The Association Between Secondhand Smoke Exposure and Health Complaints at Kopi Kenangan Manado

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Abstract

Background: Indonesia is among the countries with the highest smoking prevalence worldwide, with significant impacts on passive smokers exposed in public spaces. Coffee shops such as Kopi Kenangan are among the locations with high potential for secondhand smoke exposure, particularly among young people. Objective: This study aimed to analyze the association between secondhand smoke exposure and health complaints among visitors of Kopi Kenangan in Manado City. Methods: A cross-sectional design was applied with 150 randomly selected respondents. Data were collected through a structured questionnaire covering respondents' characteristics, secondhand smoke exposure, and reported health complaints. Statistical analysis was performed using the chi-square test. Results: Most respondents were aged 18–30 years (72%) and male (55.3%). The highest exposure to secondhand smoke occurred in outdoor areas (72%). The main health complaints reported were cough/throat irritation (32.1%), mild shortness of breath (21.4%), and headache (15.3%). Statistical analysis showed a significant association between secondhand smoke exposure, both outdoors and indoors, and health complaints ($p<0.05$). Suggestion: Strengthening the implementation of Smoke-Free Area (KTR) policies in public spaces, including coffee shops, alongside health education for the community, is essential to raise awareness of the dangers of secondhand smoke exposure.

Keywords: *Secondhand Smoke; Health Complaints; Coffee Shop; Health Promotion and Smoke-Free Policy.*

I. INTRODUCTION

Indonesia ranks among the top five countries globally with the highest smoking prevalence. The 2018 Basic Health Research (Riskesdas) reported a smoking prevalence of 34.8% among adults [1]. The urban environment of Manado reflects similar challenges, particularly with high smoking rates among young adults. This trend is influenced by broader social and cultural dynamics surrounding tobacco use, where smoking has become normalized and is often viewed as a form of social acceptance, especially among men [2]. In urban social spaces, smoking remains highly prevalent, despite the well-documented health risks associated with both active and passive smoking [6]. The implications of widespread smoking extend beyond individual health, significantly impacting non-smokers exposed to secondhand smoke. Individuals who visit public spaces such as coffee shops, including popular franchises like *Kopi Kenangan*, are often in environments where smoking is common. Exposure to secondhand smoke in such settings can cause various health issues, ranging from respiratory problems to increased risks of chronic diseases [3]. Research indicates that even brief exposure to secondhand smoke in public areas can pose significant health risks, particularly for vulnerable groups such as children and young adults [4].

The issue of passive smoking in public spaces necessitates more intensive health campaigns to raise awareness of the dangers of secondhand smoke exposure. Several studies highlight the importance of educational programs to inform the public about these risks, thereby improving compliance with smoke-free regulations [5]. Furthermore, promoting smoke-free environments not only protects non-smokers but also encourages smokers to reconsider their habits, thereby fostering a healthier social atmosphere [3].

Coffee shops like *Kopi Kenangan* attract specific demographic groups, particularly young professionals and students. The high prevalence of smoking among these groups presents unique challenges for public health initiatives [8]. Educating this demographic about the harmful effects of smoking, particularly in communal environments, may play an important role in changing social attitudes and behaviors toward tobacco use [9]. The social acceptance of smoking, especially in spaces frequented by youth, underscores the urgent need for targeted health interventions and comprehensive promotion strategies [7].

Understanding the impact of smoking in public spaces such as coffee shops is also closely linked to cultural narratives surrounding tobacco use in Indonesian society. Smoking is often embedded in social interactions, complicating the enforcement of smoke-free policies in public areas [12]. Therefore, integrating community input into policymaking is crucial for effective tobacco control [6]. Another challenge is the displacement of smoking behaviors into less regulated spaces when smoke-free policies are enforced in public areas [13].

This study is important to assess the extent of secondhand smoke exposure at *Kopi Kenangan* in Manado and its impact on visitors' comfort and health, as well as to provide a basis for more effective health promotion efforts.

II. METHODS

This study employed a cross-sectional design. The study population consisted of all active visitors to *Kopi Kenangan* outlets in Manado during the study period (May–July 2025). A total of 150 respondents were selected using simple random sampling.

The research instrument was a structured questionnaire covering:

- Respondents' characteristics (age, gender, frequency of visits).
- Secondhand smoke exposure (frequency, location, duration).
- Health complaints (cough, throat irritation, shortness of breath, headache).

Data analysis included:

- Descriptive statistics to describe the distribution of exposure and health complaints.
- Chi-square test to examine the association between secondhand smoke exposure and health complaints.

