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Short Communication

Smoking among female daily smokers in Surabaya, Indonesia



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ABSTRACT

Objectives: Nationally representative studies suggest 1–2% of Indonesian women (2.3 million) smoke various tobacco products daily; however, in recent years, there has been concern that the tobacco industry has successfully increased female smoking. Our objective was to describe current cigarette smoking behaviors, past quit attempts, and intention to quit of female daily smokers in Surabaya, Indonesia.

Study design: Survey.

Methods: Female daily smokers ($n = 112$) in Surabaya, Indonesia, the country's second largest city, were recruited to participate in a survey during 2018. Convenience sampling was utilized in two malls. Potential participants were intercepted in or near designated smoking areas and invited to the nearby data collection site. Survey items from Global Adult Tobacco Survey and the International Tobacco Control Policy Evaluation Project were utilized.

Results: Participants self-reported smoking 13.8 cigarettes per day (7.3 white machine-rolled cigarettes per day, 4.2 kreteks per day, and 2.4 roll-your-own cigarettes per day). Over 75% smoked their first cigarette within 30 min of waking. Over 53% had a heaviness of smoking index score suggesting moderate or high addiction. Approximately half (51%) did not attempt to quit smoking in the previous 12 months, and 55% planned to quit beyond 6 months or not at all.

Conclusions: Our sample smoked five to six more cigarettes per day than female daily smokers in previous national surveys. Relative to previous studies, our data suggest an unexpected preference for white machine-rolled cigarettes and that there could be, at a minimum, pockets of increased smoking and addiction among female daily smokers in Indonesia.

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According to the 2018 RISKESDAS survey, a national health survey in Indonesia, 47% of men and 1% of women aged 10 years or older smoke kreteks, white cigarettes, and/or roll-your-own cigarettes daily.¹ The 2010 Indonesia Global Adult Tobacco Survey (GATS), an international survey that allows for cross-country comparisons, suggests 57% of men (58 million) and 2% of women (2.3 million) aged 15 years or older smoke various tobacco products daily.² Among the countries with GATS data, Indonesia ranks first and 13th in smoking prevalence among men and women, respectively.³

Historically the tobacco industry has used themes of female independence to market cigarettes to women.⁴ In Indonesia, there is evidence that the industry has featured more young women in cigarette advertisements. Of particular note are advertisements portraying young women in sleeveless tank tops in a country where many women dress modestly and wear hijabs.⁵ With tobacco companies also featuring cigarette packaging with feminine appeals on billboards and alarm expressed about a possible rise in female smoking since 2012,⁶ there is concern the industry has been successful in their efforts to gain access to a sizeable, relatively untapped market.

Little is known about female daily smokers in Indonesia. The aforementioned RISKESDAS survey and GATS found they smoke 8.5 and 8.1 cigarettes per day, respectively;^{1,2} data also suggest they have a strong preference for kreteks or clove-flavored cigarettes.² However, RISKESDAS survey data indicate the proportion of young smokers who regularly use white cigarettes may be similar to the proportion who regularly use kreteks.¹ Among older smokers, a higher proportion regularly use kreteks vs white cigarettes.¹ In addition, according to GATS, only 10% smoked within 5 min of waking and 30% within 6–30 min; 45% made a quit attempt in the past 12 months; and these female daily smokers had a relatively low heaviness of smoking index.^{2,7}

The RISKESDAS survey, which covered numerous health topics by design, did not inquire about a number of important tobacco use-related measures.¹ As a result, recent data on female daily smokers are limited and even less is known about urban female daily smokers. Therefore, the purpose of these analyses was to describe the number of cigarettes smoked per day, level of addiction, previous quit attempts, plans to quit, and cigarette preferences among urban female daily smokers in Surabaya, Indonesia, during 2018.

A survey was conducted from April–May 2018 in Surabaya, Indonesia. Those recruited included 128 adult (aged 18+ years) female daily smokers, all of whom were Muslim (87% of the country identifies as Muslim).⁸ Convenience sampling was utilized to recruit the female daily smokers. In two malls within the Surabaya city center, potential participants were intercepted in or near designated smoking areas, and those interested were invited and accompanied to a survey location nearby. Smoking status was determined with the following screening question: ‘Do you currently smoke kretek, white, or hand rolled cigarettes?’ Responses included daily, occasionally, or not at all.

A 25 min tablet-based survey on cigarette health warning labels was conducted that included questions about smoking behaviors. All measures described in this report were asked prior to viewing or answering questions related to health

warning labels. Measures included self-reported number of cigarettes smoked per day by product (white machine-rolled, kretek, and roll-your-own cigarettes), time to first cigarette, attempts to quit in previous 12 months, and plans to quit smoking. Survey items from GATS² and the International Tobacco Control Policy Evaluation Project were utilized,⁹ and heaviness of smoking index was calculated using cigarettes smoked per day and time to first cigarette.¹⁰ Two participants reported smoking zero cigarettes per day for all assessed products and were excluded from the analysis. In addition, participants were able to skip questions resulting in our inability to classify 14 participants as single, dual, or triple product users and accurately assess the total number of cigarettes smoked per day; they were subsequently excluded as well.

Descriptive statistics were conducted using Stata software, version 14 (<http://www.stata.com>).

