



Influence of Anti-Substance Advertisements On Users

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Abstract: Smoking is considered a burning issue of today's time, especially due to its widespread use despite compelling proof of health hazards. Smoking has also significantly increased among youth in the past 10 years as they are more vulnerable to peer and societal pressure. Anti-smoking advertisements (e.g., print-based ads on cigarette packets, media ads on television, etc.) rely heavily on emotional reasoning to persuade people not to smoke. Still, the effect of anti-smoking advertisements on smokers is yet to be understood. Hence, this research aims to determine the influence of anti-smoking advertisements on smokers. To achieve this aim, our objectives assessed were the role of anti-smoking advertisements on quit attempts made in the past, reduction in smoking habits, and willingness of an individual to quit smoking. The cigarette was chosen as the substance for this study due to its popularity. The study findings revealed that over 64% of respondents who have made quit attempts in the past year believed that anti-smoking advertisements had played a crucial role in their quit attempts. A similar association was exhibited by the respondents who reduced smoking in the past year. While most smokers in the study revealed the role of anti-smoking advertisements in their smoking change habits, a section continues to smoke even after awareness of anti-smoking advertisements. The unequal pace of decline in smoking is shifting the focus towards the need to improve the effectiveness of anti-substance advertisements through innovation and technology, thus resulting in a higher reduction rate of substance use.

Keywords: Anti-Smoking Advertisements, Smokers, Cigarette, Quit Attempts, Reduction in Smoking, Willingness to Quit

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1. INTRODUCTION

Tobacco is one of the most prevalent reasons of death across the world, leading to dangerous diseases like cancer and premature death.¹ Tobacco can be consumed in different forms, such as with or without smoke. In America, Asia, Australia, and Asia, tobacco is mainly consumed in the form of Hookah, vapor, cigarettes, and cigars.² Cigarette smoking is one of the major forms of tobacco consumption worldwide. Compared to other forms of tobacco, cigarettes contain the most carcinogens. Hence, it is considered the most dangerous tobacco type since it also leads to passive smoking.³ Tobacco use has many health effects, such as heart disease, heart stroke, death from cancer, and others.⁴ Smoking cessation depends on various social and personal factors. Smokers make several attempts to quit smoking but eventually fail to abstain from smoking.⁵ Over the past ten years, smoking among young people has dramatically increased. They are a high-risk population particularly vulnerable to peer and societal pressure, especially among college students where the freedom from parental supervision may be first felt. Governmental organizations (such as the Department of Health) and non-governmental organizations (NGOs) have started extensive anti-smoking campaigns with emotional overtones to stop the spread of smoking. Advertising heavily relies on emotional

reasoning. To persuade people, businesses use emotionally charged advertising to arouse emotions like warmth (positive valence) or guilt (negative valence), which can lead to customer compliance. When used in anti-smoking ads, this tactic produces contradictory outcomes. They are continuously inundated with Public Service Appeals (PSAs) made by the government, non-governmental organizations, and other stakeholders, particularly in the tobacco business. These PSAs are distributed through various media, including TV, radio, paper, and—for greater reach—the Internet. The nation is currently seeing the release of print-based anti-smoking ads. One example is the visual warnings (images of damaged lungs of smokers plastered on a cigarette box, etc.). The current legislative initiatives to lower the demand for smoking make this research both timely and pertinent. This study aims to evaluate anti-smoking advertisements' message valence/framing to determine which message valence/framing will be most successful for smokers.

1.1 Conceptual Model

Figure 1 depicts the conceptual model for the study. The three important linkages to be evaluated are the impact of anti-smoking advertisements on (1) smoking quit attempts; (2) intention to quit smoking, and (3) reduction in smoking.