III. RESULTS AND DISCUSSION

Table 1. Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Age	18-30 years	108	72
	>30 years	42	28
Gender	Male	83	55,3
	Female	67	44,7
Frequency of visits	≥3 times/week	64	42,7
	1–2 times/week	58	38,7
	<1 time/week	28	18,6

The majority of respondents in this study were from the 18–30 year age group (72%), indicating that coffee shop visitors are predominantly young people who are generally more socially active. In terms of gender, males (55.3%) were more represented than females (44.7%), which aligns with the higher smoking prevalence among men in Indonesia. The frequency of visits was also relatively high, with 42.7% of respondents visiting ≥3 times per week and 38.7% visiting 1–2 times per week, suggesting that the intensity of secondhand smoke exposure may be greater in this group.

Young adults, particularly males, are more vulnerable to secondhand smoke exposure in public spaces such as coffee shops. Studies show that Indonesian adolescent males are more likely to

smoke compared to females [10]. This tendency is influenced by social norms and peer pressure, which often downplay health risks. In accessible social environments such as coffee shops, the presence of peers who smoke can reinforce this behavior and contribute to the development of long-term smoking habits. Meanwhile, the negative stigma surrounding female smokers tends to strengthen the normalization of smoking among males, enhancing their confidence to smoke and fostering a social environment where this risky behavior can continue to grow [11]. Therefore, increasing awareness of the dangers of smoking and strengthening the enforcement of smoke-free regulations in public spaces are essential to protect vulnerable groups from long-term health impacts.

Table 2. Level of Secondhand Smoke Exposure

Exposure Location	Category	Frequency (n)	Percentage (%)
Outdoor area	Frequently exposed	108	72
	Occasionally exposed	42	28
	Not exposed	20	13,3
Indoor area	Frequently exposed	41	27,3
	Not exposed	109	44,7

The results indicate that the majority of respondents reported frequent exposure to secondhand smoke in outdoor areas, with 108 individuals (72%) frequently exposed, while 42 respondents (28%) reported occasional exposure, and only 20 respondents (13.3%) reported no exposure. In contrast, indoor exposure was reported by 41 respondents (27.3%), while the majority (109 respondents; 72.7%) stated they were not exposed. These findings suggest that outdoor areas are the primary location of secondhand smoke exposure compared to indoor areas.

Exposure to cigarette smoke in outdoor café areas, which often serve as the main sites for smoking activity, presents a significant issue in the context of implementing Smoke-Free Area (SFA) policies aimed at protecting the public from smoke-related hazards. Although such regulations exist, their implementation in open spaces such as cafés remains limited, constrained by low public awareness and weak enforcement [14]. Studies have shown that despite regulations mandating smoke-free areas, many smokers continue to violate these rules in public spaces. Without consistent monitoring and comprehensive public education, the risk of secondhand smoke exposure in outdoor areas will remain high, particularly for vulnerable groups such as children and adolescents.

Table 3. Health Complaints Reported by Visitors

Type of Complaint	Frequency (n)	Percentage (%)
Cough/throat irritation	63	32,1
Mild shortness of breath	32	21,4
Headache	23	15,3
No complaints	32	21,2

Regarding the health complaints experienced by respondents, the most commonly reported was cough or throat irritation, noted by 63 individuals (32.1%). Mild shortness of breath was experienced by 32 respondents (21.4%), while 23 respondents (15.3%) reported headaches. Interestingly, 32 respondents (21.2%) reported no complaints despite being in an environment with potential secondhand smoke exposure. This suggests that secondhand smoke exposure in the study setting significantly influenced the emergence of respiratory complaints and other related symptoms among visitors.

Secondhand smoke, a potent respiratory irritant, often triggers dominant symptoms among passive smokers. Various respiratory issues such as coughing, shortness of breath, and asthma are more common among non-smokers exposed to tobacco smoke [15]. These adverse effects stem from

the harmful components of cigarette smoke, including toxic particles and gases, which damage lung tissue and contribute to respiratory complaints that impair quality of life. This highlights the need for policies and preventive measures to reduce secondhand smoke exposure, especially in public spaces.

Table 4. Association Between Secondhand Smoke Exposure and Health Complaints

Secondhand Smoke Exposure	With Complaints (n/%)	Without Complaints (n/%)	Total	p-value
Outdoor area				
Frequently exposed	61 (69,3%)	27 (30,7%)	88	0,002
Occasionally exposed	22 (52,4%)	20 (47,6%)	42	0,048
Not exposed	5 (25,0%)	15 (75%)	20	0,031
Indoor area				
Frequently exposed	28 (68,3%)	13 (31,7%)	41	0,017
Not exposed	38 (34,9%)	71 (65,1%)	109	0,001

Analysis of the relationship between secondhand smoke exposure and health complaints revealed significant differences in both outdoor and indoor areas. In outdoor settings, respondents who were frequently exposed reported more health complaints (61 individuals, 69.3%) than those without complaints (27 individuals, 30.7%), with a p-value of 0.002. Similarly, in the occasionally exposed group, more than half of the respondents (52.4%) still reported complaints, with a statistically significant result (p=0.048). In contrast, among the non-exposed group, most respondents (75%) reported no complaints (p=0.031).

