

Original Research

Functional and risk minimizing assessment: an insight into psychosocial determinants of nicotine dependence in urban population of Chennai- A cross sectional study

Varshaa BK¹, Lubna Fathima², Haripriya R³, Dinesh Dhamodhar⁴, Sindhu R⁵, Indira⁶, Prabu D⁷, Rajmohan M⁸, Banu Jothi A⁹

¹Undergraduate, SRM Dental College, Bharathi Salai, Chennai, Tamil Nadu, India;

^{2,5,6}Senior Lecturer, ^{3,9}Postgraduate, ^{4,8}Reader, ⁷Professor and Head, Public Health Dentistry, SRM Dental College, Bharathi Salai, Chennai, Tamil Nadu, India

ABSTRACT:

Background: The research aims to assess the psychosocial determinants of nicotine dependence and explore the mechanisms through which functional and risk-minimizing beliefs contribute to sustaining tobacco use in the urban population of Chennai. It aims to study how these beliefs impact smoking behaviour, levels of addiction, and effectiveness of quit interventions. **Materials and Methods:** This cross-sectional study aims to assess psychosocial determinants of nicotine dependence and its functional impacts on the urban population of Chennai. Conducted from June to September 2024, data was collected from 300 participants across tobacco cessation centres using structured questionnaires. The Fagerström Test for Nicotine Dependence (FTND) was employed to gauge addiction severity, and socioeconomic factors were also assessed. The M Minnesota scale was used to detect the psychological behaviour. Data was analysed using descriptive statistics, chi-square tests, and t-tests to explore relationships between psychosocial factors and nicotine dependence. **Results:** The study found that most smokers justify smoking as a tool for emotional regulation and stress relief, with 60.5% enjoying it and 75% using it to cope. Nearly half (46.5%) felt health risks were overstated. Anxiety and distress made quitting difficult. Post-intervention, nicotine dependence dropped, with reduced daily cigarettes and delayed first cigarette. **Conclusion:** The findings emphasize that functional beliefs, stress, and anxiety drive nicotine dependence despite health awareness. Effective cessation requires addressing both physical addiction and psychological reliance. Tailored programs focused on functional beliefs, and emotional support is crucial for success, especially in LMICs like India.

Key words: Nicotine dependence, Functional beliefs, Smoking cessation, Psychosocial determinants, Smoking behaviour, Anxiety, Emotional regulation, LMICs(low- and middle-income countries).

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Corresponding author: Lubna Fathima, Senior Lecturer, Public Health Dentistry, SRM Dental College, Bharathi Salai, Chennai, India

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INTRODUCTION

The tobacco epidemic is among the leading health risks ever known. Every year, over 8 million deaths occur. From this number, over 7 million result from the use of tobacco products, while approximately 1.3 million result from exposure to second-hand smoke. Tobacco is dangerous in all usage, and no amount of exposure is safe. Smoking cigarettes is the most common type of tobacco use globally. Still, other products include waterpipe tobacco, cigars, cigarillos, heated tobacco, roll-your-own tobacco, pipe tobacco,

bidis, kreteks, and smokeless tobacco[1]. Tobacco manufacturers are significantly ramping up their mass marketing campaigns strategically focusing on enticing the youth globally. To effectively counter the consequences of such aggressive marketing strategies in India and other developing countries, there is an urgent need to acquire comprehensive and scientifically rigorous data on patterns of tobacco use. Though there is a significant decline in tobacco consumption in high-income countries, the trend is an alarming rise in low- and middle-income countries

(LMICs). It is shocking to know that 84% of the world's smokers live in these LMICs. Additionally, extrapolations also depict that by 2030, about 70% of mortality from tobacco will be witnessed in these regions. It is quite an alarming trend that draws attention to urgent targeted research and intervention towards the rising tobacco epidemic among vulnerable populations [2]. Tobacco is a modern epidemic because of excessive usage[3]. India, being the second largest tobacco consumer in the world, faces a special situation due to the wide variety of tobacco products available for smoking and smokeless use. Tobacco use is determined by a range of factors, such as family history, peer pressure, experimentation, and easy availability of products. Additionally, personality traits and emotional or psychosocial issues, such as low self-efficacy, low self-esteem, dependency, powerlessness, and social isolation, can increase the likelihood of tobacco use and other substance abuse[4]. Tobacco consumption leads to the development of nicotine dependence, a condition that is especially pervasive in developing nations such as India. This advancing trend has been linked with other problems, including low literacy levels, reduced consciousness in the population, and rudimentary healthcare facilities.

