The Association between Loose Cigarette Purchase and the Frequency, Intensity, and Initiation of Cigarette Use among Adolescents: A Mixed-methods Study in Indonesia

Key findings

1. Our quantitative findings demonstrated that purchasing loose cigarettes in the past 30 days was significantly correlated with smoking 20 days or less in the past month, consumption of five or fewer cigarette sticks per day, and having lower nicotine dependence. Given this smoking pattern prevalent among adolescents, it can be inferred that the loose cigarette users in our study were in the experimentation phase according to the five stages of nicotine addiction.

2. Prior studies have suggested that students who consumed tobacco infrequently with few cigarette sticks per day possessed a higher risk of becoming regular smokers in the near future. Moreover, nondaily and low-intensity cigarette consumption was significantly associated with increased risk of all-cause mortality.

3. Our qualitative findings showed that 7 out of 10 students bought loose cigarettes when trying smoking for the first time.

4. Affordability and accessibility were the main reasons that encouraged current student smokers to opt for loose cigarettes over other types.

5. Current student smokers acknowledged the extensive selling of loose cigarettes persuaded them to purchase tobacco products more frequently.

6. Students spent at least half of their weekly pocket money on tobacco products, ranging from 30,000 - 200,000 Indonesian Rupiah (IDR) (2 - 13 US Dollar [USD])[1] per week. This amount is equivalent to half of the average weekly per capita expenditure of the Indonesian population.

7. Only a few students in this study were requested to show their identity cards or experienced rejection when buying loose cigarettes.

8. Our findings may serve as evidence to support the enactment of banning loose cigarette sales. Furthermore, restrictions on loose cigarette sales must be followed by law enforcement and should be complemented by other tobacco control measures, such as regulations on the minimum cigarette sticks per pack, significant increase of tobacco excise tax, and simplification of tobacco tax tiers.

[1] 1 USD ≈ IDR 15,432 as per November 28th, 2023 at the time of writing

Background

Cigarette affordability plays an important role in smoking uptake among Indonesian adolescents

The 2019 Global Youth Tobacco Survey (GYTS) found that **4 in 10 Indonesian students** aged 13-15 years **had tried tobacco products**, while **one-fifth of students** are **current tobacco users** (1). In addition to these concerning facts, the Indonesian Ministry of Health predicted that the prevalence of youth smoking would not decline in the near future unless comprehensive and strict measures are enacted (2).

To reduce tobacco use among Indonesian adolescents, **cigarette affordability** remains one of the major challenges (3,4).

Tobacco products remain affordable even for the youth due to their **relatively low prices** and the **massive sale of loose cigarettes**. Prior studies have mentioned that loose cigarettes could be obtained at 1,000 IDR (0.07 USD) in 2019, while the majority of students received pocket money amounting to more than 50,000 IDR per week in the same year (3.5 USD) (1,5,6). Furthermore, up to **85%** of Indonesian informal retailers **sold loose cigarettes** (5,7). Unsurprisingly, a recent study suggested there was an **increasing trend of loose cigarette purchase** among Indonesian students, from 11% to 13% between 2014 and 2019 (1).

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Methods

The first mixed-methods study on loose cigarettes purchase among adolescents in Indonesia

To our knowledge, **this study is the first** to employ a mixed method to examine the relationship between loose cigarette purchase and frequency, intensity, and initiation of cigarette smoking among adolescents in Indonesia. Our **quantitative study** using secondary data from a national survey, the 2019 GYTS, investigated the association between loose cigarette purchase and smoking frequency, intensity, and nicotine dependence. The 2019 GYTS had only one question about loose cigarette usage in the past 30 days, but it provides comprehensive information on student's smoking behaviour and its related factors, such as sociodemographics, cigarette price, parental smoking, teacher smoking, and exposure to tobacco advertising.

Following that, the **qualitative study** was conducted using focus group discussions (FGD) to further explore students' experiences in purchasing loose cigarettes and how these affected their smoking initiation and current cigarette consumption.

Two junior high schools and one senior high school agreed to participate in the study. A total of 49 eligible students, divided into 12 groups, engaged in the FGDs.

Each FGD group was exclusive based on school (junior/senior high school), student's gender (male/female), smoking status (current smoker/ever smoked), and smoking experience (perceived smoking as a routine for less than six months/ perceived smoking as a routine for six months and more).

