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'Web Based Approach' to Assess Factors Affecting Nicotine Dependency among Internet-Active Smokers

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ABSTRACT

Introduction: In India, approximate 14% of the adults are smokers. Low follow-up rate and missed opportunities of de addiction are the main challenges for Tobacco control Program. Review shows the positive impact of web-based interventions to quit smoking. With increasing internet use among Indians, study was done to explore possibility of web base smoking cessation intervention.

Methodology: To study the objective, a website named 'Smoke Free India' was created by the investigators. Total 113 responses were collected through web-based survey and analyzed for nicotine dependency with standard measuring guidelines.

Results: Around 37.17 % of responders were under 20 years of age. Among total respondents, 82.3 % were male. After adjusting for confounders, risk factors increasing nicotine dependency were age < 25 years (b1= 2.41), affected marital status (b2 = 0.23), years spend in smoking habit (b3=0.41), feeling tired of quitting (b4= 0.70) while late evening time of smoking first cigarette of day (b5= -0.34) and living with family (b6= -0.28) were protective factors. Almost 90.3% thought that they would be comfortable to use Internet services to quit smoking.

Conclusions: The study find out the factors associated with nicotine dependence. Familiarity and willingness to use Internet services open the door for web based de addiction services.

Keywords: smoking, addiction, nicotine dependence, internet users, web based services, information technology

INTRODUCTION

Smoking is one of the leading causes of preventable death worldwide, with statistics showing 14 % of adults are smokers in India. About five in ten adults are exposed to second hand smoke in home.[1] Hazards of smoking are well documented with known to cause respiratory disease in the milder form right up to cancer when it becomes a chronic habit. Not only smoking is a grave problem leading to adverse health effects among the smokers, the harmful effects of the second hand or passive smoking are well known. This problem of passive smoking is of great concern, especially in an urban crowded area and among young population.[2,3]

There are various national health programs focused on Non communicable disease (NCD) and cancer prevention and management. However, none till a couple of years back focused on smoking, its harmful effects and prevention.[4] To add further, it is difficult to cease smoking, largely due to nicotine dependence, which requires great self-motivation and family support. Although there are activities helps smokers to quit smoking, screening to those who are ready to quit trying to follow them up to cession is difficult.[5,6]

Information technology has reached great height with 325.441 million Internet users India ranks second among world's highest Internet users with 26 % of the population penetration.[7,8]Public heath research has shown media campaigns to have the impact in reducing smoking addiction among youth as well as motivating adults to quit and thereby reducing overall smoking prevalence. These

campaigns may increase the inquisitiveness among smokers with intention to quit; who may refer Internet to gain more knowledge and means to quit smoking. Web based intervention studies worldwide has shown a positive impact on enabling to quit smoking.[9]

With this hypothesis in mind, we tried to explore possibility of a web-based approach to support smokers to quit smoking. The study was undertaken with the objective to analyzed factors affecting nicotine dependency among smokers who are Internet active. Another prime objective of the study was to explore the possibility of utilization of web based de addiction services.

METHODOLOGY

The study was an Internet based cross sectional study. As a part of web based innovation for de-addiction services, a website named 'Smoke Free India' was created by the investigator.[10]

Appearance: The website prepared was simple and user friendly in to achieve prime objective. Front page was having pictures of healthy lifestyle and plug in to directly accessing to Social Networking Website campaigned Page (i.e. Facebook) created for study purpose. [11]

Features: The website consists of total of four pages, which can be navigated from the front page. First page included imbedded data collection tool along with instructions for viewers. Viewers were requested to enroll in the study if they have ever smoked in life. Participants were from the website visitors who self reported for smoking. Data was collected online with Google form using CAGE questioner and 'Modified Fagerstrom Test' (MFT) to calculate nicotine dependency. CAGE tool uses four questions to screen addiction while MFT uses while Modified Fagerström test is a standard tool to evaluate intensity of physical nicotine dependence on score of 10. [12] Second page of website displayed with different laws related to smoking, where user can read and measure their smoking dependency and hazards scale. Acts and lows related to smoking were described in details along with penalty of conviction according to national guidelines. This page also has highest usability with including self operating calculators where user can enter frequency and pattern of smoking and they would get calculated smoking dependency score, life time cost spend on smoking, probability of developing different diseases and also calculated benefit of quitting smoking. Third page included various media in the form of videos, short stories, advertisement and awareness posters, logos and motivational stories. The fourth and last page of the website was contact us section, where users can drop message and contact the author.