The main psychotropically active substance present in tobacco is nicotine. Its impact regulates the neurological activity to adjust pleasure and reward as its impact upon the pathway by which the brain functions interferes with the functioning of the mesolimbic pathway, from the many pathways by which the brain performs its action. The neurochemical occurrences triggered by smoking tobacco make one feel short-term euphoria or contentment. Smoking tobacco, however, causes not only somatic but also psychological addiction. Chronic tobacco use is associated with neuroadaptive changes in the brain, particularly in the neurotransmitter systems that are responsible for the regulation of reward and stress responses. Such chronic exposure results in a tolerant state, wherein the users are left requiring increasingly larger amounts of nicotine to achieve the same pleasurable effects. Withdrawal symptoms that can occur following cessation also include irritability, anxiety, and intense cravings. The addictive nature of nicotine also creates a huge psychological dependency. Many users create the habit of smoking or other forms of tobacco usage and incorporate it into daily patterns and coping mechanisms. Thus, psychological entrenchment leads to the cycle of addiction when individuals use tobacco to control stress, boredom, and social interactions. This interplay of dependence types is affected worse in developing countries with limited public health resources. The persistence of lower educational levels, limited awareness of tobacco dangers, and limited accessible resources and support systems for quitting add up to form the persistent problem of addiction to tobacco. In these scenarios, nicotine dependence

should be addressed through a holistic approach involving public education enhancement, increased healthcare services, and targeted interventions that support tobacco cessation and, consequently, fewer burdens from nicotine addiction[5]. Cotinine, a nicotine metabolite, is measured in biological fluids such as serum or saliva to evaluate nicotine dependence. The cotinine levels show the intake of nicotine in the past period; it stays longer than does nicotine. Biochemical assays of cotinine may pose complexity and not so simple in certain scenarios. Complying with biochemical studies, there are some smoking dependence questionnaires used; the most popular of the tools is the Fagerström Test for Nicotine Dependence, usually referred to as FTND. It bases the degree of addiction upon characteristics like how many sticks per day are smoked and how long it takes a user to smoke a cigarette right after waking up, also how hard it is not to give in to these desires when in non-smoking areas.

These estimations are important in decision-making in terms of ceasing interventions. According to the results, the therapy can be; If a consumer has lower levels of addiction then behavioural therapy will be acceptable to them. This method focuses on developing coping mechanisms, managing cravings, and addressing smoking triggers. For individuals with higher dependence, a combined approach is often more effective. This plan will, at least initially, entail providing counselling along with use of pharmacological aids-physician prescribed medication-nicotine replacement therapy to provide relief of withdrawal and dampen patient's need[6]. Even with widespread awareness of the risks associated with tobacco use, many smokers persist in this harmful behaviour. This persistence creates cognitive dissonance, an uncomfortable emotional state that drives individuals to reduce the conflict between their actions and knowledge. Because smoking is highly addictive, behaviour change is rare; instead, smokers often adjust their beliefs to justify their continued smoking. According to social psychology research, as quitting is challenging, smoking smokers might create rationalizations for the habit. The term for these rationalizations is termed as disengagement beliefs or self-exempting beliefs. These beliefs allow a smoker to reduce dissonance by providing false reassurance and avoid serious consideration about quitting. Justifications include functional beliefs, which highlight the advantages of smoking, like concentrating and relieving stress, and risk-minimizing beliefs, which minimize the risks related to smoking and its harmful health effects. This research study aims to find the ways through which functional beliefs and risk-minimizing beliefs influence the quit propensities of Indian smokers[7].

MATERIALS AND METHODS

This study is a cross-sectional design to evaluate psychosocial determinants of nicotine dependence and

its functional impacts among the urban population of Chennai from June 2024 to September 2024. The study will be conducted in various tobacco cessation centres in Chennai by the Department of Public Health Dentistry to capture a diverse population sample. The inclusion criteria are adults aged 18-65 who are residents of Chennai and have provided informed consent to participate. The people who are excluded are Individuals with cognitive impairments or severe mental health issues that prevent participation and Pregnant women due to potential complications related to nicotine dependence and its effects. A sample size of approximately 299 participants will be targeted to ensure sufficient power for statistical analyses. This sample size is based on estimates of prevalence and variability from previous studies and will be adjusted based on response rates and data quality. A multi-stage random sampling will be used. And the centres are Randomly selected in Chennai. Data will be collected through face-to-face interviews using structured questionnaires. Fagerström scale for Nicotine Dependence (FTND) to assess the level of nicotine dependence. Minnesota scale was used to determine the psychological behaviour of the participants after 24 hrs withdrawal. Socioeconomic Status of the individual is Collected through a series of questions regarding income,

