



## Original Article

## Behavioral and Psychological attributes of the smokeless tobacco consumers in Karachi

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### Abstract

**Background:** Prevalence of smokeless tobacco (ST) consumption has been observed worldwide in the twentieth century, especially in Asian and African countries, with estimated 47% ST consumers in Pakistan. Therefore, the present study aimed to investigate the potential rationale of individuals for ST-initiation and various behavioural and psychological attributes of ST-consumers.

**Methodology:** The study was conducted in an underprivileged area of Surjani town, West district of Karachi, Pakistan. 150 study participants were selected for the study, in which consumers of the current ST consumers (Betel nuts, Gutka and Oral Snuff) were recruited. In contrast, the individuals not taking ST served as controls. Individuals with smoking, any other type of addiction, medications for any chronic disease (hypertension, diabetes), or having any other behavioural/psychological problems were excluded from the study. A structured questionnaire was designed to evaluate the level of stress (Modified Hassles scale), addiction, and nicotine dependence. The participants were explained about the purpose of the study and the interviews were conducted by personal meet-up in their homes. Data was collected and analyzed via SPSS version 16.0.

**Results:** Curiosity and peer pressure appeared to be among the most important factors for ST consumption initiation. 25% of ST consumers were found to be at the end stage of addiction, while 36% categorized to be in the second stage of addiction. Irritation, Anger, Headache and laziness were among the most prevalent types of feelings experienced by the study participants. The reduced stress levels in ST consumers compared to the controls were due to their euphoric condition attributed to the ST. Approximately 30% of the consumers were categorized to have an increased risk of obesity.

**Conclusion:** As a readily available and affordable addictive agent, smokeless tobacco consumption has been raised in Pakistan more than in the west. Smokeless tobacco consumption-initiation has been linked to increased curiosity and peer pressure.

### Keywords

Smokeless Tobacco, Rationale, Peer Pressure, Addiction.



## Introduction

The prevalence of smokeless tobacco (ST) consumption has been observed worldwide in the twentieth century, especially in Asian and African countries. ST product consumption has been linked to more than 50% risk of oral cancer in Asian countries<sup>1</sup>. The worldwide death rate owing to tobacco consumption is 5 million per annum, and this rate is higher than the rate of people died on account of AIDS, drug abuse, road accident, murders and suicides<sup>2</sup>. Easy accessibility and affordability are the main factors for increasing smokeless tobacco among middle-class individuals<sup>3</sup>. This case-control study was formulated after having a gross observation of smokeless tobacco (ST) consumers' lifestyle. In Pakistan, 23.9 million adults are involved in using different forms of tobacco, in which 9.6 million adults use smokeless tobacco<sup>4</sup>. A huge multi-ethnic population of Karachi was reported to be involved in Gutka consumption (79.2%), Betel Quid (34.4%), Areca nuts (21.6%), and Naswar (12%)<sup>5</sup>. The consumers have reported various reasons regarding consumption of any drug, including peer pressure, accidental, stress, boredom, curiosity & maybe for no reason<sup>5</sup>.

Moreover, a misconception existed among people about the curative effect of smokeless tobacco against toothache, headache & stomach ache<sup>3</sup>. Rozi and Akhtar reported that age and socio-economic status are the causes of change in tobacco use<sup>2</sup>. Besides age and socio-economic condition, using smokeless tobacco is also affected by ethnic origin and gender<sup>1</sup>. ST-addiction tends to be initiated by regular consumption in individuals taking it earlier for medicinal purposes.

The complex nature of addiction-phenomenon ranges from the etiological factors that interfere with the molecular

mechanisms to the individuals' social interactions. Drug addiction is a series of complex molecular interactions in drug-sensitive neurons, with consequent altered neuronal properties, activities and metabolism that finally results in altered behaviour like craving, dependence, tolerance and sensitization<sup>6</sup>. Nicotine, being the cardinal addictive constituent in tobacco products, interacts with neuronal nicotinic acetylcholine receptors (nAChRs)<sup>7</sup>. Since nicotine increases dopamine, norepinephrine, acetylcholine & serotonin by interacting with central nervous system receptors<sup>8</sup>, nicotine withdrawal causes impaired cognitive performance<sup>9</sup>.