Search engine optimization: The website was free hosted and domain was not purchased. This website was not optimized to be searched by search engines.

Data collection: The responses were collected for 45 days by promoting website by multipronged shares on Internet with request to share further. The website link was emailed randomly to the author's email contact book. Website was shared multiple times to social network media pages in the form of campaigned. [11]

Data analysis: Data were collected by online Google form. Unique ID was recorded for each Google response, which was checked for duplicate responses entry. Descriptive analysis was done to analyze data. To study the factors associated with nicotine dependence, logistic regression was applied with the help of SPSS v 19.

RESULTS

Website statistics: Total 245 visitors were recorded on website. Total 113 responses collected through Google form through online web promotion by sharing website on social media and email.

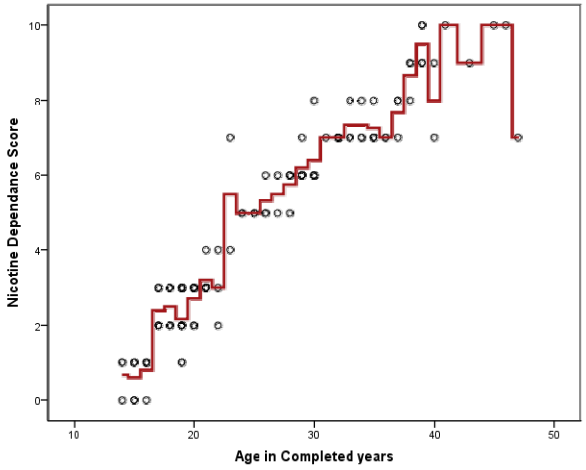
The age of the respondents ranges from 14 to 47 years and out of that 37.17 % were under 20 years of age. Amongst the total 82.3 % were male and rest 17.7 % were female. Maximum male members belong to age group < 20 years while for female maximum members were from age group 26-30 years. While analyzing education background, around 41.59 % respondents were studying or having bachelor degree followed by master degree (38.05 %), elementary school (15.04 %), never attended school (3.54 %) and 1.77 % did not specified education category. While asking questions to assess readiness to change, 42.48 % respondents were found to be in Pre contemplation phase followed by Contemplation phase (16.81 %), Preparation phase (14.16 %), Action phase (23.01 %) and in maintenance phase (3.54 %). Out of the total respondents 31.86 % male were in pre contemplation phase while 23.1 % were in action phase while 10.62% female were in pre contemplation phase and none of the female were in action phase. An average nicotine dependence score was 5.40 among the respondents. (Table 1)

As draw in Graph 1, while analyzing relation of Nicotine dependence, it was noted that nicotine dependency was increasing with age. It was noted that nicotine dependency was sharply increasing below the age of 25 years as compared to age more than 25 years.

Table 2 lists the final factors in the model, which affects nicotine dependence. After adjusting for

Table 1: Profile of respondents (n= 113)

Variables	Male (n=93)(%)	Female (n=20) (%)	Total (%)
Age Groups			
< 20 Years	34.51	2.65	37.17
21- 25 Years	19.47	3.54	23.01
26 - 30 Years	11.50	7.96	19.47
31 - 35 Years	5.31	3.54	8.85
36 - 40 Years	7.96	0.00	7.96
> 40 Years	3.54	0.00	3.54
Total	82.30	17.70	100.00
Education			
Never attended school	3.54	0.00	3.54
Elementary school	13.27	1.77	15.04
Bachelors	27.43	14.16	41.59
Masters	36.28	1.77	38.05
Not specified	1.77	0.00	1.77
Total	82.30	17.70	100.00
Motivational Phases (Readiness to change)			
Pre contemplation	31.86	10.62	42.48
Contemplation	10.62	6.19	16.81
Preparation	13.27	0.88	14.16
Action	23.01	0.00	23.01
Maintenance	3.54	0.00	3.54
Total	82.30	17.70	100.00
Nicotine dependence average score out of 10	5.7	3.9	5.40



