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Unveiling Smoke Signals: An Empirical Examination of the Escalating Smoking Trend in Pakistan and Its Dual Impact on Health and Economy

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ABSTRACT

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This empirical study investigates the rising prevalence of smoking in Pakistan and its subsequent effects on health, economy and societal well-being using cross-sectional data. We have used statistical tools such as ANOVA and correlation analysis to analyse the results. Thirteen hundred and seventy-five (1375) participants took part in this survey across eight cities, and the dataset was collected through a study of smokers. Our findings reveal that more than 68% proportion of smokers belong to the lower income group. Moreover, 58.20% of uneducated individuals smoked compared to 39.73% of educated individuals. Results reveal that the smoking trend among emerging adults is increasing, and participants aged 55 and above suffer from more health issues due to smoking. Despite the higher health risk associated with smoking, ominously, the prevalence rate is rising speedily, which can eventually contribute to numerous health diseases. The economic costs, both in terms of wasted money spent on smoking and expenses incurred due to associated health issues, underscore the negative impact on public health and society. Results of this study reveal that more taxes should be levied on tobacco to discourage smoking among low-income groups. Finally, anti-smoking campaigns, health literacy programs, and seminars should be organized in institutions and public places.

Keywords: Smoking Trend, Cigarette, Health Impacts, Economic Cost

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Introduction

Cigarette smoking stands as a global health challenge, claiming the lives of over half to a million individuals annually (World Health Organization [WHO], 2021). This detrimental habit not only curtails lifespan by ten years or more but also profoundly diminishes overall health and well-being (Centers for Disease Control and Prevention [CDC], 2021). The prevalence of smoking has surged, with over 19.8% of the world's population now grappling with addiction, a majority (80%) of whom reside in low- and middle-income countries (WHO, 2024). This ratio was 32.7% in 2000, out of which 51% were from the South-East Asian Region, and 18% from the African Region. This ratio has significantly declined to 25% and 9% in 2022 respectively, in both regions (WHO, 2024). In these regions, tobacco dependence permeates societies, prompting individuals to allocate limited resources to cigarettes rather than to fundamental necessities such as food (Goodchild, Nargis, & Tursan d'Espaignet, 2018).

In Pakistan, tobacco usage is also very alarming despite the continuous increase in Taxation over the last decade. The tobacco use rate in Pakistan was estimated to be 16.9% in 2022, while smoking prevalence was recorded as 12% in the same year. A total of 17.7 million adults are smoking tobacco in Pakistan, out of which two million are females. This count is very high in Pakistan compared to other South-East Asian countries and comprises 22.3% smokers in the region (WHO 2024). In the past few years, the smoking trend in Pakistan has steadily changed from traditional to e-cigarettes due to availability in multiple flavours and attractive appearance (Hameed & Malik, 2025).

Due to the high rise of smoking cases in recent decades, health issues associated with cigarette smoking are an alarming concern nowadays in Pakistan. Given the significant increase in smoking in Punjab, this study must be conducted as a priority and accorded the utmost importance alongside other essential tasks and initiatives. Therefore, it is urgent to find a prompt solution to this critical issue. Hence, stringent measures are required to overcome the growing health and societal issues associated with cigarette smoking. Despite the wealth of published data on tobacco, there remains a substantial gap in the literature regarding its health effects. Addressing the escalating demand for cigarettes necessitates comprehensive research endeavours to elucidate its impact on health, the economy, and the environment.

The economic repercussions of tobacco use are staggering. The cultivation of tobacco crops and the treatment of tobacco-related illnesses incur exorbitant costs, resulting in substantial financial setbacks (WHO, 2021). The impact extends to human capital, causing a notable decline in productivity and health (CDC, 2021). A concerning statistic emerges within Pakistan: eight out of ten individuals, spanning various age groups, engage in cigarette smoking, accompanied by a lack of comprehensive counselling and awareness programs to address this pervasive issue (Pakistan Medical Association, 2020). Furthermore, tobacco dependency leads to serious health issues such as heart diseases, stomach failure and brain haemorrhages, etc. (CDC, 2021).

