

# Factors Affecting Smoking Behaviour among University Students in Yemen and Indonesia: Literature Review

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## Abstract

**Introduction:** Smoking presents a significant public health challenge worldwide, profoundly affecting individual health and societal well-being. This study aims to explore the various factors influencing smoking behavior among university students in Yemen and Indonesia, where recent literature highlights a notable prevalence of smoking. This review investigates the complex interplay of sociocultural, economic, and environmental factors contributing to smoking behaviors in these settings.

**Methods:** A literature review approach was employed, guided by strict inclusion and exclusion criteria. A total of 979 study was gathered from multiple databases, including Scopus, PubMed, ProQuest, and Emerald, covering studies published between 2019 and 2023. The search involved keywords such as "Yemen," "Indonesia," "smoking behavior," and "university students." Thirty articles were initially identified, with eight meeting the criteria for critical evaluation.

**Results:** Key factors influencing smoking behavior among university students in both countries included social acceptability, peer influence, cultural norms, limited tobacco control policies, and the availability of tobacco products. The findings indicate that, in both Yemen and Indonesia, internal motivators such as social acceptance, stress relief, and pleasure-seeking play crucial roles in smoking initiation. Yemeni studies additionally emphasize societal surroundings and familial influences, rooted in cultural norms and family structures unique to the region. Indonesian studies, however, underscore the impact of external influences, including pervasive tobacco marketing and limited regulatory enforcement.

**Conclusions:** This review identifies both commonalities and distinct influences on smoking behavior between university students in Yemen and Indonesia. The factors vary by societal and regulatory environment, underlining the need for tailored interventions. Addressing these determinants through culturally and regionally specific approaches could be instrumental in mitigating smoking prevalence among university students in both countries.

**Keywords:** Smoking Behavior, Factors Influencing, Tobacco Use, University Students

## 1. Introduction

Scientifically, smoking poses a significant risk to individual health and societal well-being. The behavior not only jeopardizes the health of smokers but also impacts those around them, making it a pressing public health concern. This study Conducting a review to explore these factors across both countries. It is essential to gain a nuanced understanding of the determinants influencing smoking behavior among university students. Such a review can aid in identifying commonalities, differences, and potential interventions necessary to devise tailored tobacco control strategies, fostering a healthier environment for university students in both Indonesia and Yemen [1].

As of recent years, smoking among university students in Indonesia and Yemen has continued to pose a significant public health concern, warranting comprehensive scrutiny and intervention. In Yemen, recent studies report a smoking prevalence of about 33.1% among university students. This high prevalence is influenced by various factors, including

cultural norms, easy access to tobacco products, and weak enforcement of tobacco control policies. These factors create an environment where smoking is widely accepted and prevalent among the youth, especially university students [2]. In Indonesia, the situation is similarly troubling. The prevalence of smoking among university students is approximately 27.9%, with a higher rate among males (46%) compared to females (15.3%). Factors such as social acceptability, peer pressure, and limited tobacco control in educational institutions contribute to this high prevalence. The widespread availability and affordability of tobacco products further exacerbate the issue, making smoking a deeply ingrained habit among university students in Indonesia [3].

Smoking behavior among university students remains a pressing public health concern globally, with its multifaceted nature influenced by a myriad of factors. In Yemen, a country grappling with high smoking prevalence rates, particularly among youth and university students, understanding the

determinants of smoking. behavior is crucial to develop effective intervention strategies [4]. Numerous multifaceted factors contribute to the initiation and continuation of smoking habits among Yemeni university students. Sociodemographic factors such as age, gender, socioeconomic status, and educational background have been identified as influential determinants impacting smoking habits [5]. Moreover, environmental influences, including peer pressure, familial smoking history, and exposure to tobacco marketing, play pivotal roles in shaping smoking behaviors among Yemeni university students [6].

