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Research article

Unhappiness and Smoking Behavior among Vietnamese Men

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ABSTRACT

Smoking remains one of the most prevalent and deleterious health behaviors globally. The persistence of smoking as a significant public health challenge is underscored by its addictive nature, which complicates cessation efforts, and the profound health and economic consequences associated with continued use. Recent research has begun to explore the connection between psychological well-being and smoking behavior, aiming to elucidate how emotional states might influence health-related behaviors. This study examines the relationship between unhappiness and smoking behavior among Vietnamese men, using data from the UNICEF Multiple Indicator Cluster Survey 6, covering approximately 5,000 men surveyed between 2020 and 2021. Employing a fixed effects regression model, our analysis reveals a significant positive correlation between unhappiness and smoking. Specifically, being unhappy increases the likelihood of ever trying cigarettes by 7.3 percentage points, recent smoking by 10.0 percentage points, daily smoking by 7.8 percentage points, and the number of cigarettes smoked in the past 24 hours by 1.505 cigarettes. These findings carry substantial economic implications, particularly regarding public health expenditure, workforce productivity, and the long-term costs associated with smoking-related illnesses. Smoking imposes a significant economic burden on individuals and healthcare systems, encompassing both direct costs such as medical treatments and indirect costs including lost productivity due to illness and premature mortality. Our research contributes to identifying preventive strategies that enhance emotional well-being and potentially reduce smoking prevalence. Moreover, if interventions designed to increase happiness are shown to decrease smoking rates effectively, they could inform policy decisions to prioritize mental health and preventive care, yielding long-term economic benefits. The presenting topic further aligns with several Sustainable Development Goals (SDGs) adopted by all United Nations members, notably SDG 3 (Good Health and Well-being), SDG 8 (Decent Work and Economic Growth), and SDG 12 (Responsible Consumption and Production).

Key words: Happiness, Smoking, Public health

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INTRODUCTION

Smoking remains one of the most prevalent and deleterious health behaviors globally. Despite extensive public awareness campaigns about its harmful effects, smoking rates persist at alarming levels in various regions worldwide. According to the World Health Organization, approximately 22.3% of the global population, equating to 1.3 billion individuals, were tobacco users in 2020. Notably, 83% of these tobacco users are men, with around 80% residing in low- and middle-income countries.[1] Smoking is associated with a myriad of severe health issues, including lung cancer, cardiovascular disease, and respiratory conditions, contributing significantly to global morbidity and mortality.[2–5] The Global Burden of Disease report in 2017 highlights that smoking-related illnesses account for over 8 million deaths annually, a substantial proportion of which occur in low- and middle-income countries where tobacco control measures are often less stringent.[6]

The persistence of smoking as a significant public health challenge is underscored by its addictive nature, which complicates cessation efforts, and the profound health and economic consequences associated with continued use. While high-income countries have experienced a decline in smoking rates due to rigorous policies, public health campaigns, and heightened awareness of smoking's dangers, many developing regions continue to see rising smoking rates. This increase is driven by aggressive marketing tactics employed by tobacco companies and the relative lack of regulatory restrictions in these areas.[4] Smoking behavior is frequently entrenched in social, psychological, and cultural contexts, with many individuals using cigarettes as a coping mechanism for stress or as a means of social engagement. Despite well-documented health risks, the addictive properties of Nicotine and the perceived short-term benefits, such as stress relief and relaxation, contribute to the persistence of smoking.[7–10]

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Recent research has begun to explore the connection between psychological well-being and smoking behavior, aiming to elucidate how emotional states influence health-related behaviors. As a measure of subjective well-being, happiness is positively correlated with various health outcomes. Individuals with higher happiness levels generally adopt healthier lifestyles, engage more in preventive health care, exhibit lower levels of substance use, and vice versa. [9,11] Consequently, understanding the interplay between happiness and smoking is essential for developing effective public health interventions aimed at reducing smoking prevalence. If increasing happiness can indeed mitigate smoking behavior, then mental health interventions could become a critical component of tobacco control strategies. However, the relationship between these variables remains inadequately explored, particularly in developing countries such as Vietnam. In brief, there are still gaps in understanding the socio-cultural and emotional determinants of smoking behavior in the context of developing countries, particularly Vietnam.

Therefore, this study aims to answer the research question of how unhappiness influences smoking behavior among Vietnamese men. By exploring how emotional well-being affects health behaviors, this study seeks to provide novel insights into the potential role of happiness in smoking cessation efforts. The investigation holds considerable economic significance, particularly concerning public health expenditure, workforce productivity, and the long-term costs associated with smoking-related illnesses. Smoking imposes a substantial economic burden on both individuals and healthcare systems, encompassing direct costs such as medical treatments and indirect costs including lost productivity due to illness and premature mortality. This research contributes to the identification of preventive strategies that enhance emotional well-being and potentially reduce smoking prevalence. Furthermore, if interventions aimed at increasing happiness are demonstrated to decrease smoking rates effectively, they could influence policy decisions to prioritize mental health and preventive care, thereby yielding long-term economic benefits. The presenting topic further aligns with several Sustainable Development Goals (SDGs), notably SDG 3 (Good Health and Well-being), SDG 8 (Decent Work and Economic Growth), and SDG 12 (Responsible Consumption and Production).

