

Smoking Behavior and Cigarette Expenditure in a Household: Evidence for Smoke-Free Houses Initiation in Indonesia

Abstract

Background: The household is considered as a private area that is untouched tobacco control policies in developing countries, especially in Indonesia, which has not ratified the Framework Convention on Tobacco Control (FCTC) treaty. **Objectives:** This study aims to identify smoking behavior and expenditure on cigarettes in the household, which are part of the initiation of a policy including a smoke-free home, so it assumes that the home is a public domain in Tegal Regency, Central Java Province, Indonesia. **Methods:** This research is an observational study with a quantitative descriptive design. A total of 225 subjects in the seven regions designated as smoke-free areas were all selected as samples in this study and were willing to be the subject of research. **Results:** The results found that 76.1% of smokers smoked with their nuclear family (wife/children/husband) present. Smoking behavior with the nuclear family inside the home (39.13%) and outside the home (36.96%) was more common than not smoking with the nuclear family. Expenditure for cigarettes per month was one-third of household revenue (IDR 607,521.74) based on the regency minimum wage (UMR) set by the local government. **Conclusions:** The study concludes that smokers who smoke with family still lack knowledge on smoking's impact on health and household economics. The smoke-free regulation that is initiated should include households as a parameter.

Keywords: Family characteristics, smoke-free policy, smoking, tobacco products, tobacco smoke pollution

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Introduction

Data from the 2013 Global Youth Tobacco Survey (GYTS) shows that 81% of Indonesian children aged 13–15 years are exposed to cigarette smoke in public places, the highest percentage in the world.^[1] But it is not limited to public places: children are also exposed to cigarette smoke at home.^[2,3] Based on the 2010 Baseline Health Survey (*Riskesdas 2010*) data, the percentage of women exposed to cigarette smoke in the home reached 52.9%, and that of men was 24.9%.^[4] In fact, inhaling cigarette smoke at very low levels as a second-hand smoker may inflict damage on one blood vessel function after only 30 min of exposure to cigarette smoke.^[5]

Smoking at home may occur at a higher rate than in public places, as smokers perceive their houses as their private domains. The highest prevalence of cigarette smoking is among household heads found to significantly smoke at home, aged 37–41 years, married, and with low educational level.^[6]

Although cigarette spending in households may differ in various settings, it is confirmed that cigarette consumption is an economic burden in all these settings,^[7,8] particularly its impact on the vulnerable population at home.^[9] It is also found that cigarette smoking is happened across all economic levels in households.^[6]

Research on smoke-free home (SFH) policies has been carried out in various countries.^[10] Extensive social changes due to smoking bans in public places firmly affect the extent to which non-smokers will tolerate exposure to cigarette smoke in the home. Therefore, it can be concluded that the adoption of an SFH policy is an effective strategy to protect children from cigarette smoke.^[11] In Indonesia, the SFH measure is one of the Clean and Healthy Life Behavior (PHBS) programs. However, its implementation has not been effective, as many children and women are still exposed to smoke inside the home.

Tegal Regency is one of the regions that does not yet have regional regulations (*Perda*) on smoke-free

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areas. This study aims to identify smoking behavior and expenditure on cigarettes in the home and in the family, which is part of the policy initiation including the SFH regulation, so the home is assumed to be a public domain in Tegal Regency, Central Java Province, Indonesia.

Methods

Study design and setting

This research is an observational study with a quantitative descriptive design in Tegal regency. This regency has temporary shelters and homes including a public area known as a pathway to all business and transportation in the most densely populated area in Indonesia (*Pantura*).

Sample, data collection, research instrument, and variables

In this study, we analyzed data from seven regions designated as smoke-free areas. We surveyed 232 respondents according to sample size calculations^[12] and acquired 92 total smokers according to the study setting's inclusion criteria. The inclusion criteria for participants are (1) living in the designated smoke-free areas when the research was conducted, (2) with domicile and registered with a Tegal ID, (3) older than 18 years old, and (4) commitment to participate in the study after informed consent is provided. Conversely, the exclusion criteria are (1) unregistered/has no ID as a Tegal resident, (2) younger than 18 years old, and (3) unwilling to participate in the study.