Psychosocial aspects, encompassing stress, mental health issues, and perceived stress levels, also significantly contribute to the adoption and maintenance of smoking habits among this cohort [7]. Additionally, cultural norms, traditional practices, and lack of effective tobacco control policies may contribute to the normalization and acceptance of smoking behaviors among Yemeni university students [5]. The factors influencing smoking behavior among university students in Indonesia encompass a complex interplay of socio-cultural, environmental, economic, and individual determinants. Sociocultural norms, peer influence, and familial smoking behaviors play pivotal roles in shaping students' attitudes towards smoking initiation and continuation [8]. Additionally, widespread tobacco marketing practices, availability, and affordability of cigarettes, coupled with limited enforcement of smoking regulations in university settings, contribute significantly to the normalization and acceptance of smoking behavior among students. Moreover, stress, academic pressures, and the perception of smoking as a coping mechanism further fuel the prevalence of smoking among university students in Indonesia [8].

Psychological factors, including stressors related to academic workload and social adjustment, often drive students towards smoking as a means of stress relief or social integration within peer groups [9]. Understanding these factors in Indonesia, and comparing them with Yemen, can offer insights into potential similarities or disparities, providing valuable information for tailored interventions and policy development to address smoking behaviors among university students in both countries. While the determinants of smoking behavior among university students in Indonesia are multifaceted, a comparative analysis with Yemeni university students may reveal both similarities and disparities. In Yemen, societal norms, cultural traditions, and economic factors significantly influence smoking behaviors, albeit within a distinct cultural and socioeconomic context. Factors such as the availability and affordability of tobacco products, familial and peer influences, as well as stress-related triggers, might echo similarities with Indonesia, albeit with nuanced variations reflective of Yemen's unique cultural fabric and socio-economic landscape [10].

Understanding these multifaceted determinants is essential for developing targeted and effective interventions aimed at reducing smoking prevalence and promoting healthier behaviors among university students in Yemen. Similarly,

in Indonesia, a country facing a high prevalence of smoking among university students, understanding the factors influencing smoking behavior is crucial for intervention development).

### 1.1. The Aim of this Study

To investigate and compare the various factors influencing smoking behavior among university students in Yemen and Indonesia.

## 2. Methodology

Literature review procedures used in this study. Several steps that must be include formulating research questions, identifying relevant research, evaluating the quality of selected articles, summarizing research findings, and taken Sources and Search Strategy interpreting findings in the form of a literature review. The research question is "What are the common factors influencing smoking behavior among university students in Yemen? What are the common factors influencing smoking behavior among university students in Indonesia? Are there similarities or differences in the factors affecting smoking behavior between university students in Yemen and Indonesia?"

### 2.1. Data Sources

Data was obtained from several databases such as Scopus, PubMed, ProQuest, and Emerald from 2019 to 2023. In the journal search, the keywords used were ("Yemen" OR "Indonesia") AND Smoking behavior OR "Factors influencing"). ("smoking behavior AND tobacco use OR smoking prevalence AND university students). ("Smoking behavior OR College students AND Yemen OR Indonesia"). (Smoking Behavior and University Students or Smoking behavior AND College students OR Yemen OR Indonesia).

### 2.2. Search Strategies

The strategy for selecting quality articles uses two criteria, namely inclusion and exclusion criteria, Inclusion Criteria: Participants: University or college students in Yemen or Indonesia. Age range between 18 to 30 years old. Both male and female students. Study Types: Research studies, including cross-sectional studies, cohort studies, case-control studies, qualitative studies, and intervention studies. Variables of Interest: Studies examining factors influencing smoking behavior among university students. Publication Language: Studies available in English. Publication Time frame: Studies published within the last 5 to 6 years (from 2019 to the present), considering the relevance of recent factors influencing smoking behaviors. Exclusion Criteria: Participants: Studies involving non-university or non-college students. Studies focusing on participants outside the specified age range. Study Types: Theses, conference abstracts, commentaries, editorials, and letters without original research data. Studies not addressing factors related to smoking behavior among university students. Publication Language: Studies not available in English. Publication Time frame: Studies published before 2019, as the aim is to focus on recent factors influencing smoking behavior.