The structure of this paper is as follows. Section 2 provides a comprehensive review of relevant literature, establishing the contextual framework for the study. Section 3 describes the dataset utilized in this research. Section 4 details the empirical methodology employed for data analysis, ensuring transparency and replicability of the approach. Section 5 presents the findings from our study.. Finally, Section 6 concludes the paper, summarizing key insights, implications, and potential directions for future research.

LITERATURE REVIEW

The relationship between unhappiness and health behaviors, mainly smoking, can be examined through several theoretical frameworks that link psychological states with behavioral outcomes. A central theory in this context is the Stress-Coping Model, which posits that individuals experiencing emotional distress, such as unhappiness, are more likely to engage in behaviors that provide immediate relief, including smoking. This model suggests that smoking acts as a coping mechanism for managing negative emotions, stress, and psychological discomfort. [12] Extending this idea, the Self-Medication Theory proposes that individuals use substances, including nicotine, to alleviate symptoms of emotional distress or psychiatric conditions. Nicotine's stimulant effects, such as dopamine release, provide temporary relief from unhappiness, reinforcing smoking behavior through a cycle of addiction and emotional dependence. [13,14] Additionally, Behavioral Economics offers insights into this relationship by highlighting how individuals prioritize immediate emotional relief over long-term health benefits. This perspective emphasizes that the immediate gratification from smoking can overshadow concerns about future health risks, especially among individuals experiencing unhappiness. [15,16]

Empirically, this paper aligns with two key strands of studies. The first strand focuses on the factors influencing smoking behavior. For instance, sociocultural contexts significantly shape the decision to smoke. Christakis and Fowler found that social networks and cultural norms strongly affect smoking behaviors, with individuals being more likely to smoke if surrounded by smokers or in environments where smoking is culturally accepted. [7] Additionally, research indicates that individuals experiencing high levels of psychological stress are more likely to start and maintain smoking habits. [9,11] Hiscock et al. found that smokers reported significantly higher levels of anxiety compared to non-smokers. [8] The addictive nature of nicotine further complicates cessation, leading to sustained smoking rates among those with persistent emotional distress. [17] In addition, individuals with lower levels of education are also found to be more likely to engage in smoking. [18]

The second strand of empirical studies related to our paper is research studies delving into the effects of happiness or unhappiness on human behavior. For example, happiness is related to a positive lifestyle, such as physical activity and dietary choices.[19] Happiness also induces people to engage in sustainable activities to protect both the physical and the social environments.[20] In addition, happiness also positively contributes to organizational citizenship behaviors that help improve workplace environment and culture.[21] On the other hand, unhappy individuals are more likely to engage in poor health behaviors such as the use of alcohol and cocaine.[11] Even worse, Uh et al. and Wu et al. find that being unhappy can also lead to self-harm acts among community adolescents.[22,23]

DATA

This study investigates the relationship between unhappiness and smoking behaviors using extensive data from the United Nations International Children's Emergency Fund (UNICEF) - Multiple Indicator Cluster Survey 6 Vietnam dataset (MICS6-VN). This survey is part of a global initiative designed to collect robust and reliable data to assess various dimensions of human well-being. In collaboration with Vietnam's General Statistics Office (GSO), the survey adheres to the international MICS6 methodology developed by UNICEF, ensuring comparability across different countries and regions.

The fieldwork was conducted from November 18, 2020, to February 3, 2021, utilizing a two-stage sampling method based on the 2019 Vietnam Population and Housing Census. A total of 700 enumeration areas (EAs) were selected systematically with probability proportional to size, followed by the systematic selection of 20 households in each EA. Field staff underwent intensive training on interview techniques and Computer-Assisted Personal Interviewing (CAPI) methods from October 26 to November 12, 2020. Data collection was executed by 32 teams, each comprising three interviewers and a supervisor, using tablet computers running the CAPI application.

Respondents were encouraged to participate through clear communication of the survey's purpose via a "Letter to households" and were assured of the confidentiality of their information. Verbal consent was obtained before participation, and respondents were informed of their voluntary participation rights, including the option to decline or terminate interviews without repercussions. Supervisors closely monitored daily fieldwork, implementing mandatory re-interviews for one household per cluster to ensure data quality. Additionally, weekly field check tables (FCTs) were analyzed for accuracy. The data collection were processed, and anonymized datasets were made publicly available for legitimate research. This rigorous and ethically guided approach ensured high-quality and reliable data for the survey.

The MICS6-VN dataset encompasses many indicators, including health, education, nutrition, and water and sanitation. By gathering comprehensive household data, the survey provides valuable insights into health behaviors, access to services, and disparities in living conditions. These insights are crucial for policymakers, researchers, and organizations working to enhance the quality of life in Vietnam and monitor progress toward national and international development objectives, including the Sustainable Development Goals (SDGs).

Although primarily designed to assess the well-being of children, the MICS6-VN survey also includes relevant questions regarding men's health and social behaviors. These questions are essential for understanding men's health risks and challenges, which can impact family health and community well-being. Regarding smoking behavior, surveyed men are asked several questions about smoking. hese questions can be recorded as: (i) whether the individual has ever tried cigarette smoking, (ii)) whether the individual is currently smoking cigarettes, (iii) whether the individual has smoked every day in the past month, and (iv) how many cigarettes the individual smoked in the last 24 hours. Accordingly, for each item from (i) to (iii), we assign the value of 1 if the answer is Yes, and 0 if the answer is No to the question.