In indoor areas, respondents who were frequently exposed to smoke also reported more health complaints (68.3%) compared to those without (31.7%), with a p-value of 0.017. Meanwhile, among those not exposed, the majority of respondents (65.1%) reported no complaints, with a significant p-value of 0.001. Overall, these findings demonstrate a significant association between secondhand smoke exposure, both outdoors and indoors, and visitors' health complaints ($p<0.05$).

Repeated exposure, even for short durations, can trigger significant health complaints among passive smokers, supporting epidemiological evidence that there is no safe threshold for secondhand smoke exposure. Studies indicate that although exposure may be brief, continuous exposure to secondhand smoke can result in adverse health effects, including an increased risk of cardiovascular disease and chronic respiratory disorders [16]. This reality underscores the urgent need for stricter tobacco-related regulations, particularly in public spaces, to protect individuals from preventable health risks posed by secondhand smoke [17].

Both outdoor and indoor exposure to secondhand smoke were shown to be significantly associated with health complaints, with p-values <0.05. This indicates that individuals frequently exposed to cigarette smoke, either directly or indirectly, are more susceptible to various health issues, such as respiratory problems, headaches, and eye irritation [15]. Evidence further shows that repeated exposure increases the proportion of health complaints compared to those with occasional or no exposure. These findings are consistent with epidemiological evidence affirming that even brief exposure to secondhand smoke can lead to adverse health outcomes, reinforcing the notion that no level of exposure is safe from a public health perspective [16].

Further analysis indicates that repeated exposure significantly increases health risks for individuals frequently surrounded by smokers, both in open and closed spaces [17]. This situation poses serious consequences, particularly for vulnerable groups such as children and adolescents, who ultimately become victims of unhealthy smoking behaviors. These circumstances emphasize the need

to raise community awareness and expand education regarding the dangers of secondhand smoke, particularly in social environments where smoking remains normalized. Without adequate preventive efforts, public health risks will continue to increase, further burdening the healthcare system.

Policy Implications and Health Promotion

The high level of secondhand smoke exposure in outdoor areas, especially cafés and public gathering spaces, reflects weak implementation of Smoke-Free Area (SFA) policies in public settings [14]. Although regulations have been enacted to protect the public from the harms of smoking, implementation in practice remains suboptimal, particularly in places frequented by young people. This highlights the need to strengthen SFA policies, accompanied by more consistent enforcement of smoking bans in public spaces. Without strict enforcement, health risks from secondhand smoke exposure will persist, especially among younger generations who dominate social environments such as cafés.

In addition to policy measures, health education is a key strategy to enhance public awareness of the dangers of secondhand smoke. It is important for the public to understand that smoking harms not only active smokers but also individuals around them who are forced to inhale smoke [15]. Health promotion efforts aimed at reshaping social norms—where smoking in public spaces is not tolerated—represent a critical step in behavioral change. By disseminating anti-smoking messages and creating social environments that support healthy lifestyles, smoking prevalence can be reduced, thereby lowering the risk of secondhand smoke exposure among young people who frequently spend time in cafés and other public areas.

IV. CONCLUSION AND RECOMMENDATIONS

Conclusion

This study found that secondhand smoke exposure at Kopi Kenangan in Manado, both outdoors and indoors, was significantly associated with visitors' health complaints. The most frequently reported symptoms were cough/throat irritation, mild shortness of breath, and headaches. These findings reinforce evidence that there is no safe threshold for secondhand smoke exposure, and individuals who spend time in smoking environments are more vulnerable to health problems.

Recommendations

1. For local government: Strengthen the implementation and monitoring of Smoke-Free Area (SFA) policies, particularly in public spaces such as cafés and commercial centers.
2. For café management: Provide designated smoke-free areas with strict monitoring and clear no-smoking signage.
3. For the community: Increase awareness about the dangers of secondhand smoke through health education, public campaigns, and advocacy.
4. For future research: Explore the long-term impacts of secondhand smoke exposure and evaluate the effectiveness of SFA implementation across different types of public spaces.

