

## Geographic distribution, socio-economic disparity and policy determinants of smoke-free policy adoption in Indonesia

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### SUMMARY

**BACKGROUND:** Indonesia has the second highest smoking prevalence among adult males in the world, and smoking prevalence is increasing among youths.

**OBJECTIVE:** To evaluate the smoke-free policy (SFP), a flagship national tobacco control programme, by providing evidence on geographic distribution, socio-economic disparities and policy determinants of SFP adoption by district in Indonesia.

**METHODS:** We employed spatial and quantitative methods to obtain data respectively on geographic distribution of SFP adoption, and on disparities and associations between national and provincial SFP regulations and SFP adoption by the districts.

**RESULTS:** Twenty-one of 34 provinces, and 345 of 514 districts adopted SFP. We found significant geographic

disparities: all districts outside of Papua were up to 6.3 times more likely to adopt the policy and to implement it for a period of up to 3 years longer in duration. We also found significant socio-economic disparities: urban districts, those that were wealthiest and those most educated were respectively 3.9, 9.1 and 2.8 times more likely to adopt the policy. Moreover, districts in provinces that had SFP regulation were 3.2 times more likely to adopt. Finally, the adoption rate in the period after the 2012 national regulation was up to 7.8 times higher than that before.

**CONCLUSION:** In addition to geographic and socio-economic disparities, national and provincial regulations and policies were determinants of SFP adoption.

**KEY WORDS:** tobacco control; SFP; regulation; district; disparity; Indonesia

INDONESIA CONTRIBUTES over 60 million current smokers and has the second highest smoking prevalence among adult males in the world.<sup>1</sup> The most recent *Riskesdas*, a nationally representative basic health research survey, conducted in 2018, showed that smoking prevalence among people aged  $\geq 15$  years has remained high despite being stable (36% in 2013 and 34% in 2018); however, prevalence among youths aged 10–18 years increased by almost 30% (7.2% in 2013 and 9.1% in 2018).<sup>2</sup> Despite this, the Government of Indonesia (and only nine other governments) are yet to ratify the 2005 WHO Framework Convention on Tobacco Control, which provides the legal framework and support for comprehensive efforts on tobacco control.<sup>3</sup>

Nevertheless, Indonesia has two tobacco control-related national regulations: the Health Act 36/2009 and a Presidential Decree 109/2012 on the ‘Safety of materials that contain addictive substance in the form of tobacco products for health’.<sup>4,5</sup> The Act stipulates two general guidance on tobacco products: 1) cigarette production and import are required to carry health warnings, and 2) local governments are

required to implement the smoke-free policy (SFP) in seven types of facilities—health facilities, educational facilities, children’s playgrounds, places of worship, public transportation, workplaces and other designated public spaces. The Decree also stipulates that producing, selling, advertising, promotion and smoking of tobacco products are prohibited in SFP areas, and that local governments are required to enact SFP regulations.

The Indonesian Ministry of Health (MoH) has worked with various key stakeholders to establish SFP at subnational levels, such as provincial and district (including city areas) governments. Since decentralisation in 2000, district governments have been playing an important role in policy development and implementation. While the MoH has a list of provinces and districts that have adopted the SFP, there has been no or very limited systematic analyses.

Our study aimed to provide evidence on geographic distribution, socio-economic disparities and policy determinants of SFP adoption by district in Indonesia during 2004–2018. Policy determinants included national and provincial SFP regulations. In a limited

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tobacco control regulatory setting such as in Indonesia, this understanding is crucial to ensure that the adoption and implementation of the SFP, a flagship national tobacco control programme, is on track.

## METHODS

This study employed spatial and quantitative methods to provide evidence respectively on geographic variations of SFP adoption by district and on the rate of SFP adoption over space (district) and time (2004–2018). We compared three time periods: 2004–2008, 2009–2011 and 2012–2018. The year 2009 was used as cut-off because the Health Act 36/2009 provided general guidance on SFP although no details, while the year 2012 was used because the Presidential Decree 109/2012 provided detailed guidance on SFP for local governments. To estimate the rate of adoption, we divided the number of districts that had adopted the SFP in each time period by the number of years in each period. The main data source for this analysis was the MoH list of districts that adopted the SFP during 2004–2018. Spatial analyses were performed using ArcMap 10.6 (ESRI, Redlands, CA, USA).