Regarding their feeling of being happy or unhappy, surveyed men are asked to rate their overall happiness. The scale ranges from 1 to 5, with the value of 1 signifies being Very Happy and 5 signifies being Very Unhappy. Our main explanatory variable, labeled as Being Unhappy, is then constructed as an indicator, taking the value of 1 if the rating is 3 or above and 0 otherwise. In addition, other individual characteristics used in our quantitative analysis, such as individual age, educational level, wealth status, marital status, number of children, and whether the personal lives in a rural area, are also taken from this data.

Our sample consists of approximately 5,000 Vietnamese men surveyed between 2020 and 2021. Descriptive statistics for the dependent and control variables are detailed in Table 1. Panel A presents the statistics related to smoking behavior. Among the respondents, 56.1% have previously tried smoking, 35.5% are currently smokers, 31.7% smoke daily, and the average number of cigarettes smoked in the last 24

Table 1: Summary Statistics

	Mean	SD	N
	(1)	(2)	(3)
Panel A: Dependent Variables			
Ever Tried Smoking	0.561	0.496	4,922
Currently Smoking	0.355	0.479	4,795
Smoking Everyday	0.317	0.465	3,862
Cigarettes last 24 hours	4.629	7.013	3,862
Panel B: Independent Variables			
Being Unhappy	0.314	0.464	4,919
Age	32.63	9.677	4,924
Highschool Completion	0.508	0.500	5,429
Being Poor	0.590	0.492	5,429
Living in Rural	0.695	0.460	5,423
Being Married	0.691	0.462	4,924
Number of Children	1.511	1.336	4,924

hours is 4.629. Panel B provides details on the control variables and our primary explanatory variable, "Being Unhappy." This variable has a mean value of 0.314, indicating that 31.4% of the surveyed men report experiencing unhappiness. The average age of the respondents is approximately 32.63 years. The proportion of men who have completed high school education is 50.8%. Approximately 59% of the participants fall into the lower or middle wealth quintiles, 69.5% reside in rural areas, and 69.1% are married. Additionally, the average number of children reported by the men in the sample is approximately 1.511.

EMPIRICAL METHODOLOGY

The regression framework is particularly well-suited for this study as it provides a robust method to analyze the relationship between unhappiness and smoking behavior while accounting for other influencing factors. This approach allows the researchers to quantify how changes in unhappiness influence various smoking behaviors, such as the likelihood of trying smoking, smoking daily, or the number of cigarettes consumed. By capturing the strength and direction of these relationships, the regression model offers precise estimates critical for drawing meaningful conclusions.

A significant advantage of the regression framework is its ability to control for confounding variables. Smoking behavior is affected by numerous factors, including age, education, marital status, wealth, and rural or urban residency. By incorporating these variables into the analysis, the model ensures that the impact of unhappiness on smoking is not conflated with these other factors. This control is essential for isolating the actual effect of emotional well-being on smoking behavior.

The study utilizes a fixed effects regression framework to analyze the relationship between unhappiness and smoking behavior among Vietnamese men. The method is designed to account for unobserved heterogeneity by controlling for fixed characteristics at the residential cluster level, survey year, and survey month. Using a fixed effects regression model further enhances the appropriateness of the method. Fixed effects account for unobserved, time-invariant characteristics at the residential cluster level and variations by survey year and month. This feature is significant in this study because factors such as cultural norms, regional differences, or persistent environmental influences could affect both unhappiness and smoking behavior. By controlling for these unmeasured variables, the fixed effects model ensures that the results reflect the direct relationship between unhappiness and smoking.

To examine the influence of happiness on smoking behavior among Vietnamese men, we utilize a fixed effects regression framework as follows:

$$Y_{ijym} = \beta_0 + \beta_1 \text{BeingUnhappy}_{jym} + \lambda_j + \gamma_y + \delta_m + X'_{ijym}\Omega + \varepsilon_{ijym} \quad (2)$$

Here, the subscripts i, j, y, and m correspond to individual, residential cluster, survey year, and survey month, respectively. The dependent variable Y_{ijym} encompasses various metrics of smoking behavior (refer to Table 1), such as whether the respondent has ever tried smoking, is currently smoking, smokes daily, and the number of cigarettes smoked in the last 24 hours. These metrics provide a comprehensive understanding of smoking patterns among the surveyed individuals.

The focal explanatory variable, $\text{BeingUnhappy}_{jym}$, signifies whether the individual feels unhappy. A one-unit increase in ExtremeHeat_{jym} can be interpreted as feeling sad. The set $\{\lambda_j, \gamma_y, \delta_m\}$ represents fixed effects for residential cluster, survey year, and survey month, respectively. The vector X'_{ijym} incorporates individual characteristics, as delineated in Table 1, encompassing individual age, age-squared, educational level, wealth status, marital status, number of children, and whether the personal lives in the rural area. Finally, the term ε_{ijym} stands for the error term. Standard errors throughout the paper are clustered at the residential cluster level. The key coefficient of interest is β_1, which captures the impacts of feeling unhappy on various metrics of smoking behavior.

