Smokeless tobacco withdrawal: an overlooked psychiatric condition

J. Mahanta
Use of smoked or smokeless tobacco is a public health problem worldwide.

Tobacco is associated with cancers of different anatomical sites and cardio-vascular diseases. In India tobacco use is highest in some states (NE states).

People soon develop dependence to smokeless tobacco due to rapid absorption of chemicals present in tobacco.

Body starts developing dependence for many physiological and bio-chemical processes and addiction to tobacco or tobacco products sets in.

Due to realization of health hazard or development of diseases, or peer pressure, addicts try to leave the habit, but they develop withdrawal symptoms which at times become intolerable.

Though many programmes have been initiated on withdrawal of smoked tobacco, yet less attention has been given to smokeless tobacco.

Management of withdrawal symptoms is often very difficult and success is poor.
Use of Smokeless tobacco or tobacco product

- Chewing dried tobacco leaf with or without betel quid
- Spit tobacco: Dipping tobacco powder with slake lime and keeping in side mouth
- Snus: Powdered (filter) tobacco along with additives and keeping long in mouth
- Snuff: Using tobacco powder for inhaling
- Tuibur (Watery extract of Tobacco smoke) used in Mizoram
- Burnt out tobacco powder for cleaning teeth
- Tobacco paste or tobacco extract for treating ulcers
- Tobacco in alcohol: Used as one of the ingredient for preparing locally made alcoholic drinks
Tobacco use habits in Assam

• Dried tobacco leaf locally known as ‘Dhapat’ treated with lime (calcium oxide), kept in bamboo stump for longer duration is also used.

• 43% of Indian youth in the Northwest use spit tobacco

• Average-sized dip in mouth for 30 minutes gives as much nicotine as one would from 2-3 cigarettes

Tobacco is processed with molasses and stored in bamboo stump locally known as “Mala Tankhu” is used for chewing and also used for smoking in “Hukka” or “Silim”
Manufacturing plant of ‘Tuibur’ Burnt Tobacco smoke-infused in water)
• Tobacco is chewed either alone or with betel nut in many countries including India.

• Betel quid is one of the most widely used addictive substances in the world and betel nut is often chewed with tobacco (combination of other ingredients differ by region, country, ethnicity, and personal preference).

• Recent GATS report for India showed 7.5% men and 4.9% women use betel quid with tobacco, and mixtures of areca nut and tobacco, without betel leaf (gutka and mawa) used by 13.1% men and 2.9% women.

• Though there is overall decline in tobacco use in India, but Assam and Tripura is showing about 9% increase.

• In Assam smokeless tobacco use (41.7%) is about 3 times higher than cigarette smoking. 50% of male use smokeless tobacco and 32% female use smokeless tobacco.

• Prevalence of betel quid with tobacco use is high in the Northeast (17.2%) and East (9.7%), and lowest in the North (5.5%). But gutka and similar mixtures use is high in Central states (12.1%).
Initiation to Smokeless Tobacco use and journey to dependency

• Increased use of smokeless tobacco is due to
  • Smokeless tobacco is more accepted than smoking in the society
  • Cheap and easily available
  • In many communities smokeless tobacco is offered to welcome guests and as an offering to those requested to pray or share their wisdom
  • Sharing of smokeless tobacco in worksite is a friendship gesture
  • Smokeless tobacco used on peer influence
  • Smokeless Tobacco user quickly develop a tolerance
  • Smokeless Tobacco is as addictive as heroine and cocaine.
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Type of substance use</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Areca nut only</td>
<td>Areca + Tobacco</td>
<td>Smokers only</td>
<td>P-value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N = 314</td>
<td>N = 242</td>
<td>N = 295</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Tolerance</td>
<td>101</td>
<td>32.2</td>
<td>90</td>
<td>37.2</td>
<td>116</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>87</td>
<td>76.1</td>
<td>158</td>
<td>65.3</td>
<td>204</td>
</tr>
<tr>
<td>Excess use</td>
<td>239</td>
<td>76.1</td>
<td>102</td>
<td>42.2</td>
<td>119</td>
</tr>
<tr>
<td>Attempt to cut down</td>
<td>93</td>
<td>29.6</td>
<td>152</td>
<td>62.8</td>
<td>218</td>
</tr>
<tr>
<td>Considerable time spent before reuse or recovery</td>
<td>88</td>
<td>28</td>
<td>100</td>
<td>41.3</td>
<td>135</td>
</tr>
<tr>
<td>Activity given up</td>
<td>175</td>
<td>55.7</td>
<td>95</td>
<td>39.3</td>
<td>65</td>
</tr>
<tr>
<td>Continue use despite known health hazards</td>
<td>195</td>
<td>62.1</td>
<td>138</td>
<td>57</td>
<td>256</td>
</tr>
</tbody>
</table>
Dependency to Addiction to tobacco