Due to a significant rise in smoking cases among youth in Pakistan, it is quite mandatory to take serious steps to discourage smoking addiction in the young generation. Moreover, it is quite binding on us to provide proper awareness among youth about the detrimental effects of cigarette smoking on human health and global society. Chain smoking is a serious threat to life in the form of health disability, liver damage, heart diseases, oral cancers and skin cancer, etc. Thus, urgent attention is needed to overcome this curse of smoking addiction in the younger generation, and serious steps are required to curb this escalating issue of cigarette smoking in Punjab, Pakistan.

Much empirical work on smoking dynamics and factors influencing smoking is available in the case of Pakistan (Nadeem et al., 2024; Malik et al., 2025 etc.). Fewer studies also investigate the risk analysis of smoking in adults, male students and teachers (Khubaib et al., 2016 and Zubair et al., 2022). But this empirical work is different from previous studies, as it investigates the impact of cigarette smoking on health and society, with a particular focus on male adults in the major cities in Pakistan. This study aims to examine the link between smoking and health effects. Moreover, this empirical study also explores the impact of complex mental and physical repercussions experienced by chain smokers. The study develops better awareness among the younger generation about the pros and cons of cigarette smoking and its harmful effects on human health, the economy and society.

This research primarily targeted the male population of Pakistan, reflecting the prevalent demographics of smokers in the country. The conservative culture has led to negligible tobacco use among females, although there is a noticeable uptick among young girls. Furthermore, data collection focused solely on the most populous province, Punjab, despite

varying smoking trends in other provinces. The study exclusively included cigarette smokers, excluding individuals employing alternative tobacco consumption methods such as "Hookah," beeri, cigars, cigarillos, roll-your-own tobacco, and pipe tobacco.

Literature Review

The research can be anchored in key health behavior theories. The Health Belief Model explains individual risk assessment, where smoking persists if the perceived threat of disease is low and the perceived benefits of smoking are high. The Theory of Planned Behavior expands this to societal influence, examining how attitudes, social norms, and a sense of control over quitting shape intentions. Underpinning the behavior is the Nicotine Addiction Model, which details the powerful physiological dependency that sustains the habit. Ultimately, the Social Learning Theory contextualizes the trend's escalation, highlighting how smoking is initiated and normalized through observation and reinforcement within families, peers, and media.

The imperative role of continuous and effective preventive medicine in mitigating smoking is underscored by Erath et al., (2022). A comprehensive body of scientific literature accentuates the profound adverse effects of smoking on global morbidity and mortality, prompting concerted efforts to curtail this pervasive habit (Cornelius et al., 2022). The magnitude of economic ramifications tied to tobacco use is staggering, with estimates reaching $1.85 trillion globally, encompassing both direct and indirect costs such as healthcare and productivity (Goodchild et al., 2018).

Diverse strategies have been proposed to eradicate or diminish smoking consumption. An increase in tobacco prices and the enforcement of taxes can significantly reduce the demand of tobacco. Moreover, non-price policies, such as preventive interventions, training, taxes, and tariffs, can be better shielded against tobacco exposure (Erath et al., 2022). Notably, recent studies suggest that tobacco with a lower level of nicotine can significantly reduce the severity of dependency on cigarette smoking and result in findings strongly endorsing the adoption of a minimum level of nicotine in cigarettes (Klemperer et al., 2022). In addition, preventive measures such as serious health warning labels can deter the younger generation from addiction to chain smoking (Mourik et al., 2022).

A bundle of studies investigated the economic impact of smoking on society with primary focus on developed countries. However, very few

studies have investigated the financial impact of cigarettes on society, particularly in developing countries, leaving a clear gap in the research literature. There is a need for essential tobacco control measures in order to alleviate economic, health and social costs incurred due to cigarette smoking (Goodchild et al., 2018). Economic costs linked with tobacco usage have attracted significant attention globally due to the rising burden of these non-contagious diseases in less developed countries (Goodchild et al., 2018). A significant rise in the number of smokers across the world in recent decades posed a heinous threat to the health of human beings and society as a whole (Ng et al., 2014). Surprisingly, individuals with health disorders are five times more likely to smoke than non-smokers. Individuals with substance use disorders are approximately five times more likely to smoke than the general population, putting them at a high level of health risk if they are engaged in a chain-smoking habit (Min et al., 2022).

