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The influence of religious organizations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study

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Title: **The influence of religious organizations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study**

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ABSTRACT

Objective: To explore the public's perspective on Muslim organizations' pronouncements against smoking and the effect of these pronouncements on compliance with a new smoke-free law in the context of a pro-smoking social norm.

Design: Semi-structured focus group discussions, coded and analyzed using thematic content analysis.

Setting: Bogor, Indonesia.

Participants: 11 focus groups (n=89), stratified by age, gender, and smoking status, with members of the public (46 male, 43 female, ages 18-50).

Results: There was limited knowledge of and compliance with both the smoke-free law and the religious pronouncements. In most of the focus groups, smoking was described as a discouraged, but not forbidden, behavior for Muslims. Participants discussed the decision of whether to follow the religious pronouncements in the context of individual choice. Participants felt religious organizations lacked credibility to speak against smoking because many religious leaders themselves smoke. However, some nonsmokers said their religion reinforced their nonsmoking behavior and some participants stated it would be useful for religious leaders to speak more about the smoke-free law.

Conclusions: Religious organizations' pronouncements appear to have had a small effect, primarily in supporting the position of nonsmokers not to smoke. Focus group participants, including smokers, said their religious leaders should be involved in supporting the smoke-free law. These findings suggest there is potential for the tobacco control community to partner with sympathetic local Muslim leaders to promote common goals of reducing smoking and public smoke exposure. Muslim leaders would be more credible if they themselves followed the smoke-

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free law. Additionally, public health messaging that includes religious themes could be explored. These findings may also inform similar efforts in other cities and countries.

Strengths and limitations of this study

- This is the first study to explore the effect of religious organizations' pronouncements about smoking on the public's views about and compliance with a smoke-free law. This question is especially important in low- and middle-income countries.
- The use of semi-structured focus groups with everyday Bogor residents allowed for the collection of rich insight into the complexities of religious, legal, and social norms around public smoking.
- The focus groups were stratified by gender, age, and smoking status, allowing for more open dialogue among participants.
- The use of a convenience sample may limit transferability of the findings.
- Since the data analysis was conducted using translated data, some nuances of language and culture may have been missed.

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INTRODUCTION

In the last 20 years Muslim leaders and organizations worldwide have become more outspoken against tobacco use.[1, 2] Their *fatwas* (religious rulings or opinions) forbidding smoking combined with other tobacco control efforts may help reduce smoking prevalence and reinforce emerging secular smoke-free laws.[2-5] A number of studies have shown associations between religiosity and reduced smoking prevalence[6] and potential benefits of religion-based tobacco control interventions.[7-9] In Malaysia, a majority Muslim country where social norms are pro-smoking and tobacco control is weak, religious norms have been shown to play a greater role than secular norms in influencing quit attempts.[10] These findings are consistent with social norms research showing that people are most likely to be influenced by groups with which they closely identify.[11] According to reference group theory, the degree to which a group serves as an influential reference point for an individual is a function of five factors: similarity in status to the group, sharing the values and beliefs of the group, having clarity about the group's values and beliefs, having sustained interaction with the group, and whether an individual defines other group members as significant.[12-14] This theory is readily applicable to understanding religious influences on smoking behavior.[14] Smokers who identify with a particular religion may look to their religion as their reference group rather than society at large, making religious leaders potentially powerful figures in the success of smoke-free laws. The World Health Organization (WHO) encourages working with religious leaders in tobacco control efforts.[15] However, most investigations regarding smoking and religion have focused on Christianity in high-income countries.[6] The current study explored religion and smoking in the predominantly Muslim (87%) country of Indonesia.[16]

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Islam has a strong legal tradition that works to minimize harm to society and individuals.[2] All human affairs are classified as *fard* (mandatory), *mustahabb* (encouraged), *mubah* (neutral), *makruh* (discouraged, not sinful but those abstaining from it will be blessed by God), or *haram* (prohibited). In January of 2009, Majelis Ulama Indonesia (MUI), the government-funded council in Jakarta that includes representation from many Indonesian Muslim organizations, issued a fatwa classifying smoking in public and smoking by children or pregnant women as haram (Table 1).[17] Otherwise smoking was said to be makruh. Among the members of the MUI council are representatives of Indonesia's two dominant social and religious organizations, which oversee thousands of Muslim schools, clinics, and hospitals. At the time, Nahdlatul Ulama (NU), the larger of these organizations, disagreed with the MUI fatwa, saying, "the danger of smoking is relative, not as significant as the danger of drinking [alcohol]. Also, those who smoke have relative benefit, for example, their thinking is clear when smoking."[18] (Recently, NU has become more open to tobacco control, as evidenced by its prohibition on smoking within some of its venues.[19]) In March 2010, Muhammadiyah, the other large Muslim organization, declared all smoking haram for its followers, citing the Quran's prohibition on suicide,[20] "make not your own hands contribute to your own destruction" (2;195).[2] Other Muslim scholars have additionally cited the Quran's statements against causing willful harm or annoyance to others.[1, 2]

Amidst these religious discussions, Indonesia is a country struggling with a large and growing tobacco problem. With 61.4 million smokers, Indonesia is third only to China and India in number of smokers.[21] Between 1995 and 2011, smoking rates rose from 54% to 67% among men and from 1.7% to 4.5% among women.[21] Additionally, the clove cigarettes (*kreteks*) that comprise most of Indonesian tobacco consumption (92%) may be more toxic than tobacco-only

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cigarettes.[22] Smoking in public places in Indonesia is common: 51% of adults are exposed to tobacco smoke in the workplace, and 85% of restaurant-goers are exposed to smoke in restaurants.[21] There is limited public awareness of the risks of secondhand smoke, especially among smokers, older adults, and less-educated populations.[21]

At the national level, Indonesia has minimal tobacco control measures and is one of the few countries that have not signed the WHO Framework Convention on Tobacco Control. However, some progress is being made in Indonesia's cities. Bogor, a city of 1 million people, was the first Indonesian city to pass a comprehensive smoke-free law. Bogor is in a province that is 97% Muslim.[16] The 2009 law, which took effect in May 2010, banned smoking in all hotels, restaurants, public markets, malls, places of worship, workplaces, playgrounds, schools, health facilities, and public transportation.[23] The city does not allow indoor designated smoking areas or exemptions. An evaluation in early 2011 found that overall 87% of venues were free of smoke but there was still smoking in 84% of traditional markets, 43% of restaurants, 29% of government buildings, and 11% of places of worship.[24]

To our knowledge, this is the first study to examine how religious anti-smoking pronouncements influence the public's perspectives about smoke-free laws. If the messages are influential, the tobacco control community may benefit from a partnership with religious organizations. This manuscript explores the role of smoking in Indonesian religion and society, what Bogor's residents think about the religious status of smoking and smoking in public, and how the fatwas affect compliance with the smoke-free law in Bogor.

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Table 1: Positions of major Muslim bodies in Indonesia

Name	Type	Members	Decree on smoking (year)
Majelis Ulama Indonesia (MUI)	Muslim leadership body	~700 [17]	Smoking by children and pregnant women and smoking in public is haram (forbidden); other smoking is makruh (discouraged).(2009)
Muhammadiyah	Muslim organization	30 million[25]	All smoking is haram for its followers.(2010)
Nahdlatul Ulama (NU)	Muslim organization	40 million[25]	All smoking is makruh.(2009)

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METHODS

In July 2012 semi-structured focus groups were conducted with residents of Bogor. Participants were recruited from a shopping mall frequented by middle-class Bogor residents and an outdoor market where lower-income Bogor residents shop. To encourage participants to speak freely, focus groups were stratified by age, gender, and smoking status. Five local researchers were trained in recruitment and focus group facilitation. The focus groups were held in rented rooms within public venues and were conducted in Bahasa Indonesia, the national language. Facilitators followed a focus group guide structured around the research questions. Photo elicitation was also used,[26] by having participants comment on the appropriateness and legality of smoking in public places depicted in 5 photographs. Participants were provided with snacks and compensation (81,000 rupiah, about $8.67) for their time. The facilitators transcribed the focus group recordings. Professional translators then translated the transcripts into English and an additional professional translator checked the translations for thoroughness and accuracy.

Focus group transcripts were iteratively coded in ATLAS.ti 7.0 qualitative analysis software (ATLAS.ti GmbH, Berlin) using a thematic content analysis strategy,[27] seeking both

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recurrent themes and variations in responses to the questions. The lead author (MJB) developed the codebook and assigned the codes, noting emergent themes. MJB had some assistance from RN and other Indonesian colleagues in understanding the findings within the context of Indonesian language and culture. With the recurring responses we approached saturation around our research questions.[27] The focus group findings were triangulated with data collected from interviews with venue managers and city leaders that were part of the larger research project.[28] We also searched for negative cases within the data.[29]

RESULTS

In all, 89 adults (46 male and 43 female) ranging in age from 18 to 50 years old participated in the 11 focus groups (Table 2). Of these, 87 self-identified as Muslim, including one who identified as a member of the religious group Muhammadiyah. Two participants declined to provide their religion. The focus group discussions averaged 126 minutes (range: 81 to 160 minutes) in length. Below we summarize thematic findings that emerged through analyses of the transcripts.

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Table 2: Focus group participants

Gender and smoking status	Ages	Recruitment Venue	No. Recruited	No. Attended
Male smokers	18-25	Mall	12	10
Male smokers	18-25	Mall	10	9
Male smokers	26+	Mall	12	8
Male smokers	26+	Mall	10	5
Male smokers	18+	Market	10	7
Male nonsmokers	18+	Mall	10	7
Female smokers	18+	Mall	10	8
Female nonsmokers	18-25	Mall	12	10
Female nonsmokers	26+	Mall	9	7
Female nonsmokers	26+	Mall	10	10
Female nonsmokers	18+	Market	10	8
			115	**89**

Role of smoking in Indonesian religion and society

Participants described smoking as a normal part of secular and religious Indonesian life, with smoking and smoke exposure frequent in both public and private spaces. Cigarettes are commonly offered alongside traditional snacks and beverages in meetings, funerals, weddings, and other religious events. As one male smoker explained:

> If it is in our culture that it is a habit to smoke after eating, drinking coffee and smoking, drinking tea and smoking, and reading Quran and smoking—I don't know for the smoking when it is stated as haram by MUI or maybe KTR perda [the local smoke-free law]—but if from the surrounding people they have this negative culture, to stop smoking is difficult.