- Dependence develops fairly rapidly for smokeless tobacco
  - Often within 60 days of regular use

- “Addiction” in general is a primary, chronic disease characterized by
  1. Impaired control over the use of a psychoactive substance and/or behaviour.
  2. Clinical manifestations have biological, psychological, social and spiritual dimensions.

1. Common clinical features are:
   1. Change in mood,
   2. Relief from negative emotions,
   3. Provision of pleasure,
   4. Pre-occupation with use of substance(s) or ritualistic behaviour(s);
   5. Continued use of substance(s) and/or engagement in behaviour(s) despite adverse physical, psychological and/or social consequences.”

(The Canadian Society of Addiction Medicine, 1999)
Effect of Smokeless Tobacco

• **Bad breath:** The smell of smokeless tobacco in mouth is not good to others.

• **Spitting:** Because of the smokeless tobacco makes extra saliva, and need to spit out the tobacco juice from time to time. Smokeless tobacco, also spill over face and clothes.

• **Tooth stains:** Many have stained teeth in the area where smokeless tobacco is held in mouth.

• **Leukoplakia:** 75% of all daily users get white patches in the mouth that can turn into cancer!

• **Gum recession:** It increases the risk of cavities and it makes teeth sensitive.
Smokeless Tobacco is more hazardous

- Smokeless tobacco gives high dose of nicotine.
  - One can of snuff gives as much nicotine as 60 cigarettes!
  - 8-10 dip a day is equivalent to 30-40 cigarettes/day in terms of nicotine.

- Ulcers and cancers:
  - When people swallow tobacco juice, it can irritate the stomach and contribute to ulcers/cancer. *Tuibur* use a classic association of high gastric cancer in Mizoram.

- Oral Leukoplakia, **oral cancers**, mouth, gums, throat, larynx, pancreas and stomach, among others.
- Smokeless Tobacco is associated with High Blood Pressure and Heart Disease
- The sores tongue or gum, causing pain during eating, brushing of teeth and talking
- Tobacco Interferes with the flow of information between nerve cells.
- Tooth decay and tooth loss.
Cancer risk and smokeless tobacco chewing

- Tobacco contains about 4000 Chemicals, 40 Cancer causing agents including benzopyrene, (deadliest cancer causing agents known) and 500 Poisons.

- Body absorbs about 28 cancer-causing substances in smokeless tobacco including Arsenic and Formaldehyde

- Though tobacco use increases the risk of cancers in many anatomical sites, yet the most serious hazard from smokeless Tobacco is increased risk of oral cancer.
  - Cancer of Mouth, Lips, Tongue, Gum, Throat, Nose and nasopharynx, Larynx (voice box)

- Oral cancer is one of the most difficult cancers to treat and it spreads quickly. Surgery is often needed and disfiguring

- On average, only half of those with the disease survive more than five years.
## Betel nut with tobacco and Risk of esophageal cancer in NE