REFERENCES

[1]. Rasyid M, Ahsan A, Telang J, Inda T. [Untitled]. ***Unnes Journal of Public Health***. 2020;9(1). doi:10.15294/ujph.v9i1

[2]. Widyaningrum N, Jiang Y. Tobacco use among the adult Muslim population in Indonesia: a preliminary study on religion, cultural, and socioeconomic factors. ***J Drug Issues***. 2018;48(4):676–88. doi:10.1177/0022042618789491

[3]. Elizabeth K, Bradley K, Fugate-Laus K, Kaur K, Halquist M, Ray L, et al. An examination of social and environmental determinants of secondhand smoke exposure among non-smoking adolescents. Tob Prev Cessat. 2021;7(March):1–12. doi:10.18332/tpc/131875

[4]. Braun M, Klingelhöfer D, Oremek G, Quarcoo D, Groneberg D. Influence of second-hand smoke and prenatal tobacco smoke exposure on biomarkers, genetics and physiological processes in children—An overview in research insights of the last few years. ***Int J Environ Res Public Health***. 2020;17(9):3212. doi:10.3390/ijerph17093212

[5]. Cham B, Mdege N, Bauld L, Britton J, D'Alessandro U. Exposure to second-hand smoke in public places and barriers to the implementation of smoke-free regulations in The Gambia: a population-based survey. Int J Environ Res Public Health. 2021;18(12):6263. doi:10.3390/ijerph18126263

[6]. Rosilawati Y, Rafique Z, Sudiwijaya E. Tobacco use among in-school young adolescents in Indonesia: exploring availability, affordability, and accessibility. PLoS One. 2024;19(3):e0301291. doi:10.1371/journal.pone.0301291

[7]. Kusumawardani N, Tarigan I, Suparmi, Schlotheuber A. Socio-economic, demographic and geographic correlates of cigarette smoking among Indonesian adolescents: results from the 2013 Indonesian Basic Health Research (Riskesdas) survey. ***Glob Health Action***. 2018;11(sup1):54–62. doi:10.1080/16549716.2018.1467605

[8]. Widyaningsih V, Hastuti H. A call for action: high smoking and alcohol prevalence among Indonesian male youth. ATMPH. 2019;22(11):325–30. doi:10.36295/asro.2019.221142

[9]. Sari J, Efendi F, Nimah L, Aurizki G, Aditia R, Pradipta R, et al. Predictors of smoking exposure in non-smoking adolescents in Indonesia. ***Healthc Low Resour Settings***. 2024; doi:10.4081/hls.2024.11861

[10]. Maharani V, Harsanti T. Variabel-variabel yang mempengaruhi intensitas merokok remaja pria di Indonesia tahun 2017. Seminar Nasional Official Statistics. 2021;1:821–30. doi:10.34123/semnasoffstat.v2021i1.1054

[11]. Nangoi J, Daeli O. Studi etnografi tentang stigmatisasi dan konformitas perempuan perokok dalam budaya patriarki. Focus. 2023;4(1):45–60. doi:10.26593/focus.v4i1.6473

[12]. Pingak M, Miller C. Smoking perceptions and practice among nursing students in Kabupaten Kupang, Indonesia. Asian Pac J Cancer Prev. 2019;20(6):1709–16. doi:10.31557/apjcp.2019.20.6.1709

[13]. Sharma T, Khapre M. Exposure of second hand smoke in women and children. J Family Med Prim Care. 2021;10(5):1804–7. doi:10.4103/jfmpc.jfmpc_1397_20

[14]. Rapitasari D, Nurani J, Ratnasari S. Analisis kebijakan Kota Surabaya tentang kawasan tanpa rokok pada ruang terbuka publik. Wacana Publik. 2020;13(2). doi:10.37295/wp.v13i02.37

[15]. Qalbina Z, Agustini R. Advokasi penerapan kawasan tanpa rokok di Klinik Umum dan Bersalin Kusuma sebagai upaya pencegahan dampak asap rokok pada ibu hamil. ***Jukeshum J Pengabdi Masy.*** 2023;3(2):207–14. doi:10.51771/jukeshum.v3i2.554

[16]. Munawaroh M, Furqaani A, Nugrahawati L. Scoping review: pengaruh paparan asap rokok terhadap kadar kotinin dalam tubuh perokok pasif. ***J Integr Kesehat Sains***. 2021;3(2). doi:10.29313/jiks.v3i2.7449

[17]. Dilla T. Edukasi rumah sehat tanpa asap rokok di Gampong Ceurih Kecamatan Ulee Kareng Kota Banda Aceh tahun 2022. Epmas. 2022;2(2):9–15. doi:10.61179/epmas.v2i2.345.