

# TOBACCO CESSATION- “IT’S TIME TO QUIT”

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## ABSTRACT

*Tobacco consumption is one of the major health problems in public health sector. Among tobacco consumption smoking is a leading preventable cause of death in developed as well as developing countries. Cigarette smoking contributes to oral as well as general health issues including Asthma, COPD and Cancer. A dynamic comprehensive approach is required for breaking the habit of tobacco consumption in any form. Various studies conducted in the past proposed that intensive tobacco cessation interventions involving behavioral support plays an important role in the treatment of addiction. Public health professionals can play an important role in creating awareness among people regarding the ill effects of tobacco consumption. Public health professionals can create awareness through printed materials, newspapers, magazines, media etc. Advertisement and promotion of tobacco products are needed to be banned throughout the country. Government should take initiatives at central and state level to establish tobacco cessation clinics (TCCs). In this review we discussed the efficacy of various behavioral and pharmacological medications in tobacco cessation.*

**Keywords:** Behaviour interventions; Nicotine Replacement Therapy; Smoking.

## INTRODUCTION

Nicotine is the chief active constituent in tobacco which is responsible for addictive behavior in humans<sup>(1,2,3)</sup> and others constituents are responsible for death and morbidity<sup>(4,5,6,7)</sup> Primarily, mouth is exposed to tobacco and most significant effects of tobacco on the oral cavity includes precancerous lesions, oral cancers, periodontal diseases and poor wound healing. Tobacco smoke causes tooth decay, wearing of teeth, black pigmentation of oral tissues, Gingivitis, palatal

erosions, black hairy tongue, keratotic patches in the oral cavity. Cigarette smoking during gestation has six times greater chances of having babies with birth defects like cleft lip and cleft palate formation.<sup>8</sup> Primary caries are seen among children in case of maternal tobacco consumption.<sup>9</sup> Literature showed that cigarette Smoking has a significant association with asthma, COPD and Cancer. In this review we aimed to outline the available literature on different ways to utilize Nicotine Replace Therapy to treat nicotine dependence among people.

## **BATTLE FOR TOBACCO CONTROL**

### **LEGISLATION AND ENFORCEMENT**

In 1975 government passed the cigarette act. Trading restrictions were enforced in 1980-1990s. Cigarette and tobacco product bill was passed in April 2003 under which legal prohibition was imposed on smoking in public areas, sales to minors was prohibited and pictorial health warnings were enforced. World health assembly 2003, where the WHO FCTC (Framework Convention On Tobacco Control ) was approved by the ministers of health. On 31 May, World no Tobacco Day is celebrated in order to promote people to refrain themselves from any kind to tobacco.

### **ROLE OF PUBLIC HEALTH PROFESSIONALS:**

Health professionals can play an important role in tobacco cessation by carrying out regular surveys on tobacco consumption habits and attitudes towards tobacco consumption .Various programs can be conducted at regular interval of time in order to create awareness among general population regarding health hazards of tobacco consumption. Also, active participation of health professionals in “ No Tobacco Day” can play an important role in tobacco cessation by counseling, guiding and motivating the people to abstinence them from tobacco.

### **IMMEDIATE HEALTH BENEFITS OF TOBACCO CESSATION:**

The positive effects of smoking (tobacco) cessation can be measured immediately. Both blood pressure and peripheral vasoconstriction is reduced , as soon as 20 minutes after cigarette smoking which results in returning the temperature of the hands and feet back to normal. After 8 hours, the person starts feeling more energized as carbon monoxide gas return back to its normal level. After 24 hours, the possibility o of having a congestive heart failure gets decreased. After 72 hours, the bronchial tubes gets relaxed. After 2 weeks to 3 months, the circulation, lung function and stamina of the body improves. After 1 to 9 months, coughing and shortness of breath decreases .Also the cilia re grow in the lungs. After 1 year, the risk of having a heart disease reduces to half of that of a smoker. After 5 years the risk of stroke and cervical cancer is same as that of a nonsmoker. Also the risk of developing cancer of the mouth, throat, esophagus and bladder are reduced to half. After 10 years, the risk of developing lung cancer is half of a smoker. Also the risk of having pancreatic cancer is roughly the same as a nonsmoker. After 15 years, the risk of heart disease is equivalent to that of a nonsmoker. Also the risk of death is nearly the same as a nonsmoker.