The focus groups revealed that smoking is normative for Indonesian men. Smoking is often portrayed as a part of manhood, and men who do not smoke risk being mocked as *banci* (transvestites). However, the male nonsmokers reframed smoking as contrary to the masculine ideal: "a gentleman is healthy and responsible to his family. He is not a gentleman if he coughs all the time." The social norm for women is not to smoke and women who smoked described feeling ashamed to be seen doing so in public. They saw themselves as not being pious: "since

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we wear *hijab* [Muslim headscarf] it's embarrassing to not behave accordingly." To avoid this stigma, some women refrained from smoking in public entirely, while others said they would only smoke in public if they were with other smoking women. A focus group facilitator later explained to us a common "code" that a woman smoking alone is viewed by others as a prostitute soliciting customers.

The smoke-free law had only been partially effective in changing the social acceptability of indoor public smoking. Participants described uncertainty about where the law applied, and said that the law was rarely enforced. Some of the nonsmoking women were frustrated about this lack of enforcement while others took some of the responsibility on themselves: "it is our shared responsibility, not only the government's responsibility."

Some of the smokers we talked with explained that they try not to bother people with their smoke. Nonsmokers, and even a few smokers, told of how they had admonished people for smoking in air-conditioned venues or around children or pregnant women. One nonsmoker explained his perspective on seeing someone smoke around others: "I thought in my mind, this person is *dzalim* [Islamic term meaning evil because they hurt people on purpose]. There are women, children, but they smoke as they like. That is dzalim. That is a big sin."

Perceptions of Bogor's residents about the religious status of smoking and smoking in public

Nearly all participants who expressed an opinion about the Islamic status of smoking said that smoking is makruh (discouraged); a few others said it was haram (forbidden). Participants explained how the message they received regarding smoking could depend on the type of *ustad* (Muslim cleric or teacher):

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> Among conventional ustads, it is difficult. They will ask to which verse we refer. They are very fluent in Quran verses. The modern ustads, even though it is not stated explicitly in the verse, they think that if we do something that does not benefit us, it is haram.

Participants considered Muslim leaders' positions along with their own interpretations. Notably, no smoker said they believe smoking is always haram. One woman, a smoker, explained her opinion: "...there was a religious leader who said smoking was haram. But, I think it is more makruh," while others spoke about the status of smoking as a fact, e.g., "smoking is not haram, it is makruh," perhaps indicating differences in how subjective they consider Muslim law. One male smoker had a more nuanced perspective, one which fit well with MUI's fatwa and Bogor's smoke-free law: "now, actually smoking is not haram, it is makruh. Only haram when it is in public places because the smoke, the smell, and flavor may cause people who do not smoke to experience difficulty in breathing and coughing." Another said that smoking is acceptable in moderation in Islam, but that if a smoker gets sick, they should reduce their smoking: "It is alright but when it is too much it will cause diseases, now [quoting Quran:] *'everything that tortures our body, ourselves, is haram'* only if it is already too much. After it causes diseases, we have to reduce." Nonsmokers were more amenable to smoking as being haram. Among nonsmokers, some cited their religion as one reason among many for not smoking; as a woman explained:

> The religion said it is not allowed, the law said so too… maybe, excuse me, my family, errr… very obedient... So it is like this, religion said no, law said no, doctor said no. You see… so I really obey them.

One male nonsmoker framed his perspective on smoking in religious terms: "people who smoke are people who have not received *hidayah* [Islamic term meaning enlightenment]."

Participants commonly expressed that it was not credible for Muslim leaders to talk negatively about smoking, as many of these leaders themselves smoke. When one focus group

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was asked if they had heard religious leaders forbidding smoking, a woman said, "No, because ustad is identical to cigarette," which prompted laughter from the other participants. In another group, a participant said, "even though he is the leader, he can only talk, but cannot implement it for himself." Additionally, participants talked about seeing Muslim school leaders and Muslims who had been to Mecca (and were thus seen as Muslim exemplars) who smoked, and noted that smoke-free signage at mosques is often ignored.

Impact of religious pronouncements on compliance with the smoke-free law in Bogor

When participants were asked whether they perceived that the religious leaders' statements influenced other people, common responses included "it is an individual matter" or "depends on the individual, personally." One male smoker explained that his first reaction to hearing about the city's smoke-free law was, "What is this, prohibiting this and that? At that time, my thought was 'your religion is for you, my religion is for me.'" although he later came to see the law as "fair" (*adil*). While most smokers said they were unaffected by religious pronouncements, others said these messages are important and useful. Some people expressed that the local Muslim leaders could have some influence:

> But in my opinion when ustad said 'A' [i.e., something], he is more probably to be heard than the Mayor's local regulation. Even the President's rule is not as strong as the ustad saying. The problem is that very rarely ustad says that smoking is haram. 1,000 to 1, very rare because there is no explicit verse that forbids smoking, that's what they say.

Regarding the smoke-free law, one of the smokers said, "I would like to add that in addition to NGOs, the health office, this should be supported by religious leaders. There is an impact."

Thus smoking is normative for men, the religious pronouncements have had limited influence to date on what is perceived to be an individual's decision, and according to some participants religious leaders could positively influence compliance with the smoke-free law.

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DISCUSSION

This is the first study to investigate the effect of religious organizations' pronouncements about smoking on the public's views about a smoke-free law. The Indonesian fatwas and the implementation of Bogor's smoke-free law occurred within the context of a largely pro-smoking social landscape in which two-thirds of men smoke. Our finding that smoking was normative for men but not women is common for Islamic[2] and Southeast Asian[30] countries. We found that the social and religious norms were generally unaffected by the smoke-free law, partially because enforcement was lax. However there was a general desire to be respectful of others, and people were willing to ask smokers not to smoke around children or pregnant women.

When we asked participants about their understanding of the Muslim position on smoking, most said it was makruh, a few said it was haram, and others were uncertain. The MUI's fatwa against public smoking carried little weight. For smokers one reason the message of smoking being haram is not more widely accepted may be cognitive, as smokers may be discounting messages that are dissonant with their behavior.[14] Reference group theory provides additional insight into why the fatwas are not exerting more influence over the population. Individual Muslims in Bogor show status similarity, likely have similar values, and have sustained interaction with the Muslim community, but there were mixed findings as to how significant individuals deem Muslim leaders' pronouncements. On matters of smoking, people saw leaders who smoked as not credible. Additionally, individuals have received differing messages about the acceptability of smoking from various local and national religious leaders. This lack of clarity is also predicted to reduce the groups' influence on individuals. Reference group theory suggests that the MUI's influence could be increased by addressing the smoking

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leaders' lack of credibility on smoking and seeking out a more uniform Muslim message on smoking. Tobacco control advocates can make the case that things that are makruh truly should be discouraged rather than accepted as normal. Although the traditionalist ustads may not agree that all smoking is haram, they would at least agree that it is makruh, and perhaps would support an indoor smoking ban on the grounds of not harming or annoying other people. An ustad who is explicit that he only smokes outdoors could have credibility regarding smoke-free laws. Local ustads may have more influence than national organizations.

The refrain of "it depends on the individual" as to whether to follow religious leaders' pronouncements on smoking was somewhat unexpected as Indonesian culture is collectivist and Islamic culture is both collectivist and proscriptive. However, this sentiment fits with the view among scholars that Islam in Indonesia is especially moderate and tolerant.[31] Muslims in Bogor vary in their religious observances (e.g., daily prayer, wearing of hijabs) and are tolerant of these differences in practice. However, local Muslim leaders do appear to have some influence and to have had some impact on smoking perceptions and behaviors. The fatwas have supported nonsmokers in their nonsmoking behavior and desire for smoke-free air, and at least some smokers said that fatwas influence their decisions on smoking. These findings are similar to research among Malaysian Muslims, of whom 30% agreed that anti-smoking messages from their religious leaders would motivate them "a lot" to quit smoking.[14] Smokers in our focus groups were reflective about the appropriate places and settings for smoking and did not want to disturb people around them. Religious and city leaders could build on the smokers' desire to be respectful along with the nonsmokers' willingness to socially enforce the law. Efforts to increase social enforcement of the law may make up for the city's sparse legal enforcement. As noted earlier, research in neighboring Malaysia suggests that where secular norms are not strongly

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against tobacco, a religious norm restricting tobacco use can be powerful.[10] In Bogor, public health officials could talk more with local Muslim leaders about supporting the smoke-free law. Religious leaders can explain to their members that the MUI fatwa and the city law do not forbid all smoking, but they do forbid it in indoor public places. Both for religious and legal reasons, ustads should strictly enforce the smoke-free law on mosque grounds, and doing so could improve their credibility when speaking about smoking.

Limitations

The focus group participants were recruited using a convenience sample and therefore transferability of the findings may be limited. However, we did stratify the groups to gather a diversity of perspectives, and we approached saturation, with few new findings in the later focus groups. A measure of religiosity could have told us more about our sample population. In addition, we did not talk with local ustads. Such conversations would likely have been helpful to our understanding of how and why the MUI fatwa has not had more of an impact, and how local and national Muslim leaders interact. Finally, the data analysis was conducted using translated data, and nuances of language and culture may have been missed, although this was mitigated by regular communication with the facilitators and translators during the analysis phase about unclear phrasings and cultural references.