Quantitative analyses were performed to obtain data on geographic and socio-economic disparities and the associations between having the provincial SFP, national regulations, and SFP adoption and duration of SFP implementation by districts. In addition to spatial analysis, quantitative analyses were also conducted on geographic disparities, including region and urbanicity. Indonesia is divided into seven regions (Sumatera, Java, Kalimantan, Sulawesi, Nusa Tenggara, Maluku and Papua by the National Planning Agency [*Bappenas*]). However, as there are fewer districts in Nusa Tenggara and Maluku, we combined these with Papua to form a single region. Quantitative analysis was conducted on socio-economic disparities, including urbanicity, income and education indicators. We considered cities as urban, and regents as rural areas; we used the district-level poverty rate (in percentage) for income quintiles with quintile 5 representing the lowest poverty rate; we used net enrolment ratio of senior secondary for education quintile (in percentage). The World Bank website was used as the source of socio-economic data was and the MoH for urban/rural and provincial SFP.

The two main dependent variables for data analysis were SFP adoption and duration of SFP implementation. Adoption was defined as having implemented SFP regulations as per the MoH database. While there were variations in the type of adoption, namely mayoral regulations and local parliament regulations, we treated both as ‘adoption’, as there was no evidence of the degree of implementation. To calculate the duration of SFP implementation, we

subtracted the SFP start year from 2019 (reference year), for example, the duration of SFP started in 2018 was  $2019 - 2018 = 1$  year). We performed bivariate regressions of dependent variables (logistic regression for adoption and ordinary least square for duration) on each covariate (region, urbanicity, income quintile and education quintile). To determine provincial SFP, we regressed the dependent variables on provincial SFP status; results from bivariate and multivariate analyses (controlling for geographic, income and education variables) were similar. For national regulations, we calculated the adoption rate per year and compared three periods: 2004–2008 (before the 2009 Health Act), 2009–2011 (before the 2012 Decree) and 2012–2018 (after the Decree). We used the  $\chi^2$  test to determine statistical significance of the adoption rate among the three periods. Quantitative analyses were performed in Stata 15.1 (Stata-Corp, College Station, TX, USA).

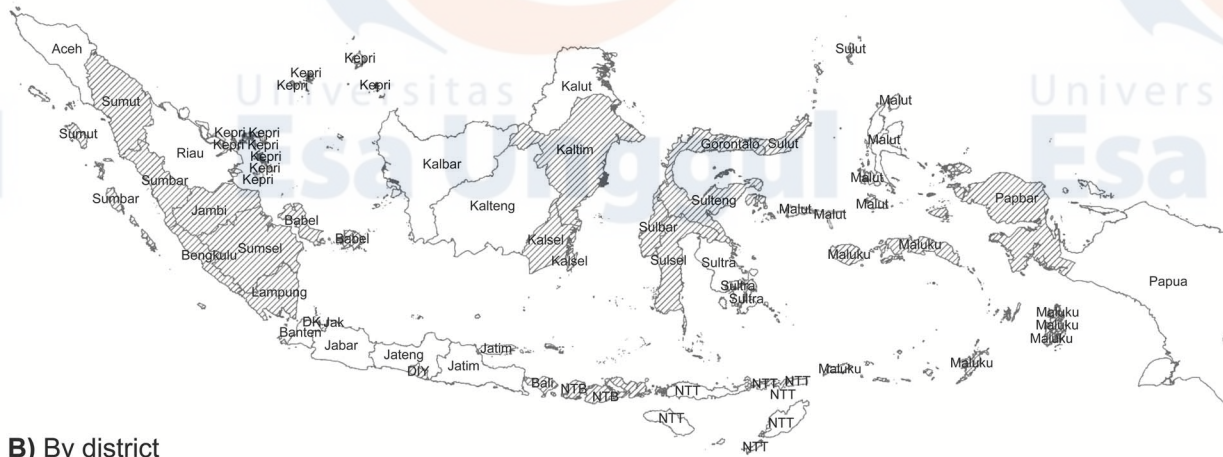
As aggregated data were used at the district level, ethical approval for the study was not required because we.