Mental stress is a situation of psychological illness. It can be due to any reason such as family conflict, loss of the relationship, loss of child or death of a close family member. If the stress is more severe or repeated, it will induce more critical situations that will be uncontrollable or unpredictable<sup>10</sup>. People have linked drug use to deal with stressful situations, and anxiety-relief<sup>10</sup> and stress cause a craving for a particular drug<sup>11,12</sup>. Hence, psychological stress predisposes individuals to tobacco consumption. The diversified nature of individuals' sociocultural and biological attributes in various countries has justified the heterogeneity among the ST consumers' behaviors<sup>13</sup>. Despite the high prevalence of ST consumption in the South-Asian region, there is a scarcity of the reported data on the behavioural effects of ST consumption, as well as the present study also presents the level of addiction and stress level for daily Hassles of the ST consumers which, to the best of our knowledge, has not yet been investigated in the population of Surjani town, West District of Karachi, Pakistan.

Therefore, the present study aims to investigate the potential rationale of a person



for ST-initiation and various behavioural and psychological attributes of ST-consumers.

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## Methodology

The study was conducted in an underprivileged area of Surjani town, West district of Karachi, Pakistan. A total of 150 current ST consumers (Betel nuts, Gutka and Oral Snuff) were recruited. In contrast, the individuals not taking ST served as controls. Individuals with smoking, any other type of addiction, medications for any chronic disease (hypertension, diabetes), or having any other behavioural/psychological problems were excluded from the study.

Participants were selected as per the criteria as mentioned above. The techniques of data collection in this study were based on a structured questionnaire. The questionnaire was designed to evaluate three significant constructs: the Level of stress<sup>14</sup>, addiction, and nicotine dependence<sup>15</sup>. A modified Hassles scale was used to assess the stress levels of the study participants. It is a 51-item scale measuring the intensity of life experiences; each question had one of the four responses (Not at all part of life =1, only slightly part of my life = 2, distinctly part of my life = 3, and Very much part of my life =4)<sup>14</sup>. The scale to evaluate the level of addiction is a 20-item scale with dichotomous responses (Yes = 1, No = 2). The items of the tests mentioned above were also validated using Pearson's Correlation Coefficient. Consumers' Rationale for ST initiation was evaluated via pre-formulated questions reported by Baig and associates regarding the reasons for ST initiation. The same was inducted in the questionnaire for

determining the highest prevalence of reason for which people start taking ST<sup>5</sup>.

Informed consent was taken, the participants were explained about the purpose of the study and interviews were conducted by personal meet-up in their homes. Data was collected and analyzed via SPSS version 16.0. ST-Quantification was done via commercially available packs of Betel nuts, Gutka and Oral Snuff were considered for this study, and their mass was obtained through Shimadzu Libror AEL-200.

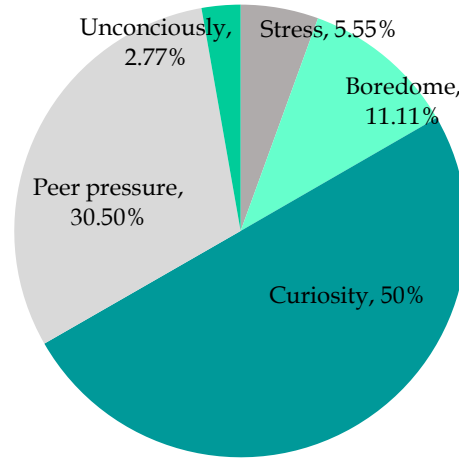
ST Consumers' Nicotine Dependence was assessed using Fagerström Test for Nicotine Dependence-Smokeless Tobacco (FTND-ST)<sup>15</sup>. Self-generated questions were used to determine the consumers' quitting-willingness and feeling upon craving. Participants were also categorized based on their addiction status. Mental stress was assessed using Hassles scale<sup>14,16</sup>.