### 2.3. Data Synthesis

Data synthesis process for this study will involve a meticulous and systematic approach aimed at consolidating and analyzing information extracted from various scholarly sources related to smoking behavior among university students in Yemen and Indonesia. Initially, all selected studies meeting the inclusion criteria will be thoroughly reviewed, and relevant data points will be extracted. A structured approach utilizing thematic analysis will be employed to identify recurring themes, patterns, similarities, and disparities across the literature. The extracted data will then be systematically organized to categorize and compare factors influencing smoking behavior among university students in Yemen and Indonesia. This synthesis will allow for a comprehensive understanding of the multifaceted determinants, potentially leading to the identification of commonalities and differences in smoking behavior between the two populations. The synthesis process will aim to present a cohesive narrative and critical analysis of the findings, emphasizing the nuanced aspects of smoking behavior in these respective settings.

### 2.4. Data Analysis

In this literature review, a meticulous examination of the existing literature concerning smoking behavior among university students will be undertaken. The investigation will encompass a comprehensive review and synthesis of insights extracted from diverse scholarly resources, including

peer-reviewed articles and pertinent. Initially, a systematic exploration will be initiated utilizing targeted keywords such as 'smoking behavior,' 'university students,' 'Yemen,' 'Indonesia,' and related terminologies. The focus will be on publications dated post-2019 to ensure the current relevance of the collected data. Following this, a stringent screening process will be implemented based on predefined inclusion and exclusion criteria. Selected studies will undergo critical evaluation, and pertinent data will be meticulously extracted. The analysis aims to delineate recurring themes, ascertain common determinants, and discern differences in the factors influencing smoking behavior among university students in both Yemen and Indonesia.

## 3. Results

### 3.1. Study Selection Results

The selection process is show that the total of 980 articles were identified during literature review from the database. After removing duplicates, 897 articles remained. A total of 963 articles were excluded after checking the title/abstract with non-relevant topics, 23 non-relevant population, non-relevant articles 7. The included studies were 30, Researcher then conducted a quality assessment of 30 articles. A total of 8 articles that met the inclusion criteria were included in the literature review.

### 3.2. Data Extraction

Author (year), country	Design	Participant		topic	Intervention		Contr ol group	Measuremen t Tools*	Outcome
		number E/C	Mean age, total, E/C		Method	duration			
<i>Abdulsalam M. A cet al., 2020. (Yemen).</i>	A cross-sectional study.	420	18-24 year	Smoking	Cross-sectional	From April to June 2017.	-	Two tools used in data collection: 1. Global youth tobacco survey 2. Global health professional survey.	University students reported a smoking prevalence of 33.1% (cigarettes 13.6%, waterpipe 9.3%, and dual cigarettes and waterpipe use 10.2%). Men were more likely than women to smoke (36.3% vs. 28.0%, $p < 0.001$ ). With a mean age of $21.93 \pm 2.55$ years, the percentage of males and females smoking cigarettes was 18.9% vs 5.0%, the

									percentage of people smoking waterpipes was 1.9% vs 21.1%, and the percentage of people smoking dual cigarettes and waterpipe use was 15.4% vs 1.9%. The results of the regression analysis showed a strong correlation between smoking and the year of study (OR=0.87,
									95% CI: 0.85–0.89, p<0.001). Significant predictors of smoking included age (OR=0.96, 95% CI: 0.94–0.99, p<0.05), place of residence (OR=1.05, 95% CI: 1.00–1.09, p<0.05), and family income (OR=1.03, 95% CI: 1.00–1.06, p<0.05).
Dyotisaddha et al., (2020), Indonesia	Qualitative study	119		Smoking	Qualitative research method		-	Open questionnaire	The findings indicate that the children started smoking in junior high school. The need for pleasure, existence, acceptance of one's social surroundings, and stress management are internal elements that influence one's tendency to smoke. Social and familial variables are among the external factors.