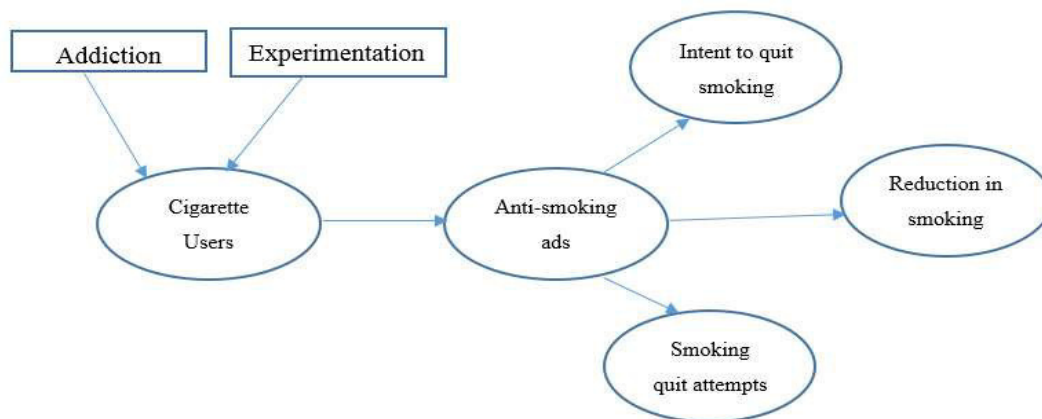


Fig 1 Conceptual model of the effect of anti-smoking ads on users

Our conceptual model proposes that overall anti-smoking ads negatively impact users by connecting with emotions and drawing the ill effects of smoking. *Pictorial Warnings*: Rules requiring pictorial warnings on tobacco products were promulgated on 3 May 2009 and came into effect after several amendments and delays on 31 May 2009. Section 7, COTPA deals with the "Display of Pictorial Health Warnings on All Tobacco Product Packages." It prohibits the manufacture, sale, and importation of cigarettes or other tobacco products unless the package label of each cigarette or other tobacco product carries pictorial warnings covering at least 40% of the package in its label. *Advertising*: Effective September 8, 2000, the Cable Television Network (Regulation) Amendment Act prohibits tobacco and alcohol advertising. From October 2, 2012, the government began broadcasting two anti-tobacco advertisements titled "Sponge" and "Mukesh" in cinemas and on

television. Theaters must also display a disclaimer on the screen if the film shows smoking scenes. The commercials "Sponge" and "Mukesh" were later replaced by new commercials "The Child" and "Dhuan" from 2 October 2013

1.2 Review of Literature

Smoking has been known in India since at least 2000 BC when cannabis was smoked, and it is first mentioned in the Atharvaveda, which dates back to a few hundred years BC. Smoking (dhupa) and fire sacrifice (homa) are prescribed in Ayurveda for medicinal purposes and have been practiced for at least 3,000 years, while smoking, dhumapana (literally "drink smoke") has been practiced for at least 2,000 years. In India, tobacco was introduced in the 17th century. Later it merged with existing smoking habits (mainly cannabis). Smoking in

public places has been banned nationwide since October 2, 2008. There are about 120 mn smokers across India. According to the World Health Organization (WHO), 12 percent of the world's smokers are from India. As of 2009, approximately 900,000 people die annually in India from smoking. As of 2015, the number of male smokers has increased to 108 million, a 36% increase between 1998 and 2015. Globally, 1.6 million people die every year from regular use of tobacco, bidis, and cigarettes. BK Prasad, Ministry of Health and Family Welfare, said the government was serious about the tobacco control program but acknowledged that complete success was still far off. He said that tobacco addiction is deeply rooted in Indian society, and the menace can be overcome only through awareness and participation in anti-tobacco programs. The economic and health costs have led to significant research to identify smoking reduction, prevention, and cessation methods.⁶⁻⁸ Smoking remains prevalent in North America and is also increasing in other parts of the world. Approximately 46.2 million Americans and 5.4 million Canadians smoke, with most smokers in the "young adult" group (18-24).⁹ Therefore, increasing our understanding of the factors contributing to smoking reduction or cessation among young adults is very important. Research on the effectiveness of antismoking advertisements has focused on the type of message and recipient characteristics— e.g., differences in fear arousal (high/low), fear type (physical/social, short-term/long-term), message format, smoking status, and gender.^{6,7,10} There is little evidence that non-converts (e.g., smokers) evaluate fear-based messages by assessing consequences, while converts (e.g., non-smokers) are influenced by appeals that elicit high fear.¹¹ Anecdotal evidence collected through focus groups and in-depth interviews indicates that nonsmokers take more extreme positions after exposure to antismoking messages and are motivated to engage smokers in cautionary discussions.¹²⁻¹⁴ Such conversations may enhance or moderate the immediate effects of health communication by influencing smokers' discounting or responsiveness. Whether such interventions strengthen or weaken the original message and variations in persuasion based on the source of such interventions are aspects that have not been sufficiently studied. Peer and opinion leader influence has ensured continued interest in research on negative behaviors (e.g., tobacco use, sexual activity), especially about peer pressure^{15,16} and advocacy.¹⁷ Research shows that group strongly influences negative behaviors such as alcohol^{18,19}, smokeless tobacco²⁰, and drugs²¹ and can be key in anti-smoking campaigns. Generally, peer effects have been studied for their negative effects on other group members¹⁶, but positive effects may also be possible.^{13,21,22} Positive effects based on social influence can strengthen mass media communication by generating debate about antismoking messages. This additional effect of group membership may lead to an improvement in the effectiveness of existing antismoking messages. Public policymakers could initiate discussions on antismoking messages to increase their effectiveness.