This research was conducted from October to December 2017. A valid and reliable research instrument was adapted and modified from previous studies.^[13] This smoking behavior questionnaire used the Guttman scale with yes-or-no answers to quantify whether smokers would be smoking (1) in households even though their family were present and (2) in workplaces even though other people are nearby. Meanwhile, cigarette spending was measured using the consumption, expenditure, and monthly income of smokers in households.

Data analysis

We calculated the distribution frequency using a bar diagram comparing the smokers' behavior in both their homes and workplaces or when working. Meanwhile, cigarette spending was presented in terms of central tendency, categorizing the aggregate of cigarette consumption and household expenditures. All these analyses used licensed SPSS statistical software at the Faculty of Public Health, Universitas Indonesia.

Ethical consideration

This study was granted ethical approval legally from the Health Ethical Committee of Muhammadiyah University of Prof Dr Hamka: No. 145/KEK/IV/2017.

Results

Smoking behavior

Based on Figure 1a, respondents who are active smokers smoke even when with family (children/wife), both outside and especially when in the house. Figure 1b shows that active smoker respondents tend to have the behavior of not smoking when there are other people nearby, either when they are in the workspace or at work.

Cigarette consumption and expenditure on revenue

Based on the Governor's Decree Number 560/94 of 2017, the minimum wage (UMK) in Tegal Regency is Rp1,617,000.00 per month. In comparison, the average monthly income of smoker respondents was Rp1,972,945.65. This means that the income of smokers exceeds the Tegal Regency UMK. However, smokers' average monthly expenditure on cigarettes is Rp607,521.74, or one-third of their income. The 92 total smokers in Tegal Regency alone spent Rp694,422,000 per year or Rp55,892,000 per month to buy 318,382 cigarettes per year or 27,803 cigarettes per month [Table 1].

Discussion

Smoking behavior in the household

The fact in this study shows that smokers do feel more comfortable smoking around their own family compared to others and even workmates.^[14,15] This distorted individual behavior provides a foundation for the importance of extending the SFH policy; thus, it benefits the family.

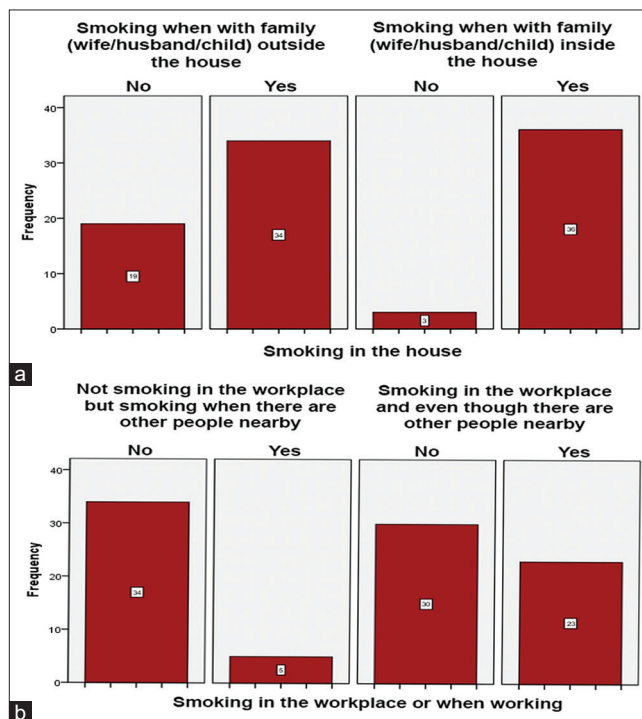


Figure 1: (a) Smoking behavior in the household; and (b) Smoking behavior in the workplace/at work

Table 1: Cigarettes consumption and expenditure on revenue

Variable	Range	Minimum	Maximum	Amount	Mean per individual
Cigarette consumption per day (amount)	55	0	55	934	10.15
Consumption of cigarettes per month (amount)	1,645	5	1,650	27,803	302.21
Cigarette consumption per year (amount)	16,440	60	16,500	318,382	3,460.67
Expenditures to buy cigarettes per day (IDR)	1,500,000	0	1,500,000	3,418,500	37,157.61
Expenditures to buy cigarettes per month (IDR)	19,794,000	6,000	19,800,000	55,892,000	607,521.74
Expenditures to buy cigarettes per year (IDR)	237,528,000	72,000	237,600,000	694,422,000	7,548,065.22
Monthly income (IDR)	15,000,000	0	15,000,000	181,511,000	1,972,945.65
Annual income (IDR)	108,000,000	0	108,000,000	1,958,127,000	21,283,989.13