Future work

Our research indicates that the effects of the Indonesian fatwas alone are limited. Similarly, in Egypt simply being aware of a fatwa against smoking did not affect smoking behavior.[3] The public health community may need to focus on recruiting willing local religious leaders, who may be more influential, to support smoke-free laws. Both public health and religious leaders have the shared goal of bettering the well-being of their constituencies.[15]

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Surveys could be conducted to measure people's awareness of the positions of their religious leaders and their interest in hearing local religious leaders speak more on the issue of tobacco use. Also, where it is culturally acceptable, it may be worthwhile to conduct pilot testing of health messages which cite religious justifications. Messages could suggest that good Muslim men are responsible and do not smoke near others,[32] and that all parents should speak up to smokers to protect their children from smoke.

Conclusion

The MUI and Muhammadiyah fatwas about smoking have had limited impact in Bogor, and appeared to function mostly in reaffirming nonsmokers in their not smoking. However, religious normative influences were apparent and participants said they would like their religious leaders to talk more about the smoke-free law. These findings suggest the need for further research and experimentation in how tobacco control officials can work with religious communities on shared goals of public wellbeing. In countries where there are limited resources for smoke-free law education and enforcement, religion-backed and socially-enforced smoke-free norms may be a valuable supplement.

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Competing interests:

All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare no support from any organisation for the submitted work, no financial relationships with any organisations that might have an interest in the submitted work in the previous three years, and no other relationships or activities that could appear to have influenced the submitted work.

Contributors: MJB led project design, data collection, analysis, and writing. DHJ, JEC, JG, and SF assisted with project design, data collection oversight, revising, and final review. RN assisted with data acquisition and interpretation, revising, and final review.

Ethics approvals: The study was approved by the City of Bogor and the institutional review boards of the Johns Hopkins Bloomberg School of Public Health and the University of Muhammadiyah Yogyakarta.

Data sharing statement: No additional data available.

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COREQ Guide for "The influence of religious organizations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study "

Domain 1: Research team and reflexivity

Personal Characteristics

No	Item	Guide questions/ description	Response
1	Interviewer/ facilitator	Which author/s conducted the interview or focus group?	Ms. Nuryunawati and three other researchers conducted the focus groups under the supervision of Dr. Byron and Dr. Jernigan.
2	Credentials	What were the researcher's credentials? E.g. PhD, MD	Drs. Cohen, Frattaroli, Gittelsohn, and Jernigan have PhD's. Mr./Dr. Byron has a master's degree in health science (MHS) and worked on this study as part of his doctoral work; he has since received his PhD.
3	Occupation	What was their occupation at the time of the study?	Drs. Cohen, Frattaroli, Gittelsohn, and Jernigan are faculty at the Johns Hopkins Bloomberg School of Public Health. At the time of the study, Dr. Byron was a PhD student within the school and Ms. Nuryunawati was a part-time employee of No Tobacco Community (an NGO in Indonesia) and an independent researcher.
4	Gender	Was the researcher male or female?	Dr. Byron, Dr. Gittelsohn, and Dr. Jernigan are male. Dr. Cohen, Dr. Frattaroli, and Ms. Nuryunawati are female. The other focus group facilitators included two males and one female.
5	Experience and training	What experience or training did the researcher have?	Dr. Byron has taken graduate-level coursework in the design, conduct, and analysis of qualitative research. Dr. Gittelsohn mentored the qualitative research aspects of the project and has over 20 years of research experience within the field. Dr. Byron lived in Indonesia for the 4 months of this study and has basic language and culture training in Bahasa Indonesia.
	Relationship with participants		
6	Relationship established	Was a relationship established prior to study commencement?	The focus group facilitators also did the recruitment for the study. Therefore, participants may have met their focus group facilitators briefly in recruitment. Otherwise, there was no prior relationship.
7	Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Participants were told in the informed consent process and at the start of the focus groups that this project was being conducted by the Johns Hopkins Bloomberg School of Public Health to understand the meaning and experience of the development and implementation of a smoke-free law in Bogor. In some of the focus groups, the facilitator mentioned that Mr. Byron was a doctoral student at the School.
8	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Characteristics of the facilitator were not explicitly mentioned other than their roles (facilitator, notetaker).

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Domain 2: study design			
Theoretical framework			
9	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Thematic content analysis.
Participant selection			
10	Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Convenience sample, purposively sampling for variation in gender, age, and smoking status.
11	Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Face-to-face.
12	Sample size	How many participants were in the study?	89 participants.
13	Non-participation	How many people refused to participate or dropped out? Reasons?	115 participants were recruited, of whom 26 did not show up to the focus group sessions.
Setting			
14	Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Two public shopping areas in Bogor, Indonesia.
15	Presence of non-participants	Was anyone else present besides the participants and researchers?	No.
16	Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Gender: 43 female, 46 male. Ages: 18 to 50. Enthicity: All Indonesian. Religion: 87 Muslim, 2 declined to provide their religious affiliation. Date of focus groups: July, 2012.

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Data collection

No.	Item	Guide question	Response
17	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Focus group guides were developed by Dr. Byron under the guidance of Drs. Cohen, Frattaroli, Gittelsohn, and Jernigan. The guides were then reviewed and informally tested by the Indoneisan focus group facilitators before use.
18	Repeat interviews	Were repeat interviews carried out? If yes, how many?	No.
19	Audio/visual recording	Did the research use audio or visual recording to collect the data?	Digital audio recordings.
20	Field notes	Were field notes made during and/or after the interview or focus group?	Yes, field notes were made during and after the focus groups.
21	Duration	What was the duration of the interviews or focus group?	Mean of 126 minutes (range: 81 to 160 minutes).
22	Data saturation	Was data saturation discussed?	Yes, saturation was considered and is discussed in the manuscript.
23	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No.

Domain 3: analysis and findings

Data analysis

No.	Item	Guide question	Response
24	Number of data coders	How many data coders coded the data?	1 (Dr. Byron).
25	Description of the coding tree	Did authors provide a description of the coding tree?	Yes, the coding scheme is discussed in the manuscript.
26	Derivation of themes	Were themes identified in advance or derived from the data?	Under each of the a priori research questions, the themes were derived from the data.
27	Software	What software, if applicable, was used to manage the data?	ATLAS.ti 7.0 (ATLAS.ti GmbH, Berlin).
28	Participant checking	Did participants provide feedback on the findings?	No.

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Reporting

No.	Item	Question	Response
29	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. participant number	Yes quotations were used to illustrate themes/findings. The gender and smoking status of the speaker is given for each quotation.
30	Data and findings consistent	Was there consistency between the data presented and the findings?	Yes.
31	Clarity of major themes	Were major themes clearly presented in the findings?	Yes.
32	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes, both minor themes and variations in responses were noted.

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JHSPH Institutional Review Board

RESEARCH PLAN

PI: David Jernigan, PhD; Associate Professor; Health, Behavior & Society
Study Title: Understanding implementation of a smoke-free law in Bogor, Indonesia
IRB No.: 4362
PI Version Number/Date: July 23, 2012

1. Aims/objectives/research question/hypotheses:

Study aim: The aim of this study is to describe the meaning and experience of the development and implementation of a smoke-free law in Bogor city, Indonesia, from the perspective of key government and NGO leaders, venue managers, and city residents.[i]

Research questions

1. How did Bogor's leadership take social and cultural context into account in implementing the smoke-free law?
2. Learning from Bogor's experience, how should international best practices for the implementation of smoke-free laws be modified to take into consideration social and cultural context?
   2a. What role has the association of smoking with masculinity played in affecting implementation of the law?
   2b. What role have the messages from Muslim organizations played in affecting implementation of the law?
   2c. What other aspects of the social/cultural environment are important?
3. What is the relationship between the new smoke-free law and the normative environment and what steps can be taken to shift the norms to align with the law?
   3a. What are the current perceived injunctive norms and descriptive norms around smoking in public places in Bogor?
   3b. How have these norms changed since the enactment of the law?
   3c. What leverage points can be used to further move the norms to align with the law?

2. Background and rationale:

Tobacco in Indonesia

Exposure to tobacco smoke is a large and increasing public health problem in Indonesia, where 65.6% of males and 5.2% of females 15 and older smoke (WHO, In press). An estimated 98 million adult and children nonsmokers are regularly exposed to secondhand smoke (SHS) in their homes (Indonesia Ministry of Health, 2004). Most of the cigarettes smoked in Indonesia are *kretek*s, or clove cigarettes, which contain higher levels of tar and nicotine than most non-clove cigarettes. There is little public awareness of the risks of SHS (Achadi, Soerojo, & Barber, 2005). On the national level, the tobacco industry is politically strong and has effectively argued that tobacco control is unaffordable to the country both financially and in terms of employment (Achadi, et al., 2005). Therefore the national tobacco control program is minimal. However, some progress is being made in smaller jurisdictions. The first city to pass a comprehensive smoke-free law was Bogor, a metropolis of 950,000 located in West Java, 60 km south of Jakarta. In 2009, Bogor's city parliament passed Local Regulation 12 banning smoking in all workplaces, schools, hospitals, restaurants and most other public places. The law took effect on May 31, 2010. Although compliance with the law was initially low, the continued

[i] For the purpose of this study, "city residents" is used broadly to mean people-on-the-street, and thus includes tourists.

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enforcement and education efforts have improved the situation, with a 2012 inspection of 4,343 venues finding proper signage and no evidence of smoking (active smoking, smell of smoke, ashtrays, cigarette butts) in 81% of venues. Venue types that have been most difficult to achieve compliance in include restaurants (56% compliance in 2012), government offices (64%), and night clubs/bars (64%) (Bam, 2012).