To conduct the mixed method study, ethics approval was obtained from the Institute of Research and Community Service, Atma Jaya Catholic University Indonesia on May 3rd, 2023 (No.0004S/III/PPPE.PM.10.05/05/2023). In addition, we also acquired a recommendation letter to conduct research activities in the South Jakarta area, issued by the Department of Investment and Integrated One-Stop Service on July 3rd, 2023 (No.3/AF.1b/2/TM.23.04/e/2023).

Findings

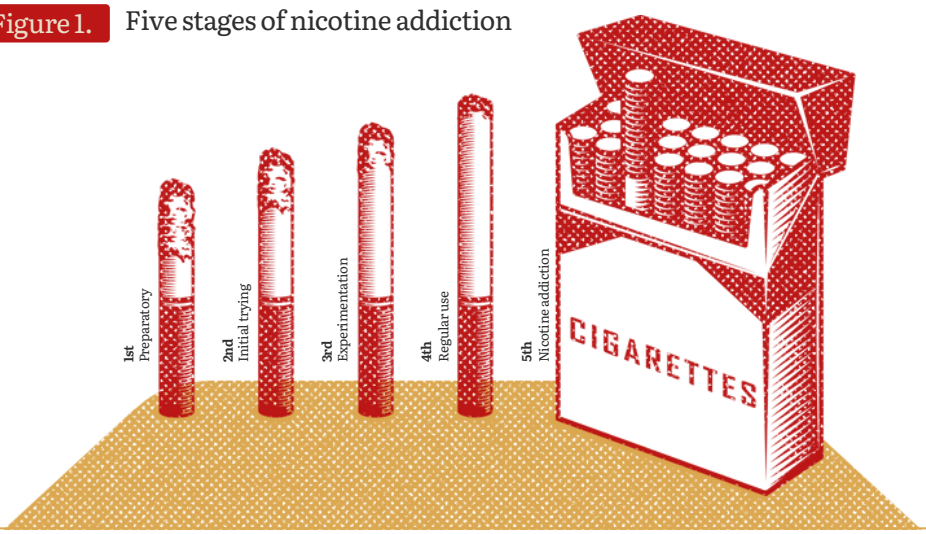
Key finding #1

There is a significant relationship between purchasing loose cigarettes and frequency and intensity of cigarette smoking and nicotine dependence

Our study found the majority of current student smokers **bought loose cigarettes** in the last 30 days (66%)[2]. **Purchasing loose cigarettes in the past 30 days was significantly correlated with smoking 20 days or less in the past month** (adjusted odd ratio [AOR] = 1.55; 95% confidence interval [CI] = 1.14 - 2.09); **consuming 5 or fewer cigarette sticks per day** (AOR = 2.05; 95% CI = 1.52 - 2.75); and having lower nicotine dependence (AOR = 1.58; 95% CI = 1.13 - 2.20). According to the five stages of nicotine addiction (Figure 1), adolescents who smoked irregularly, consumed five or less cigarette sticks, and had lower nicotine dependence were considered to be in the **experimentation phase** (8). Unlike adults whose irregular smoking may be a relatively stable pattern, adolescents who currently consume cigarettes – even though infrequently and consuming fewer sticks – may possess a higher risk to evolve into regular smokers in the near future. Typically, youth smokers would develop nicotine addiction in 3 years after smoking initiation (8,9).

These findings also support the findings of The 2021 Global Adults Tobacco Survey (GATS) (Figure 2 - 3) on cigarette consumption trends, which demonstrated that the **younger population was prone to consuming loose cigarettes and the trend gradually decreased in the older population** as consumption of cigarette packs and rate of daily consumption were rising. These trends showed that the majority of the population continuously consumed loose cigarettes until they reached a higher addiction stage and buying cigarette sticks no longer satisfied their daily consumption, after which they switched to cigarette packs (10).

Figure 1. Five stages of nicotine addiction



[2] data was obtained from the 2019 GYTS.