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## Result

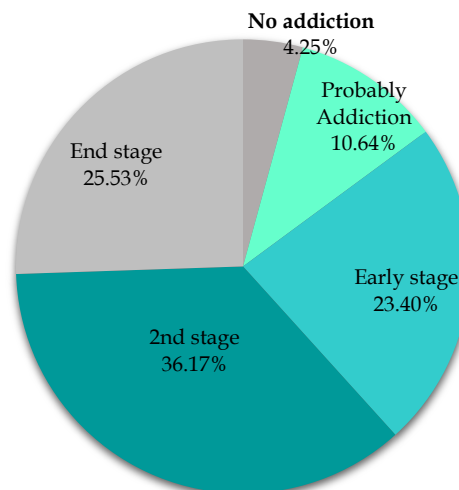
After carrying out this study with a good level of cooperation of the study participants, various significant findings were made. The results are as follows:

Out of all ST consumers, 17% participants consume more than 5 sachets (i.e., > 9.34 grams) of Betel nuts, 15.2 % participants consume 1 to 3 packets (i.e., 31.87 grams to 95 grams) of Gutka and 15.2 % participants consume lesser than 1 packet (i.e., < 29.27 grams) of oral snuff in a day. Curiosity was the most common reason for starting ST consumption with the involvement of 50% of participants in it while 30.5% start it due to peer pressure (Figure 1).



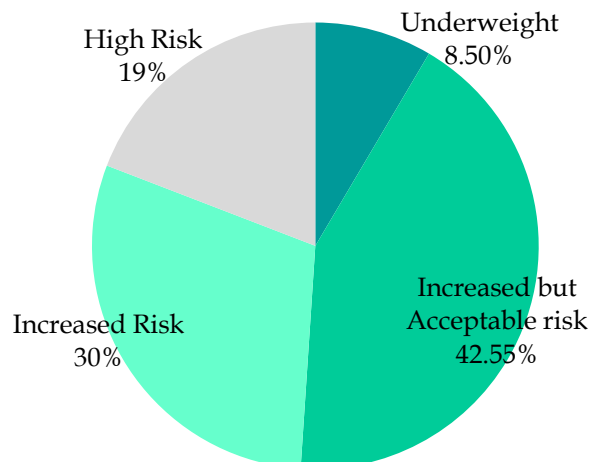
**Figure 1: Rationale of smokeless tobacco initiation.**

Evaluation of the level of addiction was tested using a 20-item scale. The reliability of the test was estimated using Cronbach alpha. The reliability was found to be excellent ( $\alpha = 0.776$ )<sup>17</sup>. The items were also validated using Pearson's correlation coefficient, it showed significant values for the items ( $p < 0.05$ ).



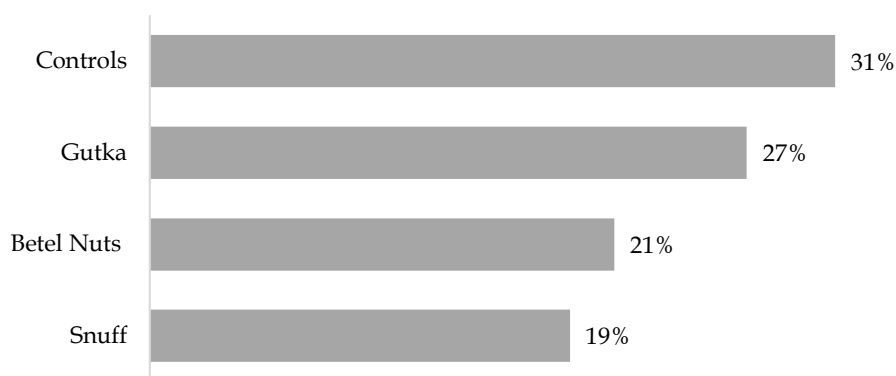
**Figure 2: Level of addiction of the smokeless tobacco consumers.**

Of the total, 25.53% of ST consumers were found to be at the end stage of addiction while 36.17% ST consumers belonged to the second stage of addiction, with 29% belong to the age group 26-35 and chew Gutka while 17% were betel nuts consumers and belong to the age group 15-25 (Figure 2).