Our analyzed sample ($n = 112$) mostly comprised of young adults, aged 18–24 years (61%, $n = 68$). Sixty-six percent ($n = 73$) completed their schooling between Grades 10–12 (only 25% [$n = 27$] completed college or more), and 61% ($n = 63$) had a monthly household income of less than or equal to three million IDR. In terms of self-assessed health status, 82% ($n = 85$) reported at least a ‘good’ health status. Sixty-seven percent ($n = 75$) did not report having children.

This sample of urban female daily smokers smoked an average of 13.8 cigarettes per day (7.3 white machine-rolled cigarettes per day, 4.2 kreteks per day, and 2.4 roll-your-own cigarettes per day). Forty percent ($n = 45$) smoked all three products, 30% ($n = 34$) smoked white machine-rolled cigarettes only, 22% ($n = 25$) smoked white machine-rolled and kretek cigarettes, 5% ($n = 5$) smoked kretek cigarettes only, 2% ($n = 2$) smoked roll-your-own cigarettes only, and 1% ($n = 1$) smoked kretek and roll-your-own cigarettes. Nearly 37% ($n = 40$) of the sample smoked their first cigarette within 5 min of waking and 76% ($n = 83$) within 30 min of waking. Over 53% ($n = 58$) had a heaviness of smoking index score suggesting moderate or high addiction. Approximately half (51%, $n = 55$) did not attempt to quit smoking in the previous 12 months, and 55% ($n = 60$) planned to quit beyond 6 months or not at all (Table 1).

The findings of this study indicate smoking among urban female daily smokers could be a significant public health concern in Indonesia. Our sample of female daily smokers in Surabaya, the second largest city in Indonesia, self-reported smoking five to six more cigarettes per day than previously identified national averages. Given RISKESDAS survey and GATS data suggest kreteks are the most commonly smoked cigarette among women,^{1,2} it was unexpected to learn our sample’s most commonly smoked cigarette was white machine-rolled cigarettes. The RISKESDAS survey did not report cigarettes per day by product or describe urban female smoking preferences, but it suggests the preference for white machine-rolled cigarettes observed here may be, in-part, related to the relatively young age of the female daily smokers recruited.

Of significant concern, the study also revealed one-third of participants smoked within 5 min of waking and another 40% between 6 and 30 min. Subsequent heaviness of smoking index calculations suggested 40% and 13% have a moderate and high level of addiction, respectively. Given the predictive nature of heaviness of smoking index,⁷ these concerns are

Table 1 – Smoking behaviors, adult female daily smokers, Surabaya, Indonesia, 2018.

| Measures | Percent ^a (95% CI) |
|---|-------------------------------|
| Average number of cigarettes smoked per day (n = 112) | |
| White machine-rolled cigarettes | 7.3 (5.4–9.2) |
| Kreteks | 4.2 (2.9–5.4) |
| Roll-your-own | 2.4 (1.3–3.4) |
| Total | 13.8 (10.6–17.0) |
| Time to first cigarette (n = 109) | |
| Within 5 min | 36.7 (28.1–46.3) |
| 6–30 min | 39.4 (30.6–49.0) |
| 31–60 min | 8.3 (4.3–15.3) |
| More than 60 min | 15.6 (9.8–23.8) |
| Heaviness of smoking index (n = 109) | |
| 0–2—low addiction | 46.8 (37.5–56.3) |
| 3–4—moderate addiction | 40.4 (31.5–50.0) |
| 5–6—high addiction | 12.8 (7.7–20.7) |
| Planning to quit (n = 110) | |
| Within next month | 25.5 (18.1–34.6) |
| Within next 6 months | 20.0 (13.5–28.7) |
| Beyond 6 months | 23.6 (16.5–32.6) |
| Not at all | 30.9 (22.9–40.3) |
| Quit attempt in previous 12 months (n = 109) | |
| No | 50.5 (41.0–59.9) |
| Yes | 49.5 (40.1–59.0) |

^a Average number of cigarettes smoked per day is reported as mean (standard deviation).

compounded by the findings that over 50% of female daily smokers were not planning to quit within the next 6 months and did not attempt to quit in the previous 12 months.

While recruitment or sampling explanations may account for the observed differences between the RISKESDAS survey, GATS, and our findings, temporal trend explanations could also exist that may only be revealed once GATS is repeated. To the best of our knowledge, this is the largest sample of Indonesian urban female daily smokers reported in the international literature. Although the findings are not generalizable, they do suggest there could be, at a minimum, pockets of increased smoking and addiction in addition to a preference for white machine-rolled cigarettes among female daily smokers in Indonesia.

Assuming these data are corroborated, it is plausible that Indonesian female daily smokers in urban areas may be transitioning to smoking behaviors and norms found in other areas of the world, where female smoking rates are higher, and preferred cigarettes are white machine-rolled cigarettes. Further investigation of the tobacco industry's targeting of Indonesian women may be warranted.

Author statements

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Ethical approval

The Johns Hopkins Bloomberg School of Public Health institutional review board (IRB#: 8315) and Faculty of Public Health Airlangga University health research ethics committee (IRB#: 650-KEPK) approved the study procedures, and all participants provided informed consent.

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Competing interests

None declared.

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