<table>
<thead>
<tr>
<th>Practice</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ca/co</td>
<td>Adj OR (95% CI)</td>
</tr>
<tr>
<td>Non chewer</td>
<td>30/249</td>
<td>1</td>
</tr>
<tr>
<td>Chadha (Tobacco)</td>
<td>68/84</td>
<td>4.9(2.7-16.9)</td>
</tr>
<tr>
<td>BL+RGBN+D (Tobacco)</td>
<td>40/62</td>
<td>3.1(1.3-6.7)</td>
</tr>
<tr>
<td>BL+UGBN+D (Tobacco)</td>
<td>54/82</td>
<td>7.1(3.5-6.7)</td>
</tr>
<tr>
<td>BL+SBN+Z (Tobacco)</td>
<td>15/23</td>
<td>6.6(2.8-10-5)</td>
</tr>
</tbody>
</table>
Chewing tobacco is much more hazardous than smoking for oesophageal cancer.
With hazards or peer and family pressure some people try to leave tobacco use habit

<table>
<thead>
<tr>
<th>Common Reasons not to Quit</th>
<th>Common Reasons to Quit</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Family and friends chew</td>
<td>• Encouragement from family and friends</td>
</tr>
<tr>
<td>• Withdrawal symptoms</td>
<td>• Health improvements</td>
</tr>
<tr>
<td>• Inability to cope with stress</td>
<td>• To save money</td>
</tr>
<tr>
<td>• Connection with chewing peers</td>
<td>• Pregnancy</td>
</tr>
<tr>
<td>• Previous unsuccessful attempts to quit</td>
<td>• Desire to be a role model</td>
</tr>
<tr>
<td></td>
<td>• Medical treatment that requires abstinence</td>
</tr>
</tbody>
</table>
Self reported tobacco cessation effects

• **Anxieties** peak on day one (within 24 hours) and, for most, within two weeks return almost to pre-cessation levels.

• **Irritability**, seems to peak at about 48 hours

• **Restlessness** peaks at 72 hours. Both begin to come pre-cessation levels within two weeks.

• **Anger** apparently peaks at about 48 hours (day 2) and within 72 hours is beginning to return to almost pre-cessation levels.

• Cessation effects study by Marcia M. Ward, in Addictive Behaviors, 26 (2001).
Process of quitting tobacco use habit

• Even before quit date, one can start the process
  • Change to a brand with less nicotine. Then use smaller dips.
  • Cut down on the number of dips each day by increasing the gap.
  • Stock up on other things in the mouth
  • sunflower seeds, sugar less gum, carrots, cinnamon sticks, toothpicks, mints, sugarless hard candy

• During quit period
  • Limiting contact with other dippers, especially in the early weeks of quitting.
  • Not to buy, carry, or hold dip cans for others.
  • Others should be prevented from dipping at home. “No Tobacco” sign in front door.
  • Focusing on what have been gained on health, Economic gain by quitting.
Process of quitting tobacco use: Preparation

- Removing all snuff or chew and related products from the house, work place or car.
- Every time one dip or chew, date should be recorded:
  - What time of day is it?
  - How bad is the craving to dip or chew? Very bad, not bad at all, so-so?
  - What is the mood? Happy, sad, so-so?
  - Activity. Driving, working, watching TV, out with friends?
- Keeping track of this information for at least four days.

The one-year success rate for those who go through heroin cessation is roughly **20 percent**, whereas with "uneducated" nicotine cessation rate is about **6 percent**.
Sustaining tobacco quitting

• Self imposed control:
  • Reminding the will power to quit.
  • Avoiding situations and activities that was used to associate with dipping.
  • As a substitute for tobacco, like carrots, pickles, apples, celery, sugarless gum, or a safe smokeless tobacco alternative.
  • Keeping mouth busy may stop the psychological need to dip.

• Simple exercise:
  • Deep breathing through nose and blow out slowly through your mouth. Repeat 10 times.
  • Nicotine replacement products or other medications.
The 3-Week Plan for Quitting Chewing Tobacco

Week 1 (coping with withdrawal symptoms)

- The first week is the hardest to cope with the worst withdrawal symptoms. It don’t last too long, and the toughest part is over after just two weeks.