education level, and occupation. Minnesota scale to analyse the psychological behaviour of the study participants. The Data examiners will undergo training to ensure standardization and reliability in administering the questionnaires. Interviews will be conducted in tobacco cessation centres in separate rooms to facilitate participation and provide comfort. Written informed consent will be obtained from all participants before data collection. Descriptive Statistics is used to summarize demographic characteristics and prevalence of nicotine dependence. To examine relationships between psychosocial determinants and nicotine dependence. Chi-square Tests to assess categorical variables. t-Tests to compare means of continuous variables across different groups. Data will be checked for completeness and accuracy. Any inconsistencies will be resolved through follow-up with participants if necessary. The study will follow ethical guidelines, and approval will be obtained from the Institutional Review Board (IRB) or Ethics Committee from SRM Dental College. Participant information will be kept confidential and anonymized to protect privacy. Participants will be fully informed about the study's purpose, procedures, and their right to withdraw at any time.

RESULTS

Table 1: Distribution of functional belief questionnaire among study population

S. no	Questions	Options	Frequency (n)	Percentage (%)
1	Do you enjoy Smoking ?	Strongly Disagree	2	0.7
		Disagree	23	7.7
		Neutral	38	12.7
		Agree	181	60.5
		Strongly Agree	55	18.4
2	Does Smoking tobacco calms you when your stressed or upset ?	Strongly Disagree	6	2.0
		Disagree	27	11.1
		Neutral	42	24.2
		Agree	117	39.3
		Strongly Agree	106	35.6
3	Is smoking an important part of your life?	Strongly Disagree	13	4.3
		Disagree	17	5.7
		Neutral	46	15.4
		Agree	137	45.8
		Strongly Agree	86	28.8
4	Is medical evidence showing smoking is harmful seems exaggerated ?	Strongly Disagree	4	1.3
		Disagree	31	10.4
		Neutral	63	21.1
		Agree	139	46.5
		Strongly Agree	62	20.7
5	If everyone is going to die eventually, does smoking still carry enough risk to reconsider its enjoyment?	Strongly Disagree	8	2.7
		Disagree	22	7.4
		Neutral	75	25.1
		Agree	164	54.8
		Strongly Agree	30	10.0
6	Given that many activities come with risks, how does smoking compare in terms of risk and	Strongly Disagree	0	0
		Disagree	35	11.7
		Neutral	63	21.1

	impact on health?	Agree	174	58.2
		Strongly Agree	27	9.0

Table 1 shows the beliefs and perceptions of respondents on smoking. Each question addresses how they experience, rationalize, and evaluate tobacco differently. This highlights respondents' views about smoking with special emphasis on its source as a pleasurable and coping mechanism. A majority (60.5%) enjoy smoking, with 18.4% strongly agreeing, underscoring that, for many, smoking brings satisfaction. Meanwhile, only a small minority (8.4%) disagree, indicating that few see it as unenjoyable. Smoking is also widely viewed as a stress reliever; 40% agree, and 35.6% strongly agree that it calms them when they're upset. This shows that, for many, smoking serves as an emotional coping tool, which may contribute to difficulty in quitting despite health concerns. For a large portion of respondents, smoking holds a significant place in life; 45.8% agree, and 28.8% strongly agree, suggesting it's more than a

casual habit. In contrast, 10% disagree, viewing it as a less essential aspect of their routines. There's notable scepticism regarding smoking's health risks; 46.5% agree, and 20.7% strongly agree that medical warnings may be exaggerated. Only a small fraction (1.3%) strongly disagree, showing that many downplay these risks to rationalize continued smoking. Even with health concerns, most (54.8%) feel the risks aren't serious enough to reconsider tobacco, while 10% strongly agree. Only a small group (2.7%) believe the risks should lead to quitting, showing that many are aware of but not deterred by these dangers. Finally, a majority (58.2%) see smoking risks as comparable to other daily risks, with 9% strongly agreeing. This perspective may normalize smoking by framing it as one of many life choices involving risk, reinforcing acceptance among smokers.