## RESULTS

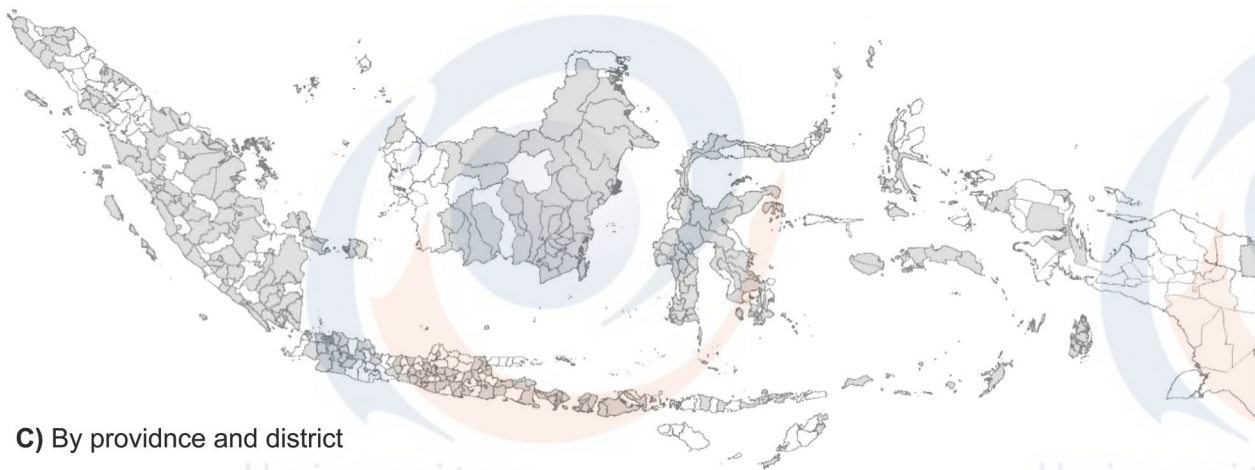
Figure 1 shows the spatial distribution of SFP adoption by province and district in Indonesia. During 2004–2018, 21 of all 34 provinces (Panel A) and 345 of all 514 districts (Panel B) adopted some form of SFP regulation. The map shows regional disparities, for example, Kalimantan and Java had more provinces without the SFP regulation, indicated by non-shaded areas in Panel A. The map also shows that many districts within non-SFP provinces had adopted the SFP, as indicated by the areas highlighted in yellow (Panel B) and in shaded and yellow (Panel C). There were 260 districts that had implemented both provincial and district SFP regulations.

The Table shows the socio-economic disparities and policy determinants of SFP adoption by district during 2004–2018. In terms of SFP adoption, 67% or 345 districts had adopted some form of SFP regulation, with significant geographic and socio-economic disparities (Columns 2, 3 and 5). In terms of regional differences (Panel A), 43% of districts adopted the SFP in Papua (including Maluku and Nusa Tenggara), while 83% of districts in Sulawesi did. Regression analysis (Column 5) suggests that all districts outside Papua had higher odds of adoption, up to 6.3 times that for districts in Sulawesi. In terms of urbanicity (Panel B), data show that the proportion of adoption was 63% in rural districts and 87% in urban. Urban districts were 3.9 times more likely to adopt the SFP than rural ones. In terms of income, there were significant disparities, with the proportion of adoption ranging from 43% and 87% in the poorest and richest quintiles. Districts in the richest income quintile were 9.1 times more likely to adopt