- If cravings are getting out of hand, start doing something to keep dipping off the mind like exercising, taking deep breaths, and talking to someone.

- Getting angry without any real reason, or are being easily irritable, walk away into the open air and take long, deep breaths.

- Feel physical disorders such as headaches or constipation. Eating fiber-rich foods, fresh fruit, veggies and whole grain bread can help.

- Nicotine speeds up metabolism, and sudden stoppage in supply of nicotine can result in weight gain. It’s good to work out an exercise routine. Increasing intake of water at least six to eight glasses of water every day.
The 3-Week Plan for Quitting Chewing Tobacco

• **Week 2 (Avoiding triggers and lure)**

  • Things get better during the second week. Building confidence.
  
  • Getting rid of craving which come less often and go away quickly.
  
  • Avoid places, people and situations that could trigger cravings.
  
  • Avoid hard drinks for at least two weeks from the day of quit.
  
  • It’s good to write down all triggers, preferably in descending order, and avoid them at all costs.
The 3-Week Plan for Quitting Chewing Tobacco

• Week 3

  • Congratulate self if made this far. After staying off for two weeks, one might still come face to face with occasional craving or trigger, but now one can beat the addiction.

  • It will become easy to fight addiction.

  • Start to see healthy changes physically as well as in behavior.

• **Gaining weight is common after quitting.** Studies have shown that, on average, smokeless tobacco users gain fewer than 5 kg after they quit.
What is withdrawal?(WHO)

• Withdrawal is a group of symptoms of variable clustering and degree of severity which occur on cessation or reduction of use of a psychoactive substance that has been taken repeatedly, usually for a prolonged period and/or in high doses (WHO).

• The syndrome may be accompanied by signs of physiological disturbance.

• The onset and course of the withdrawal syndrome are time-limited and are related to the type of substance and dose being taken immediately before cessation or reduction.
Cascade of events during tobacco withdrawal?

- Tobacco user, used to have a certain level of nicotine in their body. It is controlled by dose, duration and kind of tobacco used.

- On quitting, cravings develop as the body wants nicotine. The cravings cause the nicotine withdrawal symptoms.

- It takes time to break free from nicotine addiction. Nicotine cravings triggered by seeing people chewing or are around other.

- The urge to chew will come and go. Cravings usually last only a very brief period of time. Cravings usually begin within an hour or two after last dip, peak for several days, and may last several weeks.
• Body start the process of resuming control of the more than 200 neuro-chemicals that nicotine had directly and indirectly taken hostage, including select adrenaline, dopamine and serotonin pathways.

• Brain start adjusting with mood, wanting, stimulation and anxiety. In trying to protect the mind from the neuro-chemical influence of the toxic nicotine, down regulate or up regulate different portion of brain and still others by diminishing the number of transporters.
Symptoms of tobacco withdrawal

• **Common withdrawal symptoms:**
  • Anger, frustration, and irritability.
  • Anxiety, Depression, Weight gain.
  • Dizziness, increased dreaming, and headaches

• **Within 24 hours of quitting dip,**
  • Feel tense and agitated.
  • Feel a tightness in muscles—especially around the neck and shoulders.
  • Anxiety is one of the most common negative feelings associated with quitting.
  • If anxiety occurs, it builds over the first 3 days after quitting and may last 2 weeks.
Symptoms of withdrawal

- **Depression and Sadness**
  - Depression can affect our entire being. Sadness, loneliness, disruption of sleep, fatigue, digestion problems, stomach pains, poor memory, an inability to concentrate, a loss of appetite or weight gain, neglect of our appearance, low self esteem, loss of sex drive, irritability, hopelessness, headaches or even a change in bowel habits can and often do accompany depression.

  - Feel sad for a period of time after quitting smokeless tobacco, persist for the first couple of weeks but go away within a month.

