



## PREDICTORS OF SMOKING CESSATION AND ITS ASSOCIATION WITH HEALTH LITERACY – A CROSS-SECTIONAL STUDY

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### ABSTRACT

**Introduction:** There are numerous key predictors of smoking cessation and maintenance such as Nicotine dependence, smoking outcome expectancies, smoking risk perceptions, self-efficacy to quit smoking and intentions to quit/reduce smoking. Along with these factors health literacy is one factor that might be negatively associated with cessation outcomes.

**Aim:** To assess nicotine dependence, predictors of smoking cessation and health literacy level among smokers and to determine associations between health literacy and established predictors.

**Methods and Material:** A cross sectional study was conducted among 100 smokers visiting to the Dental Out Patient Department of The Oxford Dental College, Bangalore. Participant's demographic details were recorded and a validated questionnaire was administered assessing their nicotine dependence, smoking outcome expectancies, risk perception, self-efficacy and intentions to change behaviour. Participant's health literacy level was assessed using Rapid Estimate of Adult literacy in medicine. Data obtained was analyzed using SPSS software version 22. Mann Whitney / Chi Square test and Adjusted Hierarchical Multiple Regression analysis was done to determine association between health literacy and smoking cessation predictors.

**Results:** Among 100 smokers, 49 belonged to high health literacy and 51 belonged to low health literacy groups. The highest mean nicotine dependency was among low health literacy group ( $2.3 \pm 0.5$ ) and the p-value was significant (0.04). Participants with lower health literacy had more positive and less negative outcome expectancies when compared to individuals with higher health literacy. There was no significant association between health literacy and smoking cessation predictors.

**Conclusion:** Hence, health literacy might not be an independent risk factor for poor cessation outcomes.

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### INTRODUCTION

Cigarette smoking is the leading preventable cause of morbidity and mortality in the world.<sup>1</sup> Numerous key predictors of smoking cessation and maintenance have been identified. One of the most robust predictors is nicotine dependence (i.e., average number of cigarettes smoked per day, time to first cigarette on waking). Smokers with higher levels of dependence are less likely to quit smoking and less likely to maintain abstinence.<sup>2-4</sup> Smoking expectancies can be positive (e.g., smoking facilitates social interactions, smoking reduces boredom or negative affect) or negative (e.g. Smoking is harmful to health, others might disapprove of smoking). Stronger negative outcome expectancies are associated with greater intentions to quit and better cessation outcomes.<sup>5</sup> Smoking health risk perceptions is also associated

with smoking cessation such that lower perceived vulnerability and fewer perceived smoking risks are negatively associated with abstinence.<sup>6,7</sup> Quitting self-efficacy (i.e., the confidence in one's ability to quit smoking) and intention to quit smoking predict successful cessation outcomes.<sup>1</sup>

Poor health literacy is one factor that may be negatively associated with cessation outcomes. Health literacy is the ability to obtain, understand, and use health information to make important decisions regarding health and medical care.<sup>8</sup> Poor health literacy is associated with higher incidence of chronic illness (e.g., diabetes, hypertension) and more limited access to prevention and treatment programs.<sup>9</sup> Those with poor health literacy tend to engage in harmful health behaviors (e.g., poor medication adherence, less preventive care utilization, less cancer screening) and are more likely to report poor health

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status.<sup>10-12</sup> They also have low levels of illness-related knowledge. Individuals with low health literacy are less likely to be screened for cancer and are more frequently diagnosed with advanced stage cancers.<sup>11,13</sup> There is a critical need to better understand how health literacy may be linked with smoking prevalence and cessation.<sup>1</sup>

Thus, the aim of this study was to determine the association between health literacy and smoking cessation predictors (i.e., nicotine dependence, smoking outcome expectancies, smoking risk perceptions, self-efficacy to quit smoking, and intentions to quit or reduce smoking). And the objectives being:

- To assess the level of nicotine dependence among smokers,
- To assess smokers smoking outcome expectancies, smoking risk perceptions, self-efficacy to quit smoking, and their intentions to quit or reduce smoking,
- To evaluate participants health literacy level, and
- To evaluate association of health literacy with smoking cessation predictors.