Table2: Distribution of Minnesota anxiety scale among study population:

S.no	Question	Options	Frequency(n)	Percentage(%)
1.	In the past 24 hours, how much have you experienced irritability, frustration, or anger?	Not at all	73	24.4
		Slightly	77	25.8
		Moderately	76	25.4
		Very much	73	24.4
2.	In the past 24 hours, how much have you felt anxious or nervous?	Not at all	7	2.3
		Slightly	146	48.8
		Moderately	56	18.7
		Very much	90	30.1
3.	In the past 24 hours, how much have you felt depressed?	Not at all	121	40.5
		Slightly	57	19.1
		Moderately	20	6.7
		Very much	101	33.8
4.	In the past 24 hours, did you crave or desire to smoke	Not at all	78	26.1
		Slightly	129	43.1
		Moderately	49	16.4
		Very much	43	14.4
5	In the past 24 hours, how much difficulty have you had concentrating?	Not at all	41	13.7
		Slightly	88	29.4
		Moderately	38	12.7
		Very much	132	44.1
6.	In the past 24 hours, how much has your appetite increased or how much weight gain have you experienced?	Not at all	112	37.5
		Slightly	75	25.1
		Moderately	24	8.0
		Very much	88	29.4
7.	In the past 24 hours, how much trouble have you had sleeping (e.g., insomnia, waking up frequently)?	Not at all	96	32.1
		Slightly	114	38.1
		Moderately	53	17.7
		Very much	36	12.0
8.	In the past 24 hours, how restless or impatient have you felt?	Not at all	92	30.8
		Slightly	81	27.1
		Moderately	23	7.7
		Very much	103	34.4
9.	In the past 24 hours, have you had constipation?	Not at all	112	37.5
		Slightly	71	23.7

		Moderately	42	14
		Very much	74	24.7
10.	In the past 24 hours, how much have you noticed a decreased heart rate?	Not at all	100	33.4
		Slightly	92	30.8
		Moderately	20	6.7
		Very much	87	29.1
11.	In the past 24 hours, how much have you experienced coughing or a sore throat?	Not at all	149	49.8
		Slightly	100	33.4
		Moderately	22	7.4
		Very much	28	9.4
12.	In the past 24 hours, how much have you had headaches?	Not at all	35	11.7
		Slightly	95	31.8
		Moderately	65	21.7
		Very much	104	34.8

Table 2 says the Minnesota Anxiety Scale provides detailed insights into how respondents have experienced various emotional and physical symptoms over the past 24 hours. These results shed light on the common psychological and physiological issues faced by the participants, particularly about stress, anxiety, and related somatic symptoms. The survey revealed a wide range of emotional and physical responses among participants. Irritability, frustration, and anger showed an even distribution; 24.4% experienced no such emotions, while an equal 24.4% felt them intensely, reflecting varied emotional stability. Anxiety was a prevalent concern, with 48.8% feeling slight anxiety and a significant 30.1% experiencing it at high levels, while only 2.3% reported no anxiety, highlighting it as a common

stressor. Depression, though less widespread, impacted 33.8% severely. Cravings for smoking varied; 43.1% reported mild urges, 26.1% had no cravings, but 14.4% experienced strong urges, suggesting stress-related factors. Concentration difficulties affected 44.1% substantially, and sleep issues were also common: 38.1% reported slight sleep troubles, with 12% facing severe disruptions. Restlessness was a frequent issue, impacting 34.4% intensely, while constipation and decreased heart rate affected about a third of participants, possibly linked to stress or diet. Respiratory symptoms like coughing or sore throat were reported by many, likely due to seasonal changes, smoking, or other factors. At the same time, headaches were frequent and could stem from stress, anxiety, or fatigue.

Table 3: Comparison of Nicotine Dependence Pre-test and Post-test among study population:

Question	Pre-Test			Post -Test		
	mean	standard deviation	standard error mean	mean	standard deviation	standard error mean
How soon after you wake up do you smoke your first cigarette?	1.913	0.57853	0.03346	0.9264	0.54459	0.03149
Do you find it difficult not to smoke in places where you shouldn't, such as in church or school, in a movie, at the library, on a bus, in a court or in a hospital?	0.1706	0.37676	0.02179	0.1706	0.37676	0.02179
Which cigarette would you most hate to give up; which cigarette do you treasure the most?	0.7592	0.42829	0.02477	0.7592	0.42829	0.02477
How many cigarettes do you smoke each day?	1.4147	1.4147	0.04165	0.4983	0.62592	0.03620
Do you smoke during the first few hours after waking up than during the rest of the day?	0.9097	0.28709	0.01660	0.0000	0.0000	0.00000
Do you still smoke if you are so sick that you are in bed most of the day or if you have a cold or the flu and have trouble breathing?	0.1338	0.34099	0.01972	0.1338	0.34099	0.01972
Overall Fagerström Nicotine Dependence Scale	2.0870	0.47677	0.02757	1.1605	0.36772	0.02127