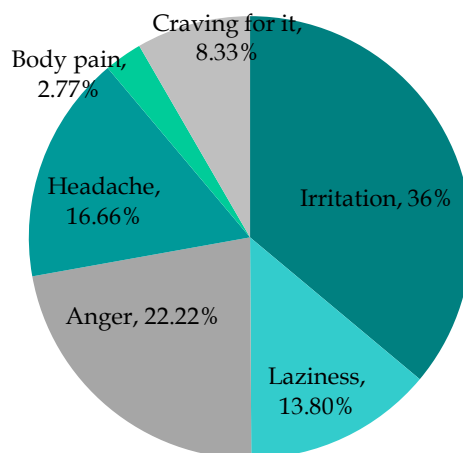
**Figure 3: BMI of smokeless tobacco consumers.**

Around 42.55% of the ST consumers had normal BMI, 19% were obese, while 30% were Overweight (Figure 3). Evaluating the stress level of the study participants, the Hassles scale was used. The reliability of the test was evaluated using Cronbach alpha ( $\alpha = 0.909$ ), which is an excellent value endorsing the reliability of the test<sup>17</sup>. The items of the scale were also validated using Pearson's correlation coefficient and it showed significant values ( $p < 0.05$ ). Based on the final scores of the test, the participants were categorized. 70% of the ST consumers were having average stress, 7% were having high stress.



**Figure 4: Number of participants with average mental stress versus category of subjects.**

When participants with average stress levels were compared, 31% controls, 27% Gutka consumers, 21% betel nuts consumers and 19% snuff consumers were found to have mental stress. It showed that most of the controls were mentally stressed while tobacco consumers had reduced mental stress due to their euphoric condition attributed to the ST (Figure 4).



**Figure 5: Feeling of ST consumers upon not having tobacco.**

Fagerstrom Test for Nicotine Dependence-Smokeless Tobacco showed 35% of the study participants were highly nicotine dependent, whereas 20% were found to be less nicotine dependent. Irritation, Anger, Headache, and laziness were among the most prevalent types of feelings experienced by 36%, 22.2%, 16.6% & 13.8% of the study participants, respectively.

## Discussion

There are several types of tobacco, but in this study, the consequences of a few of them are analyzed, such as Betel nuts, Gutka & Oral Snuff. Betel nuts are a type of tobacco being used with the fourth highest prevalence in the world<sup>18</sup>. Nicotine tobacco is used for the preparation of Gutka<sup>19</sup>. Nicotine is a potent addictive drug that is consumed to improve cognitive abilities<sup>9,20</sup>. Nicotine is a potent sympathomimetic drug, thus causes blockade of peripheral nicotinic receptors and stimulates the sympathetic nervous system increases the release of epinephrine, eventually heart rate, blood pressure & heart contractility<sup>21</sup>. Nicotine intake in regular smokers and regular users of smokeless tobacco is the same<sup>22</sup>. Smokeless tobacco contains more than 30 types of cancer-causing agents that include volatile or tobacco-specific nitrosamines, nitrosamino acids, polycyclic aromatic hydrocarbons, aldehydes and metals<sup>1</sup>.

According to Dass, Jaganmohan, auto drivers were found to be the frequent consumers of ST<sup>19</sup>. Ali et al., reported that 40% of people use ST by getting inspired by media advertisements, their friends or colleagues pressurized 31% to use ST<sup>23</sup>. In comparison, over 40% people use it to get rid of common health problems. Imam et al., reported comparable findings<sup>3</sup>. Similarly, Baig et al. also reported peer pressure to be one of the most common reasons for ST consumption<sup>5</sup>; however, other reasons such as accidental involvement, stress, boredom, and curiosity were also reported. In our study, curiosity was found to be among the most prevalent reasons for ST consumption (Figure 1), with other important reasons being peer pressure (30.5%), boredom (11%), and to get rid of mental stress (5.5%), while only 2.7% participants started consuming it at an immature age when they even did not know what it was, these reasons were also determined by Baig et al. with different prevalence rate<sup>5</sup>.