## MATERIALS AND METHODS

This study consisted of a convenient sample of 100 smokers from the Outpatient Department of The Oxford Dental College. Eligible participants were current daily smokers ( $\geq 5$  cigarettes/day during past 1 year),<sup>14</sup> participants of 18 - 70 years of age<sup>15</sup> who are able to speak/read/ write English/Kannada. The participants who were currently under nicotine replacement therapy or using bupropion, currently enrolled in any Smoking cessation treatment program, who self-reported their intention to quit smoking within 30 days of study enrolment were excluded. Ethical approval was obtained before the start of the study from The Oxford Dental College's Research Ethics Committee.

This was a cross-sectional study. Participants consent was obtained. Eligible participant's demographic details were recorded. A validated questionnaire was administered to all the participants. The questionnaire administered was used to assess the participant's nicotine dependence, smoking-related outcome expectancies, smoking risk perceptions, self-efficacy, and intentions to reduce or quit smoking completely. Rapid Estimate of Adult Literacy in Medicine (REALM) was administered to measure their health literacy. The participants who found difficulty to understand the questionnaire, were read and explained the entire questionnaire to them in the regional language (Kannada) by the investigator and was filled by the examiner.

**Demographic details:** Demographic characteristics included age, gender, educational attainment, occupation, total annual household income. Patient's socio-economic status was calculated using modified Kuppaswamy socio-economic status scale, 2017.<sup>16</sup> It was categorized as upper, middle and lower SES. The responses for educational attainment was categorized as <high school degree versus  $\geq$  high school degree.

**Health literacy:** Participants Health literacy was measured with the 66-item REALM, a rapid screening instrument that assesses the ability to decode 66 common medical words and lay terms for body parts. Words are ordered according to difficulty. Participants are instructed to read through the list of words and pronounce as many as possible. If they are unable to pronounce they are asked to skip. The REALM takes 2 to 3 minutes to administer and score. Scoring is based on standard

dictionary pronunciation rules. The sum of words read correctly is translated into 1 of 4 grade-level estimates (0-18: <fourth grade; 19-44: fourth-sixth grade; 45-60: seventh-eighth grade;  $\geq 61$ :  $\geq$ ninth grade). In this article, health literacy was dichotomized on the basis of a median split at the ninth-grade level.<sup>17</sup>

**Nicotine Dependence:** Nicotine dependence was measured with 2 items from the Fagerström Test for Nicotine Dependence (FTND)<sup>18</sup>: self-reported average number of cigarettes smoked per day and time to use first cigarette on waking. These 2 items constitute the Heaviness of Smoking Index (HSI).<sup>4</sup>

**Smoking Outcome Expectancies:** Smoking outcome expectancies was assessed using Short Smoking Consequences Questionnaire for Adults (SSCQ-A), a 21-item self-report measure of expectations about the positive and negative consequences of smoking. Items are rated on a 10-point Likert scale (0="completely unlikely," 9="completely likely"). The SSCQ-A includes 4 subscales: Negative Consequences, Positive Reinforcement, Negative Reinforcement, and Appetite/Weight Control. Positive expectancies are positively correlated with nicotine dependence (i.e., FTND scores).<sup>19</sup>

**Risk Perceptions:** Smoking risk perceptions were assessed in terms of absolute risk and risk compared with other smokers. Participants responded to the following 4 questions: (1) "If you don't quit smoking for good, what are your chances of ever developing a smoking related health problem?" (2) "If you quit smoking for good, what are your chances of ever developing a smoking-related health problem?" (3) "Compared to other smokers, what are your chances of ever developing a smoking-related health problem if you continue smoking?" and (4) "Compared with other smokers, what are your chances of ever developing a smoking-related health problem if you quit smoking for good?" Perceptions were rated on a 7-point, verbally anchored Likert scale ranging from "extremely unlikely" to "extremely likely." Participants also rated their perceived personal risk of developing at least 1 health consequence of smoking if they were to permanently quit smoking and if they were to continue smoking. This rating scale ranged from 0% to 100%.

**Self-efficacy to Quit Smoking:** Self-efficacy to quit smoking was measured by asking participants how confident they were that they could quit smoking if they wanted to. Participants were asked to respond on a 5-point Likert scale (1="definitely no," 5="definitely yes").