1.3 Influence on Parents

According to²³, norms have been conceptualized from various theoretical perspectives in various fields. Injunctive norms mirror people's impression of what ways of behavior get endorsement or dissatisfaction from persuading others. In

contrast, individual norm alludes to a person's endorsement/dissatisfaction about specific ways of behavior.²⁴ Norms stand out from other theory-based constructs like attitudes since they emphasize approval or disapproval of behavior instead of evaluating those behaviors.²⁴ One could, for instance, think it is exciting to drink alcohol but disapprove. Empirical studies disclose that various norms directly affect the desire to use substances. For example,²⁵ identified that the personal norm of anti-substance consumption resulted in lower current and lifetime substance use, thus reducing the desire to consume or accept substance offers. Many other studies like these propose that personal norm directly influences an individual's substance use behavior. They also indicate that parental injunctive norms certainly influence individuals' norms towards anti-substance use, which, in turn, may lower their desire ever to consume erroneous substances.

1.4 Substance specific prevention

Communication on substance use prevention plays a crucial role in an individual's substance use pattern apart from parental injunctive norms.²⁶⁻²⁸ For example, parent & child discussion about anti-tobacco use and tobacco abstinence was observed to be very effective in avoiding initiation of smoking among adolescents.²⁹ Parents socialize with adolescents by communicating expectations, rules, and awareness of health effects due to substance use and other potentially risky behaviors.³⁰⁻³² Some significant contributions have been made by family scholars towards enhancing our knowledge of parent-child communication regarding the use of substances and its effect on an individual's substance consumption behavior. For example, as per the study by³³, discussion on how to manage offers for alcohol or advising rules to follow about drinking had a negative association with an individual's alcohol use. The same study also proposed that parental messages targeting media depiction of substance use within an open and expressive family circumstance might help to avoid substance use among individuals.³³ However, this study did not specifically evaluate the indirect or direct outcome of this media-related parental communication on an individual's substance use.

2. MATERIALS AND METHODS

2.1 Method

The research methodology used in this study was exploratory cum descriptive in nature. Both primary data & secondary data have been used to conduct this study. Secondary data was mainly in online literature, research journals, etc., whereas primary data was collected from surveys. Judgmental sampling and convenience sampling techniques were used to select the participants in the study. Chi-square testing of anti-smoking advertisements was suggested by³⁴

2.2 Sample

The survey was carried out as a questionnaire and conducted at TTo Company. Clarifying the questionnaire structure was a dominant factor in ensuring that the respondent decodes the questions as the researcher intended. The questionnaire was e-mailed to the researcher's contacts, resulting in a sample size of

104 individuals. Participation was voluntary, and the questions were designed in English. The response rate was 82%, and the sample represented youth and adults.

2.3 Measurement

Respondents completed a self-administered questionnaire which ensured anonymity. For example, the role of anti-smoking advertisements was measured with the item "How much role has anti-smoking advertisement played," the response categories were 1 = very low, 2 = low, 3 = somewhat, 4 = high, and 5 = very high.

2.4 Participants and procedures

The survey data was collected from Technologies Company during October to February period. 104 individuals completed the survey via Google Forms, which were sent to their email ids.

3. STATISTICAL ANALYSIS

The survey data obtained were analyzed using SPSS software (Version 22.0). Cronbach's alpha test was used to check the internal consistency of the questionnaire. Chi-squared test was

used to compare the observed output with the expected output, and the Probability value (P) <= 0.05 was considered statistically significant.

3.1 Ethical Statement

Participation in the survey was voluntary, and no names or references to an individual could be traced from the responses, making the survey anonymous. However, the survey was sent to participants via email, clearly articulating the purpose of the study, and informed consent was obtained from the respondents.