In this study, the ST consumers are found to be at various stages of addiction. Among these stages, only 4% of consumers were found not to be addicted, they consumed ST for the fun of time being, and they could quit that anytime, about 11% of consumers were probably addicted, 23% consumers were at the early stage of addiction, i.e. addiction had not made significant changes in their lifestyle, and they did not experience a severe feeling of craving, 36% ST consumers were at the second stage of addiction, shown in Figure 2. Here the important point is that among these 36% people, 29% individuals lie between the age 26-35 years and they consume Gutka and 17% of them were betel nuts consumers and belonged to the age group 15-25 these individuals tried their best to keep a sufficient amount of ST with them every time to avoid any extreme situation; it is a part of their daily life. 25% of ST consumers are at the end stage of addiction; their addiction was so high that if they did not get ST when craving, it resulted in extreme anger or harsh behaviour. It was noted in the consumers of the second stage that the individuals who were addicted to betel nuts during the age 15-25 were more susceptible to move towards more complex and more potent addictive agents (i.e. Gutka) after few years. Similarly, when their neurons did not have the consistent euphoric feeling upon having the same addictive drug for an extended period, they may move to a much harder addiction.

Reduction in the weight gain process has been linked to Snus (a kind of ST) consumption<sup>24</sup>. However, our results have shown a positive correlation between BMI and ST consumption with 29.8% and 19.15% consumers were overweight and obese, respectively (Figure 3), and only 8.5% were underweight.

According to Sinha<sup>10</sup>, stress is a situation of psychological illness. It can be due to any reason such as family conflict, loss of a relationship, loss of child or death of a close family member. If stress is more severe or repeated, it will induce more critical situations that will be uncontrollable or unpredictable; hence, he declared in his study that people use addictive drugs to deal with stressful situations to get relief from tensions. Sinha<sup>11</sup>, Cleck and Blendy<sup>12</sup> also showed a correlation between addictive drug consumption with mental stress, stating that he is more likely to use addictive drugs if an individual is psychologically stressed. Stress induces a craving for a drug. Comparable results were obtained in our study. The participants without any addiction have comparatively higher mental stress than betel nuts, Gutka and Snuff consumers (Figure 4).

The number of individuals with average mental stress levels gets lower as we move towards the harder addictive agent. The primary purpose of ST consumption appeared to be a euphoric condition. It was also observed that with the increase in age, the willingness of an individual to quit tobacco decreased. It is commonly observed that as age increases, the habits of an individual become much stronger. Thus, if a person is addicted to a specific drug for about more than 20 years, it can be understood by the facts that how difficult it could be for an ST consumer to quit consuming tobacco. In this study, we asked ST consumers about whether they want to stop consuming ST or not. It was found that the individuals with lower age have the willingness to quit tobacco, while as the age of consumer increases, the individuals could not even think of quitting. Thus, desire to quit tobacco consumption had an inverse relationship with age.



Mansvelder and McGehee described that craving is a situation that occurs because of addiction which is a series of complex molecular interactions in neurons that are sensitive to it<sup>7</sup>. As nicotine is an addictive agent in smokeless tobacco, withdrawal of nicotine intake causes impaired cognitive performance<sup>9</sup>. Thus, at the time of craving, every individual experienced a specific feeling. We have compiled the results of that feeling in this study according to our results irritation, anger, headache and laziness were found to be the feelings experienced by 36%, 22.2%, 16.6% & 13.8% of the study participants, respectively. In contrast, the rest of the feelings were found in minor percentage, i.e. 8.33% of the participants experienced headache, and 2.77% of the participants encountered body pain or fatigue, shown in figure 5. Hence, irritation is the feeling being experienced by most of the ST consumers when they did not get ST when they crave for it.

## Conclusion

As a readily available and affordable addictive agent, smokeless tobacco consumption has been increased in Pakistan more than in the west. Smokeless tobacco consumption-initiation has been linked to increased curiosity and peer pressure. Willingness to quit ST was found to be elevated at an early age in comparison to late ages. However, the restriction could be done via strategic implementation of promoting awareness regarding ST-detrimental effects on health and prohibiting ST sale at the government level.

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