The fixed effects regression framework aligns with and operationalizes the theoretical perspectives mentioned in Section 2. The Stress-Coping Model is integrated through the interpretation of the primary explanatory variable (Being Unhappy) which captures the emotional distress hypothesized to drive smoking behaviors. By isolating the impact of unhappiness on smoking, the regression model quantifies the extent to which emotional discomfort translates into specific smoking outcomes, such as the likelihood of smoking daily or the number of cigarettes consumed.

The Self-Medication Theory is reflected in the analysis by demonstrating how unhappiness influences increased smoking behavior. The regression coefficients, particularly for daily smoking and the number of cigarettes smoked, provide empirical support for the theory's assertion that individuals may use smoking as a means to alleviate psychological distress. Behavioral Economics is incorporated into the framework by highlighting how the decision to smoke, influenced by unhappiness, prioritizes short-term emotional relief over long-term health risks. The findings, such as the significant increase in smoking likelihood among unhappy individuals, align with the theory's emphasis on immediate gratification and the undervaluation of future consequences.

The study bridges the gap between abstract theoretical constructs and measurable empirical outcomes by embedding these theoretical insights into the regression analysis. This integration strengthens the validity of the results and provides a nuanced understanding of how emotional well-being interacts with smoking behaviors in a developing country context.

RESULTS

Main Results

The quantified impacts of unhappiness on smoking behavior metrics are detailed in Tables 2 and 3. First, Table 2 presents our most parsimonious estimates, focusing exclusively on the main explanatory variable, i.e. Being Unhappy. These estimates result from a direct comparison of smoking behaviors among Vietnamese men. The findings reveal that unhappiness increases Vietnamese men's likelihood of (i) having ever tried smoking by 8.1 percentage points, (ii) recent smoking by 7.3 percentage points, (iii) daily smoking by 6.6 percentage points, and (iv) the number of cigarettes smoked in the last 24 hours by 1.017 cigarettes. All estimates are statistically significant at the 1% level.

The coefficients in regression analysis are interpreted as marginal effects because they quantify the direct impact of changes in the independent variable (Being Unhappy) on the dependent variables, holding all other factors constant. For binary dependent variables, such as "Ever Tried Smoking," "Currently Smoking," and "Smoking Daily," the coefficients represent the change in the probability of the event occurring when an individual shifts from not unhappy (coded as 0) to unhappy (coded as 1). For instance, the coefficient for "Ever Tried Smoking" is 0.081, indicating that being unhappy increases the likelihood of having ever tried smoking by 8.1 percentage points. Similarly, for "Currently Smoking," the coefficient of 0.073 signifies that unhappiness raises the possibility of recent smoking by 7.3 percentage points. In contrast, the coefficient of 0.066 for "Smoking Daily" implies a 6.6 percentage point increase in daily smoking probability.

For continuous dependent variables, such as the "Number of Cigarettes Smoked in the Last 24 Hours," the coefficients measure the average change in the dependent variable associated with a one-unit increase in the independent variable. The coefficient of 1.017 indicates that unhappiness leads to an additional 1.017 cigarettes smoked on average in the past 24 hours. This interpretation is straightforward because the coefficients directly represent additive effects on the dependent variable in a linear regression

framework with a continuous outcome.

When benchmarked against the sample averages for each smoking behavior (as detailed in Table 1), unhappiness is associated with increases relative to the sample averages of: (i) 14.4% in the incidence of having ever tried smoking, (ii) 20.56% in recent smoking, (iii) 20.82% in daily smoking, and (iv) 21.97% in the number of cigarettes smoked in the last 24 hours. This granular breakdown provides a nuanced understanding of how unhappiness differentially impacts various forms of smoking behavior.

However, the estimates presented in Table 2 primarily reflect the correlation between unhappiness and smoking behavior, without accounting for critical factors that may simultaneously influence both variables. For example, individuals with lower levels of education may be more likely to experience unhappiness. They may also lack awareness of the dangers of smoking and other risky health-related behaviors.[18,24] In such cases, education could be a significant factor driving variations in smoking behavior rather than unhappiness alone. To address these concerns, we include additional controls for individual characteristics, such as age, age squared, educational level, wealth status, marital status, number of children, and rural residence. Furthermore, we incorporate residential cluster area and survey month-year fixed effects into the regression model to mitigate potential biases arising from macro-level characteristics, such as sociocultural trends.

Our most comprehensive model, detailed in Table 3, confirms that the impact of being unhappy on various forms of smoking behavior remains statistically significant. Specifically, unhappiness is associated with an increase in the likelihood of (i) having ever tried smoking by 7.3 percentage points, (ii) smoking recently by 10.0 percentage points, (iii) smoking daily by 7.8 percentage points, and (iv) the number of cigarettes smoked in the last 24 hours by 1.505 cigarettes. These estimates are statistically significant at the 1% level.

When compared to the sample averages for each type of smoking behavior (as shown in Table 1), unhappiness results in increases relative to these averages of: (i) 13.01% in the incidence of having ever tried smoking, (ii) 28.17% in recent smoking, (iii) 24.60% in daily smoking, and (iv) 32.51% in the number of cigarettes smoked in the last 24 hours.