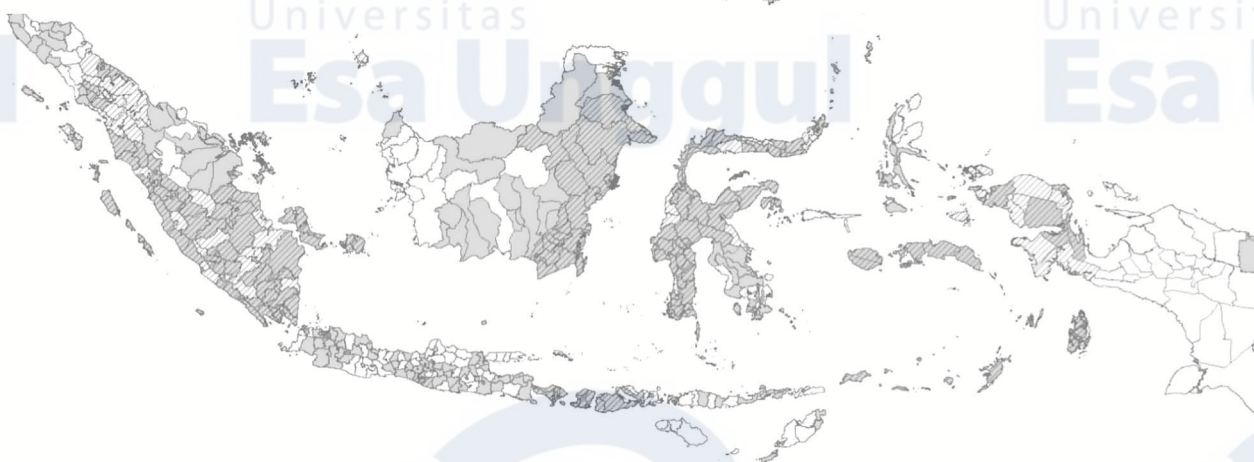
## A) By province



## B) By district



## C) By province and district



**Figure 1** Distribution of SFP by province and district, Indonesia, 2004–2018. Note: During 2004–2018, 21 of 34 provinces (Panel A) and 345 of 514 districts (Panel B) had some form of SFP regulation; 260 districts had both provincial and district regulation (Panel C). SUMUT = North Sumatera, SUMBAR = West Sumatera, SUMSEL = South Sumatera, KEPRI = Riau Islands, BABEL = Bangka Belitung, JABAR = West Java, JATENG = Central Java, JATIM = East Java, NTB = West Nusa Tenggara, NTT = East Nusa Tenggara, KALBAR = West Kalimantan, KALTENG = Central Kalimantan, KALUT = North Kalimantan, KALTIM = East Kalimantan, KALSEL = South Kalimantan, SULUT = North Kalimantan, SULBAR = West Sulawesi, SULSEL = South Sulawesi, SULTRA = Southeast Sulawesi, MALUT = North Maluku, PAPBAR = West Papua. SFP = smoke-free policy.

the SFP than those in the poorest quintile. In terms of education, proportion of SFP adoption ranging from 50% and 74% in the lowest and highest education quintiles, respectively. Districts in the highest education quintile were 2.8 times more likely to adopt the

SFP than those in the lowest quintile. In terms of policy (Panel C), the proportion of SFP adoption was respectively 55% and 79% among districts without and with provincial SFP. Districts with provincial SFP were 3.2 times more likely to adopt the SFP than

**Table** Characteristics and determinants of SFP adoption by districts in Indonesia, 2004–2018\*

	Total districts	Districts that adopted the policy		Duration of SFP implementation	Adoption (1 = yes)		Duration (years)	
	<i>n</i>	<i>n</i>	%	years	Odds ratio	(SE)	Coefficient	(SE)
<b>Geographic Region</b>								
Papua	95	41	43	4.3	(reference)			
Java	128	88	69	7.3	2.90**	(0.82)	3.02**	(0.53)
Sumatera	154	107	69	5.0	3.00**	(0.81)	0.74	(0.52)
Kalimantan	56	42	75	5.1	3.95**	(1.47)	0.80	(0.62)
Sulawesi	81	67	83	5.1	6.30**	(2.27)	0.82	(0.56)
<b>Socio-economic</b>								
<b>Urban</b>								
Rural	417	261	63	5.0	(reference)			
Urban	97	84	87	7.1	3.86**	(1.22)	5.01**	(0.18)
<b>Income/poverty</b>								
Q1: poorest	102	44	43	4.6	(reference)			
Q2	103	72	70	4.8	3.06**	(0.90)	0.13	(0.56)
Q3	103	64	62	5.6	2.16**	(0.62)	0.99	(0.57)
Q4	103	75	73	5.7	3.53**	(1.05)	1.07	(0.56)
Q5: wealthiest	103	90	87	6.3	9.13**	(3.27)	1.71**	(0.54)
<b>Education</b>								
Q1: least	103	51	50	5.1	(reference)			
Q2	103	73	71	5.3	2.48**	(0.73)	0.20	(0.55)
Q3	103	71	69	5.7	2.26**	(0.66)	0.67	(0.55)
Q4	103	75	73	5.7	2.73**	(0.81)	0.69	(0.54)
Q5 most	102	75	74	5.7	2.83**	(0.85)	0.62	(0.54)
<b>Policy</b>								
<b>Province SFP</b>								
No	254	139	55	5.7	(reference)			
Yes	260	206	79	5.4	3.16**	(0.63)	-0.31	(0.33)
<i>N</i> [mean of adoption rate duration]	514	345	[67]	[5.5]	514		345	