4. RESULTS

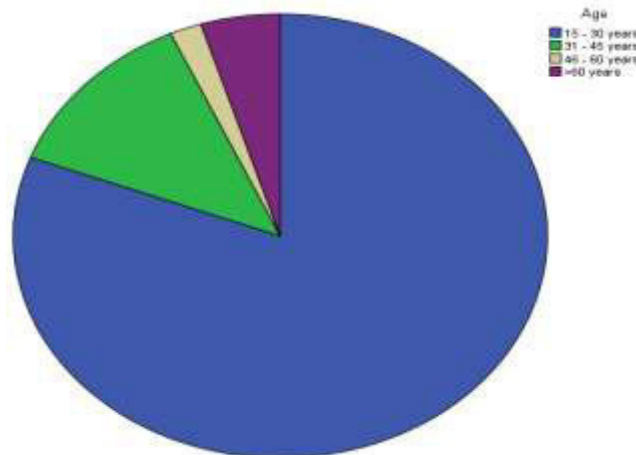
This research aims to determine the influence of anti-smoking advertisements on smokers, making use of the following research questions (1) the role of anti-smoking advertisements on quit attempts made in the past year; (2) the role of anti-smoking advertisements on reduction in smoking habits; and (3) the role of anti-smoking advertisements on the willingness of an individual to quit smoking.

4.1 Reliability Test

Table 1 Cronbach's alpha reliability test	
Reliability Statistics	
Cronbach's Alpha	N of Items
.734	24

A reliability test was conducted to check the internal consistency of the questionnaire; it estimates the degree to which the inquiries in the survey assess the same basic construct. For surveys with an even number of questions, Cronbach's alpha is the same as the average reliability for all

possible split-half combinations. In this research questionnaire, Cronbach's alpha was observed to be 0.734, as depicted in Table 1, indicating a high internal consistency level for our scale.



The survey results depicted in the above Figure reveal that 80.8% of the respondents were in the age group of 15 – 30 years, which relates to the youth, while 12.4% were in the age group 31-45 years. In addition, 5.2% of respondents belonged to the age group 46-60 years, and a small section of 2.6% of respondents were senior citizens.

Fig 2 Pie chart depicting the age group of respondents

4.2 Changes among youth

Table 2 Changes among Youths Aged 15 to 30 Years in Cigarette Use Cognitions and Behavior						
Outcome	Month					Change From October to March (95% CI)
	Oct	Nov	Dec	Jan	Feb	
	All youths, %					
Lifetime use of cigarette	23.6	24.8	25.5	23.7	23.5	- 0.1 (- 2.9, 2.8)
Past-year use of cigarette	17.1	16.9	17.7	17.4	16.7	- 0.4 (- 2.6, 1.9)
Past-month use of cigarette	7.8	8.6	9.6	8.5	8.2	0.4 (- 1.4, 2.2)

Note. CI = confidence interval ^a Percentage-point change. *P < .05

Youth reported significant exposure to Anti-smoking advertisements. However, 74% of respondents who had seen the warning in cigarette packs could not recall the space used for the written warning, and around 70% of respondents could not recall the written warning message printed on the cigarette

pack. In comparison, 73% of respondents who had seen the warning could recall the pictorial warning on cigarette packs. Significant increases in anti-smoking beliefs were not accompanied by similar gains in the desire not to consume or self-efficacy (Table 2).

4.3 Role of Anti-smoking advertisements on quit attempts

Table 3 Cross-tabulation to find out the role of anti-smoking advertisements on quit attempts							
Have you made quit attempts in the past year? * How much role has anti-smoking advertisement played? Cross tabulation							
Count							
		How much role has anti-smoking advertisement played?					Total
		Very Low	Low	Somewhat	High	Very high	
Have you made quit attempts in the past year?	No	6	14	15	5	2	42
	Yes	9	13	13	23	4	62
Total		15	27	28	28	6	104

Cross tabulation between the quit attempts in the past year and the role of anti-smoking advertisements highlighted that a little over 60% of respondents have made quit attempts in the past year, and 65% believed that anti-smoking advertisements had played a role in their quit attempts. In contrast, for others, different dominating factors led to quit attempts. Therefore, a chi-square test was conducted for the test association between quit attempts and the role of anti-smoking advertisements:

4.4 Hypothesis

H0: There is no association between quit attempts and the role of anti-smoking advertisements

H1: There is an association between quit attempts and the role of anti-smoking advertisements

Table 4 Chi-Square Test			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.524 ^a	4	.049
Likelihood Ratio	10.133	4	.038
Linear-by-Linear Association	3.102	1	.078
N of Valid Cases	104		

^a2 cells (20.0%) have an expected count of less than 5. The minimum expected count is 2.42.

