Assessment of Nicotine Dependence in Tri-Cities of Telangana Region Based On Fagerstrom Test for Nicotine Dependence

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Abstract: *Smoking is pathological addiction and biggest health risk contributing to morbidity and mortality. India accounts 12 % of the global smokers with the highest number of cigarette smokers recorded in J&K. Our primary objective was to find out the level of dependence in tri-cities of Telangana using FTND scale and to create awareness as a clinical pharmacist. Of the data collected among 524 tobacco users, the mean age was 40 years and more than 65% people are moderate to severely addicted to tobacco and tobacco products. Smoking kills upto 50 % of tobacco users causing CAD with mortality rate of 30 – 40 % and 90 – 95 % of lung cancer, 12% of our study population have health related problems showing low QoL. Poor awareness, Work stress, Peer pressure were found to be the major factors for addiction. It was observed that these factors for addiction are modifiable with proper counselling and awareness. Government policies, NGOs and health care professionals in particular Clinical Pharmacist can make a significant contribution in smokers life and can have positive impact in their life.*
Keywords:*smoking, FTND, factors, addiction, awareness, QOL*

I. Introduction

According to WHO facts sheets, tobacco kills more than 7 million people each year.[1] Global status report on non-communicable diseases 2010 states that almost 6 million people die from tobacco use each year, both from direct tobacco use and second-hand smoke. By 2020, this number will increase to 7.5 million, accounting for 10% of all deaths. Second hand smoking leads to nearly 6 million deaths worldwide annually.[2,3]

In US, the prevalence is 15 %. Of all adults (36.5 million people) 16.7 % are male and 13.6 % are female as reported by CDC, 2015[4].India accounts 12 % of the global smokers with the highest number of cigarette smokers recorded in the state of Jammu and Kashmir.[2,5]According to Global Adult Tobacco Survey Data in India, Prevalence of tobacco use in India was estimated to be 37 % among the population of 15 years and above[5,6].

Smoking prevalence is highest among upper-middle-income countries.[2]Nearly 80 % of more than one billion smokers world–wide live in low and middle income countries where the burden of tobacco related illness and death is highest.[5]

The WHOs MPOWER policy emphasises the role of protecting people from ill effects of Tobacco products[7]. Though laws exist in India, implementation is not adequate. The awareness of public and law enforcement on Cigarette and Other Tobacco Products (COTP) Act is poor.

Cigarette smoking is a major cause of many preventable diseases. The pharmacologic effect of nicotine plays a crucial role in tobacco addiction[8]. According to WHO factsheets, ingredients in tobacco products may increase their attractiveness, addictiveness and toxicity. The use of ingredients to do so is contrary to the objective of the WHO framework Convention on Tobacco Control, namely to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke. The addictive properties may also be indirectly enhanced by the inclusion of ingredients such as eugenol, menthol and cocoa. Ingredients such as eugenol and menthol numb the throat so the smoker cannot feel the smoke's aggravating effects. Because of its local anaesthetic properties, menthol allows a deeper inhalation of the irritating tobacco smoke and as such, more smoke to be inhaled and deeper puffs to be attained, resulting in a higher nicotine dose per puff. With products like menthol-flavoured cigarettes, individuals can inhale more tobacco smoke while experiencing less of the harsh taste. Therefore, along with the added fresh taste, menthol has significant physiological effects on breathing. Similarly, additives such as cocoa may be used to dilate the airways allowing the smoke an easier and deeper passage into the lungs, exposing the body to more nicotine and higher levels of tar. Higher the addiction, harder to quit potentially

because of higher degree of nicotine dependence.[9] Smoking is estimated to cause about 71% of lung cancer, 42% of chronic respiratory disease and nearly 10% of cardiovascular disease.[2]

The Fagerstrom Test for Nicotine Dependence (FTND) is a standard method for assessing the intensity of physical addiction to nicotine. The test was designed to provide an ordinal measure of nicotine dependence related to cigarette smoking. It contains six items that evaluate the quantity of cigarette consumption, compulsion to use and dependence. Higher the total Fagerstrom score, more the intense is the patient's physical dependence on nicotine.[10]

Our study was aimed to assess the level of dependence of smokers based on FTND and record the response of all the smokers.