								surroundings where smoking is common. Students continue to smoke because they are more likely to weigh the psychological and social short-term advantages over the long-term
								health hazards. Since the students who smoke regularly do not consider themselves to be members of the Muhammadiyah community, they are unconcerned with the Fatwa that the Muhammadiyah Central Board has issued. The majority of students wish to give up smoking for two reasons: they sense that their health is declining, and they get support from those closest to them who also oppose smoking.
Hana Ike Dameria et al., (2018), Indonesia.	Cross-sectional	171		Smoking	Cross-sectional	During 2017.	1. Self-administered questionnaire, 2. WHOQOL-BREF was used to measure the QoL.	Analyses of the data were bivariate and univariate. The overall quality of life (59.6%) was moderate. The convenience of buying cigarettes and QoL (p=0.038) as well as the availability of selling cigarettes surrounding the campus (p=0.019)

									were found to be significantly correlated. Facilitating elements in particular directly affected the QoL.
Meksy S Pingakl et al., (2019). Indonesia.	Cross-sectional	15		Smoking		14-15 March, 2018		Self-administered, anonymous survey.	197 (62.9%) of the 313 students who answered the surveys were used in the analysis. The total participant prevalence of current smoking (25.9%) and the male prevalence (52.4%) were comparable to the smoking rates in the general community. East Nusa Tenggara Province (25.9% overall and 52% for men), which is less than the 39% and 75.2% national figures. On the other hand, compared to regional (0.8%) and national (2.9%) rates, the smoking rate among female participants was greater (7%). The majority of individuals (87.3%) knew that smoking poses a health risk, and 96.4% supported advice to stop smoking. Just 60.8% of smokers thought that they were role models for their children since they did not smoke,

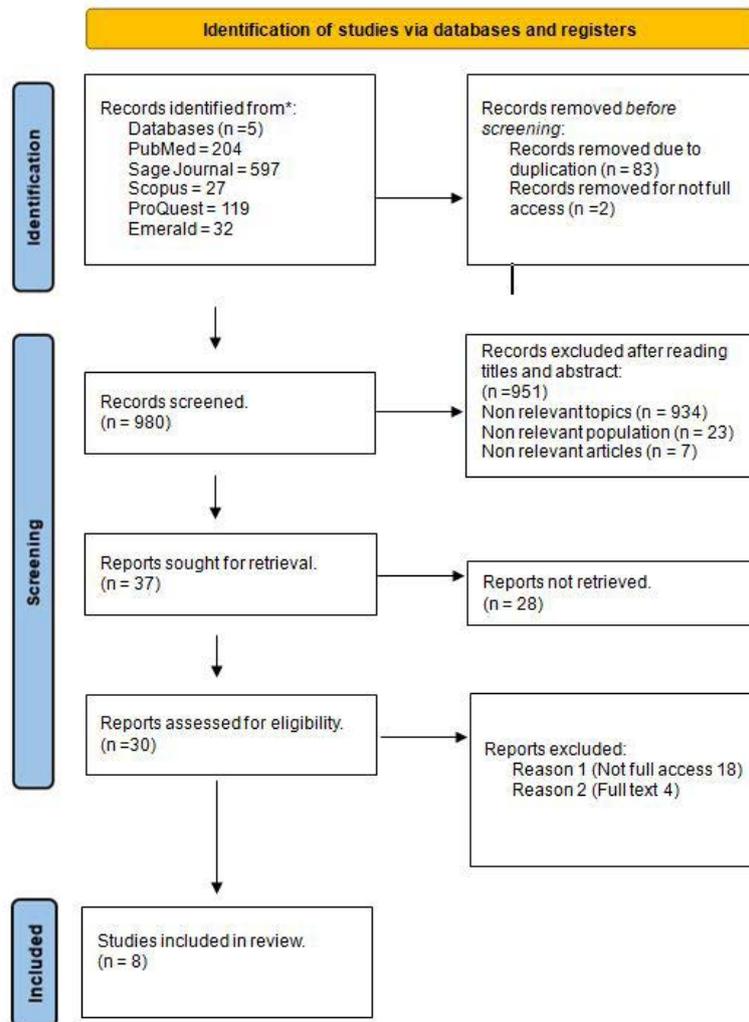
									compared to almost 97% of non-smokers. Gender and encouraging others to follow suit by abstaining from smoking at all were significant predictors of the smoking status.
Ridhwan Fauzi et al., (2020), Indonesia.	School-based Survey	377,216	15–19 years	smoking		April and May 2015.		Survey	In all, 29% of men and 6.3% of women said they had ever smoked electronic cigarettes. There was an independent correlation between the use of electronic cigarettes and the following factors: availability, peer use, sex, school locations, conventional cigarette smoking status, and perceptions that electronic cigarettes help conventional cigarettes. giving up smoking. Electronic cigarette users were found to be more likely to be lifetime (AOR: 8.740, 95% CI: 5.126–14.901) and current conventional cigarette smokers (AOR: 18.380, 95% CI: 10.577–
									31.938) smokers than non-smokers.
Amalia Arisona et al., (2020). Indonesia.	quantitative descriptive	384	18 – 24 years.	smoking		During 2019		Questionnaire	Based on the analysis using descriptive percentages, the study