**Intentions to change smoking behaviour:** In this study, we assessed how confident participants were that they could cut back, limit their smoking to certain situations, or quit completely within the next 2 months. Participants were asked to respond on a 9-point Likert scale ranging from 1 ("Extremely unlikely") to 9 ("Extremely likely").<sup>1</sup>

### Statistical Analysis

Data were collected and analyzed using the SPSS [Statistical Package for Social Sciences] v.22 [IBM, Corp.,] for Windows. Descriptive analysis of all the explanatory and outcome parameters were done using mean and standard deviation for quantitative variables, frequency and proportions for categorical variables. Chi square test and independent student Mann Whitney test. were used to measure the differences for categorical and continuous variables between the lower &

higher health literacy groups, respectively. A multiple linear regression analyses were conducted to test for associations between health literacy and the following dependent variables like nicotine dependence, smoking outcome expectancies, smoking health risk knowledge and risk perceptions, self-efficacy to quit smoking, and intentions to quit or reduce smoking. The level of significance was set at  $P < 0.05$ .

## RESULTS

Out of 100 study population, 59% were in the age group of 20-29 years, 29% were in the age group of 30-39 years, 6% were in the age group of 39-40 years, 4% were in the age group of 49-50 years and 2% of the study participants were in the age group of  $\geq 60$  years (Table 1).

**Table 1** Distribution of Socio-demographic variables among the study participants

| Variables | Categories         | n  | %   |
|-----------|--------------------|----|-----|
| Age       | 20 - 29 years      | 59 | 59% |
|           | 30 - 39 years      | 29 | 29% |
|           | 39 - 40 years      | 6  | 6%  |
|           | 49 - 50 years      | 4  | 4%  |
|           | $\geq 60$ years    | 2  | 2%  |
| Income    | > 20,000           | 58 | 58% |
|           | $\leq 20,000$      | 42 | 42% |
| SES       | Upper              | 13 | 13% |
|           | Middle             | 74 | 74% |
|           | Lower              | 13 | 13% |
| Education | > High School      | 71 | 71% |
|           | $\leq$ High School | 29 | 29% |

About 58% of the participants had monthly household income of >20,000 (in Rs). And 42% had monthly household income of  $\leq 20,000$  (in Rs). Majority of the participants were from middle class i.e., 74% followed by 13% in upper and 13% in lower class. About 71% of the total population had education level more than high school degree and 29% had education level less than high school degree.

Comparison of socio-demographic data and predictors of smoking cessation such as heaviness of smoking, smoking health consequences, smokers risk perception, and their intentions to change behaviour between health literacy levels of the participants showed that out of 100 smokers, 49 belonged to high health literacy with a mean REALM score of  $62.4 \pm 3.0$  while 51 participants belonged to low health literacy with a mean REALM score of  $21.6 \pm 18$  and the difference in mean scores between these two groups was highly statistically significant ( $p < 0.001$ ).

The mean age of the participants with high health literacy was 28.5 years  $\pm 6.8$  ranging from 22-53 years and low health literacy was 33 years  $\pm 9.8$  ranging from 20-63 years of age. The p value was statistically significant ( $p = 0.003$ ).

Among study participants, 64.7% participants with higher health literacy had total household income of >20,000 (in Rs) and 81.6% participants with lower health literacy had total household income of  $\leq 20,000$  (in Rs). The p value was highly significant ( $p < 0.001$ ).

64.7% participants with higher health literacy had total household income of >20,000 (in Rs) and 81.6% participants with lower health literacy had total household income of  $\leq 20,000$  (in Rs). The p value was highly significant ( $p < 0.001$ ). Participants with High health literacy, 79.6 % belonged to Middle SES. Among participants with Low health literacy, maximum participants i.e., 68.6% belonged to Middle SES. The p value was statistically significant ( $p = 0.003$ ).

Among participants with higher health literacy, 93.9% had education of more than high school degree compared to participants with lower health literacy among whom only 49% had high school degree. The p value was statistically significant ( $p < 0.001$ ).

The participants with lower health literacy were more nicotine dependent ( $2.3 \pm 0.5$ ) when compared to the participants with higher health literacy ( $2.1 \pm 0.6$ ) and this difference was statistically significant ( $p = 0.04$ ).

The mean scores of positive reinforcement and negative consequences, was same for both the participants with high and low health literacy and p value showed no significant difference. It was seen that the mean score of Negative reinforcement for the participants with lower health literacy was high ( $45.4 \pm 17.0$ ) compared to high health literacy level participants ( $40.9 \pm 13.5$ ) and the difference was statistically significant ( $p = 0.05$ ). While the mean score of appetite/weight control was highest i.e.,  $23.3 \pm 11.8$  among the participants with high health literacy compared to the mean score of the participants with low health literacy which was  $15.8 \pm 14.2$  and the difference was significant ( $p = 0.02$ ).