There are numerous studies also available in the Pakistani context regarding the factors influencing smoking and its impact on health. A survey data analysis from Punjab, Pakistan, reveals that the highest smoking ratio prevails in farmers, businessmen and poor people (Nadeem et al., 2024). Another study examined smoking prevalence among public and private school teachers (Malik et al., 2020). The results of the study found that smoking prevalence was 9% in private school teachers compared to 7 % in public school. Similarly, Zubair et al. (2022) find that the prevalence of smoking is higher among middle-aged people of 45-49 years, and this ratio is lower in educated people. The ratio of smoking was also found to be higher among poor people in Pakistan.

Data and Methodology

Research Sample

This research, delving into smoking trends and their economic and health repercussions, encompassed a sample of 1,375 responses. The data were collected using a two-stage stratified cluster sampling design that included young adults aged 18 years and older. In the first stage, the sample was determined by using 3% margin of error and the total sample was derived at 95% confidence interval, which was 1067 (Daniel & Cross, 2018). Then, in the second stage, we randomly distributed this sample across the eight major cities of Punjab, Pakistan. The province of Punjab is selected as more than half of the adult population of Pakistan resides in this province. Cities were chosen due to their accessibility to the researchers and consist of a

significant proportion of the population. Then, the population is also divided into different age, education, and income groups. More than 2,700 smokers were approached to complete the survey, and the response rate was less than 50%. The sample of 1000-1300 participants was enough for smoking and health studies (Heikkinen et al., 2008). The survey spanned from April 2021 to October 2022 and targeted the population across eight major cities in the Punjab province, including the capital city, Islamabad, Pakistan. For this study, male participants of varying ages were selectively chosen and categorized into eight groups based on both age and city. Additionally, participants were segregated into two groups based on literacy levels: educated (625 participants) and uneducated (750 participants).

Variable Description

Education: Educational categorization was determined by assessing the participants' level of education. Those possessing qualifications beyond Grade 10th (High School, Matriculation, Diploma, Bachelor's, Master's) were considered educated, while those with qualifications below Grade 10th were deemed uneducated.

Health Disease: This variable encompasses various health conditions related to smoking, such as lung diseases, cardiovascular issues, and cancer.

Cigarette Smoking Trend: This variable captures the prevalence and patterns of cigarette smoking, accounting for factors such as frequency, duration, and age at initiation.

Salary: This variable (salary) represents individuals' income levels and provides deep insights into the nexus between their financial position and smoking habits.

Statistical Tests:

The objective of the present research is to analyze smoking trends in Pakistan among different groups, e.g., age, income, and education. Moreover, this study also provides insights into health issues related to smoking. For this study, we have applied ANOVA and correlation analysis for smoking patterns in heterogeneous groups. Moreover, a correlational analysis is conducted using Graph Prism software version 9.0 among the variables age, education, smoking, and health

Results and Analysis

Descriptive Statistical Results and Discussions

In both Table 1 and Table 2, we incorporated detailed calculations to assess the economic impact on smokers concerning their cigarette consumption patterns. The Tables include demographic information, city of residence, and age-group categorization, particularly distinguishing individuals aged 18-55 from those over 55. Table 1 focuses on 382 participants in the first two of four groups categorized by economic level and monthly income status. These groups represent individuals with a monthly salary of 15,000 PKR (n=382) and those with a salary of 30,000 PKR (n=543). Conversely, Table 2 presents data for participants falling into the third and fourth groups based on economic level and monthly income status, specifically those with a salary of 45,000 PKR (n=286) and 60,000 PKR (n=164). These tables aim to provide a comprehensive overview of the economic implications associated with different income levels and smoking trends among the study participants.

Table 1: Number of respondents according to salary and smoking trend from 15000 to 30000 PKR per month income.

