotion gimmicks convey.
7.	**Tobacco helps you lose weight, stay slim**	Tobacco-use damages your taste buds and suppresses your appetite. Then it ravages the body systems, and sooner or later leads to chronic debilitation. As a consequence, significant weight reduction would occur but at the cost ofsignificant hazard to health.
8.	**Smoking is doing your own thing, and involves "breaking the rules"**	Glamourizing smoking as an adult habit, and an act of rebellion and nonconformity, is yet another tobacco promotion strategy used by the tobacco industry. It is essential to recognize the same and desensitise the mases about these ideologies.

ANNEXURE G

GLOSSARY	
Abstinence	A period of being quit, i.e., stopping the use of cigarettes or other tobaccoproducts.
Addiction	Unlike tolerance and dependence, addiction is a disease; but like tolerance and dependence, addiction can result from taking drugs or alcohol repeatedly. If a person keeps using a drug and can't stop, despite negative consequences from using the drug, they have an addiction.
Behavioral interventions	Interventions designed to affect the actions that individuals take with regardto their health.
Biochemical verification	Also called 'biochemical validation' or 'biochemical confirmation'. A procedure for checking a tobacco user's report that he or she has not smokedor used tobacco. It can be measured by testing levels of nicotine or cotinineor other chemicals in blood, urine, or saliva, or by measuring levels of carbon monoxide (CO) in exhaled breath or in blood.
Cessation	Also called 'quitting'. The goal of treatment to help people achieve abstinence from smoking or other tobacco use, also used to describe the process of changing the behavior
Chewing tobacco	Also called Smokeless tobacco. It encompasses all tobacco products that areconsumed in an unburned form. Smokeless tobacco can be used orally or nasally. It is placed in the mouth, usually between the cheek and lower lip, and may be chewed. Also called spit tobacco.
Cold Turkey	Quitting abruptly, and/or quitting without behavioural or pharmaceuticalsupport
Continuous abstinence	Also called 'sustained abstinence'; 'prolonged abstinence'. A measure of cessation involving avoidance of all tobacco use since the quit day until thetime the assessment is made. The definition occasionally allows for lapses. This is the most rigorous measure of abstinence.
Craving	A very intense urge or desire to smoke or chew tobacco
Current smoker	An adult who has smoked 100 cigarettes in his or her lifetime and whocurrently smokes cigarettes.
Dependence	Dependence means that when a person stops using a drug, their body goes through "withdrawal": a group of physical and mental symptoms that can range from mild to life-threatening. Nicotine dependence is indicated by repeated unsuccessful efforts to stop smoking, experiencing withdrawal symptoms when attempting to stop tobacco use. Many people who

	take a prescription medicine every day over a long period of time can become dependent; when they go off the drug, they need to do it gradually, to avoid withdrawal discomfort. But people who are dependent on a drug or medicine aren't necessarily addicted.
Dopamine	A neurotransmitter in the brain which regulates mood, attention, pleasure, reward, motivation and movement
Former smoker	An adult who has smoked at least 100 cigarettes in his or her lifetime but who had quit smoking at the time of interview.
Lapse/ slip	Terms sometimes used for a return to tobacco use after a period of abstinence. A lapse or slip might be defined as a puff or two on a cigarette. This may proceed to relapse, or abstinence may be regained. People who lapse are very likely to relapse, but some treatments may have their effect by helping people recover from a lapse.
Neural nicotinic acetylcholine receptors(nAChR)	Areas in the brain which are thought to respond to nicotine, forming the basis of nicotine addiction by stimulating the overflow of dopamine
Never smoker	An adult who has never smoked, or who has smoked less than 100 cigarettesin his or her lifetime
Nicotine Replacement Therapy (NRT)	A tobacco cessation treatment in which nicotine from tobacco is replaced for a limited period by pharmaceutical nicotine. This reduces the craving and withdrawal experienced during the initial period of abstinence while users are learning to be tobacco-free. The nicotine dose can be taken through the skin, using patches, by inhaling a spray, or by mouth using gumor lozenges.
Nicotine	An alkaloid derived from tobacco, responsible for the psychoactive andaddictive effects of smoking.
Nicotine withdrawal	It is characterized by a range of effects during abstinence including severe craving for nicotine and/or tobacco, feelings of irritability, anxiety, anger, difficulty in concentrating, restlessness, impatience, increased appetite, weight gain, and insomnia. Typically, symptoms begin a few hours after.
Oral Health	Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex (head, face, and oral cavity

Pharmacotherapy	A treatment using pharmaceutical drugs, e.g. NRT, bupropion, varenicline
Point prevalence abstinence (PPA)	A measure of cessation based on behaviour at a particular point in time, or during a relatively brief specified period, e.g. 24 hours, 7 days.
ProlongedAbstinence	A measure of cessation which typically allows a 'grace period' following thequit date (usually of about two weeks), to allow for slips/lapses during the first few days when the effect of treatment may still be emerging.
Quit Attempt	A quit attempt was more quantitatively defined as having stopped tobaccouse for one day or longer with the intention of quitting.
Relapse	A return to regular smoking after a period of abstinence
Second HandSmoke	Also called environmental tobacco smoke, involuntary smoking, and passive smoking. It is the combination of smoke from the burning end of a cigarette/bidi etc. and the smoke breathed out by smokers
Self-efficacy	The belief that one will be able to change one's behaviour, e.g., to quitsmoking
Tapering	A gradual decrease in dose at the end of treatment, as an alternative toabruptly stopping treatment
Tar	The toxic chemicals found in cigarettes. In solid form, it is the brown, tacky residue visible in a cigarette filter and deposited in the lungs of smokers.
Third Hand Smoke	It is referred to the toxic chemicals built up for weeks and months fromsecond hand smoke like coating the surfaces of room and smokers' belongings
Tobacco Cessation	Tobacco cessation refers to the process of quitting the habit of using tobacco
Tolerance	Tolerance happens when a person no longer responds to a drug in the way they did at first. So, it takes a higher dose of the drug to achieve the same effect as when the person first used it. Nicotine tolerance results when greater nicotine dosages are required to achieve the same magnitude of response.

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