## TOBACCO TERMINATION

As we know tobacco consumption is one of the preventable cause of morbidity and mortality in developing countries like India. At present there are only 18 tobacco cessation clinics all over the country. These incompetent attempts should be revised in order to curb the use of tobacco in a population of 250 million people.<sup>10</sup> According to World health organization (WHO) recommendation in June 2020, the treatment of compulsive craving for nicotine addiction will be done through comprehensive tobacco- control policy. However, conducive surroundings can play an important role to support addicts to make an effort to leave tobacco and prevent relapse. The effective measures comprises of price policies and taxation, information bulletin, advertising restrictions and formation of smoke free zones.

## BEHAVIOUR INTERVENTION

Various theories like the stages of change model (also referred as trans theoretical model )<sup>11</sup> HBM ( health belief model which is useful in understanding the behavior towards health<sup>12</sup>CT (social cognitive theory which shows the effect of experiences in the life of an individual)<sup>13</sup> plays a crucial role in the action of quitting tobacco. The models described above shows that the success rate of quitting tobacco is concentrated on the self-reliance, motivation, behavioral control, acknowledging the road blocks and advantages of changes, personal beliefs and attitude of a person.

Depending upon the studies most common and accessible action for tobacco cessation are carried out in the form of brief advice/intervention, individual behavioral counseling , group behavior counseling , telephone counseling and print based self-help interventions.

- Brief intervention: Almost 40% of tobacco users make an effort to quit tobacco as a result of counseling from a general practitioners (GPs).<sup>14</sup> Several countries worldwide adopted 5 As approach as a tool in tobacco cessation. Identification of tobacco consumers is the first step and is accomplished by motivating our healthcare professionals to “ask” the patient either they smoke/consume tobacco or not. The health professionals then “ assess” the readiness of an individual to quit cigarette smoking/tobacco, “advise” on the advantages and disadvantages of a habit , provide “assistance” by planning appointments for behavioral therapy/or pharmacological support and arranging follow up appointments for those who are interested in quitting tobacco. Brief interventions are basically short meetings between patient and consultant and are carried out for a time period between 5-10 minutes only.

## Intervention Method Algorithm for Quitting Tobacco Use

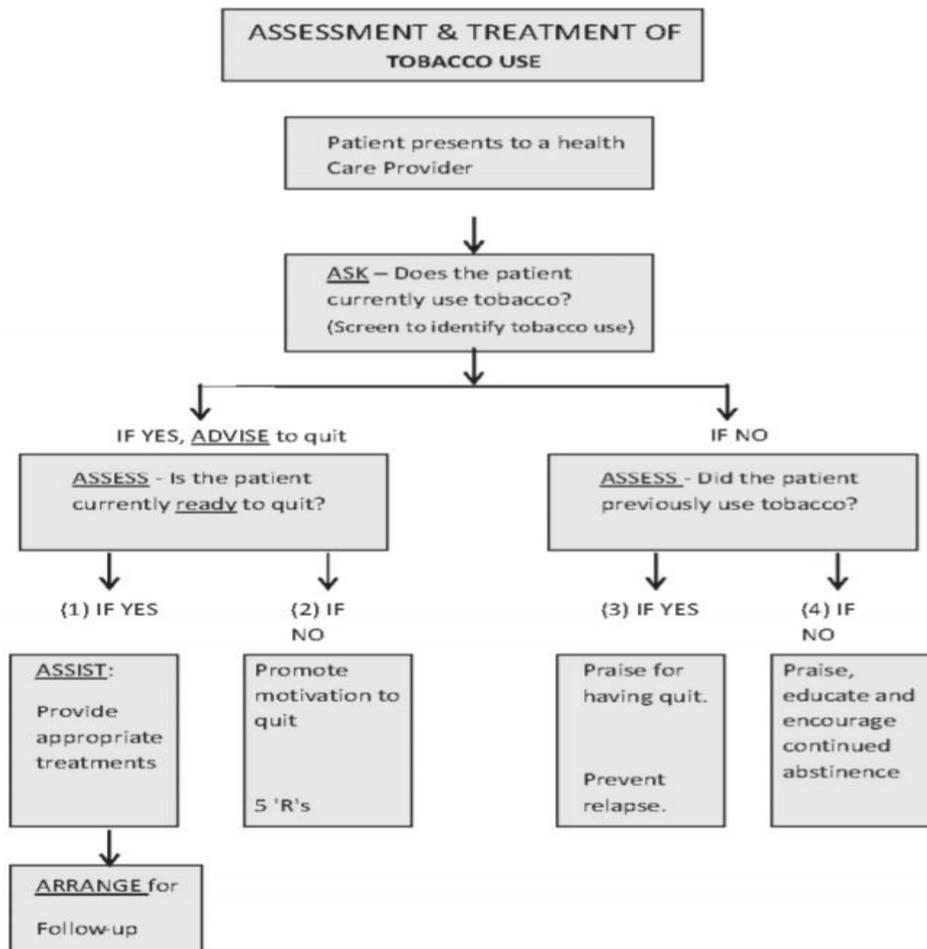


Fig 1

[<https://ntcp.nhp.gov.in/assets/document/Guideline-manuals/Training-Manual-for-Doctors-National-Tobacco-Control-Programme.>]