\* Income quintile was based on district-level poverty rate (e.g., Q1 = 20% of districts with highest poverty rate). For duration of SFP implementation, coefficients for constants are 4.27 years for region, 2.11 for urban, 4.64 for income, 5.06 for education and 5.71 for policy.

\*\* For policy, results that controlled for covariates (Panels A–B) were similar including odds ratio = 2.57 (SE = 0.56) and coefficient = -0.11 (SE = 0.33).

SFP = smoke-free policy; SE = standard error; Q = quintile.

those without; similar results (2.6 times) were obtained after controlling for geographic and socio-economic variables. All the analyses were significant at 5%.

In terms of SFP duration, the average duration was 5.5 years in the 345 districts that adopted the policy, with some geographic and socio-economic variations (Columns 4 and 6). In terms of region, the duration ranged from 4.3 years in Papua (including Maluku and Nusa Tenggara) to 7.3 years in Java. Districts in Java had on average 3 years more than those in Papua (significant at 5%) (Column 6). However, no significant regional variations between Papua and the other regions (including Sumatera, Kalimantan, and Sulawesi) were observed. In terms of urbanicity, the duration of SFP implementation was 5 years in rural and 7.1 in urban districts. Urban districts had on average 5 years more than those rural ones (significant at 5%). In terms of income, duration of policy ranged from respectively 4.6 and 6.3 years in the poorest and the richest quintiles. Districts in the highest income quintile had on average 1.7 years more than those in the lowest income quintile (significant at 5%). However, there were no significant income variations between the lowest income quintile and the middle income quintiles (Q2–4). In

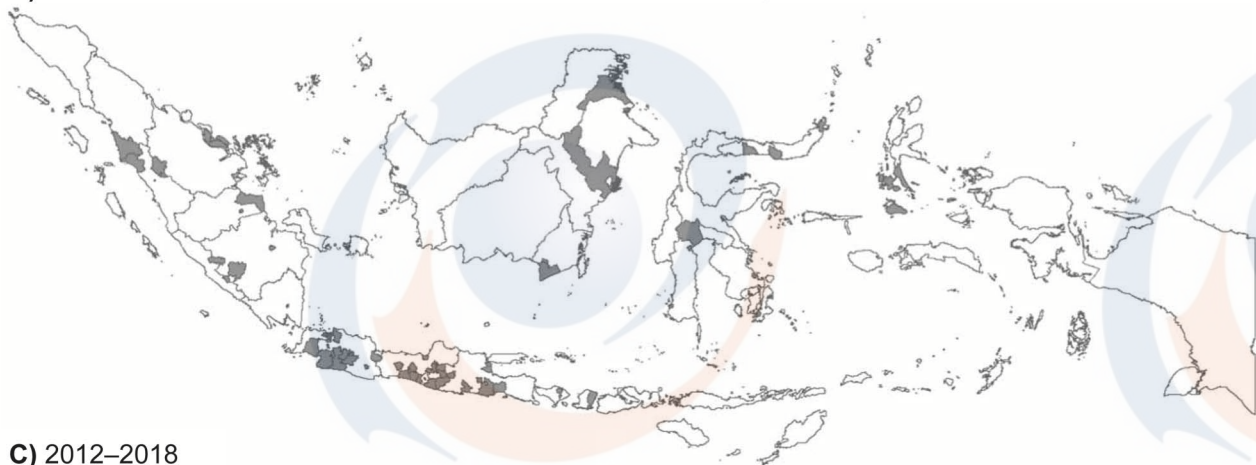
terms of education, duration ranged from respectively 5.1 and 5.7 years in districts with the least and most educated populations. However, this difference was not statistically significant. In terms of policy, there were some variations in the duration of SFP implementation, but this was not statistically significant.