Age Groups	City Name	Income (Salary) group 1	Income (Salary) group 2	Number of Participants Smoking Trend group 2 (n=543)	Number of Participants Smoking Trend group 1 (n=382)
18-25	Islamabad	15,000	30,000	20	5
26-30	Lahore	15,000	30,000	110	50
31-35	Faisalabad	15,000	30,000	85	45
36-40	Rawalpindi	15,000	30,000	60	30
41-45	Gujranwala	15,000	30,000	45	65
46-50	Multan	15,000	30,000	30	40
51-55	Bahawalpur	15,000	30,000	95	37
55+	Sargodha	15,000	30,000	98	110

Table 2: Number of respondents according to salary and smoking trend from 45000 to 60000 PKR per month income

Age Groups	City Name	Income (Salary) group 3	Income (Salary) group 4	Number of Participants & Smoking Trend group 3 (n=286)	Number of Participants & Smoking Trend group 4 (n=164)
18-25	Islamabad	45,000	60,000	36	14
26-30	Lahore	45,000	60,000	30	25
31-35	Faisalabad	45,000	60,000	40	20
36-40	Rawalpindi	45,000	60,000	50	30
41-45	Gujranwala	45,000	60,000	30	25
46-50	Multan	45,000	60,000	17	8
51-55	Bahawalpur	45,000	60,000	40	16
55+	Sargodha	45,000	60,000	43	26

Smoking Trend Results Based on Income

In Tables 1 and 2, participants were categorized according to their economic level and monthly income status, with Table 1 (n=925) and Table 2 (n=450) providing statistical outcomes for participants (refer to supplementary file tables). The analysis revealed that the smoking trend varied across income groups. Among participants with a salary of 15,000 PKR, the smoking rate was 63.83%, whereas among those with a salary of 30,000 PKR, it a 49.88%. Participants earning 45,000 PKR showed a smoking trend of 28.16%, and those with a salary of 60,000 PKR had a smoking trend of 37.35%. This highlights a negative correlation between income levels and smoking, as higher-income groups tended to smoke less than their lower-income counterparts. The group with lower cigarette consumption, indicative of lower spending, served as a suitable comparison for assessing health and other variables across different income groups.

Notably, the group with higher spending on cigarettes, associated with lower income, exhibited increased mental and psychological health issues

compared to other groups. Group 1, characterized by lower earnings and higher spending. Groups 2 and 4 demonstrated neutral results, while Group 3, with an economic consumption of only 28.16%, exhibited the most positive results. In scenario analysis, presenting the four groups and quartiles (Q1 to Q4) with a single scenario based on smoking trends and economic loss percentage, Group 3 and Quartile 3 emerged as the most favourable.

Trends in Cigarette Consumption Based on Educational Level

Table 3 presents a comprehensive portrayal of respondents' profiles, shedding light on their educational backgrounds. In pursuit of enhanced interpretation and greater precision, participants are dichotomized into two categories: educated and uneducated. Among the entire participant pool, 625 individuals boast an educational background, whereas 750 respondents are categorized as uneducated. This deliberate categorization enables a nuanced exploration of smoking trends in the specific areas under scrutiny, offering a detailed understanding of the correlation between educational levels and cigarette consumption.

Table 3: Respondents' Educational Background and Its Correlation with Smoking Trends among Age Groups

Age Groups	City Name	Educational Level (Uneducated) x Smoking	Educational Level (Educated) x Smoking
18-25	Islamabad	0	75
26-30	Lahore	90	125
31-35	Faisalabad	90	100
36-40	Rawalpindi	85	85
41-45	Multan	75	20
46-50	Gujranwala	110	55
51-55	Bahawalpur	100	88
55+	Sargodha	200	77

The analysis, coupled with participants' verbal responses, revealed a significant disparity in smoking rates between the uneducated and educated groups, standing at 58.20% and 39.73%, respectively. Contrary to historical trends, recent findings illuminate a concerning rise in addiction among the

young population, particularly college and university students, introducing health risks that may impact not only their future but also extend to their families. Within each group, distinct subsets engage in smoking habits; for instance, labor-intensive professions in the uneducated group and among the educated, a notable prevalence among young students compared to professionals like bankers or government/private institution workers. The supplementary statistical table underscores these trends, depicting a smoking rate of 39.73% among the educated and an alarming 58.20% among the uneducated, indicating a persistent upward trajectory with a coefficient of variation at 63.83%.