Robustness

Recall that our primary explanatory variable, Being Unhappy, derives from the unhappiness rating of 1 (Very Happy) to 5 (Very Unhappy). This variable is coded as 1 if the rating is 3 or above and 0 otherwise. It is also essential to ensure that the observed effects are truly associated with the individual actually being unhappy rather than the method of variable construction. A common exercise to address such concern is performing a robustness check using an alternative construction method.

To do so, we utilize the raw unhappiness rating (ranging from 1 to 5) as the explanatory variable in place of the coded measure. We then re-estimate our most comprehensive model (as detailed in Table 3) and present the results in Table 4. The findings continue to show a significant association between unhappiness and various forms of smoking behavior. In particular, each one-unit increase in the raw measure of unhappiness is associated with increases in the likelihood of (i) having ever tried smoking by 3.9 percentage points, (ii) smoking recently by 5.0 percentage points, (iii) smoking daily by 3.3 percentage points, and (iv) the number of cigarettes smoked in the last 24 hours by 0.857 cigarettes. All estimates remain statistically significant. However, we caution that using the raw categorical unhappiness rating is less ideal due to the uneven distribution of intervals between the rating points (1 to 5). Thus, while this robustness check supports the main findings, the coded variable remains the preferred measure for its precision and consistency.

In addition to utilizing the raw unhappiness rating, we conduct a further sensitivity analysis by recoding an alternative indicator. This new indicator is assigned a value of 1 if the unhappiness rating is 4 or above, and 0 otherwise, instead of the original threshold of 3. The results of this sensitivity analysis are presented in Table 5. The findings indicate that, according to this recoded measure of unhappiness, the incidence of (i) having ever tried smoking increases by 11.9 percentage points, (ii) smoking recently increases by 18.0 percentage points, (iii) smoking daily increases by 17.3 percentage points, and (iv) the number of cigarettes smoked in the last 24 hours increases by 4.105 cigarettes. All estimates remain statistically significant. It is important to note that this new measure of unhappiness reflects a more severe level than the original indicator, as the threshold for being classified as unhappy has been elevated from 3 to 4. Consequently, the estimates presented in Table 5 are more significant than those reported in Table 3.

To this point, all of our regressions have utilized sampling weights. However, there is some debate regarding using sampling weights in regression analyses, as

Table 2: Being Unhappy and Smoking - Baseline Results

	Ever Tried Smoking	Currently Smoking	Smoking Everyday	Cigarettes last 24 hours
	(1)	(2)	(3)	(4)
Being Unhappy	0.081***	0.073***	0.066***	1.017***
	(0.015)	(0.016)	(0.017)	(0.243)
Observations	4916	4789	3856	3856
Individual Characteristics	.	.	.	.
Time Fixed Effects	.	.	.	.
Cluster Fixed Effects	.	.	.	.

Note: *p<0.1, **p<0.05, ***p<0.01. Sampling weights are applied. Robust standard errors are clustered at the residential cluster area level. Each column represents the coefficient in a separate regression. Individual Characteristics include individual age, age-squared, educational level, wealth status, marital status, number of children, and whether the individual lives in the rural area. Cluster & Time Fixed Effects include residential cluster area and survey month-year fixed effects.

Table 3: Being Unhappy and Smoking - Main Results

	Ever Tried Smoking	Currently Smoking	Smoking Everyday	Cigarettes last 24 hours
	(1)	(2)	(3)	(4)
Being Unhappy	0.073***	0.100***	0.078***	1.505***
	(0.021)	(0.022)	(0.025)	(0.379)
Observations	4911	4784	3834	3834
Individual Characteristics	X	X	X	X
Time Fixed Effects	X	X	X	X
Cluster Fixed Effects	X	X	X	X

Note: *p<0.1, **p<0.05, ***p<0.01. Sampling weights are applied. Robust standard errors are clustered at the residential cluster area level. Each column represents the coefficient in a separate regression. Individual Characteristics include individual age, age-squared, educational level, wealth status, marital status, number of children, and whether the individual lives in the rural area. Cluster & Time Fixed Effects include residential cluster area and survey month-year fixed effects.

weighting can potentially reduce efficiency and statistical power.[25–29] In response, we conduct a third robustness check by excluding the sampling weights from our regression models while keeping the primary explanatory variable consistent with those reported in Table 2 and Table 3. The results of this robustness check, presented in Table 6, indicate that removing sampling weights does not substantially alter our findings. Specifically, unhappiness is associated with an increase in the incidence of (i) having ever tried smoking by 5.1 percentage points, (ii) smoking recently by 6.6 percentage points, (iii) smoking daily by 6.3 percentage points, and (iv) the number of cigarettes smoked in the last 24 hours by 0.829 cigarettes. All estimates remain statistically significant, and the magnitudes of the effects are consistent with those found when sampling weights are applied. Thus, our results demonstrate robustness to the exclusion of sampling weights, reinforcing the reliability of our findings.