Participants with high and low health literacy had similar risk perception scores ( $5.8 \pm 1.3$  &  $5.6 \pm 1.3$ ;  $1.9 \pm 1$  &  $1.9 \pm 0.9$ ;  $5.4 \pm 1.5$  &  $5.2 \pm 1.6$ ;  $1.7 \pm 0.8$  &  $1.8 \pm 1.1$ ;  $6.5 \pm 14.1$  &  $4.5 \pm 11.5$ ) while those with higher health literacy felt that there is a risk ( $83.1 \pm 22.9$ ) of developing at least 1 health consequence if they continue to smoke. The p value was statistically significant ( $p = 0.001$ ).

Participants with low health literacy had higher mean score for self-efficacy to quit smoking compared to those with high health literacy and the difference was not statistically significant.

Participants with low health literacy were more confident to limit smoking to certain situations ( $7.2 \pm 2.1$ ) compared to those with high health literacy and the p value was statistically significant ( $p = 0.05$ ) (Table 2).

**Table 2** Comparison of Various socio-demographic & other smoking related characteristics between Health literacy levels of the study participants using Mann Whitney<sup>a</sup> / Chi Square test<sup>b</sup>

| Variables                    | Categories         | Lower HL<br>[N=51] |           | Higher HL<br>[N=49] |           | P-Value              |
|------------------------------|--------------------|--------------------|-----------|---------------------|-----------|----------------------|
|                              |                    | Mean               | SD        | Mean                | SD        |                      |
| AGE                          | Mean & SD          | 33.0               | 9.8       | 28.5                | 6.8       | 0.003* <sup>a</sup>  |
| Range [20 - 63]              | Range              | 20 - 63            |           | 22 - 53             |           |                      |
| Income                       | > 20,000           | 18                 | 35.3%     | 40                  | 81.6%     | <0.001* <sup>b</sup> |
|                              | $\leq 20,000$      | 33                 | 64.7%     | 9                   | 18.4%     |                      |
| SES                          | Upper              | 4                  | 7.8%      | 9                   | 18.4%     | 0.003* <sup>b</sup>  |
|                              | Middle             | 35                 | 68.6%     | 39                  | 79.6%     |                      |
|                              | Lower              | 12                 | 23.5%     | 1                   | 2.0%      |                      |
| Education                    | > High School      | 25                 | 49.0%     | 46                  | 93.9%     | <0.001* <sup>b</sup> |
|                              | $\leq$ High School | 26                 | 51.0%     | 3                   | 6.1%      |                      |
| REALM Scores                 |                    | <b>Mean</b>        | <b>SD</b> | <b>Mean</b>         | <b>SD</b> |                      |
| Heaviness of Smoking         |                    | 21.6               | 18.0      | 62.4                | 3.0       | <0.001* <sup>a</sup> |
| SSCQ - A                     |                    | 2.3                | 0.5       | 2.1                 | 0.6       | 0.04* <sup>b</sup>   |
| SSCQ: Negative Consequences  |                    | 22.0               | 11.6      | 25.7                | 10.0      | 0.08 <sup>a</sup>    |
| SSCQ: Positive Reinforcement |                    | 19.1               | 12.8      | 21.8                | 9.7       | 0.33 <sup>a</sup>    |
| SSCQ: Negative Reinforcement |                    | 45.4               | 17.0      | 40.9                | 13.5      | 0.06 <sup>a</sup>    |
| SSCQ:                        |                    | 15.8               | 14.2      | 23.3                | 11.8      | 0.02* <sup>a</sup>   |