Graph 1: Relation between Age and Nicotine Dependence

Table 2: Factors affecting nicotine dependency (n=113)

Factors	B coefficient
Initiation of smoking at age < 25 yrs	b 1 = 2.41
Affected marital status	b 2 = 0.23
Years of smoking habit	b 3 = 0.41
Feeling tired of quit	b 4 = 0.70
Late evening time of smoking first cigarette	b 5 = - 0.34
Living with family	b 6 = - 0.28
R square = 0.85	

confounders, results were obtained to list out factors predictors of nicotine dependency. Initiation of smoking at age less than or equal to 25 years were increasing nicotine dependency score by 2.41 as compared to age more than 25 years. Affected marital status (i.e. divorced, married but living separately and widower) was increasing score of nicotine dependence by 0.23 units than not affected marital status (i.e. single, married and living with partner). With increasing every year spend in smoking habit nicotine dependency score increased by 0.41. There was increase of 0.7 unit of nicotine dependency if smoker feels tired of quitting habit. Late evening time to start cigarette of the day was turn out to be protective factor with - 0.34 unit change in nicotine dependency. Living with family was also protective with - 0.28 unit change in nicotine dependency.

While ask about use of internet search to quit smoke, nearly 63% of the responders said that they had search on internet to quit smoke but 88.7 % of them found it to be unsatisfactory. Almost 90.3% of the respondents said that they would be comfortable to use Internet services to quit smoking if is simple and easy to use.

DISCUSSION

With wide range of age of respondents it was observed that maximum male participants were of age less than 20 years while maximum female participants were within the age group 26 to 30 years. A study had done by Rani M et al, on national survey data in the year 2013 records higher level of smoking prevalence among male, poor and uneducated. Current study was targeted to reach Internet users mainly from urban geography. In contrast to the study done by Rani M et al, current study results shows high smoking prevalence also among adult female and among high education profile people.[13]

Although the current study had targeted participants from the general Internet user, Maximum was in pre contemplation phase followed by action phase. High motivation was noted among smokers who were contacted online similar to the finding of a clinic-based study done in southern city of India in the year 2012. [14]

Nicotine dependency sharply increases in young age less than 25 years as compared to elder age groups. Study published by Srivastava S et al in 2013 reveals that there are higher chances of successful quit attempts among yong population. [15] It suggests that control programs should aim to target more on the young populations. Predictors of nicotine dependency studied here among internet users indicates that age less 25 years, bad marital

status, years of smoking and feeling tired of quit were identified as risk factors while late evening time of smoking first cigarette and living with family were protective factor against nicotine dependency. Though other studies included general community members, similar kind of factors was listed for tobacco and related product as well. [16,17]

Studies done in other countries concluded with effective use of an Internet viral marketing platform proved to be effective in bringing thousands of Web users to discover and explore a governmental health promotion website. [18–20] Large numbers of respondents of current study showed willing to use Internet services if provided by Govt. It indicates that with explosive rise in Internet user, web based services may create a new approach to engage community. A study published by Centers for Disease Control and Prevention (CDC) in 2012 shares success of web based platform to motivate country people to quit smoking habit. [21]

Current study by sharing feasible experience of using web based services opens the doors of new media use to reach community, specifically Internet users towards health promotion.

CONCLUSIONS

Nicotine dependency associated with age, marital status, duration of smoking, withdrawal symptoms, living with family and time of smoking first cigarette of the day. Familiarity and willing to use Internet services open the door of utilization of web based de addiction services.