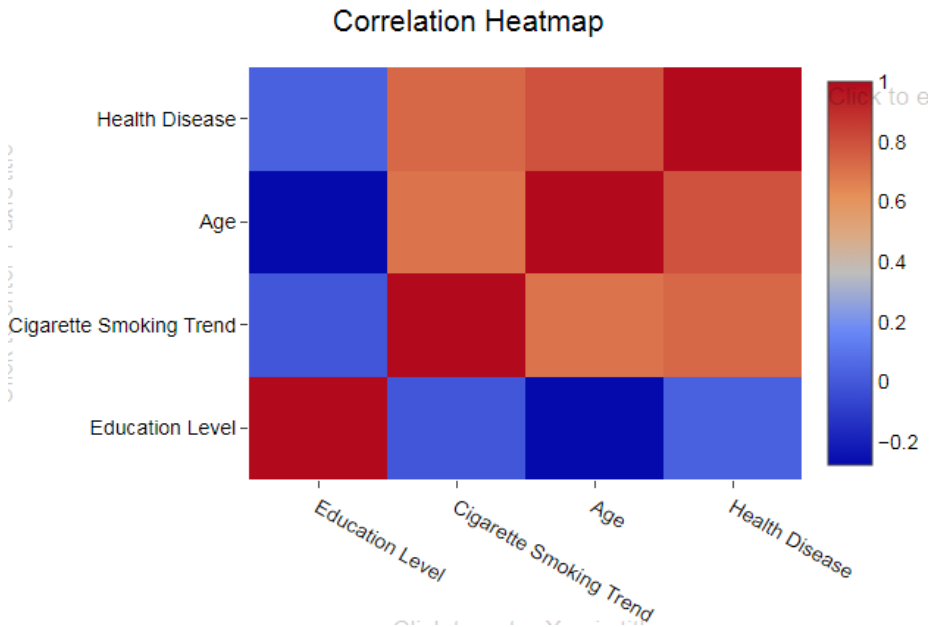
The Escalating Trend of Smoking: Health Implications Across Age Groups, Locations, and Educational Profiles

Statistical analysis highlights the correlation between smoking trends and health conditions among 1,375 participants, with 876 reporting various communicable and non-communicable diseases like chest problems, cough, anger issues, and diabetes. These conditions had direct physical implications, and comorbidity was prevalent among all 876 participants. Grouping participants based on specific diseases was beyond the research scope, but the overall impact of cigarette smoking on their health was emphasized. Within the 18-25 age group (75 participants), only 15 reported any medical conditions, primarily comprising mental disorders, stress, anxiety, and hypertension. Conversely, the group aged 55 and older exhibited a higher prevalence of multiple medical conditions.

Table 4: Smoking Trends and Associated Health Conditions in Respondents

Age Groups	Health Problems and Disease	Number of Total Respondents with Smoking
18-25	15	75
26-30	96	215
31-35	103	190
36-40	113	170
41-45	49	95
46-50	122	165
51-55	143	188
55+	235	277

Figure 1. Heatmap between health disease, cigarette smoking trend with different age group and educational level



Source: Author's Calculation (Visualization Using Graph Prism Software Version 9.0)

Conclusion and Policy Implications

The present study was conducted to analyze smoking trends among males in Pakistan using data from 1375 respondents across eight major cities, including the capital. The study compared smoking trends with different demographic variables like age, gender, and education. Moreover, health risks and loss are also compared with smoking and tobacco use in our analysis. This study provides a significant insight into comparing smoking trends symmetrically across age, income and education groups in a lower-middle-income country, specifically from a Muslim country. The research also contributes to developing a hypothesis comparing smokers with income level, which is supported by economic stress theory vs disposable income theory. The study contributes by testing income inequality manifesting in smoking behaviour in Pakistan, which is different from Western trends.

Results of this study reveal that a higher prevalence rate of smoking is among 1st and 2nd quartile income groups. Moreover, male adults aged 26-30 and more than 55 years have more smoking habits in Pakistan, the middle-aged group. The ratio of smoking is more in educated people due to the rising trends of tobacco and e-cigarette use in the college and university levels. Finally, if we compare disease and health issues among different age-group smokers, the prevalence of health issues and diseases are higher in 50 and above age of people.

After perusing through the results and their discussion, it is suggested that parental supervision and family guidelines are essential to mitigate the smoking habits in youth. Results of this study reveal that more taxes should be levied on tobacco to discourage smoking among low-income groups. Finally, anti-smoking campaigns, health literacy programs, and seminars should be organized in institutions and public places. Our results depict that smoking is higher in lower and middle income groups and uneducated people, thus interventions are needed, like media campaigns to ban smoking in public places and increase taxation on cigarettes and other smoking items. As smoking is directly linked to income and financial stress in Pakistan, social welfare policies need to accelerate for tobacco control.

