

Implementation of Smoke-Free Zones in Schools in Indonesia

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ABSTRACT

Smoking is a global health problem that impacts not only active smokers but also on the people around them, especially children. In Indonesia, the prevalence of child smoking is increasing, so interventions such as the implementation of No Smoking Zones (KTR) in school environments are needed to prevent smoking behavior among students. To find out how the implementation of the No Smoking Area in the school environment in Indonesia. This study used the PRISMA method to conduct a literature review, with searches on the Scopus, Science Direct, Pubmed, and Google Scholar portals. The inclusion criteria include articles published between 2019-2024, focus on the school population in Indonesia, and are publicly accessible. Of the 144 articles found, 10 met the inclusion criteria and were further analyzed. The analysis shows that the implementation of KTR in schools in Indonesia varies. Although many schools have put up no-smoking signs and conducted socialization, there are still challenges such as lack of supervision, infirm sanctions, and the existence of smoking areas. The results showed that 66.2% of schools complied with the KTR, but many did not have an effective monitoring team. The implementation of KTR in schools has not been optimal. Continuous socialization, support from policymakers, and strict enforcement of sanctions are needed to improve compliance. With improvements in the implementation of KTR, it is hoped that it can reduce the prevalence of child smokers and create a healthier school environment.

Keywords: *No Smoking Zone, KTR, Smoking-Free Zone, School, Tobacco, Indonesia*

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INTRODUCTION

Smoking has become a health problem all over the world. In addition to causing addiction, cigarettes can also result in various non-communicable diseases such as coronary heart disease, hypertension, stroke, cancer and respiratory disorders (Ambrose & Barua, 2004; Roy et al., 2017). Cigarettes not only impact active smokers, but also on other people around them. Children who are often exposed to cigarette smoke are at risk of developing respiratory tract infections, lung growth disorders and respiratory problems as adults (Blizzard et al., 2003). Smoking habits have a significant relationship with drug abuse in students (Mamun et al., 2024).

The number of adult smokers in Indonesia has increased from 60.3 million in 2011 to 69.1 million smokers in 2021 based on a report from the Global Adult Tobacco Survey 2011 (WHO, 2012). Data from the Global Youth Tobacco Survey (GYTS) shows that there is also an increase in the prevalence of child smokers aged 13 to 15 years. There were 18.3% of child smokers in 2014 and increased to 19.2% in 2019 (WHO, 2019). The National Development Planning Agency (BAPPENAS) predicts that the prevalence of child smoking could reach 16% by 2030 if there are no adequate interventions to prevent children from smoking behavior (CHBP, 2023).

The Indonesian government is working on various strategies to control tobacco products. One form of intervention in an effort to prevent the increase in child smokers is to

implement a No Smoking Area in the school environment. A Non-Smoking Area is a room or area that is declared prohibited for smoking activities or activities of producing, selling, advertising, and/or promoting tobacco products (Kemenkes, 2011).

This literature review aims to look at the implementation of KTR in schools, the challenges found and the factors that affect the effectiveness of its implementation so that it can optimize the function of KTR to reduce the prevalence of child and adult smokers, prevent children from smoking behavior and protect against exposure to cigarette residues that are harmful to health.

METHOD

This *literature review* research uses the PRISMA (*Preferred Reporting Items and Meta-analysis*) method which consists of four stages, namely: *identification, screening, eligibility, and include*. Literature searches were conducted on the Scopus portal, Science Direct, Pubmed and Google Scholar. The keywords used are *Smoke-free Zone, Non-Smoking Area, Non-Smoking Area, school, Indonesia*. The criteria for the inclusion of the selected research are articles published in the period 2019 – 2024, the population is school residents, the location of the research in Indonesia and the articles that have open access. The exclusion criteria are *case series, case report, systematic review or meta-analysis articles*. Articles that have been accessed are entered into the *Mendeley Reference Manager* application for screening and duplication checks in terms of titles and authors. After that, at the eligible stage, an examination of articles in accordance with the inclusion criteria is carried out through *an abstract review*, then a full-text assessment is carried out.

RESULT AND DISCUSSION

Based on a literature search, 144 articles were obtained which were then examined to see if there were similarities between titles and authors. Furthermore, a review was carried out on the abstract, articles that were not related to the implementation of the No Smoking Zone in schools were issued. After that, articles related to this research topic are reviewed in *full text*. Articles that do not meet the inclusion criteria will be removed. In the final stage, 10 articles were obtained that met the inclusion criteria. The stages in searching and reviewing articles can be seen in figure 1.

