

## FAGERSTORM TEST FOR NICOTINE DEPENDENCE AND LEVEL OF ADDICTION IN TOBACCO USERS IN RURAL AREAS OF PANIPAT, HARYANA



### Community Medicine

|                               |                                                                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dr K L Bansal</b>          | Assistant Professor, Department of TB and Chest, N C Medical College and Hospital, Panipat, Haryana                                                                   |
| <b>Dr Manoj Kr Dhingra*</b>   | Associate Professor, Department of Community Medicine, Al Falah School of Medical Science and Research Centre and Hospital, Faridabad, Haryana. *Corresponding Author |
| <b>Dr Nisha Dahiya</b>        | Assistant Professor, Department of Dentistry, WCMSRH, Jhajjar, Haryana.                                                                                               |
| <b>Dr Arjun Dhingra</b>       | Intern, Hindu Rao Hospital, New Delhi.                                                                                                                                |
| <b>Brig (Dr) Ajoy Mahen</b>   | Professor and HOD, Department of Community Medicine, N C Medical College and Hospital, Panipat, Haryana.                                                              |
| <b>Maj Gen (Dr) P K Singh</b> | Professor and HOD, Department of Community Medicine, A L Falah Medical College and Hospital, Faridabad, Haryana.                                                      |

### ABSTRACT

The use of tobacco is quite rampant in India and 28.6% of Indians use tobacco products. Among the states the highest prevalence of tobacco use was seen in Tripura (64.5%). This was followed by Mizoram (58.7%), Manipur (55.1%). (Manoj Kr Dhingra, et al, 2019). The use of tobacco in Haryana is about 23.6% of the total population. This study was undertaken during the period of May 2019 to August 2019 in N C Medical College and Hospital keeping in view the rampant use of smokeless and smoked tobacco. The aims and objectives of this study was to use the Fagerstorm test to assess the level of addiction in patients using tobacco in a tertiary care hospital in Israna and Sonapat, Panipat district Haryana and to carry out deaddiction in patients willing to quit tobacco.

The results of this study showed that out of 114 patients screened who gave a history of tobacco use only 24 patients were actively using tobacco. There were 4 patients with low level of addiction on Fagerstorm test (values less than 4 on Fagerstorm test); 10 moderate cases (Values from 4-6) and 10 severe cases (values more than 6 on Fagerstorm Test). There were 18 males and 6 females in this study. All were given behavioral therapy to quit tobacco.

The result of this study showed that the level of addiction is quite high in this adjoining area of Israna village, next to the NC medical college. In the next phase of this study the patients enrolled would be deaddicted with pharmacotherapy

### KEYWORDS

Tobacco Use; Fagerstorm TEST; Level Of Addiction; Deaddiction

### INTRODUCTION: Fagerstorm Test for Nicotine Dependence (FTND)

The use of tobacco is quite rampant in India and 28.6% of Indians use tobacco products. Among the states the highest prevalence of tobacco use was seen in Tripura (64.5%). This was followed by Mizoram (58.7%), Manipur (55.1%). (Manoj Kr Dhingra, et al, 2019). The states having the least consumption of tobacco use was Goa (9.7%), Puducherry (11.2%), Kerala (12.7%) and Punjab (13.4%). In Delhi, as per the GATS 2 report, the usage was (17.8%) and in Haryana (23.6%). The level of addiction to nicotine is often necessary as a prelude to manage patients, who are willing to quit tobacco. FTND and Heaviness of Smoking Index score (HSI) are tests which are routinely use to test to assess the level of addiction of tobacco users. Further, FTND is a more useful for low nicotine dependence and HIS score is more useful for high nicotine dependence (Park et al, 2004). Urinary cotinine levels also can be used to find out the level of addiction to nicotine in patients. Cotinine levels in the urine and the amount of cigarette smoked are co-dependent variables and urinary cotinine levels can be used to monitor the addiction of nicotine in a patient (Balhara et al, 2013) HIS score are used to monitor the absence of vascular complications or other diseases (Panaretto KS, et al, 2009)

Urinary concentrations of cotinine and the sum of nicotine metabolite concentrations also showed significant correlations with the plasma levels and the previous day's and average cigarette consumption.