Significance value: .049

A significance value of 0.049, less than 0.05 (P<=0.05), indicates that the role of anti-smoking advertisements was significant in smoking quit attempts. Therefore, we reject the null hypothesis

and accept the alternative hypothesis to conclude that there is strong evidence that quit attempts and the role of anti-smoking advertisements are associated.

4.5 Role of anti-smoking advertisements on reduction in smoking

Table 5 Cross-tabulation to find out the role of anti-smoking advertisements in the reduction of smoking							
Have you reduced smoking in the past year? * How much role has anti-smoking advertisement played? Cross tabulation							
Count							
		How much role has anti-smoking advertisement played?					Total
		Very low	Low	Somewhat	High	Very high	
Have you reduced smoking in the past year?	No	2	2	15	19	3	41
	Yes	6	17	16	18	6	63
Total		8	19	31	37	9	104

Cross-tabulation between the reduction in smoking in the past year and the role of anti-smoking advertisements highlighted that a little over 62% of respondents had reduced smoking in the past year, and 63.5% of them believed that anti-smoking advertisements had played a role in their change in smoking habits. In contrast, for others, different dominating factors led to reduced smoking. The chi-Square test was conducted to test the association between smoking reduction and the role of anti-smoking advertisements.

4.6 Hypothesis

H0: There is no association between a reduction in smoking and the role of anti-smoking advertisements
 H1: There is an association between a reduction in smoking and the role of anti-smoking advertisements

Table 6 Chi-Square Test			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.728 ^a	4	.030
Likelihood Ratio	12.035	4	.017
Linear-by-Linear Association	4.264	1	.039
N of Valid Cases	104		

^a3 cells (30.0%) have an expected count of less than 5. The minimum expected count is 3.15.

Significance value: .030

A significance value of 0.03, less than 0.05 (P<=0.05), indicates that the role of anti-smoking advertisements was significant in a change in smoking habits. Therefore, we reject the null

hypothesis and accept the alternative hypothesis to conclude that there is strong evidence that the reduction in smoking and the role of anti-smoking advertisements are associated.

4.7 Role of anti-smoking advertisements on the intent to quit smoking

Table 7 Cross tab to find out the role of anti-smoking advertisements on the intent to quit smoking							
Do you wish to quit smoking? * How much role has anti-smoking advertisement played? Cross tabulation							
Count							
		How much role has anti-smoking advertisement played?					Total
		Very Low	Low	Somewhat	High	Very high	
Do you wish to quit smoking?	No	0	2	6	14	2	24
	Yes	10	18	24	22	6	80
Total		10	20	30	36	8	104

Cross tabulation between the desire to quit smoking and the role of anti-smoking advertisements highlighted that over 76% of respondents desired to quit smoking, and 65% believed that anti-smoking advertisements had changed their mindset. In contrast, for others, different dominating factors led to the desire to quit smoking. Therefore, the chi-Square test was conducted to test the association between intent to quit smoking and the role of anti-smoking advertisements.

4.8 Hypothesis

H0: There is no association between the intent to quit smoking and the role of anti-smoking advertisements
 H1: There is an association between the intent to quit smoking and the role of anti-smoking advertisements

Table 8 Chi-Square Test			
Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.174 ^a	4	.038
Likelihood Ratio	12.224	4	.016
Linear-by-Linear Association	7.714	1	.005
N of Valid Cases	104		

^a3 cells (30.0%) have an expected count of less than 5. The minimum expected count is 1.85.

Significance value: .038

A significance value of 0.038 which is less than 0.05 ($P < 0.05$), indicates that the role of anti-smoking advertisements was significant in the intent to quit smoking. Therefore, we reject the null hypothesis and accept the alternative hypothesis to conclude that there is strong evidence that the desire to quit smoking and the role of anti-smoking advertisements are associated. The key findings from the study reveal that anti-smoking advertisements play a significant role in smoking quit attempts, reduction in smoking habits, and the intent to quit smoking based on the test of association performed. More than 70% of respondents exposed to anti-smoking advertisements couldn't recall written advertisements, while a similar percentage could recall pictorial ads.