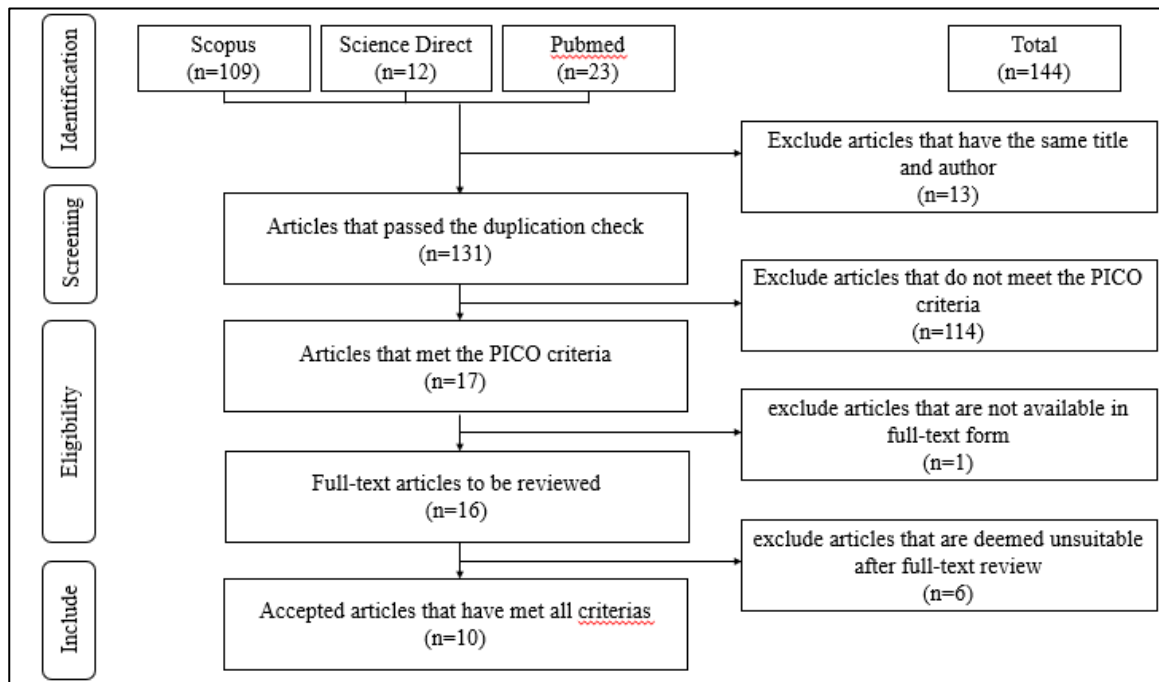


Figure 1. Literature review flowchart using the PRISMA method

The analysis was carried out on 10 articles from various regions in Indonesia. There were 5 articles that conducted qualitative research, 3 articles with *cross sectional* designs, and 1 *mix-method article*. The results of the literature review are attached in table 1.

Table 1. Article Search Results

Name of Researcher (Year of Publication)	Research Title	Study Design	Location	Research Results
Aryoko et al. (2021)	<i>Smoke Free Area (SFA) District Regulation Support for Establishment of a Child Friendly School (CFS) in Kulon Progo District</i>	Qualitative	Kab. Kulon Progo	The implementation of KTR in schools in Kulon Progo Regency shows a diverse level of compliance. 89.5% of schools have been exposed to the KTR Regional Regulation, 100% of schools have installed signs prohibiting smoking, 23.7% of schools still have special smoking areas, ashtrays were found in 10.5% of schools and cigarette butts in 7.9% of schools, 2.6% of schools still have cigarette advertisements and 5.3% of schools still have cigarette sellers
Asyary et al. (2021)	<i>Prevalence of Smoke-Free Zone Compliance among Schools in Indonesia: A</i>	Cross sectional (survey)	60 selected regencies/	The study found that the level of school compliance with KTR in Indonesia was 66.2% based on the implementation of at least 7 of the 8