Table 3 represents a comparison of pre-test and post-test results from a study assessing smoking behaviour and nicotine dependence. It includes several questions, such as how soon after waking up, participants smoke their first cigarette, how difficult it is to refrain from smoking in certain places, and how many cigarettes are smoked per day. There is a significant decrease in the average time before smoking the first cigarette after waking (from 1.913 to

0.9264) and a reduction in the number of cigarettes smoked per day (from 1.4147 to 0.4983) post-test. However, there was no noticeable change between pre-test and post-test results for some questions, like the difficulty of not smoking in restricted areas or the most "treasured" cigarette. Additionally, the overall nicotine dependence, as measured by the Fagerström Nicotine Dependence Scale, decreased from 2.0870 to 1.1605 after the intervention.

Table 4: Comparison of paired sample test of Fagerström nicotine dependence scale among study population

		Paired Samples Test					
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		P value
					Lower	Upper	
1	How soon after you wake up do you smoke your first cigarette?	0.98662	0.11508	0.00666	0.99972	0.99972	0.001*
2	How many cigarettes do you smoke each day?	0.91639	0.27727	0.01603	0.94794	0.94794	0.001*
3	Do you smoke during the first few hours after waking up than during the rest of the day?	0.90970	0.28709	0.01660	0.94237	0.94237	0.001*
4	Overall Fagerström Nicotine Dependence Scale	0.92642	0.26152	0.01512	0.95619	0.95619	0.001*

Table 4 says that Paired Samples Test on smoking behaviours based on the Fagerström Nicotine Dependence Scale. It examines how quickly individuals smoke after waking, daily cigarette count, and morning smoking intensity. Each question has a significant p-value of 0.001, showing strong statistical relevance. The data includes mean values, standard deviations, standard errors, and a 95% confidence interval, indicating the respondents' consistent and statistically significant nicotine dependence patterns.

DISCUSSION

The results of this study provide several significant insights into the beliefs, perceptions, and physiological experiences of individuals regarding smoking, stress, and emotional management. This research reflects complex emotional, cognitive, and physiological factors that contribute to the persistence of smoking habits despite known health risks. Understanding these factors could inform more effective smoking cessation interventions that address not only the physical dependence on nicotine but also the emotional and psychological aspects of reliance on smoking as a coping strategy. A significant portion of respondents (60.5%) express that they enjoy smoking, with 18.4% strongly agreeing, indicating that smoking is not merely a habit but a pleasurable activity for many. Moreover, about 75% of respondents (combining 40% agree and 35.6% strongly agree) report using smoking as a coping mechanism to

manage stress and upset emotions. This connection between smoking and emotional regulation may present challenges to cessation efforts, as smokers often view it as an essential tool for managing their emotional wellbeing. Another notable finding is the scepticism towards the medical evidence of smoking's harmful effects. Over half of the respondents (46.5% agree, 20.7% strongly agree) believe that the dangers of smoking are exaggerated, with only 1.3% strongly disagreeing with this sentiment. This suggests that a large number of individuals downplay the risks associated with smoking, which may be driven by cognitive dissonance, allowing them to rationalize continued smoking despite knowing the risks. A majority of participants (45.8% agree and 28.8% strongly agree) feel that smoking is an important aspect of their lives, further reinforcing the attachment they have to the habit. This attachment could pose a barrier to quitting, as smoking is deeply ingrained not only as a coping mechanism but also as a part of their personal identity and daily routines. The Minnesota Anxiety Scale data provides insights into participants' emotional and physical wellbeing. Anxiety appears to be prevalent, with 48.8% reporting mild anxiety and 30.1% experiencing high levels of stress. While depressive symptoms are less common than anxiety, 33.8% of respondents report feeling severely depressed. These emotional experiences may be related to the smoking habit itself, which many participants use to manage stress and other negative