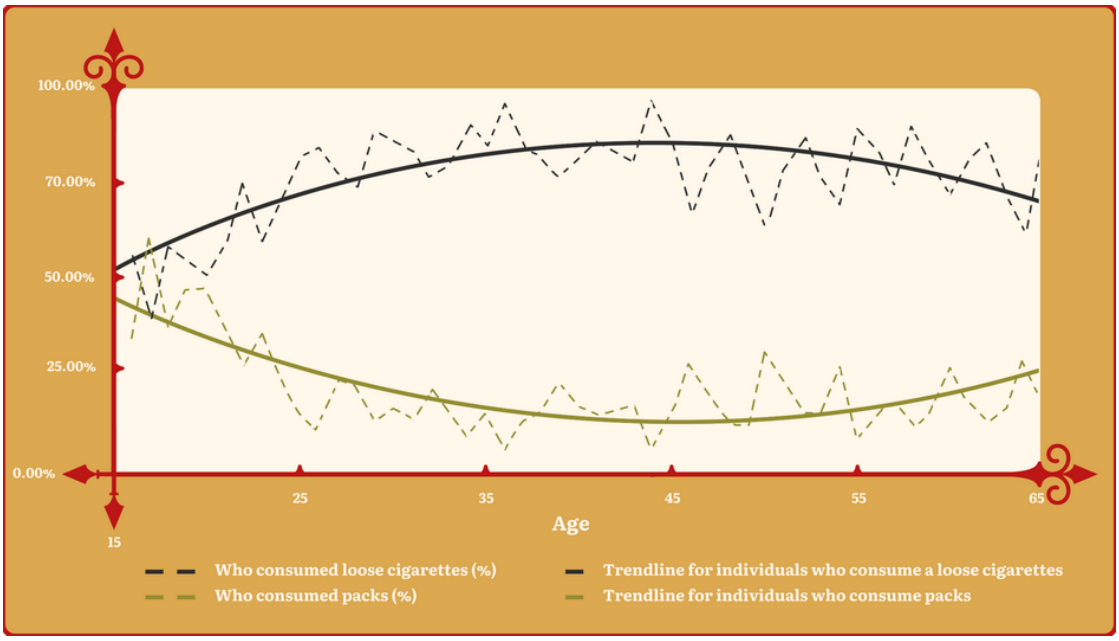


Figure 2. Trendline of the consumption of loose cigarettes and packed cigarettes across ages (n = 1,992)

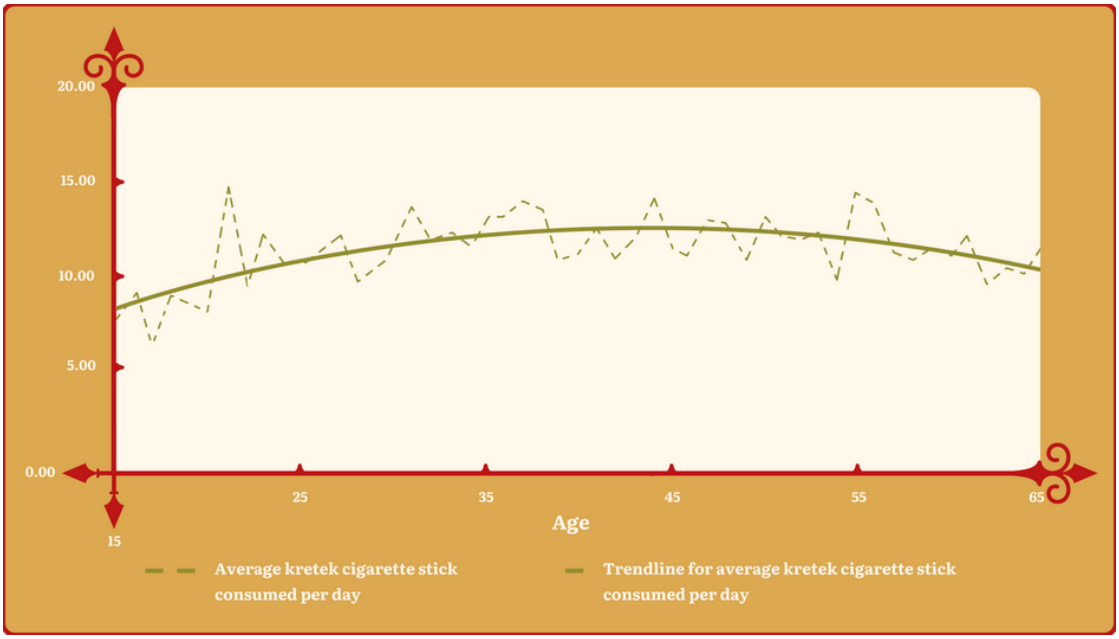


Figure 3. Trendline of the daily consumption of kretek cigarettes across ages (n = 1,934)

A population-based study in the United States demonstrated that the **risk of all-cause mortality was 1.6 times higher in nondaily smokers** than that in their never-smoked counterparts (11). Another study added that **even low intensity cigarette consumption per day was significantly correlated with an increased risk of all-cause mortality** (hazard ratio [HR] 2.60, 95% CI 2.45 - 2.75) (12).