Recent method of interrupting smoking “very brief advice” (VBA) is advised to be more helpful when compared to the traditional 5 As approach.<sup>15</sup> VBA is a easy patient/doctor centered method in which health care professionals create awareness efficiently in less than 60 seconds when there is shortage of time.<sup>16</sup>

- Individual behavioral therapy: It involves arranged person to person consultation i.e. patient/person contacts a tobacco cessation counselor. Individual behavioral counseling basically involves motivational interviewing which is aimed to increase the will of an individual to mutate their habits.<sup>17</sup> The meetings are held weekly and are extended over a period of a month after the patient leaves tobacco. The patients are advised to take their medications timely.

- Group behavior therapy programmes: The treatment is provided by professionals to small number of persons. In group behavioral therapy facts/details, proper counseling and moreover behavioral interventions are provided to the people.<sup>18</sup> Arranging people in small groups allows them to learn behavioral modification techniques and provide peer support. In group behavior therapy medications are also prescribed to help people to quit tobacco and reduce their cravings for nicotine.
- Telephone counseling: Quitlines and telephone counseling provide encouragement and support to individuals who have recently quit or individuals who smoke and want to quit. Increased frequency of calls increase the probability of an individual in quitting tobacco as compared to interventions like brief advice, self help materials or medications only.<sup>19</sup>
- Print based self help interventions: In other words these are basically any programs or manuals used by people to assist their attempts of quitting tobacco without the help of any professionals, doctors or counselors. This includes leaflets, tape recordings, sound recordings etc which are delivered under the supervision of public health departments and non- governmental organizations (NGOs).The studies done earlier showed that the self help materials has some influence on the people in quitting tobacco as compared to no interventions.<sup>20</sup>
- Newer technologies: This includes use of smart phones ,easier internet access and use of textual messages to create awareness, motivate and support the people in quitting tobacco.

#### PHARMACOLOGICAL INTERVENTIONS

The pharmacological treatment for tobacco cessation should include both reduce or prevent the development of withdrawal symptoms and positive reinforcing effect of nicotine. Pharmacological treatment of tobacco cessation is mainly classified into first line and second line medications. The first line medications are NRT, sustained release (SR) Bupropion and varenicline whereas second line treatment are clonidine and nortriptyline .

#### FIRST LINE TREATMENT

- Nicotine Replacement Therapy: It is a treatment used to help people to stop smoking by reducing the nicotine withdrawal symptoms. It is done by providing smaller dose of nicotine in the form of medication.

The treatment is given through various products like nicotine gums, sprays, patches, inhalers, sublingual tablets and lozenges and nicotine vaccine. The level of nicotine in blood reaches to its maximum level in 20 minutes and they have a shorter time of action.

- <sup>a)</sup> Nicotine Polacrilex (Gums): Nicotine gums can be purchased without the prescription of a doctor. They are available in the market in two dosages i.e. 2mg and 4 mg. These gums acts rapidly and decreases the side effects of quitting smoking as well as smokeless tobacco. The nicotine enters into

the bloodstream through the oral mucosa and elevates the chances of quitting tobacco by 50% to 70%.<sup>21</sup>

The users should not chew more than 24 pieces of gums in a day and are recommended for a period of 6-12 weeks and not more than 6 months. The after effects of chewing nicotine gums mainly includes unpleasant taste, feeling of sickness, oral cavity soars, increased heartbeat etc.

- b) Nicotine sprays: It is available only by prescription and delivers nicotine directly into the blood stream via nostrils. It decreases the anxiety as well as distress caused after quitting tobacco and is easy to use. Initially, the person should use 1 or 2 doses (i.e 2 sprays, one 0.5 mg spray in each nostril). The maximum dosage can be 5 doses per hours or 40 mg (i.e. 80sprays) in a day.

Possible side effects includes nasal irritation, runny nose, watery eyes, sneezing, throat irritation, coughing etc.

- c) Nicotine patches (transdermal nicotine systems): Patches are available since 1991 gives a measured dose of nicotine and can be obtained with or without instruction. These are marketed in different doses and allows the absorption to nicotine into the body constantly at a slow speed.

Possible side effects can be skin irritation, dizziness, sleep problems, muscle aches and stiffness etc.