|                                           |       |      |       |      |                     |
|-------------------------------------------|-------|------|-------|------|---------------------|
| Appetite/Weight Control                   |       |      |       |      |                     |
| SSCQ Total                                | 102.4 | 31.6 | 111.7 | 31.1 | 0.15 <sup>a</sup>   |
| <b>Risk Perceptions</b>                   |       |      |       |      |                     |
| Risk Perception 1                         | 5.6   | 1.3  | 5.8   | 1.3  | 0.19 <sup>a</sup>   |
| Risk Perception 2                         | 1.9   | 0.9  | 1.9   | 1.0  | 0.92 <sup>a</sup>   |
| Risk Perception 3                         | 5.2   | 1.6  | 5.4   | 1.5  | 0.54 <sup>a</sup>   |
| Risk Perception 4                         | 1.8   | 1.1  | 1.7   | 0.8  | 0.73 <sup>a</sup>   |
| Quit Smoking                              | 70.3  | 19.2 | 83.1  | 22.9 | 0.001 <sup>*a</sup> |
| Continue Smoking                          | 4.5   | 11.5 | 6.5   | 14.1 | 0.09 <sup>a</sup>   |
| <b>Self-Efficacy to Quit</b>              | 4.0   | 1.0  | 3.7   | 1.3  | 0.22 <sup>a</sup>   |
| <b>Confidence to Quit</b>                 | 6.1   | 1.8  | 5.4   | 2.3  | 0.09 <sup>a</sup>   |
| <b>Limit smoking to Certain Situation</b> | 7.2   | 2.1  | 6.5   | 2.1  | 0.06 <sup>a</sup>   |
| <b>Quit smoking within 2 months</b>       | 5.8   | 2.3  | 5.1   | 2.4  | 0.12 <sup>a</sup>   |

\* - Statistically Significant

Health literacy was negatively associated with nicotine dependency ( $B = -4.54$ ) but the result was not statistically significant. Health literacy was negatively associated with negative reinforcement subscale ( $B = -0.01$ ) while positively associated with negative consequences, positive reinforcement and appetite/weight control subscales of smoking outcome expectancies. Health literacy was negatively associated with participants risk perception of ever developing a smoking related health problem if smoking is quit ( $B = -2.78$ ) and perceived personal risk of ever developing a health consequence if they continue smoking ( $B = -0.09$ ) while it was positively associated with other risk perceptions. Health literacy was positively associated with participant's self-efficacy to quit smoking and their intentions to quit smoking within next 2 months. It was negatively associated with participant's confidence of cutting smoking ( $B = -1.85$ ) and their intentions to limit smoking to certain situations ( $B = -0.91$ ), but the results were not significant. (Table 3).

**Table 3** Adjusted Hierarchical Multiple Regression Coefficients for relationship among Health literacy and Smoking related characteristics

| Variables                                  | Unstd. Coefficients |            |        |         |
|--------------------------------------------|---------------------|------------|--------|---------|
|                                            | B                   | Std. Error | t      | P-Value |
| Heaviness of Smoking                       | -4.54               | 3.25       | -1.396 | 0.17    |
| <b>SSCQ - A</b>                            |                     |            |        |         |
| SSCQ: NC                                   | 0.23                | 0.17       | 1.412  | 0.16    |
| SSCQ: PR                                   | 0.17                | 0.20       | 0.829  | 0.41    |
| SSCQ: NR                                   | -0.01               | 0.12       | -0.119 | 0.91    |
| SSCQ: AW                                   | 0.23                | 0.16       | 1.433  | 0.16    |
| <b>Risk Perceptions</b>                    |                     |            |        |         |
| RP_1                                       | 2.71                | 1.46       | 1.851  | 0.17    |
| RP_2                                       | -2.78               | 2.05       | -1.358 | 0.18    |
| RP_3                                       | 1.19                | 1.28       | 0.929  | 0.36    |
| RP_4                                       | 0.75                | 1.95       | 0.384  | 0.70    |
| Continue Smoking                           | -0.09               | 0.09       | -1.040 | 0.30    |
| Quit Smoking                               | 0.24                | 0.14       | 1.732  | 0.09    |
| <b>Self-Efficacy to Quit</b>               | 2.74                | 2.29       | 1.198  | 0.23    |
| <b>Confidence to Cut</b>                   | -1.85               | 1.17       | -1.587 | 0.12    |
| <b>Limit smoking to certain situations</b> | -0.91               | 0.96       | -0.948 | 0.35    |
| <b>Quit smoking within next 2 months</b>   | 1.06                | 0.96       | 1.112  | 0.27    |

## DISCUSSION

Smoking cessation outcome is determined through various predictors. In the present study we have assessed various predictors (such as nicotine dependence, smoking outcome expectancies, risk perceptions, their self-efficacy to quit, and their intentions to change behavior) of smoking cessation and its association with health literacy which is also an important predictor of smoking cessation.