II. Materials And Methods

A pilot study was conducted on WORLD NO TOBBACO DAY, 31 May covering 42 retail (pan) shops in tri-cities (Kazipet, Hanumakonda and Warangal) of Telangana region. Pharmacy graduate students identified nine busy centres across the city which has high volume of public gathering. We interacted with smokers to evaluate the level of dependence and counselled them regarding tobacco ill-effects on health. We interacted with 590 smokers and of them 524 were included in the study. Fagerstrom test Nicotine Dependence questionnaire was used to calculate level of nicotine dependence. The data was entered in MS Excel sheet and analysed.

Prior to the study, legal and ethical considerations for the study were approved by IEC of Care College of Pharmacy, Warangal. People of all age groups dependent on tobacco products, both smokers and smokeless tobacco uesrswere included in this study. People not willing for study were excluded.

III. Results

Age: Of 524 smokers highest prevalence was observed among 21-30 age groups. The mean age was found to be 40 years. Of all tobacco users 98.2 % were male and rest are female.
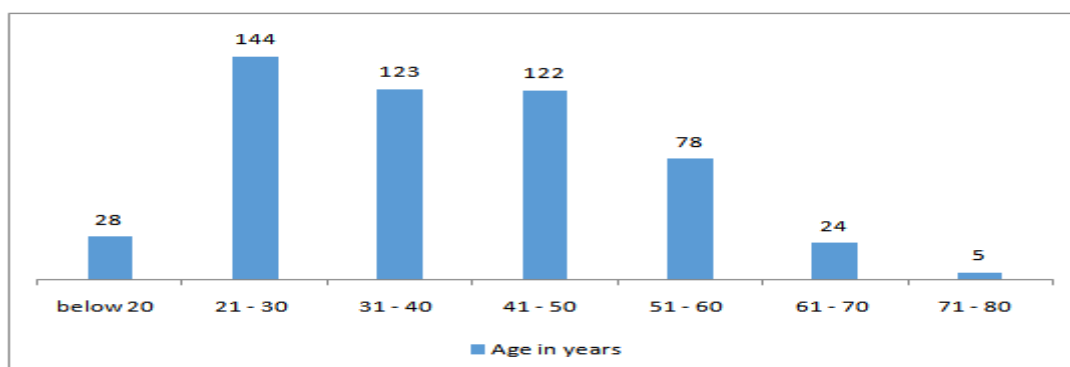

Figure 1: Distribution of age in years

Tobacco Use: Of 524 tobacco users, 84.5 % had smoking history, 8.7 % are tobacco chewers and 6.6 % had both habits of smoking and chewing tobacco. 201 tobacco users (38.3 %) has history of alcohol use.
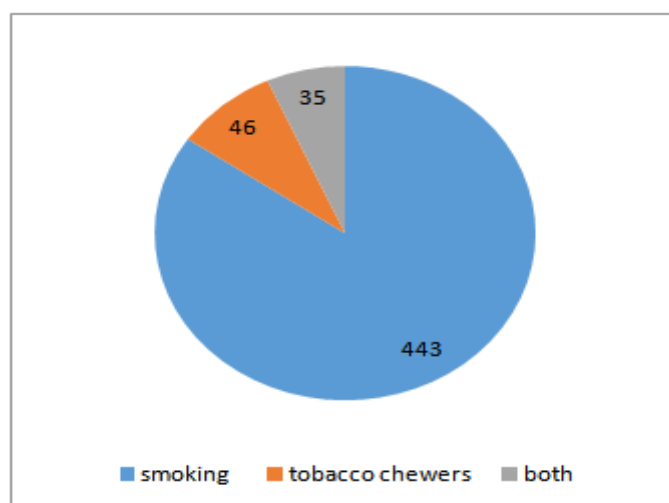