Table 4: Robustness 1 - Uncoded Measurement of Happiness

	Ever Tried Smoking	Currently Smoking	Smoking Everyday	Cigarettes last 24 hours
	(1)	(2)	(3)	(4)
Uncoded Being Unhappy	0.039***	0.050***	0.033**	0.857***
	(0.013)	(0.014)	(0.015)	(0.249)
Observations	4911	4784	3834	3834
Individual Characteristics	X	X	X	X
Time Fixed Effects	X	X	X	X
Cluster Fixed Effects	X	X	X	X

Note: *p<0.1, **p<0.05, ***p<0.01. Sampling weights are applied. Robust standard errors are clustered at the residential cluster area level. Each column represents the coefficient in a separate regression. Individual Characteristics include individual age, age-squared, educational level, wealth status, marital status, number of children, and whether the individual lives in a rural area. Cluster & Time Fixed Effects include residential cluster area and survey month-year fixed effects.

Table 5: Robustness 2 - Recoded Measurement of Happiness

	Ever Tried Smoking	Currently Smoking	Smoking Everyday	Cigarettes last 24 hours
	(1)	(2)	(3)	(4)
Recoded Being Unhappy	0.119**	0.180**	0.173**	4.105***
	(0.057)	(0.091)	(0.075)	(1.522)
Observations	4911	4784	3834	3834
Individual Characteristics	X	X	X	X
Time Fixed Effects	X	X	X	X
Cluster Fixed Effects	X	X	X	X

Note: *p<0.1, **p<0.05, ***p<0.01. Sampling weights are applied. Robust standard errors are clustered at the residential cluster area level. Each column represents the coefficient in a separate regression. Individual Characteristics include individual age, age-squared, educational level, wealth status, marital status, number of children, and whether the individual lives in the rural area. Cluster & Time Fixed Effects include residential cluster area and survey month-year fixed effects.

DISCUSSION AND CONCLUSION

This paper advances the literature by investigating the effects of unhappiness on various forms of smoking behavior, utilizing a sample of approximately 5,000 men across Vietnam surveyed between 2020 and 2021. Our analysis leverages comprehensive data from the United Nations International Children's Emergency Fund - Multiple Indicator Cluster Survey 6 Vietnam dataset. Employing a fixed effects regression framework that capitalizes on spatial and temporal variations in socio-cultural patterns, our findings reveal a significant positive correlation between unhappiness and smoking incidence among Vietnamese men.

Collectively, our results demonstrate that unhappiness is associated with increases in the incidence of smoking among Vietnamese men: specifically, an increase of 7.3 percentage points in the likelihood of having ever tried smoking, 10.0 percentage points in

Table 6: Robustness 3 - Unweighted Regression

	Ever Tried Smoking	Currently Smoking	Smoking Everyday	Cigarettes last 24 hours
	(1)	(2)	(3)	(4)
Being Unhappy	0.051***	0.066***	0.063***	0.829***
	(0.016)	(0.017)	(0.018)	(0.276)
Observations	4912	4785	3835	3835
Individual Characteristics	X	X	X	X
Time Fixed Effects	X	X	X	X
Cluster Fixed Effects	X	X	X	X

Note: *p<0.1, **p<0.05, ***p<0.01. Robust standard errors are clustered at the residential cluster area level. Each column represents the coefficient in a separate regression. Individual Characteristics include individual age, age-squared, educational level, wealth status, marital status, number of children, and whether the individual lives in the rural area. Cluster & Time Fixed Effects include residential cluster area and survey month-year fixed effects.

recent smoking, 7.8 percentage points in daily smoking, and 1.505 cigarettes in the number of cigarettes smoked in the last 24 hours. Relative to the sample averages for each smoking behavior, unhappiness corresponds to increases of 13.01% in the incidence of having ever tried smoking, 28.17% in recent smoking, 24.60% in daily smoking, and 32.51% in the number of cigarettes smoked in the last 24 hours.

The research objectives of understanding the interplay between unhappiness and smoking behavior were answered through robust empirical analysis using nationally representative data. The study highlights how emotional distress acts as a determinant of smoking behavior, supporting the hypothesis that unhappiness can lead to an increase in smoking as a coping mechanism. This investigation fills a significant gap in the literature by focusing on Vietnam, a developing country context, where socio-cultural and psychological determinants of smoking are not well-documented.

This research offers meaningful contributions to several theoretical frameworks. First, it reinforces the Stress-Coping Model, demonstrating that individuals experiencing unhappiness are more likely to engage in smoking as a coping strategy for managing emotional distress. The findings empirically support the model's premise that psychological discomfort drives behaviors aimed at immediate relief. Second, the results align with the Self-Medication Theory, providing evidence that smoking behaviors may be employed to alleviate symptoms of emotional distress. The study's findings underscore nicotine's role as a temporary but harmful remedy for unhappiness, reinforcing the theory's relevance in explaining substance use behaviors. Third, the research advances the Behavioral Economics perspective by highlighting how unhappiness influences decision-making. The increased likelihood of smoking among unhappy individuals reflects a prioritization of immediate emotional relief over long-term health benefits, a key principle in this framework. By applying these theories in the context of a developing country, the study extends their applicability and underscores the importance of addressing socio-cultural nuances in health behavior research.

The study further addresses a critical research gap by exploring the emotional determinants of smoking behaviors in a developing country context. Previous research has primarily focused on high-income countries, leaving a void in understanding how unhappiness influences smoking in socio-cultural settings like Vietnam. By examining this relationship, the study provides novel insights into how emotional well-being interacts with smoking behaviors, offering evidence to inform tailored public health interventions. Moreover, the findings bridge the gap between theoretical frameworks and real-world policy implications, demonstrating how models like the Stress-Coping Model and Behavioral Economics can be operationalized to address smoking behaviors in diverse populations.