Risk reduction and eliminating the effects of cigarette smoke at home and with the family is a proactive policy for achieving the essence of tobacco control,^[16] which is maintaining environmental air quality and improving economic status due to loss of the health risks that can occur due to the effects of cigarette smoke,^[17] especially on mothers and children in the household.^[18,19]

Attitude as a result of knowledge will affect individual behavior, especially in smoking.^[20,21] The belief that it is okay to smoke with family but not when with other people provides an illustration of the smoker's lack of knowledge regarding the effects of cigarette smoke on the people around them.^[22] However, the attitudes and behaviors that make smokers continue to smoke with their family, especially for mothers and children, indicate individual ignorance, which creates the impression of the ego due to the toxicity of cigarette content, such as the addiction effects of nicotine.^[23]

Research in New South Wales found that 72% of adults had adopted an SFH, with the highest rate in households that had children. Smokers with children are more likely to apply SFH than those who live alone. Higher education is also related to the application of SFH.^[10] In the same way, an SFH policy has been implemented in Victoria since 1989, and every year a survey is carried out with as many as 2500 people to determine the extent of the efforts made by residents to implement an SFH. From the survey results, there was a change in smoking behavior in the house, especially around children.^[24]

Cigarette consumption and expenditure on revenue

Active smoking behavior creates various comprehensive problems for life,^[25] including the impact on the economic status of the household where active smokers are located.^[26] This study illustrates that one-third of household income is spent on smoking. The study also describes cigarette expenditure per 100 smokers reaching almost Rp1 billion per year. Other studies have confirmed that cigarettes are among the top five primary needs in households in Indonesia. Spending on cigarette consumption is only beaten by spending on rice and cellular phone pulses.^[27]

This incidental study shows the importance of community empowerment through understanding the economic impact

on households, especially people who have family members who smoke. An empowerment exercise comparing the family's income and expenditure on smoking can have a sustainable effect in changing smoking behavior that can be explored further. People with active smokers in their family are asked to calculate their own average income per day, per month, up to per year, compared to their average cigarette expenditure in the same period. This participative exercise directly shows the magnitude of economic problems that can be caused by cigarette expenditure in each household.

Conclusions

This study concludes that smokers who smoke with family still lack knowledge about the effects of cigarette smoke in terms of health and household economy. The smoke-free regulation that is initiated should include households as one of its areas. Future studies are important to see further how the frequency and significance level of cigarette smoke exposure in households are affected.

Declaration of patient consent

The authors certify that they have obtained all appropriate participant consent forms. In the form, the participants have given their consent for their images and other clinical information to be reported in the journal. The participants understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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References