5. DISCUSSION

Television anti-smoking advertisements prove to be an effective method to prevent smoking.^{35,36} This confirms our first objective hypothesis and is consistent with the previous study on anti-smoking advertisements' role in smoking quit attempts. We found that 65% of those who quit smoking in the past year felt that anti-smoking advertisements played a significant role. The impact of anti-tobacco advertisements reduces adult smoking prevalence³⁷, which confirms our second objective hypothesis. 63.5% of respondents who reduced smoking in the past year believed that anti-smoking advertisements played an influencing factor. We also found that anti-smoking advertisements influence the willingness of an individual to quit smoking, and 65% of respondents who desired to quit smoking felt this influence. This is consistent with a previous study confirming that Anti-tobacco television advertising had an impact on promoting smoking cessation among adults.³⁸ Smoking initiation at a young age becomes the major reason for addiction. The reason for starting to smoke at a young age are parental habits, peer pressure, and getting influenced by role models indulging in smoking.³⁹ Low tobacco cessation rate is also due to a lack of awareness of the ill effects of smoking.⁴⁰ Hence this suggested a requirement to perform research to understand the smoking patterns among the student population, which may help create the required awareness of the health impacts of smoking cigarettes.⁴¹ The current study proposes the need for introducing anti-smoking campaigns in schools which will develop a negative image of smoking in young minds. Advertisements that elicit strong emotional responses via negative visceral imagery or personal testimony about the health hazards of smoking can improve attention, develop greater recall and interest, and influence smoking habits.⁴²⁻⁴⁴ Anti-smoking advertisements with graphic portrayals of smoking health effects are perceived to be highly

effective compared to other forms of messages, thus leading to more discussions and thoughts.⁴² Smokers exposed to highly emotional advertisements were more likely to quit smoking.⁴⁵ Portraying emotional or personal testimonials for anti-smoking messages might convey the harmful health implications to smokers in a way that is difficult to avoid, easy to process, and likely to stimulate emotions that lead to a higher perception of vulnerability to diseases caused due to smoking and ultimately motivate them to quit.⁴⁶⁻⁴⁸ These studies guide the agencies towards another proposal of the current study, which is to improve the anti-smoking messaging in ways more relevant to the current scenario. Smoking cessation depends on various personal and social factors, and though many smokers make several quit attempts, they fail to abstain from smoking.⁵ The above proposal from this study may not be considered the only solution since there are various other factors beyond the scope of this study which may overpower an individual's mind over anti-smoking messaging and lead to relapse.

5.1 Limitations of the Study

A major limitation of the study was that it took time to get the necessary information from those who smoke since smoking is a sensitive issue. In this case, the researcher administered questionnaires under the supervision of a guide. It was safe to get information from the questionnaire, which was perceived as fair by the respondents. Another study drawback was the fear of the respondents who filled out the questionnaires. There was a seeming fear of victimization even though individuals were assured they would not be victimized by the details they gave.

6. CONCLUSION

Most people who have attempted to quit smoking in the past year believe that anti-smoking advertisements have played a critical role. Similar associations of anti-smoking advertisements have been derived for people who wish to quit or have reduced smoking. Even after mass awareness campaigns on the negative impacts of smoking via print and electronic media, 34% of the population was unaffected, which shows the precedence of addiction over potential health impact. Another important finding is that though 76% of the population showed the intent to quit smoking getting influenced by anti-smoking advertisements, only 60% have succeeded in either quitting attempts or reducing consumption, further highlighting the need to increase the effectiveness of anti-smoking advertisements. The focus of the research is to extend work on warnings to an experimental paradigm incorporating

advertisements for reducing the number of smokers and on advertising appeals that create different levels of fear arousal and increase the effectiveness of anti-smoking messages, along with the effects of peers and individual factors in mediating the effectiveness of such messages. The study also wishes to imply that while many smokers have reduced or attempted to quit smoking in the past year, in no way, it means that the status quo is maintained. There is always an element of relapse observed, which should be studied deeply along with the reasons for such relapse, which overpowers the human mind even after understanding the ill effects of smoking and, more importantly, being willing to quit.

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7. AUTHORS CONTRIBUTION STATEMENT

R.C. Sudish developed the theoretical formalism, performed the analytic calculations, and performed the numerical simulations. Both R.C. Sudish and Divya Ramachandran contributed to the final version of the manuscript. Prof. (Dr.) Sanjeev Bansal supervised the project.

8. CONFLICT OF INTEREST

Conflict of interest declared none.

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