	<i>Nationwide Representative Survey</i>		cities in Indonesia	KTR parameters. The parameter that has the largest proportion is the discovery of cigarette butts in 29.0% of schools. Schools with cigarette butts are 7.8 times more likely not to apply KTR than those without cigarette butts.
Kahendra et al (2023) [11]	<i>Analysis of the Implementation of Non-Smoking Area Policy in Madiun Middle Schools and High Schools</i>	<i>Cross-sectional</i>	Madiun	The implementation of the smoke-free regional policy in Madiun junior and senior high schools is significantly influenced by the social, economic, and political environment, with a p value of 0.012, and the position of the implementer, with a p value of 0.016. This shows that the support of parents and school committees, as well as the commitment of school leaders, plays an important role in the effectiveness of this policy.
Ridwan et al. (2023)	<i>Assessing the Policy of Non-Smoking Areas in Schools in Indonesia: A Mixed Methods Study</i>	Mixed-method	Muaro Jambi, Jambi	The cause of the non-implementation of the KTR is the lack of socialization of regional regulations. The Regional Regulation and Perkada KTR have not been made. Schools do not run KTR because they do not fully understand the existing rules, namely smoking is not allowed in all school environments and health facilities. KTR supervision has not been carried out due to a lack of policy support from policymakers and funding sources.
Suaib (2023)	<i>Analysis of the Implementation of Regional Regulation Number 16 of 2014 concerning Non-Smoking Areas Based on Accreditation at SMP Negeri 2</i>	Qualitative	Banggai Regency	The socialization of KTR at SMPN 2 Banggai Regency has gone well, a sign prohibiting smoking has been installed. However, a supervisory team and special fund allocation for KTR have not been formed.
Syatriani et al. (2022)	<i>Implementation of the No Smoking Area Policy at SMPN 1 Anggeraraja, Enrekang Regency</i>	Qualitative	Enrekang Regency,	The implementation of KTR has not been running optimally. There are already written rules but no officer has been appointed to monitor. Smokers were found in the school environment and there have been no sanctions for violators.
Trisnowati et al. (2021)	<i>Health Promotion Media Exposure and Student Compliance Toward Smoke-Free</i>	<i>Cross-sectional</i>	Holiday rentals in Yogyakarta	The implementation of KTR has been good and the results of process input and output indicators have been met. 83.2% of

	<i>School Regulation In Sleman Yogyakarta</i>		(Yogyakarta)	respondents (students) have been exposed to KTR and 98.1% of respondents comply with KTR. There was a relationship between exposure to health promotion media in the form of posters and student compliance with PSN regulations with a value of ρ value $\leq \alpha$ ($0.004 \leq 0.05$)
Trisnowati and Marlinawati (2020)	Monitoring Compliance with Smoke-Free Zone Regulations in Yogyakarta City Schools	Cross Sectional	Yogyakarta	The level of compliance of schools in Yogyakarta with the School Without Smoking (SFS) Policy is generally high. Specifically, 89.5% of schools have written policies, 88.3% have smoking ban promotional media, and 66% have personnel who monitor SFS policies. Regarding process indicators, 88.9% of schools have received SFP socialization directly. As for the output indicator, there are 146 (90.1%) smoke-free schools in Yogyakarta. Challenges in implementing the SFS policy include smoking behavior among school residents, lack of assertiveness, and inadequate support from the environment and school policies.
Umnayatun et al. (2019)	Analysis of Smoking Behavior Prevention Policies and Programs in Muhammadiyah Schools in Depok City	Qualitative	Depok City, West Java	Six Muhammadiyah high schools in Depok City have implemented KTR policies in all school areas for students, staff, teachers and visitors. However, there are no detailed regulations related to smoking prevention policies aimed at staff, teachers and visitors. Educational programs related to the dangers of smoking are carried out in a <i>hidden curriculum</i> . The school has not organized a smoking cessation program. The involvement of parents and students in order to prevent smoking behavior in schools has not been carried out optimally.
Sari et al. (2023)	Implementation of Smoke-Free Areas in Private High Schools in Urban Areas	Qualitative	Tangerang City, Banten	The implementation of KTR at SMA Pramita Tangerang City has not been optimal. Schools do not have sufficient resources to enforce policies effectively. There is no established working group to oversee and enforce the consequences for violations. A violation reporting system does not

exist, making it difficult to assess the number of violations and compliance levels among school citizens.

Based on the articles analyzed, the implementation of KTR in schools in Indonesia shows varying levels of compliance. Smoking ban signs have been installed in almost all schools, as well as socialization has been implemented in most schools, but only a few schools (8.6%) conduct socialization more than once a year and although 89.6% of schools report strict action for non-compliance, only 62.9% do so consistently. Research in Yogyakarta shows that most schools have promotional media about smoking bans, 90.1% are classified as smoke-free schools and 66% have personnel assigned to monitor the implementation of KTR, but there is a challenge, namely the lack of firmness of school personnel in implementing the rules. The study in Kulonprogo also found that although KTR in schools has been well socialized (89.5%), other indicators are still very low such as there are still special smoking areas (23.7%), ashtrays (10.5%), cigarette butts (7.9%), cigarette butts (5.3%) and cigarette advertisements (2.6%). The implementation of KTR in other regions is not running optimally. This is due to the lack of socialization, understanding of regulations and law enforcement in the implementation of smoke-free policies, schools do not have personnel and working groups to supervise the implementation and enforce consequences for violations, there is no special committee and budget for KTR. and there are no strict sanctions against violators of the smoke-free policy. A study representing 413 schools in several regions in Indonesia found that the compliance rate with KTR was 66.2% and the most significant challenge was the presence of cigarette butts in the school environment (29.0%), where schools with cigarette butts were 7.8 times more likely not to implement KTR compared to schools without cigarette butts. Research at a high school in Sleman showed a significant relationship between exposure to health promotion media and student compliance with KTR rules.