Figure 2 shows the spatial distribution and rate of SFP adoption by three time period: 2004–2008, 2009–2011 and 2012–2018. The cut-off time was based on two national regulations, the Health Act 36/2009 and a Presidential Decree 109/2012, which provided the mandate and technical guidance for SFP adoption. Our study results show significant associations between implementing national and district regulations. In Panel A (2004–2008), 25 districts adopted the policy in 5 years; the adoption rate was therefore five per year. In Panel B (2009–2011), 47 districts adopted the SFP during 3 years; adoption rate was thus 16 per year. In Panel C (2012–2018), 273 districts adopted the SFP in 7 years; the adoption rate was thus 39 per year. We conducted  $\chi^2$  tests which confirmed that the differences in adoption rate among the three periods were statistically significant at 5%.

A) 2004–2008



B) 2009–2011



C) 2012–2018



**Figure 2** Rate of SFP adoption over time in Indonesia, 2004–2018. Note: 25 districts adopted SFP during 2004–2008 (5 years), at a rate of 5 districts per year (Panel A); 47 districts adopted SFP during 2009–2011 (3 years), at a rate of 16 districts per year (Panel B); 273 districts adopted SFP during 2012–2018 (7 years), at the rate of 39 districts per year (Panel C). In 2009, Health Act 36 came into effect and included one article on SFP, but without further details on definition and scope. In 2012, the President Regulation 109 on Tobacco came into force and included details on the SFP. This provided the Ministry of Health with the mandate to encourage local governments to adopt SFP regulations. SFP = smoke-free policy.

## DISCUSSION AND CONCLUSION

Our study provides evidence on at least four main findings. First, there was significant geographic distribution and disparity of SFP adoption and duration by the districts. All districts outside the

region of Papua, Maluku and Nusa Tenggara were up to 6.3 times more likely to adopt the SFP (in Sulawesi) and for up to 3 years longer time period (in Java). In addition to being the farthest in distance from the capital, this region is also the least developed in the

country. Similarly, evidence from the United States shows that SFP adoption is lowest in the Alaska/Hawaii region (SPF at playgrounds) and the Appalachians mountains (SPF at workspaces and restaurants).<sup>6,7</sup>

Second, there were significant socio-economic disparities in SFP adoption and duration by district with the richest districts, most educated districts, and urban rural districts having significantly higher adoption rate and longer adoption period. Similarly, evidence from the literature shows the odds of SFP being implemented at playgrounds were lower in areas with higher proportions of poor individuals with no high school diploma; the odds of SFP being implemented at worksites were lower among rural employers.<sup>6,8</sup>

Third, the provincial SFP regulation was significantly associated with higher SFP adoption by districts even in a country setting where the decentralisation is at the district level. Districts with provincial SFP were 3.2 times more likely to adopt the SFP. This is in line with the literature showing that high compliance with the national comprehensive smoke-free law in 41 countries was associated with training in and/or guidance for inspections policy by the local jurisdictions.<sup>9</sup> Fourth, the national regulations were associated with higher SFP adoption by districts, particularly, following the Presidential Decree 2012, when the number of districts the adoption rate was respectively 7.8 times and 6.5 times higher the rates in 2004–2008 and 2009–2011.

For policy, the government and key stakeholders should encourage and facilitate cross learning among regions, provinces and districts, especially in non-SFP districts that are in rural areas, poorer and least educated. Cross learning could be done among districts with SFP and without SFP with similar socio-economic characteristics. At the provincial level, given the significant positive association, SFP adoption at the provincial level should be further encouraged even in case of district-level decentralisation. These include the 13 provinces of Aceh, Banten, West Java, Central Java, East Java, West Kalimantan, Central Kalimantan, North Kalimantan, North Maluku, East Nusa Tenggara, Papua, Riau and Southeast Sulawesi. Our results also show that both the general guidance in the Health Act and technical details in the Presidential Decree were needed for the policy adoption to be most effective. This could also be applied to the local implementation of other tobacco control efforts that are currently lacking, such as the ban on outdoor tobacco advertisement and product displays at point-of-sales.<sup>10,11</sup> Our results should guide the government to improve SFP policy and to reach the current targets to reduce smoking prevalence among youths from 7.2% in 2014 to 5.4% in 2019 and to reach a minimum of 50% SFP compliance at schools.<sup>12,13</sup>