Related research

Previous qualitative studies have revealed the deep meaning and complexity of tobacco use in Indonesia. Ng and colleagues conducted 6 focus groups with boys ages 13-17 in Central Java (total n=50) to learn about their beliefs, norms, and values regarding smoking (Ng, et al., 2007). The researchers found that smoking was considered part of the Indonesian culture, an integral part of manhood, and was not considered harmful because it is ubiquitous. In another study, as part of a multi-faceted tobacco cessation and control project in Yogyakarta (a large city in Central Java), Nichter and colleagues (2009) conducted interviews with 30 male smokers ages 21-40 to understand the cultural knowledge and meaning surrounding smoking. The research group also conducted 4 focus groups (6-8 individuals in each) with male smokers regarding cigarette package design and advertising and 8 focus groups (6-10 individuals in each) regarding the development of counter-advertising messages (Nichter, Padmawati, et al., 2009). The research showed that smoking was considered a way to control emotions, enhance masculinity, and uphold traditional values while showing modernity and an international image. The team also surveyed 530 households in Yogyakarta, interviewing men and their wives separately (Nichter, Padmawati, & Ng, 2010). The findings highlighted numerous social and cultural barriers to reducing smoking in homes. Men expressed concerns about the social difficulties they would face if guests came and expected to be able to smoke. Some interviewees thought that it was good to expose children to smoke, so that they would not be bothered by it in places where there was smoking (Nichter, Nichter, et al., 2009). It was also believed that drinking water could flush cigarette toxins out of the body, that a person will be fine as long as they smoke a brand of cigarettes that is suitable for his body, and that some brands of kreteks are beneficial for people with respiratory illness (Nichter, 2006; Nichter, Nichter, et al., 2009). The general thinking was that smoking in moderation is fine for healthy people (Nichter, Nichter, et al., 2009). Indonesia is a predominantly Muslim country and messages from Muslim leaders have been mixed. The largest Muslim organization has said that smoking is to be discouraged but has also launched their own brand of kreteks with plans for selling them in religious settings.

In our literature review, we did not find any qualitative studies about implementation of smoke-free laws in Indonesia. However, such studies have been done in other countries. For example, in Lebanon, researchers conducted interviews and focus group discussions with management, staff, and clients at 9 hospitality venues and 9 workplaces where smoke-free policies were voluntarily enacted to understand the barriers to successful implementation (Nakkash, Khalil, Chaaya, & Afifi, 2010). In Scotland, a study using pre- and post- smoke-free legislation interviews with 62 bar patrons explored the tension between the social benefits of smoking and a new smoke-free law (Heim et al., 2009). In Armenia, after a smoke-free law was passed, researchers conducted a mixed methods study that included 3 focus groups of government officials and businesses to look at awareness of the risks of SHS and the new law (Movsisyan, Thompson, & Petrosyan, 2010).

Gaps to be addressed

Considering the mixed results of Bogor's smoke-free law and the complexity of smoking perceptions and cultural meanings in Indonesia, there is a great need for a qualitative study about the implementation of the smoke-free law. The proposed study uses interviews and focus groups with key leaders, venue managers, and city residents to develop an understanding of the social and cultural meanings of Bogor's

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smoke-free law and the social norms around smoking in public spaces. The study has three primary goals: (1) to understand how social and cultural meanings were taken into consideration in implementing the law in Bogor; (2) to consider whether current international best practices in the implementation of smoke-free laws (e.g., WHO, 2007), which were developed primarily in Western countries, should include more consideration of social and cultural settings; and (3) to examine the current social norms related to smoking in public places and how these norms may be shifted to support the law. The findings from this project will benefit implementation of the law in Bogor and be of use for other Indonesian jurisdictions considering similar laws. They will also benefit the international community in broadening the understanding of how smoke-free laws can be more effectively implemented in developing countries.

3. **Participants**:

a. Describe the study participants and the population from which they will be/were drawn.

All interviewees and participants will be adults ages 18 or older.

There are 3 groups of participants:
Key leaders (interviews, n=25-45 people) – Government and NGO leaders involved in the development and implementation of the smoke-free law in Bogor. These leaders will be interviewed in the capacity of their official work to understand the top-down perspective of the implementation of the law. The list of interviewees below is based on suggestions from the Bogor City Health Department, and will be grown via snowball sampling. We will seek to speak with leaders from the following organizations:

Bogor City
Mayor's Office
City Parliament
Health Department
Legal Department
Public Order Police
Transportation Department

Local NGO's
No Tobacco Community
Lanskip

National/International NGO's
International Union Against Tuberculosis and Lung Disease
Tobacco Control Support Center

Religious Organizations
Indonesian Ulama Council
Muhammadiyah
Nahdlatul Ulama

Professional Organizations
Indonesian Doctor's Association
Hotel and Restaurant Association

Media
Radar Bogor newspaper
Jakarta Globe newspaper

Industry
Representatives from tobacco companies or trade organizations

Venue managers (focus groups/interviews, n =15-20 people) – People who manage venues that are under the purview of the new law. These managers will be interviewed in focus groups (and/or interviewed individually) to understand their perspective as the ground-level implementers/enforcers of the law. Individuals to include are: restaurant managers, entertainment venue managers, individuals in charge of enforcing the law in city offices, etc. These managers will be found by talking with the Bogor City Health Department about venues where implementation has been especially difficult, and visiting these locations to see if a manager is willing to participate.

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City residents (focus groups, n=80-120 people) – Adult residents or tourists in Bogor city. These people will be in focus groups that seek to understand their perspective as people obligated to follow the new smoke-free policy. Each focus group will have 6-10 people. There will be 8-13 focus groups, as follows:

From one shopping area

- male smokers, ages 18-25 (2 groups)
- male smokers, ages 26 and older (2 groups)
- male non smokers, mixed ages
- female smokers, mixed ages
- female non-smokers ages 18-25 (1 group)
- female non-smokers ages 26 and older (2 groups)

From a second shopping area

- male smokers, mixed ages
- female non-smokers, mixed ages

From residential neighborhood (called a *kampung*)

- male smokers and non-smokers, ages 50+
- female smokers and non-smokers, ages 50+

Due to the strong gender norms and the fact that smoking is a predominantly male activity, the division by smoking status and gender will be important in creating a comfortable and interactive focus group setting. The age divisions were decided so as to reasonably separate different generations, which, having grown up in vastly different political and social climates are expected to have widely differing views. The order of groups will be alternated by gender so that we can learn from prior focus groups and adjust questions as needed. To ensure we include the perspective of the elders of society (who are hard to recruit in shopping areas), two groups of adults ages 50 and older will be recruited from and held in a *kampung* (lower- to middle-class residential neighborhood). Even with these changes, the total n for residents will be under 120, because average attendance at the already conducted groups was 8 people per group.

b. Describe any screening procedures and any inclusion or exclusion criteria.

Key leaders- No screening procedures; interviewees will be chosen purposively via snowball sampling from a starting list developed by the investigators with the aid of the city health department.

Venue managers- No screening procedures; the student investigator and a translator will visit selected venues where compliance is low to see if the manager would like to participate.

City residents- We will use convenience sampling to recruit city residents from public places and venues. Residents will be told about the study and then, if they express interest, the translator will review a brief written checklist for the following criteria:

Inclusion criteria: gender, age, and smoking status as needed for the focus groups described above in section 3.a.

Exclusion criteria: age under 18 years, employment by a tobacco company at a level higher than street-level retailing.

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Rationale for exclusion criteria: the age restriction is to ensure interviewees can provide informed consent and the tobacco company restriction is to avoid the possibility of a tobacco industry professional swaying the natural direction of the discussion.

c. Provide sample size and a clear justification as to how you arrived at your projected sample size.

In a qualitative study, sample size is chosen to be able to thoroughly explore the proposed research questions, not to achieve a certain level of statistical significance. The sample size estimates proposed for this study are based on average sizes from previous qualitative studies and to represent a range in age, gender, and smoking status.

Sample sizes

Component	Method	No. Groups	Group Size	Total n
1. Key leaders	Interviews	25-35	1	25-45
2. Venue managers	if Interviews	15-20	1	15-20
	if Focus groups	1-2	6-10	
3. City residents	Focus groups	8-13	6-10	80-120
Total				**120-185**

Note [added 4-25-12]: We would prefer the venue managers with focus groups so as to see group-level interactions and dialogue. However, if we find that venue managers are too busy or recruitment is excessively challenging, we may use one-on-one interviews instead of, or in addition to, the focus groups. Regardless of the method, the total n will be 15-20.

Key leaders (n=25-45) – Working from a starting list of 18 organizations informed by the Bogor City Health Department, we anticipate interviewing representatives from 25-30 organizations to obtain a reasonably complete picture of the leadership perspective on the smoke-free law. In some cases, we may interview more than one person at the organization.

Venue managers (n =15-20) – Based on previous studies (e.g., Movsisyan, Thompson, & Petrosyan, 2010), interviews or focus groups with 15-20 business leaders is expected to reach a sufficient level of saturation to understand the perspective of venue managers regarding the smoke-free law.

City residents (n=80-120) – Based on previous studies (e.g., Nichter, Padmawati, et al., 2009; Ng, et al., 2007), 8-13 focus groups with 6-10 individuals in each is expected to reach sufficient saturation to understand the perspective of city residents regarding the smoke-free law and enable representation of a variety of ages, gender, and smoking status.

d. Describe whether identifiers will be collected.

We will ask the names and phone numbers of individuals who agree to participate in this study so that we can contact them and remind them about appointment times. Individuals will be given a code number that will be used in all records. The files matching the names/phone numbers with the code number will be encrypted in a separate file from the data files. Once the data collection from city residents and venue managers is completed, the files with their names/phone numbers and the code numbers will be deleted, removing all personal identifiers. This deletion will be done by deleting the original file and all back up files using an algorithmic file-shredding software program (e.g., File Shredder 2.0 or Eraser 6.0.9). The

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file of the code numbers for key leaders will be retained until the analysis is complete in case there is need for follow-up questions.

4. Study procedures:

b. If your study involves contact, direct or indirect, with subjects, provide the following:

1) General study design and methods.