These findings carry substantial economic implications, particularly regarding public health expenditure, workforce productivity, and the long-term costs

associated with smoking-related illnesses. Smoking imposes a significant financial burden on individuals and healthcare systems, encompassing both direct costs, such as medical treatments, and indirect costs, including lost productivity due to illness and premature mortality. Our research contributes to identifying preventive strategies that enhance emotional well-being and potentially reduce smoking prevalence. Moreover, if interventions designed to increase happiness are shown to decrease smoking rates effectively, they could inform policy decisions to prioritize mental health and preventive care, yielding long-term economic benefits. The presenting topic further aligns with several Sustainable Development Goals (SDGs) adopted by all United Nations members, notably SDG 3 (Good Health and Well-being), SDG 8 (Decent Work and Economic Growth), and SDG 12 (Responsible Consumption and Production).

The mechanism underlying the observed increase in smoking behavior among unhappy Vietnamese men can be elucidated through a confluence of emotional, psychological, and social factors. First, Nicotine, a primary component of tobacco, stimulates the release of dopamine, which is a neurotransmitter associated with pleasure and relaxation. This neurochemical response provides a temporary reprieve from feelings of unhappiness, thereby making smoking a commonly utilized coping mechanism for managing stress, anxiety, and other negative emotions.[9] Consequently, individuals experiencing unhappiness are more likely to resort to smoking in an effort to alleviate emotional distress. Furthermore, unhappiness may increase susceptibility to peer pressure or social influence, particularly in social contexts where smoking is prevalent.[7,8] In Vietnam, smoking is culturally ingrained among men, which may lead unhappy individuals to adopt this behavior as a means of social integration or acceptance.

Unhappiness can also diminish an individual's motivation to engage in health-promoting behaviors.[9,11] When individuals are unhappy, they may prioritize immediate emotional relief over long-term health benefits, thereby increasing the likelihood of smoking. This tendency can contribute to both smoking initiation and sustained smoking. Once smoking becomes a coping strategy, the addictive properties of nicotine reinforce the behavior, as the brain associates smoking with relief from negative emotions.[17,30,31] This cycle of addiction exacerbates the frequency and intensity of smoking behaviors, leading to higher rates of daily smoking and increased cigarette consumption, as evidenced by the additional 1.505 cigarettes smoked in the last 24 hours. Moreover, chronic unhappiness often manifests as persistent stress, which can reinforce habitual smoking patterns. Over time, men who experience ongoing negative emotions may integrate smoking into their daily routines, further contributing to the elevated rates of daily smoking observed in this study.

Our study underscores a significant association between unhappiness and increased smoking behavior among Vietnamese men. This relationship highlights the necessity for policy interventions that integrate both emotional well-being and traditional smoking cessation strategies. To effectively tackle this issue, several policy implications emerge from the findings, each with practical applications aimed at reducing smoking rates and improving overall mental health.

First, the observed correlation between unhappiness and smoking behavior suggests that smoking cessation programs should incorporate mental health support. Public health initiatives aimed at reducing smoking should integrate mental health counseling and emotional support as core components. Healthcare providers, especially those in smoking cessation clinics, should be trained to identify and address emotional distress. Implementing interventions such as cognitive behavioral therapy can assist individuals in managing negative emotions without resorting to smoking. Increasing access to mental health services, particularly for high-risk groups, should be prioritized. Offering free or subsidized mental health services can help address the emotional factors driving smoking behavior.

Addressing emotional triggers through targeted interventions can potentially reduce smoking rates. A nationwide campaign focused on mental health awareness could play a crucial role in this effort. Such campaigns should highlight the link between emotional well-being and smoking cessation. Collaboration with schools, workplaces, and community centers to offer stress management workshops, mindfulness training, and emotional well-being seminars can help individuals develop healthier coping mechanisms. Media campaigns emphasizing the importance of emotional well-being and providing resources for seeking help can further support this initiative. Prioritizing groups experiencing higher levels of stress or unhappiness is essential for effective smoking prevention. Identifying high-risk groups, such as low-income individuals, those facing unemployment, or those with existing mental health issues, allows for more focused interventions. Community-based mental health outreach programs in areas with high smoking rates can ensure access to both emotional and be-

havioral support. Additionally, partnerships with employers and educational institutions can create support networks for individuals at risk of smoking due to emotional distress, offering confidential counseling and smoking cessation programs.

The workplace presents a significant opportunity for addressing smoking related to stress or unhappiness. Employers should be encouraged to implement mental health and well-being programs. One such measure is employee assistance programs that provide counseling and smoking cessation support. Developing stress reduction programs that address the root causes of smoking, such as high-stress job environments, could include flexible work hours, wellness activities, and mental health days. Incentive-based smoking cessation programs within the workplace can also motivate employees to engage in both smoking cessation and mental well-being initiatives.