Key finding #2

Loose cigarette sales facilitated smoking initiation and tempted current smokers to continue buying cigarettes

Our qualitative study found that **students preferred loose cigarettes when trying smoking for the first time.** Additionally, **most students who received lower weekly pocket money than their peers revealed that they opted for loose cigarettes** over other types of cigarettes **during their first attempt of smoking.** The affordable prices of loose cigarettes allowed adolescents from lower income groups to initiate tobacco use, without having to pay the full price of a pack (13,14).

Our study further highlighted that the majority of current student smokers remained loyal to loose cigarettes and purchased them in the past 30 days. On the other hand, cigarette packs were purchased only when they were hanging out with friends or when they had excess pocket money. Students usually consumed loose cigarettes in their spare time, such as when socializing with peers, after school ends, or in the evening.

Moreover, students acknowledged the extensive selling of loose cigarettes persuaded them to acquire tobacco products more frequently. In this regard, students agreed that loose cigarette sales may play an important role in promoting higher nicotine dependence while hindering their effort to quit smoking.

Key finding #3

Loose cigarettes were affordable and accessible, yet led to a substantial amount of spending

During the FGDs, student smokers asserted that the major reasons to buy loose cigarettes were related to **their affordable prices and accessibility.** Most students agreed that loose cigarettes were cheap and easy to acquire from informal retailers.

Although buying one loose cigarette at a time may seem economically favorable in the short-term, prior studies have emphasized that purchasing loose cigarettes could still incur high expenses in the long run (15,16). Our qualitative findings revealed that **students often allocate a significant portion, sometimes exceeding half of their pocket money to purchase loose cigarettes, ranging from 30,000 - 200,000 IDR (2 - 13 USD) in a week.** Remarkably, this expenditure is equivalent to half of the average weekly per capita expenditure of the Indonesian population in March 2023 (IDR 362,297 or USD 23 per week).[3]

Regarding access to loose cigarettes, around 70% of students reported that they usually **bought loose cigarettes from stores located near their schools or living areas and the stores were informal retailers. Only a few students** in this study **had been requested to show their identity cards or experienced rejection when buying cigarettes.** These findings were consistent with recent studies identifying a great number of retailers selling cigarettes easily found around school areas and the majority of sellers, particularly the informal retailers, admitted selling cigarettes to young people (17,6).

[3] The average monthly per capita expenditure in Indonesia for March 2023 was IDR 1,451,870 (USD 94.08) or IDR 362,297 weekly (USD 23.48), as reported by the Central Bureau of Statistics (Badan Pusat Statistik).

Call to action

While 87 countries worldwide have prohibited the sale of loose cigarettes, **Indonesia remains one of the few countries in Southeast Asia that does not regulate the distribution of loose cigarettes** (18). **Our findings may serve as evidence to support the enactment of banning loose cigarette sales.** The absence of loose cigarettes in the market might prevent students who intend to start using tobacco products and might reduce cigarette consumption among current adolescent smokers by limiting access to the cheaper options of tobacco products. One review study emphasized that every intervention to disrupt the supply-side of tobacco products, including restricting loose cigarette sales, was correlated with the decline in youth smoking (19).

Furthermore, restrictions on loose cigarette sales must be followed by law enforcement, such as routine monitoring and a clear statement on the punishments for violations (20). The enforcement should also extend to **educating the public and retailers about the regulations and conduct of restrictions in buying cigarettes for people under the minimum age for purchase** (21).

In addition, **requiring stores or retailers to be licensed** in order to be able distribute tobacco products may also be useful in reducing informal sales (22).

Along with the ban of loose cigarette sales, The World Health Organization (WHO)'s Framework Convention on Tobacco Control (FCTC) also recommended **regulating the minimum number of sticks a cigarette pack should contain, which is 20 sticks** (23). Small cigarette packs have been acknowledged as one of the strategies from the tobacco industry to maintain product sales by providing cheaper alternatives (24). The final recommendation is the government must ensure tobacco products are not affordable **by increasing the tobacco taxes significantly, by at least 25% annually,** which would lead to higher retail prices, while **simplifying the tax tiers into two:** one tier for machine-made cigarettes and the other for hand-made cigarettes (25).

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