									discerned a substantial disparity in smoking prevalence between health and non-health students, with a notably higher likelihood of smoking observed among non-health students (90.6%) compared to their counterparts in health-related disciplines (9.4%). Moreover, the majority of students exhibited a preference for conventional cigarettes (91.7%) over e-cigarettes (6.8%) or shisha cigarettes (1.5%). These findings underscore the necessity for the university to implement more stringent deterrent measures specifically targeted at students who smoke, aiming to mitigate and regulate smoking behaviors on campus
7. Febrianet al., (2020).Indonesia.	Analytic Observational with cross sectional design	237	14 – 19 year.	smoking		during October 2013		Questionnaire	The findings revealed a significant relationship between family influences (p = 0.000) and peer influences (p = 0.000) on the smoking habits of high school students at Muhammadiyah

									<p>yah 1 Sragen. Notably, peer influences exhibited a substantially greater impact (OR = 50.497) compared to family influences (OR = 1.867) in shaping the individual smoking behaviors of these students. This underscores the powerful sway of friends in influencing smoking habits among high schoolers in Muhammadiyah 1 Sragen, indicating a need for targeted interventions and preventive measures focusing on peer interactions to mitigate smoking prevalence among this demographic.</p>
Bart Smet et al., (2018), Indonesia.	HBSC survey	1.5 million	11 - 17 year	Smoking	-		-	Survey	<p>Between the ages of 11 and 17, smoking rose sharply from 8.2% to 38.7%. The difference clarified by the regression model grew to 53% for 17-year-olds from 19.8% for 11-year-olds. The strongest predictor of smoking was the smoking habits of closest friends, and this held true for all age groups. The smoking habits of older brothers and the attitudes of</p>

										best friends towards smoking were also significant predictors of smoking.
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### 3.3. Prisma Report



The study focused on an extensive examination of smoking behaviors among university students in Yemen and Indonesia, uncovering a varied array of literature pertinent to the subject. Within this review, there is in Yemen, two cross-sectional studies were conducted. The first study was conducted by [11]. This cross-sectional descriptive study, carried out in the Hajja province, and it's aimed to examine smoking prevalence, attitudes, and associated factors among community college students. The second study, by was a cross-sectional study focusing on the knowledge and factors related to smoking among students [11]. In Indonesia, six studies were conducted. The first study, by, utilized a quantitative descriptive method to investigate smoking behavior and cigarette type preferences among students [12]. The second study, by used a qualitative research method to explore the smoking behavior of Muslim students [13]. The third study, by was a cross-sectional study assessing smoking prevalence and demographic predictors

among nursing students [14]. The fifth study, by was an analytic observational study examining the influence of family and friends on smoking behavior among high school students [15]. The sixth study, by was a cross-sectional study analyzing the impact of smoking behavior on students' quality of life [16]. Lastly, the seventh study, by a school-based survey studying factors linked to electronic cigarette use among adolescents [17].