- d) Nasal inhalers: Released since 1998 and are available only by prescription. It is basically a puffer consisting a thin plastic tube with a nicotine cartridge inside. It delivers nearly 4 mg of nicotine vapour into the oral cavity and through the oral mucosa it enters into the blood. Initial dosage ranges between 4 and 20 cartridges in a day and is gradually lessen over a period of 6 months.

The possible side effects can be burning sensation, dryness in the nose, sneezing etc.

- e) Nicotine sublingual tablets and lozenges: Sublingual tablets and lozenges are newer forms of nicotine therapy. Lozenges are available in two doses ( i.e. 2 mg and 4 mg) and with no doctors prescription. If the smoker has his/her first cigarette within 30 minutes after leaving bed then the recommended dose should be 4 mg and if they smoke after 30 minutes then they should take 2 mg of lozenges. One should take a minimum of 7-8 lozenges and a maximum of 25 lozenges in a day.

The possible side effects can be nausea, hiccups, sore throat, coughing, gas, trouble sleeping, heartburn etc.

- f) Nicotine vaccine : Development of a nicotine-specific vaccine can be a novel approach in tobacco cessation. In nicotine vaccine nicotine is attached to an appropriate antigen which raises the level of formation of

antibodies showing great selectivity towards nicotine. The vaccine can be dispensed 2-4 times and the effects are seen for more than two or three months.

- **BUPROPION (WELLBUTRIN)** : It is used as a first line drug in tobacco cessation because of its dopamine related activity in the brain. Bupropion decreases the cravings and withdrawal symptoms in a sufficiently great way after quitting tobacco. The meta-analysis of various studies shows that nicotine cessation rate becomes twice after administration of Zyban which is equivalent to the efficacy of Nicotine Replacement Therapy.

The possible side effects of bupropion includes dry mouth, difficulty in sleeping, skin rashes etc.

- **VARENICLINE** : also known as Champix or Pfizer. It is a newest licensed prescription medication used in the treatment of smoking addiction. Varenicline is basically a partial agonist of the alpha4/beta2 subtype of the nicotine acetylcholine receptor. It mainly acts by reducing the nicotine cravings and urge for smoking. It is better than bupropion and is highly absorbed after oral administration.

The possible side-effects can be nausea, headache, vomiting, unusual dreams, changes in taste etc.

#### SECOND LINE TREATMENT

- **NORTRYPTILINE**: It is a tricyclic antidepressant and affects the unbalanced chemicals in the brain. Nortryptiline has similar quit rates as that of bupropion. The recommended dosage is 0.15 mg-0.75 mg in a day and is given for a maximum period of 3-10 weeks.
- **CLONIDINE (CATAPRES)**: It is an alpha-2 adrenoceptor antagonist. Clonidine is applied mainly to reduce the abolition symptoms associated with opium/nicotine. The recommended dose is between 75-100 mg in a day and is advised for a maximum period of 12 weeks. The side effects includes irritability, insomnia, cravings, decreased heart rate, depressed mood, lack of concentration etc.<sup>22</sup>



Fig 2 (a). Oral ulceration due to tobacco consumption.<sup>[23]</sup>



Fig 2 (b). Patient cured with Pharmacological intervention

### **BARRIERS IN TOBACCO CESSATION**

- Lack of addiction treatment culture: There is lack of trained health care professionals to deal with the people suffering from nicotine/tobacco addiction.
- Client resistance/lack of readiness: The clients are usually not interested in doing anything to quit tobacco.
- Lack of resources: There is lack of supply of money, materials, staff to help the poor people to quit tobacco.
- Staff smoking: The people employed with tobacco cessation organizations if smokes in front of a tobacco addict, it decreases their will and makes it more difficult for them to leave tobacco.

- Environmental barriers: The surroundings of an individual also plays a major role in tobacco cessation. Supportive surroundings shows a greater chances of quitting tobacco.

## CONCLUSION

Tobacco use is a serious public health problem therefore proper measures should be carried out in order to curb the incidence of using tobacco and deaths caused by tobacco consumption. Since there is a clear relationship between diseases and tobacco consumption, our health professionals can take the lead in combating tobacco consumption and in its termination. The patients should be referred to tobacco cessation centers and they should be informed of the potential side effects of tobacco. Advertising and promotional activities by tobacco companies should be banned since they have shown to cause onset and continuation of tobacco among adults and adolescents. The authorities at central as well as state level should take initiatives to establish tobacco cessation clinics (TCCs) to create awareness among people and support them to leave tobacco. However, awareness among people can be created through printed materials, newspapers, magazines, media etc.

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