1. World Health Organization. Global Youth Tobacco Survey (GYTS), Bhutan Report, 2013. Bhutan: World Health Organization; 2015.
2. Mbulo L, Palipudi KM, Andes L, Morton J, Bashir R, Fouad H, *et al.* Secondhand smoke exposure at home among one billion children in 21 countries: Findings from the Global adult tobacco survey (GATS). *Tob Control* 2016;25:e95-100.
3. Shrivastava S, Shrivastava P, Ramasamy J. Preventing nonsmokers from being exposed to secondhand smoke: Global perspective. *Int J Prev Med* 2016;7:78.
4. Balitbangkes. Laporan Hasil Riset Kesehatan Dasar (Riskesdas) 2010. Jakarta; 2010.
5. Adamson J, Hughes S, Azzopardi D, McAughey J, Gaça MD. Real-time assessment of cigarette smoke particle deposition in vitro. *Chem Cent J* 2012;6:98.
6. Masjedi MR, Roshanfekr P, Naghdi S, Higgs P, Armoon B, Ghaffari S, *et al.* Socio-economic contributors to current cigarette smoking among Iranian household heads: Findings from a national household survey. *J Subst Use* 2020;25:217-23.
7. Chen J, McGhee S, Lam TH. Economic costs attributable to smoking in Hong Kong in 2011: A possible increase from 1998. *Nicotine Tob Res* 2019;21:505-12.
8. Varmaghani M, Ghobadi M, Sharifi F, Roshanfekr P, Sheidaei A, Mansouri M, *et al.* The economic burden of smoking-attribution and years of life lost due to chronic diseases in Mashhad, 2015-2016. *Int J Prev Med* 2021;12:23.
9. Rajabi A, Arefnezhad M, Erfanpoor S, Esmacilzadeh F, Arefnezhad M, Hasani J. Cigarette smoking and health-related quality of life in the general population of Iran: Independent associations according to gender. *Int J Prev Med* 2019;10:188.
10. Berg CJ, Zheng P, Kegler MC. Perceived benefits of smoke-free homes, the process of establishing them, and enforcement challenges in Shanghai, China: A qualitative study. *BMC Public Health* 2015;15:89.
11. Borland R, Mullins R, Trotter L, White V. Trends in environmental tobacco smoke restrictions in the home in Victoria, Australia. *Tob Control* 1999;8:266-71.
12. Lemeshow S, Hosmer DW, Klar J, Lwanga SK, Organization WH. Adequacy of Sample Size in Health Studies. Geneva, Chichester: Wiley; 1990.
13. Sulistiadi W, Veruswati M, Nurcahyani D. Kajian Naskah Akademik Raperda Tentang Kawasan Tanpa Rokok Kota Tangerang Selatan – Review of Academic Manuscript for Implementing Smoke-Free Policy in South Tangerang City, Indonesia. Depok: Faculty of Public Health, Universitas Indonesia; 2015.
14. Robinson J, Kirkcaldy AJ. ‘You think that I’m smoking and they’re not’: Why mothers still smoke in the home. *Soc Sci Med* 2007;65:641-52.
15. Robinson J, Kirkcaldy AJ. Disadvantaged mothers, young children and smoking in the home: Mothers’ use of space within their homes. *Health Place* 2007;13:894-903.
16. Ferketich AK, Lugo A, La Vecchia C, Fernandez E, Boffetta P, Clancy L, *et al.* Relation between national-level tobacco control policies and individual-level voluntary home smoking bans in Europe. *Tob Control* 2016;25:60-5.
17. Hawkins SS, Kull M, Baum CF. US state cigarette tax increases and smoke-free legislation in relation to cigarette expenditure across household socio-economic circumstances: A quasi-experimental study. *Addiction* 2019;114:721-9.
18. Sultana P, Rahman MT, Roy DC, Akter S, Jung J, Rahman MM, *et al.* Tobacco control policies to promote awareness and smoke-free environments in residence and workplace to reduce passive tobacco smoking in Bangladesh and its correlates. *PLoS One* 2018;13:e0198942.
19. Monson E, Arsenault N. Effects of enactment of legislative (public) smoking bans on voluntary home smoking restrictions: A review. *Nicotine Tob Res* 2017;19:141-8.
20. Jalilian F, Joulaei H, Mirzaei-Alavijeh M, Samannezhad B, Berimvandi P, Karami Matin B, *et al.* Cognitive factors related to cigarettes smoking among college students: An application of theory of planned behavior. *Soc Sci* 2016;11:1189-93.
21. Rezk-Hanna M, Sarna L, Petersen AB, Wells M, Nohavova I, Bialous S. Attitudes, barriers and facilitators to smoking cessation among Central and Eastern European nurses: A focus group study. *Eur J Oncol Nurs* 2018;35:39-46.
22. Newman I, DeFrain J. Why Smoke? Tobacco Use and Intimate Relationships. Switzerland; 2018. p. 137-51.
23. Baumeister RF. Addiction, cigarette smoking, and voluntary control of action: Do cigarette smokers lose their free will? *Addict Behav Rep* 2017;5:67-84.
24. Merom D, Rissel C. Factors associated with smoke-free homes in NSW: Results from the 1998 NSW health survey. *Aust N Z J Public Health* 2001;25:339-45.
25. Shrivastava S, Shrivastava P, Ramasamy J. Tobacco: A serious threat to the development of a nation. *Int J Prev Med* 2019;10:73.
26. Estreet A, Apata J, Kamangar F, Schutzman C, Buccheri J, O’Keefe A-M, *et al.* Improving participants’ retention in a smoking cessation intervention using a community-based participatory research approach. *Int J Prev Med* 2017;8:106.
27. Zheng R, Marquez PV, Ahsan A, Hu X, Wang Y. Cigarette Affordability in Indonesia: 2002-2017. Washington DC.; 2018.