### The Emergence Of E-Cigarettes

Even though the problem of tobacco use in India is yet to get eliminated or decreased to a level acceptable level where public health impact is minimal; e cigarettes have emerged on the horizon which adds a new dimension and burden to the tobacco cessation activities in India. The usage of e-cigarettes went beyond the total cigarette usage in adolescents in USA for the first time in history in 2014. (Arrazola RA, et al 2015). The vaping industry is rich with plethora of products having different flavors ( tobacco, menthol, fruit, and coffee ) nicotine strength, health warning, brand, battery life, e-liquid size, and device weight and directly under the scrutiny of FDA. What emerged is a

variable amalgamation of health warnings and rich usage among adolescents which nearly led to an epidemic leading to a situation where a ban has been evoked in some states in USA. In Mexico despite a ban on e cigarettes, a substantial number of Mexicans use them. (L Zavala-Arciniega L, et al, 2018)

### Rationale

The use of tobacco in Haryana is about 23.6% of the total population. This translates to a very high number in absolute numbers. The area adjoining the NC Hospital, Israna also has high usage of tobacco. This study was undertaken during the period of May 2019 to August 2019 in N C Medical College and Hospital keeping in view the rampant use of smokeless and smoked tobacco. Patients from adjoining areas consulted in room no 221 for deaddiction.

### Aims And Objectives

1. To use the Fagerstorm test to assess the level of addiction in patients using tobacco in a tertiary care hospital in Israna and Sonapat, Panipat district Haryana
2. To carry out deaddiction in patients willing to quit tobacco.

### METHODOLOGY



Dr K L Bansal (Left) and Dr Manoj Kr Dhingra (right) and showing the OSPs to the patients and using the Fagerstorm test to assess the level of addiction to nicotine in tobacco users.

Annexure I  
FAGERSTORM TESTName: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_  
Address: \_\_\_\_\_ Mobile No: \_\_\_\_\_

Please answer the following questions:

1. How soon after you wake up do you smoke your first cigarette?

3 - Within 5 minutes

2 - 6-30 minutes

1 - 31-60 minutes

0 - After 60 minutes

2. Do you find it difficult to refrain from smoking in places where it is forbidden ( eg in church, at the library, cinema hall)

1 - Yes

0 - No

3. which cigarette would you have to give up?

1 - The first one in the morning

0 - All the others

4. How many cigarettes do you smoke?

0 - 10 or less

1 - 11-20

2 - 21-30

3 - 31 or more

5. Do you smoke more frequently during the first hours after waking than during the rest of the day?

1 - Yes

0 - No

6. Do you smoke if you are so ill even if you are in the bed most of the days?

1 - Yes

0 - No

| FAGERSTORM TEST |                              |             |
|-----------------|------------------------------|-------------|
| S No            | Calculate Level of addiction |             |
| 1               | Low                          | 4           |
| 2               | Moderate                     | 4-6         |
| 3               | Severe                       | More than 6 |

## OBSERVATIONS

| Patient No | Age in years | Sex | Behavioral Therapy Y/N | Fagerstorm Test |
|------------|--------------|-----|------------------------|-----------------|
| 1          | 50           | F   | Y                      | 3               |
| 2          | 55           | F   | Y                      | 1               |
| 3          | 55           | M   | Y                      | 5               |
| 4          | 57           | M   | Y                      | 4               |
| 5          | 64           | M   | Y                      | 2               |
| 6          | 50           | M   | Y                      | 8               |
| 7          | 64           | F   | Y                      | 10              |
| 8          | 63           | M   | Y                      | 7               |
| 9          | 52           | M   | Y                      | 6               |
| 10         | 62           | F   | Y                      | 7               |
| 11         | 70           | F   | Y                      | 5               |
| 12         | 60           | F   | Y                      | 4               |
| 13         | 56           | M   | Y                      | 6               |
| 14         | 66           | M   | Y                      | 8               |
| 15         | 79           | M   | Y                      | 6               |
| 16         | 55           | M   | Y                      | 6               |
| 17         | 62           | M   | Y                      | 9               |
| 18         | 50           | M   | Y                      | 7               |
| 19         | 69           | M   | Y                      | 7               |
| 20         | 50           | M   | Y                      | 8               |
| 21         | 80           | M   | Y                      | 8               |
| 22         | 65           | M   | Y                      | 5               |
| 23         | 65           | M   | Y                      | 5               |
| 24         | 65           | M   | Y                      | 2               |

## RESULTS And DISCUSSION

| FAGERSTORM TEST |                              |             |    |
|-----------------|------------------------------|-------------|----|
| S No            | Calculate Level of addiction |             |    |
| 1               | Low                          | Less than 4 | 4  |
| 2               | Moderate                     | 4-6         | 10 |
| 3               | Severe                       | More than 6 | 10 |

The results of this study showed that out of 114 patients screened who gave a history of tobacco use only 24 patients were actively using tobacco. There were 4 patients with low level of addiction on Fagerstorm test (values less than 4 on Fagerstorm test); 10 moderate cases (Values from 4-6) and 10 severe cases (values more than 6 on Fagerstorm Test)

There were 18 males and 6 females in this study. All were given behavioral therapy to quit tobacco.