  - With past history of depression people feel more severe depression

  - Depression can be as life threatening.
### The quantum of Tobacco Withdrawal Symptoms

<table>
<thead>
<tr>
<th>Anxiety 87% *</th>
<th>Irritability 80% *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty Concentrating 73% *</td>
<td>Restlessness 71%</td>
</tr>
<tr>
<td>Tobacco Cravings 62%</td>
<td>Gastrointestinal Problems 33%</td>
</tr>
<tr>
<td>Headaches 24%</td>
<td>Drowsiness 22%</td>
</tr>
</tbody>
</table>

* Pharmacotherapies can help in these problems
Appearance of Withdrawal symptoms

- **Irritability, Anger** often anxiety's aftermath, seems to peak at about 48 hours.
- **Restlessness** peaks at 72 hours.
  - **Inability to Concentrate or a Foggy Mind**
- **Time Perception Distortion:** The first two weeks of withdrawal seem to be the longest days of entire life.
- **Feeling Tired or Fatigued:** the process of withdrawal and readjustment can be physically and emotionally exhausting.
- **Trouble Sleeping or Insomnia**
Duration of withdrawal symptoms

• **Duration of Nicotine Withdrawal symptoms**
  • Nicotine withdrawal symptoms are usually most intense and uncomfortable during **the first week** after quitting.
  • Intensity of the symptoms **drops slowly over the first month** and usually vanishes within a few months after nicotine cessation.
  • Frequently, craving nicotine lasts longer than the other symptoms of withdrawal.

• **Trigger a craving** may start with the sight of **Places and things**.
Coping with Withdrawal Symptoms

• Cravings for smokeless tobacco.

Although no subconscious crave episode will last longer than 3 minutes, serious time distortion is very real when quitting so keep a clock handy.

Source: Coping in Real Time, Research in Nursing & Health 1998 - Prepared by WhyQuit.com
Conquering tobacco withdrawal symptoms: non therapeutic options

• Identification of high-risk trigger situations and starting new ways to handle.

• Using relaxation techniques, such as progressive relaxation or yoga, and sticking with the one that works best.

• Rehearsal and strategy for relaxation plan. The plan can be tailor made.

• Feeling Tired or Fatigued: Additional rest, extended sleep or even a nap is required.

• Trouble Sleeping or Insomnia: Relaxation is needed

• It is helpful to read a book about how to handle stress.
Management of tobacco withdrawal symptoms:
Nicotine substitute options

• **The nicotine patch:**
  • Supply a small but steady amount of nicotine to the body in tapering doses.
  • Some people experience vivid dreams when they wear the patch at night.

• **Nicotine gum (2 and 4 milligrams).**
  • Nicotine gum is chewed first and then placed between the cheek and gum tissue. Deliver steady amount of nicotine in the body, can be renewed every 1 or 2 hours.
  • The gum releases nicotine more effectively when coffee, juice, or other acidic beverages are not consumed at the same time.

• **Nicotine lozenge (2 and 4 milligram)** Same as nicotine gum.

• **Nicotine nasal spray:** Nicotine is absorbed than other nicotine replacement products.

• **Nicotine inhaler,** delivers a vaporized form of nicotine to the mouth
General Management of tobacco withdrawal symptoms:
Pharmacological option or alternate medical procedure

• **Pharmacological intervention**
  - **Bupropion**, helps reduce nicotine withdrawal symptoms and the urge to dip.

  - **Varenicline**, help to quit by easing their nicotine cravings and by blocking the pleasurable effects of nicotine

• **Alternative methods to help quit?**

  • Some people claim hypnosis, acupuncture, acupressure, and laser therapy (laser stimulation of acupuncture points on the body), or electrical stimulation may help reduce the symptoms associated with nicotine withdrawal.
Symptomatic Management of tobacco withdrawal symptoms

• **Headaches**
  - Headaches peaked on day three (72 hours) at 44%, dropped to 17% on day seven, and had declined to a low of just 11% on day fourteen.
  - Aspirin or similar drug relieves headache. Caffeine drinking should be reduced to avoid headache due to **caffeine overdose**.