Our study had several strengths. First, in addition to the conventional regression analyses, our study also presents the spatial patterning of SFP adoption over time and space. Second, the availability of data on both provincial and district regulations allowed us to analyse the associations between the two, which is very useful, especially in the context of district-level decentralisation. Third, having over 500 districts as the unit of analysis provides huge variations in both spatial and quantitative analyses.

Our study, however, has at least two limitations. First, our study focused only on policy adoption and lacked evidence on the implementation and compliance to ensure impact.<sup>14,15</sup> Second, while an understanding of the geographic and socio-economic disparities is important, our study has not included other important indicators such as the mayor's political affiliation or will, policy advocacy, civil society engagement and interference by the tobacco industry. One issue was unavailability of such district-level data from the earliest adoption periods. Also, data on industry interference were available at the national level, but not at the district level for our subnational analysis.<sup>16</sup> We used a proxy indicator for interference by using whether a district has tobacco manufacturers based on data from the Ministry of Industry (data not shown, results provided on request). Districts with at least five tobacco manufacturers had lower SFP adoption and duration, but these differences were not statistically significant, which may have been due to the small sample size (only 17 districts with at least five manufacturers, or 3% of the total of 514 districts).

Conflicts of interest: None declared.

## References

- 1 World Health Organization. Factsheet 2018 Indonesia. Geneva, Switzerland: WHO, 2018. [http://www.searo.who.int/tobacco/data/ino\\_rtc\\_reports](http://www.searo.who.int/tobacco/data/ino_rtc_reports). Accessed June 2019.
- 2 National Institute of Health Research and Development, Indonesia Ministry of Health. [Main results of Riskesdas]. [Indonesian] Jakarta, Indonesia: NIHRD MOH, 2018.
- 3 World Health Organization. WHO Report on the global tobacco epidemic, 2008: the MPOWER Package. Geneva, Switzerland: WHO, 2008.
- 4 Government of Indonesia. Health Act 36/2009. Jakarta, Indonesia: Government of Indonesia, 2009.
- 5 Government of Indonesia. Presidential Decree 109/2012 on Safety of addictive substance in the form of tobacco product. Jakarta, Indonesia: Government of Indonesia, 2012.
- 6 Lowrie C, Pearson A L, Thomson G. Inequities in coverage of smokefree outdoor space policies within the United States: school grounds and playgrounds. *BMC Public Health* 2018; 18: 736.
- 7 Donahoe J T, Titus A R, Fleischer N L. Key factors inhibiting legislative progress toward smoke-free coverage in Appalachia. *Am J Public Health* 2018; 108: 372–378.
- 8 Ablah E, Dong F, Konda K. Tobacco-free policies at worksites in Kansas. *BMC Public Health* 2017; 17: 566.

- 9 Peruga A, Hayes L S, Aguilera X, et al. Correlates of compliance with national comprehensive smoke-free laws. *Tob Control* 2017; 27: 608–613.
- 10 Kusuma D, Kusumawardani N, Ahsan A, et al. On the verge of a chronic disease epidemic: comprehensive policies and actions are needed in Indonesia. *International Health* 2019; 11(6): 422–424.
- 11 Southeast Asia Tobacco Control Alliance. Current status of tobacco advertising, promotion and sponsorship (TAPS) ban in ASEAN. Bangkok, Thailand: SEATCA, 2014. <https://tobaccowatch.seatca.org/index.php/article-13/status-in-asean/> Accessed June 2019.
- 12 Government of Indonesia. Presidential Decree No 2/2015 on National Middle Term Development Planning 2014–2019. Jakarta, Indonesia: Government of Indonesia, 2015.
- 13 Ministry of Health of Indonesia. Ministry of Health Decree No HK 022.02/Menkes/52/2015 on strategic Plan of Ministry of Health 2015–2019. Jakarta Indonesia: Ministry of Health of Indonesia, 2015.
- 14 Nagelhout G E, Mons U, Allwright S, et al. Prevalence and predictors of smoking in ‘smoke-free’ bars. Findings from the International Tobacco Control (ITC) Europe Surveys. *Soc Sci Med* 2011; 72: 1643–1651.
- 15 Kelly B C, Vuolo M, Frizzell L C, Hernandez E M. Denormalization, smoke-free air policy, and tobacco use among young adults. *Soc Sci Med* 2018; 211: 70–77.
- 16 Assunta M, Dorotheo E U. SEATCA Tobacco Industry Interference Index: a tool for measuring implementation of WHO Framework Convention on Tobacco Control Article 5.3. *Tob Control* 2016; 25: 313–318.