Furthermore, youth should be given proper training, guidelines and provided with appropriate training to the younger generation through video lectures to provide adequate awareness to youth about the pros and cons of cigarette smoking. Likewise, proper training should also be provided about the negative aspects of smoking on health, the economy, and society as well. The government should also play a pivotal role by publicising useful information about the ills of tobacco on human health. Besides, public authorities should disseminate information about the drawbacks of smoking through public campaigns and in health care centres. Hence, efficient policies can effectively reduce chronic and health-related diseases, thus easing financial strain on the economy and society.

An increase in taxes on tobacco can significantly reduce its usage, especially among lower-income individuals and thus, an increase in the tax rate on tobacco can protect the younger generation from health damage. Hence, emphasising the tobacco study and its consequences for the economy and society is a fascinating topic to explore in this era (WHO, 2021). Results from prior studies strongly indicate that a 10% increase in tobacco prices can significantly reduce tobacco consumption by 4% to 5% (WHO, 2021).

Nevertheless, tax avoidance policies can significantly harm tobacco control policies, and serious efforts are needed to overcome these hurdles and challenges (Goodchild et al., 2018).

Negative influence through relatives, classmates, family and age groups plays a pivotal role, exceptionally persuading the mind of youth towards illicit and harmful activities i.e. smoking addiction. Intended involvement in negative activities that reflect mental & psychological disabilities, as well as nonsensical behaviour can also persuade towards smoking addiction. Those individuals with little financial income usually revert to smoking as a temporary relief, even though it is a fleeting solution to this issue, aggravating their future problems over time. Moreover, some people are addicted to smoking as a temporary relief or short-term escape strategy from life troubles. Smoking is interlinked with socio-economic factors and age group, and thus, these socio-economic variables can play an essential role in influencing individuals towards smoking addiction. Furthermore, educational training, cultural values, and social values can play a crucial role in curbing smoking trends.

The present study has some limitations due to low response and participants' approach. Firstly, it is limited to male smokers only. Future studies can also collect data from female smokers to analyze their socio-economic behavior, which leads them to smoke. The present study is also limited to eight major cities in Pakistan, and it can be expanded throughout the country. Moreover, the study did not count any monetary or economic loss of participants due to smoking, which is a significant issue with the health loss and can be addressed in future.

Participant Consent: The authors confirm that Informed consent was obtained from all participants, and confidentiality was duly maintained.

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References

Boachie, M. K., Ayifah, R. N. Y., Immurana, M., Agyemang, J. K., Singh, A., & Ross, H. (2022). Effect of cigarette prices on cigarette consumption in Ghana. Drug and Alcohol Dependence Reports, 5, 100102. https://doi.org/10.1016/j.dadr.2022.100102

Cornelius, M. E., Loretan, C. G., Wang, T. W., Jamal, A., & Homa, D. M. (2022). Tobacco product use among adults—United States, 2020. Morbidity and Mortality Weekly Report, 71(11), 397–405. http://dx.doi.org/10.15585/mmwr.mm7111a1

Daniel, W. W., & Cross, C. L. (2018). *Biostatistics: a foundation for analysis in the health sciences*. John Wiley & Sons.

Dare, C., Boachie, M. K., Tingum, E. N., Abdullah, S., & van Walbeek, C. (2021). Estimating the price elasticity of demand for cigarettes in South Africa using the Deaton approach. BMJ Open, 11(12), e046279. https://doi.org/10.1136/bmjopen-2020-046279

Erath, T. G., Browning, K. O., Evemy, C., Feinstein, M. J. P., Wiley, R. C., Kemperer, E. M., DeSarno, M., & Higgins, S. T. (2022). A review of research on cigarette smoking in Preventive Medicine in recognition of the journal's 50th anniversary. Preventive Medicine, 164, 107335. https://doi.org/10.1016/j.ypmed.2022.107335

Filippidis, F. T., Agaku, I. T., & Vardavas, C. I. (2015). The association between peer, parental influence and tobacco product features and earlier age of onset of regular smoking among adults in 27 European countries. European Journal of Public Health, 25(5), 814–818. https://doi.org/10.1093/eurpub/ckv068