#### 3.3.1. Smoking Prevalence and Socioeconomic Factors

In Yemen, two cross-sectional studies were conducted. The first study, titled "Smoking prevalence, attitudes and associated factors among students in health-related Departments of Community College in rural Yemen," was conducted by [18]. This study, carried out in the Hajja province, aimed to examine smoking prevalence, attitudes, and associated factors among community college students. It revealed that smoking prevalence was significantly

higher among students from low-income families (15.9%) compared to those from average (10.8%) and high-income families (3.2%). Conversely, a study among nursing students in Indonesia's Maranatha School of Health Science indicated no significant relationship between smoking status and parental income or education levels, suggesting that socioeconomic factors might play a lesser role in influencing smoking behaviour among this group [14].

### 3.3.2. Peer Influence and Social Environment

Peer pressure emerged as a significant factor in smoking behaviour in both Yemen and Indonesia. In Yemen, students cited peer pressure and recreational reasons as primary motivators for smoking. Similarly, a study among high school students in Muhammadiyah 1 Sragen, Indonesia, found that peer influence had a stronger impact (OR = 50.497) on smoking behaviour than family influence (OR = 1.867). This emphasizes the critical role of the social environment in shaping smoking habits among adolescents and young adults in both countries [15].

### 3.3.3. Age and Educational Influence

Age and years of study were significant predictors of smoking behaviour in Yemen. At Hodeidah University, smoking prevalence increased with age and years of study, with senior students exhibiting higher smoking rates due to prolonged exposure to older smokers within the university environment [11]. In contrast, in Indonesia, non-health students at a university were more likely to smoke (90.6%) than health students (9.4%), indicating that educational background and awareness of health risks might influence smoking behaviour [12].

### 3.3.4. Knowledge and Attitudes Toward Smoking

In Indonesia, nursing students displayed a moderate to high level of awareness regarding the harmful effects of smoking, with no significant difference in knowledge between smokers and non-smokers [14]. This contrasts with findings from a study in Yemen where attitudes towards smoking varied significantly between smokers and non-smokers. Smokers were more tolerant of smoking at home and less likely to discourage their children from smoking [11]. These differing attitudes highlight the importance of targeted educational interventions in shaping perceptions and behaviours related to smoking.

### 3.3.5. Religious and Cultural Contexts

The role of religious and cultural contexts was explored in a study among Muslim students in Surakarta, Indonesia, where internal factors such as the need for pleasure, social acceptance, and stress coping were primary motivators for smoking [13]. Notably, many students did not align with the Muhammadiyah community's anti-smoking stance, indicating a disconnect between religious teachings and personal behavior. This aspect was not prominently featured in the Yemeni studies, suggesting potential cultural differences in how smoking behaviors are perceived and influenced.

## 4. Discussion

The exploration of smoking behaviors among university students in Yemen and Indonesia reveals significant insights when juxtaposed with the global landscape, shedding light on both similarities and differences. The prevalence rates of smoking among university students in both countries, as evidenced by Pingak and Miller in Indonesia and Nasser and Zhang in Yemen, resonate with the global phenomenon of smoking prevalence among young adults [11,14]. These rates, at 33.1% and similarly concerning levels in Yemen, align with or surpass global statistics, indicating a pervasive issue affecting the youth in these regions (World Health Organization [WHO]). The prevalence of smoking behaviors among university students in these countries mirrors global trends highlighting the vulnerability of this demographic to tobacco use [4, 19, 20].