## RÉSUMÉ

**CONTEXTE :** Le taux de tabagisme des adultes masculins classe l'Indonésie au deuxième rang dans le monde et cette prévalence augmente parmi les jeunes.

**OBJECTIF :** Evaluer la politique anti-tabac (SFP), une mesure emblématique de lutte nationale contre le tabac, en montrant la distribution géographique, la disparité socioéconomique et les déterminants politiques de l'adoption de la SFP par les districts d'Indonésie.

**MÉTHODE :** Nous avons employé des méthodes spatiales et quantitatives. Les premières ont apporté des preuves de la distribution géographique de l'adoption et la deuxième, de la disparité et des associations entre les réglementations nationales et provinciales de SFP et l'adoption par les districts.

**RÉSULTATS :** Vingt et unes des 34 provinces ont adopté la SFP ainsi que 345 des 514 districts. Nous avons

constaté une disparité géographique significative: tous les districts hors de Papouasie ont été jusqu'à 6,3 fois plus susceptibles d'adopter la SFP et jusqu'à 3 années de plus en durée. Nous avons également constaté une disparité socioéconomique significative: les districts urbains, plus riches et plus instruits ont été 3,9 fois, 9,1 fois et 2,8 fois plus susceptibles d'adopter la SFP respectivement. Plus encore, les districts au sein des provinces qui avaient une réglementation SFP ont été 3,2 fois plus susceptibles de l'adopter. Enfin, les réglementations nationales ont été associées à l'adoption par les districts.

**CONCLUSION :** En plus de la disparité géographique et socioéconomique, les réglementations et les politiques nationale et provinciales ont été des déterminants de l'adoption.

## RESUMEN

**MARCO DE REFERENCIA:** Indonesia tiene la segunda prevalencia más alta de tabaquismo en los hombres adultos en el mundo y su prevalencia en los jóvenes está en aumento.

**OBJETIVO:** Evaluar la política en favor de los entornos sin humo (SFP), una medida emblemática del control nacional del tabaco, al aportar datos sobre la distribución geográfica, la disparidad socioeconómica y los determinantes normativos de la adopción de la SFP en los distritos de Indonesia.

**MÉTODOS:** Se aplicaron métodos espaciales y cuantitativos. Los primeros aportaron información sobre la distribución geográfica de la adopción y los segundos sobre la disparidad y las asociaciones entre las regulaciones SFP nacionales o provinciales y la adopción en los distritos.

**RESULTADOS:** Veintiuna de las 34 provincias

adoptaron la SFP y 345 de los 514 distritos. Se observó una disparidad geográfica notable, pues la probabilidad de adopción fue hasta 6,3 veces mayor en todos los distritos por fuera de Papua y con una duración hasta 3 años superior. Se encontró también una disparidad socioeconómica importante, dado que la probabilidad de adopción fue 3,9 veces mayor en zonas urbanas, 9,1 veces mayor en los distritos más ricos y 2,8 veces mayor en los distritos con el mayor grado de instrucción. Además, los distritos de las provincias que contaban con una SFP regulatoria tenían una probabilidad 3,2 veces mayor de adoptarla. Por último, las regulaciones nacionales se asociaron con la adopción en los distritos.

**CONCLUSIÓN:** Además de la disparidad geográfica y socioeconómica, la existencia de regulaciones y políticas nacionales y provinciales fueron factores determinantes de la adopción.



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