emotions. The physiological symptoms further highlight the challenges faced by the respondents. Difficulty concentrating is common, with 44.1% reporting severe problems. Additionally, about 50% of respondents experience headaches and sleep disturbances, which could be related to anxiety or the effects of smoking. Interestingly, 26.1% report no craving for cigarettes, while 43.1% feel slight cravings and 14.4% experience strong cravings. The presence of these cravings suggests that smoking cessation would be particularly difficult for those with higher emotional distress and stronger attachments to smoking as a form of relief. Overall, the study reflects the complex emotional, cognitive, and physiological factors that contribute to the persistence of smoking habits despite known health risks, highlighting the need for interventions that address both physical addiction and psychological reliance on smoking. The primary objective of this study was to investigate the relationship between functional and risk-minimizing beliefs and their influence on quitting behaviour and intentions among individuals who exclusively smoke tobacco at baseline. The findings reveal a noteworthy pattern in belief changes, particularly emphasizing functional beliefs. These changes align with theories of dissonance reduction, suggesting that individuals adjust their beliefs to better align with their actions over time, consistent with evidence from prior research. The analysis indicated that smokers exhibited a greater magnitude of change in functional beliefs—those that highlight the perceived benefits of smoking—compared to risk-minimizing beliefs, which tend to downplay the potential harms associated with tobacco use. This discrepancy suggests that while smokers may begin to reconsider the role that smoking plays in their lives, they are less likely to modify their perceptions regarding its risks. The psychosocial beliefs assessed included functional beliefs that reinforce smoking as a beneficial activity, such as stress relief or social connection, and risk-minimizing beliefs that lessen the acknowledgment of tobacco's dangers. The results indicated that a higher percentage of respondents maintained agreement with functional beliefs at both measurement waves, implying a stable and potentially entrenched view of smoking's benefits. Understanding these dynamics is essential for creating effective smoking cessation interventions. By addressing the specific functional beliefs held by smokers, programs can better target the motivations for smoking and facilitate a shift in perceptions that may lead to increased quitting behaviours. Moreover, this study emphasizes the significance of considering functional and risk-minimizing beliefs when designing strategies to reduce tobacco use⁸. Evidence indicates that functional beliefs are significant during the initial stages of quitting, as highly dependent smokers with strong functional beliefs are more susceptible to relapse. To enhance cessation efforts and tobacco control campaigns, targeting these beliefs could help

protect smokers from marketing that emphasizes the functional benefits of smoking—such as improved concentration, relaxation, or weight management—and also strengthen their overall self-efficacy in quitting[9]. The relationship between smoking behaviour and health beliefs may differ based on sociocultural norms and factors. Findings from this study, particularly those examining belief patterns and their correlation with quitting behaviour, highlight the critical factors driving smoking and provide insights from a low- to middle-income country context. This research enhances the broader tobacco literature by exploring the cultural universality of these phenomena and assessing how such associations vary across different countries[10,11]. The study examining the relationship between smoking rationalizations and the intention to quit, conducted in China, employed a smoking rationalization scale specifically developed from a population-based sample of Chinese male smokers within their unique sociocultural context. Given that these beliefs are influenced by cultural factors, tobacco marketing strategies, and regulatory environments, further research is warranted to develop and assess the reliability of smoking belief measures across diverse contexts[12]. This study leveraged data from two waves of a smoker cohort, providing richer insights than typical cross-sectional analyses. Subsequent data waves could reveal belief patterns among individuals who continue smoking, those who relapse after quitting, and those who successfully cease tobacco use. Furthermore, although this research concentrated on the patterns and associations of two significant belief types highlighted in existing tobacco literature, there are numerous psychosocial beliefs related to tobacco use that could be valuable to investigate in different cultural settings, even if they did not emerge as influential in some regions[8].

In Yun Su Simet's studies study, the mental health of non-smokers was lower than that of smokers. However, when comparing non-smokers and smokers by gender by gender, smokers' mental health scores were poor in both groups. In the smoker group, 95% of males and 5% of females were male, whereas in non-smokers, 47% of females were more than 43% of males. The mental health score of women was very low compared to men in our study. Therefore, it is considered to be a bias caused by the high ratio of females to non-smokers[13].

Marjaana Pennanen et al. study found that low socioeconomic Status (SES) was associated with higher nicotine dependence (ND) among current smokers and elevated cotinine levels among daily smokers. Additionally, living alone was linked to greater ND. Given that smokers with lower SES are more addicted, they may require more targeted cessation services to quit smoking effectively[14].