However, despite sharing similarities in smoking prevalence rates, the reasons for smoking initiation and continuation demonstrate nuanced variations between Yemen and Indonesia. Internal factors like seeking pleasure, social acceptance, coping with stress, and peer influences manifest in both countries, resonating with global studies on smoking initiation among young adults (World Health Organization [WHO] [13,19]). Nonetheless, the influence of societal surroundings and familial factors emerges as a distinctive feature in Yemen potentially reflecting the impact of cultural norms and familial structures unique to the country [5,11]. In contrast, studies in Indonesia emphasize external factors like widespread tobacco marketing practices, limited enforcement of smoking regulations in educational settings, and stress-related triggers influencing smoking behaviors among university students aligning with global observations regarding environmental influences on smoking initiation and continuation [8].

Furthermore, when comparing smoking trends and behaviors, both countries showcase preferences for conventional cigarettes among university students [14,17]. However, Indonesia displays a significant disparity in smoking prevalence between health and non-health-related disciplines, diverging from global patterns that often show consistent smoking prevalence across disciplines among university students [16]. This disparity in Indonesia could be attributed to varying perceptions of smoking within different academic spheres or potentially distinct marketing strategies by the tobacco industry targeting specific disciplines [16].

The influence of peers and family on smoking behaviors in both Yemen and Indonesia, echoing global findings, emphasizes the impact of social circles on smoking habits [12]. However, the dominance of peer influence over family influence in Indonesia contrasts with the findings in Yemen, where familial influences play a more significant role [5]. This discrepancy could stem from cultural norms or social structures unique to each country, shaping the hierarchy of influences on smoking behaviors among young adults [5,11].

Regarding smoking correlates and health effects, the correlation between electronic cigarette use and various

contextual factors observed in Yemen aligns with global studies indicating the multifaceted nature of electronic cigarette use among youth [11]. However, contrasting perceptions on health risks between smokers and non-smokers, as noted in Yemen, also echo global inconsistencies in risk perceptions associated with smoking [21]. In considering recommendations and interventions, both Yemen and Indonesia emphasize the need for stringent measures targeting smoking prevalence among university students [13]. While preventive interventions focusing on peer interactions are highlighted in Indonesia such strategies are not explicitly discussed in Yemeni studies [12]. This variation in recommended interventions might reflect the differing sociocultural contexts and priorities in addressing smoking behaviors within these countries [19-22].

## 5. Conclusion

The comprehensive assessment of smoking behaviors among university students in Yemen and Indonesia reveals the intricate nature of this public health issue. Studies conducted in both countries shed light on prevalence rates, influential factors, and distinct smoking patterns among students. Notable differences in smoking prevalence, gender-specific trends, and determinants of smoking behaviors highlight the diverse social, cultural, and economic contexts shaping smoking habits. Internal motivators such as pleasure-seeking and peer influences, along with external factors like societal and familial surroundings, significantly mold smoking habits. Moreover, variations in cigarette preferences, prevalence across academic disciplines, and the impact of peers and family dynamics were evident. Understanding the commonalities and differences in smoking behaviors between Yemen and Indonesia serves as a crucial foundation for tailored interventions and policies. This knowledge can effectively guide the development of targeted tobacco control strategies, considering the unique socio-cultural landscapes of each country, to address the challenges faced by university students in these distinct settings.

## Study Limitations

This study faced several limitations that have affected the findings and their generalizability. Firstly, the research relied on a literature review, which limits the depth of analysis due to potential biases in the selected studies and variations in methodologies across sources. The studies included were primarily cross-sectional, which restricts the ability to establish causality between the identified factors and smoking behaviors. Additionally, the focus on university students in Yemen and Indonesia may limit the applicability of the findings to other demographics or regions. There was also a reliance on self-reported data from the selected studies, which can introduce response bias, as participants may underreport behaviors perceived as socially undesirable. Lastly, the exclusion of non-English publications might have resulted in missing relevant studies published in local languages, potentially impacting the comprehensiveness of the review.

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