The results showed that the participants with lower health literacy were more nicotine dependent when compared to those

with higher health literacy but the association was not significant. Though, nicotine dependence was more in individuals with lower health literacy it was seen that individuals with higher literacy levels also had higher nicotine dependence score. They reported smoking due to heavy work stress, personal confictions, and peer-influence. They reported of getting addicted, unable to quit/ unsuccessful quit attempts which was in accordance to a study done by *Scarinci IC et al.*, where it was seen that though the study participants had knowledge about hazardous health risks of smoking they continued the habit, as they reported that smoking a cigarette was relieving and it reduced their work stress.<sup>20</sup>

In the present study, participants smoking outcome expectancies was assessed which showed that the participants with higher health literacy were more aware of negative effects of smoking but still continued to smoke and said that they enjoy their cigarettes taste and its sensation on their lips. They reported that it helped them control their weight/appetite thus allowing them to maintain their weight and is difficult for them to quit. And the individuals with lower health literacy reported that smoking helps them to deal with their anger and depression making them difficult to quit, this was in accordance to a study done by *Stewart D et al*<sup>1</sup> where it was seen that participants with lower health literacy had more positive ( $45.4 \pm 17$ ) and less negative ( $25.7 \pm 10$ ) outcome expectancies but they showed higher prevalence of smoking to maintain their weight which is not similar to the results of the present study where we found that higher literacy individuals had higher appetite/weight control scores ( $23.3 \pm 11.8$ ) compared to lower health literacy individuals ( $15.8 \pm 14.2$ ).

Both the participants with high and low health literacy were aware of the possible risks of health consequences due to smoking. It was seen that individuals with lower health literacy perceived themselves as less vulnerable to health consequences of smoking. While maximum number of participants with higher health literacy reported of developing health consequence if they continue smoking. Being aware of the health consequences, participants with high health literacy were not confident enough to quit ( $5.4 \pm 2.3$ ) or at least limit smoking to certain situations ( $6.5 \pm 2.1$ ) when compared to those with low health literacy ( $6.1 \pm 1.8$ ;  $7.2 \pm 2.1$ ). As they said that smoking acts as a stress buster, helps them deal with stress, and feel relieved which was similar to a study done by *Arnold CL et al*<sup>21</sup> where smoking prevalence was seen among pregnant women and the results concluded that literacy level was not correlated with smoking prevalence.

This study showed no significant associations between health literacy levels and smoking cessation predictors after controlling for demographics and SES related characteristics, which is contrary to numerous studies. Studies by *Stewart et al.*,<sup>1</sup> *Sudore et al.*,<sup>22</sup> examined potential associations between health literacy and smoking. These studies reported that individuals with lower health literacy are highly nicotine dependent and have low smoking health risk knowledge and less likely to quit. However, a study by *Baker et al.*,<sup>23</sup> found no association between health literacy and smoking cessation predictors.

In the present study, we found no association with predictors of smoking cessation. This shows that low health literacy might not be an independent risk factor for poor cessation outcomes. With the changing lifestyle, increase in work pressure and other related factors individuals are more likely to

start smoking at an early age and getting addicted to it. Though many quit attempts have been made by the individuals, it is not being possible for them to quit completely leading them be at greater risk of developing smoking related health consequences.

For individuals with poor health literacy, current methods of teaching about the health risks of smoking may fail to reach individuals and might not be useful. It is required to adopt new ways of teaching these individuals making them understand smoking consequences and help them quit successfully. It is important to increase awareness about the impact of low health literacy on poor health behaviours and outcomes and improving providers training in communicating clearly about the health risks of smoking using simple language.

Individuals with smoking behavior with high health literacy due to stress, depression, etc. must be offered help to quit smoking and make them understand the hazardous effects of smoking. They must be counselled to quit and maintain abstinence.

Future studies are required to develop a better understanding of these relations that can be used to develop prevention and cessation strategies to reduce tobacco related health disparities.

## CONCLUSION

Smoking cessation is not dependent on one factor, it is multifactorial. Health literacy might just not be an independent risk factor for poor cessation outcomes. Rather, cessation depends on the environment in which the individual lives or works. This study concluded that there was no strong association between health literacy and key predictors of smoking cessation. Smokers, irrespective of the groups were highly nicotine dependent (more in low health literacy). Effort has to be directed towards all these factors by using advanced method of cessation programme such as Nicotine Replacement Therapies, mobile Cessation interventions, etc., thus helping them to successfully quit smoking and maintain abstinence.

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