Arnstein, Mykletun's study states that anxiety was more strongly associated with smoking than depression, and the association between smoking and depression was marginal except in the presence of

comorbid anxiety. The strongest associations were found in comorbid anxiety and depression. The associations were stronger in females and young participants. Multiple factors confounded the associations, the most important being somatic symptoms (though not reported physical disorders, BMI, cholesterol level, or blood pressure), sociodemographic, and alcohol problems. Anxiety and comorbid anxiety/depression were associated most strongly with current compared to former smokers, highest in smokers, followed by former smokers, and then never-smokers; all differences being statistically significant also having adjusted for available confounding factors[15].

The study of Anupreet K. Sidhu et al. helped analyse functional and risk-minimizing beliefs related to quitting behaviour among tobacco users. Findings indicate that functional beliefs remain stable among continued smokers but strengthen in mixed users and diminish among quitters. Functional beliefs, such as the perception of smoking as a source of enjoyment and stress relief, were more commonly held than risk-minimizing beliefs, which correlated with a lower intention to quit. Successful quitters exhibited a reduction in functional beliefs, underscoring it thus contributes to the risk of relapse because of how cultural beliefs shape them hence, which would demand different tobacco control campaigns. Among the limitations of this work include possible biases in self-reported data and a need to continue studying on different forms of tobacco user demographics[16].

The study of Huseyin Unubol states that the study indicates that smokers exhibit more psychopathological traits in psychometric evaluations, while ex-smokers display scores similar to those of non-smokers. The increased prevalence of externally oriented thinking in ex-smokers may suggest that this alexithymic trait helps individuals manage psychological addiction during the quitting process. Conversely, this finding could also imply that quitting smoking results in a greater focus on external orientation and other shifts in psychological characteristics[17].

The study has several strengths, including comprehensive data collection that offers detailed insights into beliefs, emotions, and physical symptoms related to smoking. It provides a holistic understanding by covering aspects such as enjoyment, emotional coping, risk scepticism, and physiological impacts. The use of validated tools like the Minnesota Anxiety Scale enhances scientific rigor and ensures reliable psychological data. Its real-world relevance highlights the complexity of smokers' rationalizations, informing effective interventions and identifying psychological factors that contribute to the difficulty of quitting. However, the study also has limitations, such as reliance on self-reported data, which may introduce bias, and a potential lack of sample diversity that limits generalizability. The cross-sectional design prevents establishing causality or tracking behavioural

changes over time, and the focus on individual beliefs may overlook external influences like social and cultural factors affecting smoking behaviour. Future research should explore tailored cessation programs addressing both nicotine dependence and emotional needs, incorporating stress management and cognitive-behavioural therapies. Public health campaigns should evolve to use personalized communication strategies that resonate with smokers' perceptions and address their scepticism about health risks. Understanding the cognitive dissonance smokers experience could lead to more effective messaging that aligns with their rationalizations while challenging misconceptions about the risks of smoking[18].

Future research could examine the role of environmental and social factors in reinforcing smoking habits, such as peer influence, cultural norms, and economic conditions, to design more comprehensive interventions. Longitudinal studies tracking smokers over time may provide deeper insights into how emotional and psychological factors affect long-term quitting success, enabling the development of adaptive, supportive quitting strategies that evolve with individual needs. Additionally, integrating insights from neuroscience and behavioural science to understand cravings and physiological responses could enhance pharmacological treatments that complement behavioural interventions, potentially increasing cessation success rates. Artificial intelligence is an emerging aspect in the field of dentistry that can be incorporated into tobacco cessation treatment plans in future[19].

CONCLUSION

The findings from the survey indicate how smoking is an integral part of people's lives and becomes a source of pleasure as well as a way of mitigating stress. The people are sceptical about the risks of smoking, as they believe that these are inflated, which makes it possible for them to rationalize their habit. The balancing act in psychology between value and risk is why people continue smoking even when they know the health impact it has on them. Smoking does not just come out as a habit but also as a coping mechanism and emotional anchorage for many. In addition, the results of the Minnesota Anxiety Scale show that respondents have experienced significant psychological and physiological disturbances such as anxiety, restlessness, headaches, and problems with sleep. These signs indicate the intricate relationship between psychological and physical well-being and the lifestyle factors that might exaggerate distress. The study focuses on the interplay between stress, anxiety, and well-being.

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