REFERENCES

1. WHO. Global Adult Tobacco Survey. Factsheet. India [Internet]. p. 2. Available from: http://www.who.int/tobacco/surveillance/en_tfi_india_gats_fact_sheet.pdf
2. Raute L, Pednekar M, Mistry R, Gupta P, Pimple S, Shastri S. Determinants of exposure to second-hand smoke at home and outside the home among students aged 11-17 years: Results from the Mumbai Student Tobacco Survey 2010. Indian J Cancer. 2012;49(4):419.
3. Patel DR. Smoking and children. Indian J Pediatr. 66(6):817–24.
4. Government of India. National tobacco Control programme [Internet]. [cited 2016 Jun 12]. Available from: https://www.nhp.gov.in/miscellaneous/standard-governance-and-protocols
5. Panda R, Persai D, Venkatesan S. Missed opportunities for brief intervention in tobacco control in primary care: patients' perspectives from primary health care settings in India. BMC Health Serv Res. 2015 Dec 1;15(1):50.
6. Mony PK, Rose DP, Sreedaran P, D'Souza G, Srinivasan K. Tobacco cessation outcomes in a cohort of patients attending a chest medicine outpatient clinic in Bangalore city, southern India. Indian J Med Res. 2014 Apr;139(4):523–30.
7. Telecommunication Development Bureau. International Telecommunication Union (ITU). ICT Facts and Figures 2017 [Internet]. [cited 2017 Aug 30]. Available from: http://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx
8. Central Intelligence Agency. The World Factbook — [Internet]. [cited 2017 Aug 29]. Available from: https://www.cia.gov/library/publications/resources/the-world-factbook/geos/in.html
9. Lowe JB, Barnes M, Teo C, Sutherns S. Investigating the use of social media to help women from going back to smoking post-partum. Aust N Z J Public Health. 2012;36(1):30–2.
10. Smoke Free India [Internet]. [cited 2014 Aug 9]. Available from: http://smokefreeindia.wix.com/smoke-free-india
11. Chawada B, P Kadia A, Kosambiya J, L Kantharia S. Social networking media: Going one step ahead for smoking awareness and IEC. Natl J Community Med. 2013;4:632–5.
12. Rustin TA. Assessing nicotine dependence. Am Fam Physician. 2000 Aug 1;62(3):579–84.
13. Rani M, Bonu S, Jha P, Nguyen SN, Jamjoum L. Tobacco use in India: prevalence and predictors of smoking and chewing in a national cross sectional household survey. Tob Control. 2003;12(4).
14. D'Souza G, Rekha D, Sreedaran P, Srinivasan K, Mony P. Clinico-epidemiological profile of tobacco users attending a tobacco cessation clinic in a teaching hospital in Bangalore city. Lung India. 2012 Apr;29(2):137.
15. Srivastava S, Malhotra S, Harries AD, Lal P, Arora M. Correlates of tobacco quit attempts and cessation in the adult population of India: secondary analysis of the Global Adult Tobacco Survey, 2009–10. BMC Public Health. 2013 Dec 22;13(1):263.
16. Danawala SA, Arora M, Stigler MH. Analysis of motivating factors for smokeless tobacco use in two Indian states. Asian Pac J Cancer Prev. 2014;15(16):6553–8.
17. Islam K, Saha I, Saha R, Samim Khan SA, Thakur R, Shivam S. Predictors of quitting behaviour with special reference to nicotine dependence among adult tobacco-users in a slum of Burdwan district, West Bengal, India. Indian J Med Res. 2014 Apr;139(4):638–42.
18. Gosselin P, Poitras P. Use of an Internet "Viral" Marketing Software Platform in Health Promotion. Eysenbach G, editor. J Med Internet Res. 2008 Nov 26;10(4):e47.
19. Freeman B. New media and tobacco control. Tob Control. 2012 Feb 16;21(2):139-144.
20. Balmford J, Borland R, Benda P, Howard S. Factors associated with use of automated smoking cessation interventions: findings from the eQuit study. Health Educ Res. 2013 Apr;28(2):288–99.
21. Centers for Disease Control and Prevention (CDC). MMWR Morb Mortal Wkly Rep. 2012 Aug 31;61(34):667–70.