• **Constipation, Stomach Pain or Gas**
  - Nicotine interacts with digestive tract smooth muscle peristalsis. "Magnesium salts are the first-line treatment. If it fail, neostigmine, an anticholinesterase with parasympathomimetic activity, appears remarkably effective."
Symptomatic Management of tobacco withdrawal symptoms

- **Nausea and Vomiting**
  - About 16% develop nausea on day one (as compared to 2% at pre-cessation baseline), 11% on day three, 16% on day seven, 9% at two weeks, and 4% on day twenty-eight.

  - Nausea can be caused by cessation worry, fear, stress or overeating,

  - Use of antacids containing calcium carbonate. If vomiting lasts longer than 24 hours, there is blood in the vomit, abdominal pain, headache and stiff neck

  - Sitting quietly, fresh air, drinking 8-10 glasses of clear fluids every day (water is best but you can sip fruit juices, flat soda or sports drinks), eating 6-8 small meals throughout the day instead of 3 big meals, bland foods, low-fat dairy products may help.
Symptomatic Management of tobacco withdrawal symptoms

• **Anxiety**
  • Within 24 hours of quitting one feel strong nicotine withdrawal symptoms like feeling tense and agitated.
  • Tightness in your muscles—especially around the neck and shoulders.
  • Anxiety builds over the first 3 days after quitting and may last 2 weeks.

• **Anger, frustration, and irritability**
  • These negative feelings peak within 1 week of quitting and may last 2 to 4 weeks

• **Loneliness**

• **Increased Appetite or Hunger**: Initial weight gain is common in first few days.
Relapse after successful withdrawal

• How to deal with relapse after withdrawal?
  • Limit contact with other dippers, especially in the early weeks of quitting.
  • Not to buy, carry, or hold dip cans for others.
  • Not let people dip in home. “No Tobacco” sign in front door.

• Causes of stress in life (job, traffic, children, money) and identification of the stress signals (headaches, nervousness, or trouble sleeping).
  • Peaceful times in everyday schedule and environment.
  • Relaxation techniques, with progressive relaxation or yoga.
Short and Long-Term Benefits of Quitting Chewing Tobacco

• Pulse and BP reduce to normal range in days and Risk of heart disease decreases by 50% in 1 year

• No more red, sore gums. Tooth decay stop progressing.

• Leukoplakia reverses after quitting.

• Cancers risk (cheek, gums, mouth, tongue, throat, stomach) lessens each year.

• Risk of premature approaches to non tobacco user in 10 to 15 years

• Food will taste better.
Tobacco cessation effort

• Counseling
  • Group counseling at work place
  • Using children as ambassador
  • Opinion leaders

• Multi partner initiative –Government, NGO, Mothers club

• IT help
  • Online help
  • Mobile phone network
  • Media

• Combination of counseling and pharmacotherapy is more effective than either option alone
RECOMMENDATIONS/RESEARCH GAPS

1. Smokeless tobacco is more harmful due to direct absorption of tobacco product from mucosa. Harm reduction studies should form priority

2. Smokeless tobacco is more popular than smoking among females and poor socio economic strata. So targeted intervention for cessation of smoke less tobacco habit should be initiated

3. Multi partner initiative in tobacco cessation should be taken up

4. Research on alternative to smokeless tobacco should be priority
RECOMMENDATIONS/RESEARCH GAPS

• Smokeless tobacco use starts at very young age. Tobacco prevention and cessation to be integrated in School health programme

• Withdrawal symptoms are often very disturbing. Research should be initiated to find therapeutic and non therapeutic alternatives for smooth withdrawal.

• More involvement of social scientist in tobacco cessation and withdrawal research is warranted
THANK YOU

Dr. J. Mahanta  
Regional Medical Research Centre  
NE Region (ICMR)  
Post Box-105  
Dibrugarh-786 001, Assam

Tel: 91-373-2381204  
Fax: 91-373-2381748  
Email: jmahanta@gmail.com