This will be a qualitative study using semi-structured interviews and focus group discussions as the primary research methods. These methods were chosen because they are an appropriate way to collect the type of data we seek: a deep understanding of the complexities around the social and cultural aspects of Bogor's smoke-free law. The interview guides and focus group discussion questions have been developed by the investigators with the guidance of tobacco control professionals in Indonesia and with US researchers who have investigated smoking in Indonesia. A secondary data collection method will be the review of publicly available documents (e.g., legislation) and media materials (e.g., newspapers, posters, advertisements) to gain a background on the smoke-free law in Bogor and triangulate with events as described by the interviewees/focus group participants.

2) Study procedures, including sequence and timing.

Component 1: Interviews with key leaders
The purpose of this component is to learn about the development and implementation of the smoke-free law from the view of the key political and advocacy leaders. This will be done using one-on-one interviews. Individuals to be interviewed are described above in 3.a. Initial contact and scheduling of meetings will be done in ways culturally and organizationally appropriate, working with community contacts (i.e., depending on the interviewee, we will determine the best person to make initial contact with them, and how they should be contacted). The interviews will be arranged at a time and location of the informants' convenience. Before the interview formally begins, informants will be presented with informed consent forms in their preference of Bahasa or English and walked through the form. They will also be asked about the acceptability of audio-recording the interview (if participants prefer, written notes will be taken instead of the audio-recording). The student investigator (M. Justin Byron) will be conducting the interviews with the aid of a Bahasa language translator. The interviews will begin with general questions about the smoke-free law and will continue toward more specific questions relevant to the role of the informant in developing and implementing the smoke-free law. It is expected that each interview will last 45-90 minutes. At the conclusion of the interviews, informants will be thanked, presented with a small gift (a Johns Hopkins keychain, pen, or flash drive), and reminded of how we can be reached should they have any further questions. To enhance data credibility, the write-up from this component will be member-checked with the Bogor City Health Department and other key leaders as needed.

Component 2: Focus group discussions / interviews with venue managers
The purpose of this component is to learn from venue managers about their experience in implementing and enforcing the smoke-free law. Before the focus group discussions begin, we will conduct informed consent procedures and collect demographics (age, religious affiliation, city of residence) and smoking history information. Focus groups will be led by a native Bahasa language speaker trained in qualitative research methods. Questions for the focus groups address the social norms around smoking and the smoke-free law, how the managers are finding their responsibilities as mid-level enforcers of the law, and their suggestions about how to improve the implementation of the law. The focus groups will be digitally audio-recorded. In the focus groups, aside from the discussion facilitator, a second native

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Bahasa speaker will manage the recording equipment and take field notes regarding who is speaking and nonverbal communication. Depending on the results of the focus groups, we may also decide to conduct one-on-one interviews with some of the venue managers, following the same procedures as used for the interviews with key stakeholders. If one-on-one interviews are used, interviewees will also be asked about the acceptability of audio-recording the interview (if participants prefer, written notes will be taken instead of the audio-recording).

Component 3: Focus group discussions with city residents

The purpose of this component is to learn from residents about the experience and meaning of the smoke-free law from their perspective. Focus groups will be held in a location which is easily accessible, unimposing, and comfortable, such as a meeting room at a local hotel or restaurant. Before the focus group discussions, we will conduct informed consent procedures, and collect demographics (age, religious affiliation, city of residence) and smoking history information. Focus groups will be led by a qualitatively-trained native Bahasa language speaker. Questions will revolve around individuals' perspectives on the health risks of tobacco use, the social norms around smoking, how well participants would say the smoke-free law is being followed, and what they would suggest is needed to strengthen the law. Focus groups with also include the technique of photo elicitation (Harper, 2002), showing participants photos of various environments and social interactions and asking whether participants approve of smoking in each environment, whether they themselves would smoke in that environment, and whether they think the law legally applies in that environment. The focus groups will be digitally audio-recorded. In the focus groups, aside from the discussion leader, a second native Bahasa speaker will manage the recording equipment, and take field notes of who is speaking and nonverbal communication.

Document and media review

Working with a translator, the student investigator will review the smoke-free legislation wording and other available documents about how the smoke-free law was developed and implemented. The investigator will also review media coverage of the smoke-free policies. These materials will be translated from Bahasa to English as needed during this process.

Timing: We plan to conduct the interviews with key leaders first, followed the focus groups with city residents and then the with venue managers. In this way, we will obtain background information from the leaders that may be useful in informing the focus groups. After the focus groups, we may then conduct second-round interviews with some key leaders, with the findings from the focus groups able to guide follow-up questions. Document review will be ongoing throughout the project.

3) Number of study contacts or visits required of participants.

Key leaders-The first point of contact will be asking for the participation of the key leaders, and scheduling the interview. The interviews will be scheduled within a few weeks of the first contact, dependent on the availability of the interviewee. The second and possible third points of contact will be the interviews. Informants will be interviewed one or two times, depending on the degree of their involvement with the smoke-free law and the investigator's determination (and participant's willingness) of the need for a follow-up interview to clarify earlier points or ask about information learned after the first interview.

Venue managers- The first point of contact will be asking the venue managers for their participation, and scheduling a time for an interview or focus group discussion. The focus groups or interviews will be scheduled within a few weeks of the first contact, dependent on the availability of the manager. The next

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contact points will be the interviews or focus groups. Most venue managers will be in focus groups or interviews once. Depending on the findings of the investigators, some managers may be asked for a second interview or focus group discussion. The second interview/focus group discussion will likely be conducted within a few weeks of the first interview, maximally within three months.

City residents- There will be two contacts with residents- the first to solicit their involvement, and the second one for the focus group itself. The focus groups will be scheduled within a few weeks of the first contact, dependent on the availability of the residents. At this time, we do not anticipate asking participants to return for a second focus group.

4) Expected duration of the study.

It is anticipated that this study will involve 3-4 months of fieldwork and one year of analysis and write-up. The data repository will be maintained until it is no longer needed for journal submissions (maximally 5 years after data collection).

5) A brief data analysis plan and description of the nature of the variables to be derived.

Interviews and focus groups will be recorded, transcribed and translated into English. These transcripts will be analyzed using ATLAS.ti qualitative data analysis software. Predetermined and emergent themes will be extracted in an iterative process as needed to answer the research questions. Predetermined themes that will be explored include discussion of social norms, cultural and social meaning around smoking and the smoke-free law, and suggestions for how the law can be improved.

5. Data Security and Protection of Subject Confidentiality

a. **Will the study data stored in the United States be protected by a Certificate of Confidentiality?**

We do not plan to request a Certificate of Confidentiality.

b. **Identify the data security plan below that best describes how you will minimize the risk of a breach of confidentiality by typing an X in the appropriate box on the left side of each section (A, B, C) of this chart.**

	A. Hard copies of data collection forms:
	The study collects data that are anonymous; no personal identifiers are recorded or retained from any study participants in either direct or coded form.
	Hard copies of data collection materials have identifiers and are locked in a secure cabinet or room with limited access by specified individuals. COPIES WILL BE KEPT IN INVESTIGATOR'S POSSESSION DURING TRANSPORT. When possible, redacted (de-identified) versions of the data collection sheets will be used for coding and analysis.
X	Hard copies of data collection materials include an ID code but do not have personal identifiers. However, a code linking the data to the subject's personal information is stored separately from the data collection sheets, and is either stored in a secure electronic database, and/or locked in a secure cabinet or room with limited access by authorized individuals. CODE WILL BE KEPT IN INVESTIGATOR'S POSSESSION DURING TRANSPORT.
	Data are not collected on paper.
	Other (describe):
	B. Electronic Databases:

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	The study collects data that are anonymous; no personal identifiers will be recorded or retained from any study participants in either direct or coded form.
X	Personal identifiers are included in the database. If breach of confidentiality poses more than minimal risk to participants because data are personally sensitive in nature (for example, involve substance abuse, mental health, genetic propensities, sexual practices or activities), access to identifiers will be restricted. These data are stored on a secure server protected by strong password, and will be only accessible by authorized study personnel. Data will be coded when possible. Identifiable data transferred or stored via portable electronic devices (e.g., laptops, flashdrives) will be encrypted. The devices on which this information is stored are accessible only to individuals who need access to these data.
X	Other (describe): Note: as a secondary backup (beyond the encrypted external hard drive), data will be uploaded to a password-protected cloud-based backup system (SugarSync).
	C. Analytic Datasets:
	The study collects data that is anonymous; no personal identifiers will be recorded or retained from any study participants.
X	Electronic database will be managed by a specific data administrator (PI or other designated person) who will track and log issuance of analytic datasets, and return/removal when approved use ends. Access to analytic datasets will be subject to conditions established by the PI. Electronic analytic datasets will be provided to authorized study personnel, or approved investigators outside the study, with the same data protection requirements established for the study database.
	Other (describe):

c. If you are using participants' personal identifiers, describe any plans for disposing of identifiers including if, when and how that will be done.

Once focus group data collection is completed, the file linking names and code numbers for focus group participants will be deleted because there will be no practical need for this information. The file linking key leader interviewees with code numbers will be kept until the study write-up is competed because these leaders are being interviewed in their official capacity and about their (and their organization's) role in relation to the new law. It will be important to know which leaders said what in the interviews as they describe their role in the larger process of the law's development and implementation.

d. Describe any plans for destroying data including if, when and how that will be done.

Aside from the deletion of identifiers as described in 6.c. above, the other data (notes, transcriptions, audio recordings, etc.) will be deleted (if electronic) or cross-cut shredded (if paper) after the write-up of the study.

6. Recruitment process:

a. Describe how, and from where, participants will be recruited.

Key leaders- The student investigator will meet with the Bogor City Health Department to solicit a list of suggested leaders to interview. He will ask the health department about whether it is appropriate to solicit the involvement of the leader personally, or if it should be done via the health department or some other intermediary. Using the method of snowball sampling, after the interview of each leader, we will ask who they suggest we include in the list of people to be asked for interviews.

Venue managers- The student investigator will ask the Bogor City Health Department about venues where compliance with the law is low. The student investigator and a translator will then visit these venues and quietly ask to speak with a manager, and inform them of the project and ask if they would like to participate.