Goodchild, M., Nargis, N., & Tursan d'Espaignet, E. (2018). Global economic cost of smoking-attributable diseases. Tobacco Control, 27(1), 58–64. https://doi.org/10.1136/tobaccocontrol-2016-053305

Hameed, A., & Malik, D. (2025). Bridging the Gap in Smoking Cessation: Unveiling Tobacco Harm Reduction in Pakistan Through Print Media Content Analysis. *BioMed Research International*, *2025*(1), 3822509. doi: 10.1155/bmri/3822509

Heikkinen, H., Jallinoja, P., Saarni, S. I., & Patja, K. (2008). The impact of smoking on health-related and overall quality of life: a general population survey in Finland. *Nicotine & Tobacco Research*, *10*(7), 1199-1207.

Khubaib, M. U., Shahid, Z. Y., Lodhi, S. K., Malik, H., & Jan, M. M. (2016). Prevalence and associated factors of smoking among final year medical students: A multicentric survey from Pakistan. *Cureus*, *8*(7).

Klein, H., Sterk, C. E., & Elifson, K. W. (2013). Initial smoking experiences and current smoking behaviors and perceptions among current smokers. Journal of Addiction, 2013, Article 491797. https://doi.org/10.1155/2013/491797

Klemperer, E. M., Luo, X., Jensen, J., al'Absi, M., Cinciripini, P. M., Robinson, J. D., Drobes, D. J., McClernon, J., Strasser, A. A., Strayer, L. G., Vandrey, R., Benowitz, N. L., Donny, E. C., & Hatsukami, D. K. (2022). Smoking abstinence and cessation-related outcomes one month after an immediate versus gradual reduction in nicotine content of cigarettes. Preventive Medicine, 164, 107175. https://doi.org/10.1016/j.ypmed.2022.107175

Malik, M., Kumar, A., Lal, D. M., Farooq, W., Zehra, K., Khan, A. H., ... & Rizvi, N. (2020). Awareness of health policies and risks regarding tobacco smoking among school teachers in Pakistan. *Pakistan Journal of Medicine and Dentistry*, *9*(1), 99-105.

Min, J.-Y., Levin, J., & Weinberger, A. H. (2022). Associations of tobacco cigarette use and dependence with substance use disorder treatment completion by sex/gender and race/ethnicity. Journal of Substance Abuse Treatment, 140, 108834. https://doi.org/10.1016/j.jsat.2022.108834

Nadeem, M., Malik, M. I., Ullah, A., & Junaid, N. (2024). Smoking Dynamics: Factors Supplementing Tobacco Smoking in Pakistan. *IEEE Transactions on Computational Social Systems*, *11*(4), 5367-5373.

Ng, M., Freeman, M. K., Fleming, T. D., Robinson, M., Dwyer-Lindgren, L., Thomson, B., Wollum, A., Sanman, E., Wulf, S., Lopez, A. D., Murray, C. J. L., & Gakidou, E. (2014). Smoking prevalence and cigarette consumption in 187 countries, 1980–2012. JAMA, 311(2), 183–192. https://doi.org/10.1001/jama.2013.284692

Thomson, B., Rojas, N. A., Lacey, B., et al. (2020). Association of childhood smoking and adult mortality: Prospective study of 120,000 Cuban adults. The Lancet Global Health, 8(6), e850–e857. https://doi.org/10.1016/S2214-109X(20)30221-7

van Mourik, D. J. A., Nagelhout, G. E., Poole, N. L., Willemsen, M. C., Candel, M. J. J. M., Moodie, C., van den Putte, B., Thrasher, J. F., & de Vries, H. (2022). Non-smoking adolescents' perceptions of dissuasive cigarettes. Addictive Behaviors Reports, 15, 100433. https://doi.org/10.1016/j.abrep.2022.100433

WHO global report on trends in prevalence of tobacco use 2000–2030. Geneva: World Health Organization; 2024. Licence: CC BY-NC-SA 3.0 IGO.

Zubair, F., Husnain, M. I. U., Zhao, T., Ahmad, H., & Khanam, R. (2022). A gender-specific assessment of tobacco use risk factors: evidence from the latest Pakistan demographic and health survey. *BMC Public Health*, *22*(1), 1133.