DISCUSSION

The implementation of Smoke-Free Zones in schools in Indonesia is a public health initiative that aims to reduce the prevalence of smoking among students and education actors in schools so as to create a healthier educational environment. After its publication Government Regulation No.109/2012, local governments are trying to implement non-smoking areas in several settings, one of which is in the school environment. The implementation process involves policy formulation, awareness campaigns, and the establishment of smoke-free zones within school buildings (Peraturan Pemerintah (PP), 2012).

Data from the Ministry of Health's No Smoking Zones dashboard data from the Ministry of Health of the Republic of Indonesia as of February 16, 2025 states that as many as 35 provinces and 425 districts/cities in Indonesia have implemented KTR in teaching and learning places and as many as 18 provinces and 267 districts/cities have Regional Head Regulations (Perkada) regarding KTR, this shows that most regions in Indonesia have been exposed to KTR (Direktorat P2PTM Kementerian Kesehatan, 2023).

Indicators used in the implementation of KTR in the teaching and learning process is divided into input indicators, process indicators and output indicators. Input indicators include

the existence of policies, the presence of officers and the existence of promotional media. Process indicators include the implementation of socialization, there is a task arrangement, an announcement of KTR policies (signs of no smoking, circulars, madding, and so on) and the implementation of KTR counseling. Output indicators include the creation of a smoke-free environment, students who do not smoke reprimand smokers and sanctions for violators (Direktorat P2PTM Kementerian Kesehatan RI, n.d.).

From the articles analyzed, it was found The implementation of KTR in schools in Indonesia shows varying levels of compliance, Based, on input indicators, most schools in Indonesia already have a KTR policy but there are still many schools that do not have officers to monitor the implementation of KTR. Kahendra's research in Madiun said that the existence of monitoring officers depends on the support of the school committee and the commitment of school leaders [11]. Other research also supports that the availability of KTR monitoring officers or teams depends on the allocation of funds and support from policymakers in schools (Ridwan et al., 2023; Suaib, 2023).

Based on the process indicators, most of the articles show that no smoking signs have been installed and socialization has been carried out in schools, but only a few schools conduct socialization more than once a year (Sari et al., 2023; Trisnowati & Marlinawati, 2020).

Based on output indicators, it was found that there are still many schools that have not implemented strict sanctions for violators and school residents are not used to reprimanding violators of KTR in their environment (Ridwan et al., 2023; Sari et al., 2023; Syatriani et al., 2022; Trisnowati et al., 2021).

Research in Cangkringan found there is an increase in compliance in schools that use health promotion media in the implementation of KTR in schools (p 0.004 and α 0.05) (Trisnowati et al., 2021). This shows that one of the ways that can be pursued to maximize the implementation of KTR in schools is to use various health promotion media that are appropriate to the age and lifestyle of school residents.

Of the overall KTR indicators, there are two indicators that need attention, namely the availability of officers or teams who monitor the running of KTR and the lack of clear and firm sanctions for violations of regulations. The need for support from policymakers in schools is essential for the formation of monitoring teams and the implementation of clear sanctions. Although most regions already have good KTR socialization achievements, only a few schools conduct socialization more than once a year. This rare reinforcement can lead to a lack of awareness and compliance and even neglect of KTR in schools.

To realize KTR in schools, an implementive strategy is needed. In Yogyakarta, a high level of compliance with the smoke-free policy is achieved through continuous socialization and strict sanctions for violators (Trisnowati & Marlinawati, 2020). Thus, socialization about KTR in schools is not enough to be done just once, but needs to be done more than once a year. Strict and consistent sanctions for violators are also needed. He found that there are still many schools that do not have a team or special officer, showing the lack of school support for KTR supervision. Supervisory officers are needed who work well and are able to be assertive towards the implementation and violations of the KTR. Supervisory officers are not only tasked with supervising and sanctioning violators but are also responsible for the KTR routine reporting system which contains the results of the evaluation of the implementation of KTR, including supervision, actions against violations, obstacles, suggestions and follow-ups.

CONCLUSION

The implementation of the No Smoking Area in schools has not been fully carried out. Although some of the indicator's achievements have been good, in its implementation there are several obstacles that cause there to still be indicators with low achievements. These obstacles include the availability of a KTR monitoring team in schools and the lack of the application of strict sanctions against violations. For this reason, it is necessary to carry out repeated socialization of KTR and strong support from policymakers and parents so that the implementation of KTR in schools can be more optimal. With the better implementation of KTR in schools, it is hoped that it will prevent children from smoking behavior, reduce the prevalence of child smokers so that it can save Indonesian children from diseases caused by smoking.

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