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City residents- The student investigator and a translator will go to venues where compliance with the law is low and approach every N entrants to the venue, inform them of the study, ask if they would like to participate, and schedule a time for their focus group. If the Nth entrant is clearly not needed for the remaining focus groups (e.g., if the remaining groups are women and the Nth entrant is a man), then the next entrant will be asked instead. For the FGD's in the kampung, the student investigator will work with a local leader of the kampung to recruit participants in a way that is culturally-sensitive and not coercive.

Explain how your recruitment materials will be used.

As noted in 6.a., recruitment will be done on the personal contact level and therefore there will not be recruitment materials other than a checklist of inclusion criteria and a list of contact information for participants who choose to enroll in the study.

b. If relevant, address any privacy concerns associated with the recruitment process.

Key leaders, venue managers- There are minimal privacy concerns around recruitment of the key leaders and venue managers, as they will be approached one-on-one. Furthermore we are interviewing these participants in the official capacity of their work, and such leaders are often contacted by people for various reasons, so their being contacted by us will not seem unusual.

Venue managers- People around the venue manager may notice our approaching them, but we will do so in an inconspicuous way, and try not to draw attention to ourselves or the managers.

City residents- The privacy concern that could exist around recruitment is that we will be soliciting people's involvement in a public setting, possibly around their friends or associates. It is felt that this privacy concern is minimal in that we will make clear their selection is random within purposively chosen venues. If participants are interested in the study, we will conduct the screening protocol out of earshot of people they attended with, so that they will have some privacy when answering the screening questions.

7. Consent process and documentation:

a. If you will obtain informed consent from participants, identify the countries where the research will take place and the languages into which each consent document will be translated.

Country(ies)	Consent Document (Indicate "All", or specify each document when translations vary)	Languages
Indonesia	All	Bahasa Indonesia

b. Describe who will obtain informed consent from participants, and how, when and where consent will be obtained.

Informed consent will be obtained by the student investigator with the aid of a translator. The student investigator has completed ethics training coursework at JHSPH and has completed CITI. For interviews, which take place at a location of the interviewee's choosing, informed consent will be obtained at the start of the interview, and care will be taken to ensure participants have the time and

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privacy to fully understand the informed consent process and ask any questions. For focus groups, which take place at a venue chosen by the investigators, informed consent will take place before the start of the focus group sessions. Focus groups participants will be walked through the informed consent process individually and given the privacy and time to make a thoughtful choice and the opportunity to ask questions about the project or consent process.

c. If the study will involve vulnerable populations (e.g., children, prisoners, cognitively impaired adults, non-English-speakers, etc.) describe efforts to ensure their understanding of the research and the extra protections that will be in place to ensure their voluntary participation.

Not applicable, the study does not involve vulnerable populations.

d. If a waiver of consent or a waiver or alteration of signed consent is requested, provide a justification for the waiver/alteration, and describe any alternate procedures for informing participants about the research.

Not applicable, no waiver or alteration of consent is requested.

8. Risks:

a. Describe the risks associated with the study and its procedures, including physical, psychological, emotional, social, legal, or economic risks.

The risks associated with this study are expected to be minimal. It is unlikely that participants would face any physical danger from their involvement in the study. It is possible they could face some psychological, emotional, or social harm if they say something in the interview or focus group that is personal, is critical of the government, or is critical of the tobacco industry. While smoking in designated public venues is illegal, it is a minor offense, and the discussion of people's experiences smoking in public or seeing others do so is not anticipated to have legal consequences.

b. Describe the anticipated frequency and severity of the harms associated with the risks identified in 8.a.

These harms are expected to be infrequent, not severe, and not long-lasting.

c. Describe steps to be taken to minimize those risks.

Participants will be informed multiple times during the consent process that they do not have to answer any questions they do not want to and can stop the interview or exit the focus group at any time.. For the focus groups, we will ask that participants maintain confidentiality of the groups' comments but we will explain that we cannot guaranty this confidentiality, and therefore participants should not make comments they do not feel comfortable making. We will ask participants to refrain from using the names of specific individuals in the discussions.

We will also talk with the official in charge of the enforcement efforts to reinforce that this is a general research project, not a compliance study. No data identifying individuals or specific venues will be shared with city officials.

d. Describe the research burden for participants, including time, inconvenience, out-of pocket costs, etc.

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The research burden for interviewees will be 1-2 hours of their time (or 3-4 hours if they participate in a second interview). There will be minimal inconvenience and out-of-pocket costs because the location and time of the interview is of the interviewees' choosing. The research burden for focus group participants will be 1-2 hours of their time, and minor inconvenience because we will be using a publicly accessible location and will look to select a focus group time that works well for the participants. If focus group participants will need to take public transportation to get to the venue then we will offer reimbursement of these costs.

e. Describe how participant privacy will be protected during data collection if sensitive questions are included in interviews.

The interviews and focus groups are not expected to elicit sensitive information from the participants. Paper documents and electronic files including audio recordings will be kept in the possession of the student investigator and will be locked/password-protected/encrypted as soon as possible after the interview/focus group.

9. Benefits:

a. Describe any potential direct benefits to participants from participating in the research (not including payment for participation).

Key leaders- The key government and NGO leaders may find that the opportunity to talk about their experiences, both positive and negative, is useful in helping them reflect on the smoke-free law so far and their plans for the future. Talking about their role in the work and positive experiences may reinforce a sense of pride, while talking about the challenges may be helpful in having them verbalize and reflect on what is not working well and perhaps what can be done to improve things.

Venue managers- Venue managers have been involuntarily given the role of mid-level implementers of the policy (they must enforce smoking bans within their establishment). The recognition of their importance and the chance to verbalize their experiences may be empowering to the venue managers. In focus groups, they may find it helpful to learn about the experiences of their peers and share ideas with each other. At the conclusion of the focus groups or interviews, venue managers will be offered information from the city health department on the stipulations of the law, and if they like, on smoking cessation.

City residents- City residents may feel appreciated by their inclusion in this research and the opportunity to share their perspectives. They may also benefit from the experience of talking about this issue with others in the focus groups. It is possible that spending designated time talking about the smoke-free law could be supportive in terms of empowering individuals to feel more comfortable asking people who are smoking in public not to do so and for smokers to consider cessation. At the conclusion of the focus groups, residents will be given a handout overview of what the law entails and their rights under the law. They will also be offered information on smoking cessation.

b. Describe potential societal benefits likely to derive from the research.

The information gathered from this research will likely be of benefit to Bogor, to other Indonesian cities, and to the broader international tobacco control movement. The results of the multi-faceted data collection of Bogor's law will provide the city's smoke-free law implementers with a rich perspective on how the current law is perceived and how it may be improved; they may learn things from this study that they had not known otherwise. Other Indonesian cities considering smoke-free laws may benefit from reading about the lessons learned from Bogor's experience. The international smoke-free movement will

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also benefit in learning about whether more effort should be placed on looking at the social and cultural environment of new smoke-free laws. The research community may also benefit from more information for theory development and frameworks around smoke-free law implementation, social and cultural issues, and social norms change.

10. Payment:

a. **Describe the form, amount, and schedule of payment to participants.**

In line with cultural norms, the key leaders and venue managers will be given a small gift (their choice of a Hopkins branded keychain, pin, metal pen, or USB flash drive, valued at 5-10 USD, or an equivalent value local gift) in appreciation of their time. Interviewees participating twice will be offered a second gift of similar value. City residents will be given cash remuneration of 75,000 IDR (approx. 8.25 USD) in exchange for 1-2 hours of their time and the inconvenience of having to go to the focus group venue at a particular time and date. This amount was chosen based on dialogue with other public health researchers to be in line with similar research in the region.

b. **Include the possible total remuneration and any consequences for not completing all phases of the research.**

Since key leaders or venue managers may be interviewed twice, they may end up with a total of two gifts with a total value of 10-20 USD. City residents will only be participating in one focus group session and will therefore receive a total of 75,000 IDR. Venue managers and city residents will receive their compensation if they participate for at least 60 minutes (the minimum expected time for most interviews and focus groups). Otherwise, they will not receive any payment. Key leaders will be given a gift regardless of the length of the interview (because some interviews may be short if leaders' schedules are tight).

11. Safety monitoring:

a. **Describe how participant safety will be monitored, by whom, and how often.**

Safety monitoring will be done by the primary investigator, David Jernigan. Every two weeks during data collection, a safety/adverse events report will be prepared by the student investigator and submitted Dr. Jernigan.

b. **Describe plans for interim analysis and stopping rules.**

As possible, interview and focus group files will be transcribed on an ongoing basis rather than waiting for the close of all data collection. These transcripts will be reviewed by the student investigator and translator for instances of distress or discomfort on the part of the participant. If any instances are identified, they will be discussed with Dr. Jernigan to determine if they are severe enough to require adjustment of the interview/focus group guides with updated IRB approval, or plans to stop the study.

12. Plan for reporting unanticipated problems/adverse events:

Instances of distress or discomfort on the part of the interviewees or focus group participants will be reviewed with Dr. Jernigan. Based on this review, if it is felt that the instance is an unexpectedly high level of distress or discomfort, a report will be submitted to the local and JHSPH IRB's with a plan for adjustment of the interview guide or proposal to stop the study.