Figure 2: Different forms of Tobacco use

Smoking history: Tobacco users are classified based on the duration of smoking habit. Out of 331, 101 smokers have history of smoking since 6 - 10 years.
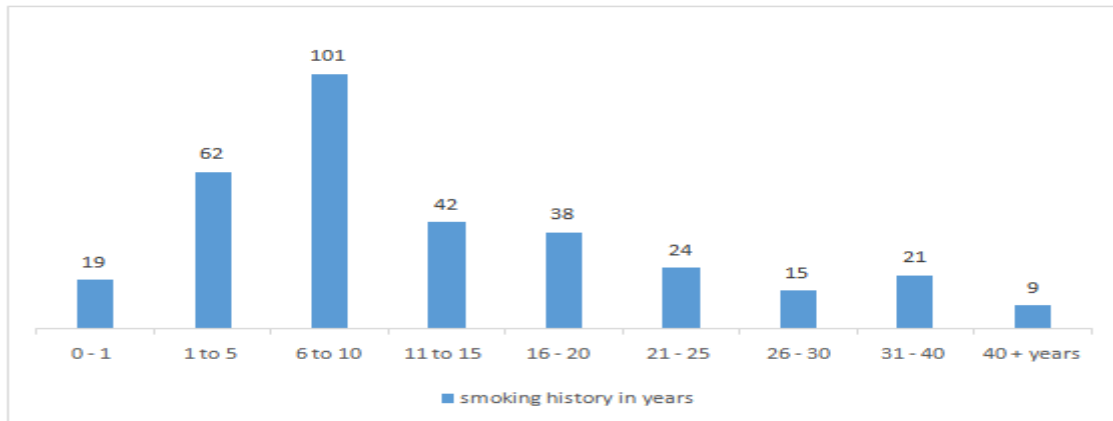

Figure 3: History of smoking habit (in years)

Smoking onset: 20 – 29 years age was found to be onset of smoking habit in majority of smokers followed by 30 to 39 years and least was above 40 years.
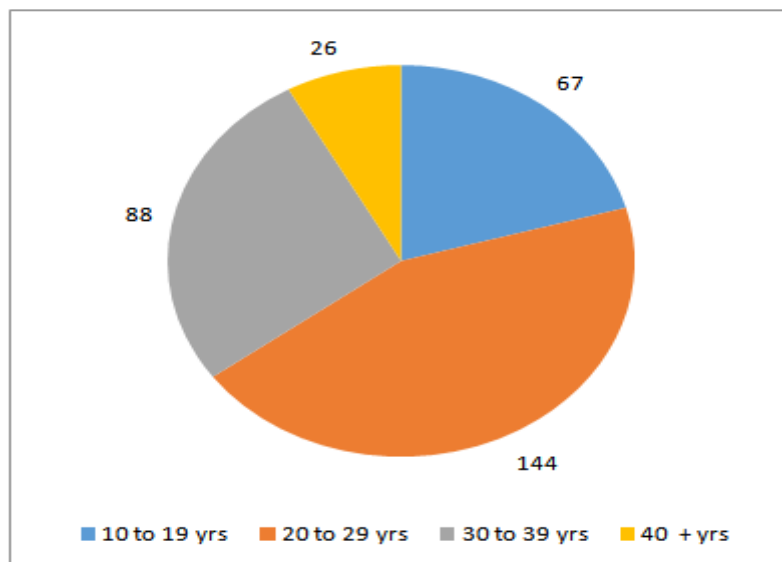

Figure 4: Onset of smoking habit (in years)

Number of cigarettes per day: 146 members in our study smoke 1 – 5 cigarettes per day, followed by 20 % smokers had 6 – 9 and 20 – 50 cigarettes per day.

Table 1: Percentage of participants versus number of cigarettes per day

Number of cigarettes per day	Number of participants	Percentage
1 to 5	146	42.94
6 to 9	56	16.47
10 cigarettes/ 1 pack	54	15.88
11 to 19	26	7.64
20 to 50	56	16.47
Above 50	2	0.6

Medical History: 12.2 % of study population has a medical history and majority were hypertensive and diabetic. Few were suffering with chronic disease such as CAD, ALD, respiratory and stroke.

Occupation of study population varied according to region. Majority of tobacco user's occupation was government or private employee / daily wage / agriculture / driver / students. Reason of tobacco use or dependence was work stress (44 %), Peer pressure (30 %) and to kill time (17 %)

Fagerstrom Scale: Based on this score the level of dependence was calculated. It is found that 52.8 % and 24.2 % are at moderate and severe dependence on nicotine respectively.