## Various Forms Of Smokeless Tobacco Used In India

1. Pan is made up of betel leaf on which tobacco, areca nuts, spices, and lime are added
2. Gutkha is a powder and available as sachets. It is usually kept under the tongue and is of very common use in India. It contains lime, areca nut and tobacco
3. Khaini is tobacco leaves to which lime is added and is consumed orally.
4. Zarda is tobacco flakes which is mixed with aromatic spices, menthol, herbs, fragrances, and saffron
5. Naswar contains tobacco, slaked lime, indigo, cardamom oil, menthol and is a moist, powdered tobacco and is rolled into a ball and placed under the tongue or in the cheek and is sucked for 10 to 15 minutes

## CONCLUSION

This study concluded that the level of addiction in this adjoining area of Israna village, next to the NC medical college is quite high. as only 4 out of 24 tobacco users showed low level of addiction on Fagerstorm Test. In the next phase of this study the patients enrolled would be deaddicted with pharmacotherapy.

## REFERENCES

1. Balhara YP, Jain R. A receiver operated curve-based evaluation of change in sensitivity and specificity of cotinine urinalysis for detecting active tobacco use. J Cancer Res Ther 2013;9:84-9.
2. Manoj Kr Dhingra 1, Nisha Dahiya 2, K L Bansal 3, Nikita 4 Renu Dhingra 5 Rakesh Kumar 6, Ajay Mahen 7, B S Deswal 8. Visual Inspection and Oral Spot plates (OSPs) as a screening and a surveillance tool for the prevention of oral cancer in rural areas and in a tertiary care hospital in Haryana. International Journal of Scientific Research, May 2019; 8 (5) :47-50 DOI: 10.15373/2249555
3. Nagano T1, Shimizu M, Kiyotani K, Kamataki T, Takano R, Murayama N, Shono F, Yamazaki H. Biomonitoring of urinary cotinine concentrations associated with plasma levels of nicotine metabolites after daily cigarette smoking in a male Japanese population. Int J Environ Res Public Health. 2010 Jul;7(7):2953-64. doi: 10.3390/ijerph7072953. Epub 2010 Jul 20.
4. Panaretto KS, Mitchell MR, Anderson L, Gilligan C, Buettner P, Larkins SL, et al. Tobacco use and measuring nicotine dependence among urban indigenous pregnant women. Med J 2009;191:554-7.
5. Park SM, Son KY, Lee YJ, Lee HC, Kang JH, Lee YJ, et al. A preliminary investigation of early smoking initiation and nicotine dependence in Korean adults. Drug Alcohol Depend 2004;74:197-203.
6. Saha I1, Islam K2, Paul B3, Som TK1. Nicotine dependence and its correlates among the adult tobacco users in a slum of Burdwan district, West Bengal, India. J Family Med Prim Care. 2017 Oct-Dec;6(4):813-818. doi: 10.4103/jfmpe.jfmpe\_42\_17.
7. Tata Institute of Social Sciences (TISS), Mumbai and Ministry of Health and Family Welfare, Government of India. Global Adult Tobacco Survey GATS 2 India 2016-17.
8. Arrazola RA, Singh T, Corey CG, Husten CG, Neff LJ, Apelberg BJ, et al. Tobacco use among middle and high school students—united states, 2011–2014. MMWR Morb Mortal Wkly Rep: 2015.
9. Zavala-Arciniega L1, Reynales-Shigematsu LM2, Lozano P3, Rodríguez-Andrade M4, Arillo-Santillán E1, Thrasher JF4. Patterns of awareness and use of electronic cigarettes in Mexico, a middle-income country that bans them: Results from a 2016 national survey. Prev Med. 2018 Nov;116:211-218. doi:10.1016/j.ypmed.2018.09.018. Epub 2018 Sep 24.