13. Other IRBs/Ethics Review Boards:

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The study has been approved by the research ethics (etika penelitian) board of the Faculty of Medicine and Health Sciences (FKIK) of the University of Muhammadiyah Yogyakarta. Prof. dr. Djauhar Ismail is the chair of the committee; his contact information is:

Contact name: Prof. dr. Djauhar Ismail, SpA (K), MPH, PhD
Phone: (+62) 812 156 9905
Address: Sekretariat Etika Penelitian FKIK
Universitas Muhammadiyah Yogyakarta
Jl. Lingkar Selatan
Tamantirto, Kasihan, Bantul
Yogyakarta
Indonesia

14. Outside collaborations:
JHSPH is the home institution for the study's primary investigator, David Jernigan, and the student investigator, M. Justin Byron, PhD candidate. The University of Muhammadiyah Yogyakarta (UMY) is the local institution that will provide support and local ethics oversight. The Institute for Global Tobacco Control (IGTC) at JHSPH and UMY are collaborating on a project developing the Muhammadiyah Tobacco Control Center (MTCC), a center for tobacco control research in Indonesia that is based at UMY. As part of this collaboration, MTCC has received grant funds from JHSPH IGTC. The research team may occasionally seek the support or guidance of the MTCC staff. There are no other financial arrangements or conflicts of interest between the two institutions.

Roles and Responsibilities Matrix for IRB Application

	JHSPH	UMY
Primary Grant Recipient	Dr. Jernigan (PI) - oversight of project - remote monitoring of steps of project M. Justin Byron (student investigator) - recruitment - data collection - data security - data analysis	

For the following, indicate "P" for "Primary", "S" for "Secondary" as appropriate to role and level of responsibility.

1	Human subjects research ethics training for data collectors	P	
2	Day to day management and supervision of data collection	P	
3	Reporting unanticipated problems to the JHSPH IRB/Sponsor	P	
4	Hiring/supervising people obtaining informed consent and/or collecting data	P	
5	Execution of plan for data security/protection of participant data	P	

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	confidentiality, as described in Sect. 5.		
6	Biospecimen processing, storage, management, access, and/or future use	n/a	

15. Oversight plan for student studies:

The PI will not be on-site during the study but be closely monitoring the project. During data collection, the student investigator, Justin Byron will email daily summaries of activities to the PI, Dr. Jernigan. They will also hold weekly meetings via Skype during which the progress of the research and adherence to ethical standards will be discussed. Dr. Jernigan will also be available on Skype as needed basis to handle problems as they arise. Less formally, a number of local researchers and professionals have been insightful in providing information about cultural norms and suggestions about research methods and local practicalities, and they will continue to be used as a sounding board as relevant to their expertise. To date, these have included Dr. Rubaeaeh and Nanik Soetardi of the Bogor City Health Department, Dr. Adelia Rahmi formerly of the Bogor City Health Department, and in Jakarta Dr. Tara Singh Bam from the Union Against Tuberculosis and Lung Disease, Geni Archnas from the Campaign for Tobacco Free Kids, and Fitri Putjuk and Nada Achmad of JHU-CCP's Indonesia office. Faculty and staff at the University of Muhammadiyah Yogyakarta will also be contacted as needed regarding questions of local research or ethical practices.

16. Oversight plan for studies conducted at non-JHSPH sites, including international venues, for which the JHSPH investigator is the responsible PI:

The project will be overseen by the PI, Dr. Jernigan. As noted above, there will be regular communication between the student investigator and the PI, and other local professionals and researchers will be contacted as needed.

Qualifications of PI: David Jernigan, PhD is an associate professor at JHSPH in the Department of Health, Behavior and Society, and is familiar with international research procedures, with tobacco control policy and implementation, and with Southeast Asian culture.

Advisory committee: The proposed study is the thesis project for M. Justin Byron, MHS. His thesis advisory committee in composed of David Jernigan, Joanna Cohen, Shannon Frattaroli, Joel Gittelsohn, and Kate Smith. Tara Singh Bam, PhD, MPH, based in Jakarta, of the International Union Against Tuberculosis and Lung Disease, will serve an as informal advisor.

Training in human subjects protection and focus group facilitation: The local focus group facilitator and note-taker will have training in human subjects and will have additional training, guided by the student investigator and monitored by Dr. Jernigan. They will be given a copy of, and walked through, the JHSPH Human Subjects Research Ethics Field Training Guide. The student investigator will also train the focus group facilitators in international standards for ethical considerations in qualitative research. This training will be conducted over the course of three half-day sessions. This training will include an overview presentation and discussion, mock informed consent process practice sessions, and mock focus group practice sessions.

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BMJ Open

The influence of religious organizations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study

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Title: **The influence of religious organizations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study**

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ABSTRACT

Objective: To explore the Bogor public's perspective on Muslim organizations' pronouncements against smoking and the effect of these pronouncements on compliance with a new smoke-free law in the context of a pro-smoking social norm.

Design: Semi-structured focus group discussions were conducted, transcribed, coded using ATLAS.ti software, and analyzed using thematic content analysis. Photo elicitation was also used during the focus groups.

Setting: Bogor, Indonesia.

Participants: 11 focus groups (n=89), stratified by age, gender, and smoking status, with members of the public (46 male, 43 female, ages 18-50).

Results: There was limited knowledge of and compliance with both the smoke-free law and the religious pronouncements. In most of the focus groups, smoking was described as a discouraged, but not forbidden, behavior for Muslims. Participants described the decision of whether to follow the religious pronouncements in the context of individual choice. Some participants felt religious organizations lacked credibility to speak against smoking because many religious leaders themselves smoke. However, some nonsmokers said their religion reinforced their nonsmoking behavior and some participants stated it would be useful for religious leaders to speak more about the smoke-free law.

Conclusions: Religious organizations' pronouncements appear to have had a small effect, primarily in supporting the position of nonsmokers not to smoke. Participants, including smokers, said their religious leaders should be involved in supporting the smoke-free law. These findings suggest there is potential for the tobacco control community to partner with sympathetic local Muslim leaders to promote common goals of reducing smoking and public smoke

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exposure. Muslim leaders' views on smoking would be perceived as more credible if they themselves followed the smoke-free law. Additionally, public health messaging that includes religious themes could be piloted and tested for effectiveness. These findings may also inform similar efforts in other Muslim cities implementing smoke-free laws.

Strengths and limitations of this study

- This is the first study to explore the effect of religious organizations' pronouncements about smoking on the public's views about and compliance with a smoke-free law. This question is especially important in low- and middle-income countries where governments may have fewer resources for education and enforcement.
- The use of semi-structured focus groups with everyday Bogor residents allowed for the collection of rich insight into the complexities of religious, legal, and social norms around public smoking.
- The focus groups were stratified by gender, age, and smoking status, allowing for more open dialogue among participants.
- The use of a convenience sample may limit transferability of the findings.
- Since the data analysis was conducted using translated data, some nuances of language and culture may have been missed.

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INTRODUCTION

In the last 20 years Muslim leaders and organizations worldwide have become more outspoken against tobacco use.[1, 2] Their *fatwas* (religious rulings or opinions) forbidding smoking combined with other tobacco control efforts may help reduce smoking prevalence and reinforce emerging secular smoke-free laws that restrict smoking in public spaces.[2-5] A number of studies have shown associations between religiosity and reduced smoking prevalence[6] and potential benefits of religion-based tobacco control interventions.[7-9] In Malaysia, a majority Muslim country where male smoking is generally perceived as socially acceptable, religious norms have been shown to play a greater role than secular norms in influencing quit attempts.[10] These findings are consistent with social norms research showing that people are most likely to be influenced by groups with which they closely identify.[11] According to reference group theory, the degree to which a group serves as an influential reference point for an individual is a function of five factors: similarity in status to the group, sharing the values and beliefs of the group, having clarity about the group's values and beliefs, having sustained interaction with the group, and whether an individual defines other group members as significant.[12-14] This theory is readily applicable to understanding religious influences on smoking behavior.[14] Smokers who identify with a particular religion may look to their religion as their reference group rather than society at large, making religious leaders potentially powerful figures in the success of smoke-free laws.[14] The World Health Organization (WHO) encourages working with religious leaders in tobacco control efforts.[15] However, most investigations regarding smoking and religion have focused on Christianity in high-income countries.[6] The current study explored religion and smoking in the predominantly Muslim (87%) country of Indonesia (pop. 238 million).[16]

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Islam has a strong legal tradition that works to minimize harm to society and individuals.[2] All human affairs are classified as *fard* (mandatory), *mustahabb* (encouraged), *mubah* (neutral), *makruh* (discouraged, not sinful but those abstaining from it will be blessed by God), or *haram* (prohibited). In January of 2009, Majelis Ulama Indonesia (MUI), the government-funded council in Jakarta that includes representation from many Indonesian Muslim organizations, issued a fatwa classifying smoking in public and smoking by children or pregnant women as haram (Table 1).[17] Otherwise smoking was said to be makruh. Among the members of the MUI council are representatives of Indonesia's two dominant social and religious organizations, which oversee thousands of Muslim schools, clinics, and hospitals. At the time, Nahdlatul Ulama (NU), the larger of these organizations, disagreed with the MUI fatwa, saying, "the danger of smoking is relative, not as significant as the danger of drinking [alcohol]. Also, those who smoke have relative benefit, for example, their thinking is clear when smoking."[18] (Recently, NU has become more open to tobacco control, as evidenced by its prohibition on smoking within some of its venues.[19]) In March 2010, Muhammadiyah, the other large Muslim organization, declared all smoking haram for its followers, citing the Quran's prohibition on suicide,[20] "make not your own hands contribute to your own destruction" (2;195).[2] Other Muslim scholars have additionally cited the Quran's statements against causing willful harm or annoyance to others.[1, 2]

Indonesia is a country struggling with a large and growing tobacco problem. With 61.4 million smokers, Indonesia is third only to China and India in number of smokers.[21] Between 1995 and 2011, smoking rates rose from 54% to 67% among men and from 1.7% to 4.5% among women.[21] Additionally, the clove cigarettes (*kreteks*) that comprise most of Indonesian tobacco consumption (92%) may be more toxic than tobacco-only cigarettes.[22] Smoking in

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public places in Indonesia is common: 51% of adults are exposed to tobacco smoke in the workplace, and 85% of restaurant-goers are exposed to smoke in restaurants.[21] There is limited public awareness of the risks of secondhand smoke, especially among smokers, older adults, and less-educated populations.[21]

At the national level, Indonesia has minimal tobacco control measures and is one of the few countries that have not signed the WHO Framework Convention on Tobacco Control. However, some progress is being made in Indonesia's cities. Bogor, a city of 1 million people located 50km south of Jakarta, was the first Indonesian city to pass a comprehensive smoke-free law, restricting tobacco smoking in most public spaces. Bogor is in a province that is 97% Muslim.[16] The 2009 law, which took effect in May 2010, banned smoking in all hotels, restaurants, public markets, malls, places of worship, workplaces, playgrounds, schools, health facilities, and public transportation.[23] The city does not allow indoor designated smoking areas or exemptions. An evaluation in early 2011 found that overall 87% of venues were free of smoke but there was still smoking in 84% of traditional markets, 43% of restaurants, 29% of government buildings, and 11% of places of worship.[24]

To our knowledge, this is the first study to examine how religious anti-smoking pronouncements influence the public's perspectives about smoke-free laws. If the messages are influential, the tobacco control community may benefit from a partnership with religious organizations. This manuscript explores the role of smoking in Indonesian religion and society, what Bogor's residents think about the religious status of smoking and smoking in public, and how the fatwas affect compliance with the smoke-free law in Bogor.