Table 2: Representation of Level of dependence among study participants

FTND scale	Severity	Study participants	%
<4	Low	77	24.6
4 – 6	Moderate	168	53.67
>8	Severe	68	21.73

IV.   Discussion

The purpose of our study was to calculate the risk of tobacco and tobacco products on individual health. Our other objectives were to create awareness and counsel about tobacco consumption and its ill - effects on health. The mean age group in our study is 35 ± 2 years and 98 % were male, similar findings were observed in another study.[8]The middle aged people have high level of dependence due to several factors like family responsibilities, work pressure and their addiction since many years which made them nicotine dependent. Another study done at same localityon young population with mean age of 20.4 ± 2.9 years revealed that among 41.3%smokers,12.8% were female population who are literates and mostly belong to urban areas.[3]Among women, smoking is high in students, possible reasons for it are peer pressure and this social habit of tobacco consumption is considered has college-trend and they feel this could improve their social status but they fail to understand the ill-effects of tobacco.

Of 524 smokers interacted, 84.5 % were using smoking form of tobacco and remaining were tobacco chewers. 6.6 % were addicted to both forms of tobacco. Among tobacco chewers, oral hygiene was poor. Any form of tobacco has high risk factor of oral cancer which carries 50 % of mortality rate.[11]

Alcohol consumption along with tobacco use was38.3 % in study population compared to another study which showed 29.2%. People with both social habits were more prone to cardiovascular disease risk.[12]

As tobacco use is an addiction, majority of smokers (42.9%) smoke 5 cigarettes per day. This study results are supported by the similar work done by garg*et al.*[3] Smoking kills upto 50 % of tobacco users causing CAD with mortality rate of 30 – 40 % and 90 – 95 % of lung cancer.[12] 12 % of study population have prominent medical history which includes Hypertension, Diabetes Mellitus, Bronchial Asthma, Cardiac and respiratory problems.

Of study population, 52.8 % and 24.2 % smokers are at moderate to severe dependence on nicotine according to FTND scale. This is the alarming group which have higher incidence of developing health issues and it is also observed that improved awareness will definitely help them reduce the addiction.

Job stress (44%), peer pressure (31%) and to kill time were the key provoking factors for nicotine dependence as observed in our study. Similar findings were stated in other studies.[3, 9]According to Korean study, which was done exclusively on relation to job stress and nicotine dependence, they found that stress at work place made them high risk of nicotine dependence (12.7 %) in reference with Fagerstrom scale.[13]

According to fagerstrom*et al* and hatzilia*et al,* less dependent smokers may quit smoking more easily and remaining high dependent smokers may need more intensive treatment.[9,12]Occupation of smoker have greater impact on nicotine dependence. In our study majority of smokers were daily wagers and government / private employees. Their reason of smoking was due to peer pressure and job stress which is contrast to the study done by Amal*et al*[8].

A positive outcome was observed in our survey as mentioned in WHO recommendations, which stated increase in taxation, awareness and counselling, conducting surveys, sign boards at public places and monitoring can reduce the prevalence of tobacco use.[7, 14]

V.   Conclusion

Smoking is an addiction which affects socio-economic status and has adverse effects on smokers. Work stress, Peer pressure are modifiable factors for smoking addiction whereas young population believe it as fashion trend to have social habits.

Poor awareness among public is the main cause for addiction. Government policies and policy implementation is not well appreciated in field of counselling and it failed in creating awareness among people. Health care professionals should take the initiative in these aspects. Pharmacist has vital role in using FTND scale to calculate nicotine dependence, finding out the factors for cravings, creating awareness, to suggest for possible treatment options available for tobacco dependence.

Along with direct use of tobacco, second hand smoking will have deleterious effects. Many of smokers are not aware of it, therefore public awareness should be created on regular basis, which can be done by advertisements, banners and conducting health awareness or/and patient education programs.

Effect of Second Hand Smoke (SHS) or Environmental Tobacco Smoke (ETS) on health and on CVD is well known. Though efforts from NGOs and Government are in action, smoking in public places is still

prevalent. This study provides that number of smokers overall at a particular point might be less, but for contribution to ETS is immense and there is no safe limit of ETS. Periodic counselling by Clinical Pharmacist and law enforcements should be done to improve the social culture. Research and surveys should be encourage in this field which provides multiple ideas and statistics, promote acquisition which in turns helps in improving QOL of general public.

Acronyms

J&K – Jammu and Kashmir

FTND – Fagerstrom test Nicotine Dependence

QoL – Quality of life

CDC – Centres for Disease Control and Prevention

WHO – World Health Organization

CAD – Coronary Artery Disease

Acknowledgement:

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