Tobacco control policies should extend beyond traditional measures, such as taxation and smoking bans, to include strategies that promote mental health and well-being. Amending existing tobacco control policies to incorporate provisions for mental health services can enhance public health outcomes. Utilizing tax revenue from tobacco sales to fund mental health initiatives, including free therapy access and smoking cessation support, is a practical approach. Collaborating with non-governmental organizations to establish community-based support groups that address both smoking cessation and mental well-being can further reinforce these efforts.

Incorporating metrics related to happiness and emotional well-being into public health monitoring is essential for understanding their influence on smoking behavior. Including such indicators in national health surveys and smoking behavior studies can provide valuable insights. This data can inform the development of personalized smoking cessation programs tailored to individuals' emotional health, thereby enhancing the effectiveness of interventions. Educational initiatives that focus on teaching emotional coping skills from a young age can also prevent the development of smoking habits. Implementing school-based programs that teach emotional regulation, stress management, and coping strategies can reduce the likelihood of students turning to smoking later in life. Integrating mental health education into school curricula can help destigmatize mental health support and promote healthier lifestyle choices from an early age.

Overall, the findings of this research underscore the crucial role of emotional well-being in influencing smoking behavior among Vietnamese men. To effectively reduce smoking rates, a multifaceted approach that simultaneously addresses smoking cessation and mental health is essential. Integrating mental health support into smoking cessation programs, promoting emotional well-being through nationwide campaigns, targeting high-risk populations, and implementing comprehensive tobacco control policies represent key strategies. By adopting these measures, Vietnam can develop a more effective public health strategy that reduces smoking prevalence and enhances the overall well-being of its population.

ABBREVIATIONS

SDG: Sustainable Development Goal

UNICEF: United Nations International Children's Emergency Fund

MICS6-VN: Multiple Indicator Cluster Survey 6 Vietnam

EA: Enumeration area

CAPI: Computer-Assisted Personal Interviewing

FCT: Field check tables

CONFLICT OF INTEREST

The authors declare that they have no competing interests

AUTHOR CONTRIBUTIONS

Kien Le: writing, review, editing, data curation, and formal analysis

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Bài nghiên cứu

Sự bất hạnh và hành vi hút thuốc ở nam giới Việt Nam

Lê Kiên[1,2,*]

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TÓM TẮT

Hút thuốc lá vẫn là một trong những hành vi gây hại cho sức khỏe phổ biến nhất trên toàn cầu. Việc hút thuốc tiếp tục là một thách thức lớn đối với y tế công cộng do tính gây nghiện của nó, khiến việc cai thuốc trở nên khó khăn, cùng với những hậu quả nghiêm trọng về sức khỏe và kinh tế do việc sử dụng thuốc lá kéo dài. Nghiên cứu gần đây đã bắt đầu khám phá mối liên hệ giữa sức khỏe tâm lý và hành vi hút thuốc, nhằm làm rõ cách trạng thái cảm xúc có thể ảnh hưởng đến các hành vi liên quan đến sức khỏe. Nghiên cứu này xem xét mối quan hệ giữa sự bất hạnh và hành vi hút thuốc ở nam giới Việt Nam, sử dụng dữ liệu từ Multiple Indicator Cluster Survey 6 của UNICEF, bao gồm khoảng 5.000 nam giới được khảo sát trong giai đoạn 2020–2021. Sử dụng mô hình hồi quy với hiệu ứng cố định, phân tích của chúng tôi cho thấy mối tương quan dương đáng kể giữa sự bất hạnh và hành vi hút thuốc. Cụ thể, sự bất hạnh làm tăng khả năng từng thử hút thuốc lá thêm 7,3 điểm phần trăm, hút thuốc gần đây thêm 10,0 điểm phần trăm, hút thuốc hàng ngày thêm 7,8 điểm phần trăm và số lượng thuốc lá hút trong 24 giờ qua thêm 1,505 điếu. Những phát hiện này có ý nghĩa kinh tế đáng kể, đặc biệt liên quan đến chi tiêu y tế công cộng, năng suất lao động và chi phí dài hạn liên quan đến các bệnh do hút thuốc gây ra. Hút thuốc gây ra gánh nặng kinh tế đáng kể đối với cá nhân và hệ thống y tế, bao gồm cả chi phí trực tiếp như điều trị y tế và chi phí gián tiếp như mất năng suất lao động do bệnh tật và tử vong sớm. Nghiên cứu của chúng tôi đóng góp vào việc xác định các chiến lược phòng ngừa nhằm nâng cao sức khỏe tinh thần và có thể giúp giảm tỷ lệ hút thuốc. Hơn nữa, nếu các biện pháp can thiệp nhằm tăng cường hạnh phúc được chứng minh là có hiệu quả trong việc giảm tỷ lệ hút thuốc, chúng có thể cung cấp thông tin hữu ích cho các quyết định chính sách, ưu tiên sức khỏe tâm thần và chăm sóc phòng ngừa, mang lại lợi ích kinh tế lâu dài. Chủ đề nghiên cứu này cũng phù hợp với một số Mục tiêu Phát triển Bền vững (SDGs) của Liên Hợp Quốc, đặc biệt là SDG 3 (Sức khỏe và Cuộc sống tốt đẹp), SDG 8 (Việc làm bền vững và Tăng trưởng kinh tế), và SDG 12 (Tiêu dùng và Sản xuất có trách nhiệm).

Từ khoá: Hạnh phúc, Hút thuốc, Y tế công cộng

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