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Table 1: Positions of major Muslim bodies in Indonesia

Name	Type	Members	Decree on smoking (year)
Majelis Ulama Indonesia (MUI)	Muslim leadership body	~700 [17]	Smoking by children and pregnant women and smoking in public is haram (forbidden); otherwise smoking is makruh (discouraged).(2009)
Muhammadiyah	Muslim organization	30 million[25]	All smoking is haram for its followers.(2010)
Nahdlatul Ulama (NU)	Muslim organization	40 million[25]	All smoking is makruh.(2009)

METHODS

In July 2012 eleven semi-structured focus groups were conducted with residents of Bogor. Participants were recruited from a shopping mall frequented by middle-class Bogor residents and an outdoor market where lower-income Bogor residents shop. Shopping areas were chosen because they are safe, accessible public spaces that provide access to a diverse sample of the population. To encourage participants to speak freely, focus groups were stratified by age, gender, and smoking status. Five local researchers were trained in recruitment and focus group facilitation. The focus groups were held in rented rooms within public venues and were conducted in Bahasa Indonesia, the national language. Facilitators followed a focus group guide structured around the research questions. Photo elicitation was also used,[26] by having participants comment on the appropriateness and legality of smoking in public places depicted in 5 photographs. Participants were provided with snacks and compensation (81,000 rupiah, about $8.67) for their time. The facilitators transcribed the focus group recordings. Professional translators then translated the transcripts into English and an additional professional translator checked the translations for thoroughness and accuracy.

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Focus group transcripts were iteratively coded in ATLAS.ti 7.0 qualitative analysis software (ATLAS.ti GmbH, Berlin) using a thematic content analysis strategy,[27] seeking both recurrent themes and variations in responses to the questions. The lead author (MJB) developed the codebook and assigned the codes, noting emergent themes. MJB had some assistance from RN and other Indonesian colleagues in understanding the findings within the context of Indonesian language and culture. With the recurring responses we approached saturation around our research questions.[27] To increase credibility we triangulated the focus group findings with data collected from interviews with venue managers and city leaders that were part of the larger research project.[28] In triangulation, multiple data sources are used on the assumption that findings are more credible if they are consistent.[27] MJB also searched for negative cases within the data and we present examples of these within the results where relevant.[29]

RESULTS

In all, 89 adults (46 male and 43 female) ranging in age from 18 to 50 participated in the 11 focus groups (Table 2). Of these, 87 self-identified as Muslim, including one who identified as a member of the religious group Muhammadiyah. Two participants declined to provide their religion. The focus group discussions averaged 126 minutes (range: 81 to 160 minutes) in length. While we did not see differences in responses by age group, gender played a central role. The three primary themes that emerged were: 1) public smoking is a cultural norm for Indonesian men and the smoke-free law is only partially effective, 2) opinions vary about the religious acceptability of smoking and about the credibility of religious leaders to speak about tobacco use, and 3) decisions about following religious pronouncements about smoking are often described in terms of individual choice.

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Table 2: Focus group participants

Gender and smoking status	Ages Recruited	Recruitment Venue	No. Recruited	No. Attended
Male smokers	18-25	Mall	12	10
Male smokers	18-25	Mall	10	9
Male smokers	26+	Mall	12	8
Male smokers	26+	Mall	10	5
Male smokers	18+	Market	10	7
Male nonsmokers	18+	Mall	10	7
Female smokers	18+	Mall	10	8
Female nonsmokers	18-25	Mall	12	10
Female nonsmokers	26+	Mall	9	7
Female nonsmokers	26+	Mall	10	10
Female nonsmokers	18+	Market	10	8
			115	**89**

Role of smoking in Indonesian religion and society

Participants described smoking as a normal part of secular and religious Indonesian life, with smoking and smoke exposure frequent in both public and private spaces. Cigarettes are commonly offered alongside traditional snacks and beverages in meetings, funerals, weddings, and other religious events. As one male smoker explained:

> If it is in our culture that it is a habit to smoke after eating, drinking coffee and smoking, drinking tea and smoking, and reading Quran and smoking—I don't know for the smoking when it is stated as haram by MUI or maybe KTR perda [the local smoke-free law]—but if from the surrounding people they have this negative culture, to stop smoking is difficult.

The focus groups revealed that smoking is normative for Indonesian men. Smoking is often portrayed as a part of manhood, and men who do not smoke risk being mocked as *banci* (transvestites). However, the male nonsmokers reframed smoking as contrary to the masculine ideal: "a gentleman is healthy and responsible to his family. He is not a gentleman if he coughs all the time." The social norm for women is not to smoke and women who smoked described feeling ashamed to be seen doing so in public. They saw themselves as not being pious: "since

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we wear *hijab* [Muslim headscarf] it's embarrassing to not behave accordingly." To avoid this stigma, some women refrained from smoking in public entirely, while others said they would only smoke in public if they were with other smoking women. A focus group facilitator later explained to us a common "code" that a woman smoking alone is viewed by others as a prostitute soliciting customers.

The smoke-free law had only been partially effective in changing the social acceptability of indoor public smoking. Participants described uncertainty about where the law applied, and said that the law was rarely enforced. Some of the nonsmoking women were frustrated about this lack of enforcement while others took some of the responsibility on themselves: "it is our shared responsibility, not only the government's responsibility."

Some of the smokers we talked with explained that they try not to bother people with their smoke. Nonsmokers, and even a few smokers, told of how they had admonished people for smoking in air-conditioned venues or around children or pregnant women. One nonsmoker explained his perspective on seeing someone smoke around others: "I thought in my mind, this person is *dzalim* [Islamic term meaning evil because they hurt people on purpose]. There are women, children, but they smoke as they like. That is dzalim. That is a big sin."

Perceptions of Bogor's residents about the religious status of smoking and smoking in public

Nearly all participants who expressed an opinion about the Islamic status of smoking said that smoking is makruh (discouraged); a few others said it was haram (forbidden). Participants explained how the message they received regarding smoking could depend on the type of *ustad* (Muslim cleric or teacher):

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> Among conventional ustads, it is difficult. They will ask to which verse we refer. They are very fluent in Quran verses. The modern ustads, even though it is not stated explicitly in the verse, they think that if we do something that does not benefit us, it is haram.

Participants considered Muslim leaders' positions along with their own interpretations. Notably, no smoker said they believe smoking is always haram. One woman, a smoker, explained her opinion: "...there was a religious leader who said smoking was haram. But, I think it is more makruh," while others spoke about the status of smoking as a fact, e.g., "smoking is not haram, it is makruh," perhaps indicating differences in how subjective they consider Muslim law. One male smoker had a more nuanced perspective, one which fit well with MUI's fatwa and Bogor's smoke-free law: "now, actually smoking is not haram, it is makruh. Only haram when it is in public places because the smoke, the smell, and flavor may cause people who do not smoke to experience difficulty in breathing and coughing." Another said that smoking is acceptable in moderation in Islam, but that if a smoker gets sick, they should reduce their smoking: "It is alright but when it is too much it will cause diseases, now [quoting Quran:] *'everything that tortures our body, ourselves, is haram'* only if it is already too much. After it causes diseases, we have to reduce." Nonsmokers were more amenable to smoking as being haram. Among nonsmokers, some cited their religion as one reason among many for not smoking; as a woman explained:

> The religion said it is not allowed, the law said so too… maybe, excuse me, my family, errr… very obedient... So it is like this, religion said no, law said no, doctor said no. You see… so I really obey them.

One male nonsmoker framed his perspective on smoking in religious terms: "people who smoke are people who have not received *hidayah* [Islamic term meaning enlightenment]."

Participants commonly expressed that it was not credible for Muslim leaders to talk negatively about smoking, as many of these leaders themselves smoke. When one focus group

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was asked if they had heard religious leaders forbidding smoking, a woman said, "No, because ustad is identical to cigarette," which prompted laughter from the other participants. In another group, a participant said, "even though he is the leader, he can only talk, but cannot implement it for himself." Additionally, participants talked about seeing Muslim school leaders and Muslims who had been to Mecca (and were thus seen as Muslim exemplars) who smoked, and noted that smoke-free signage at mosques is often ignored.

Impact of religious pronouncements on compliance with the smoke-free law in Bogor

When participants were asked whether they perceived that the religious leaders' statements influenced other people, common responses included "it is an individual matter" or "depends on the individual, personally." One male smoker explained that his first reaction to hearing about the city's smoke-free law was, "What is this, prohibiting this and that? At that time, my thought was 'your religion is for you, my religion is for me.'" although he later came to see the law as "fair" (*adil*). While most smokers said they were unaffected by religious pronouncements, others said these messages are important and useful. Some people expressed that the local Muslim leaders could have some influence:

> But in my opinion when ustad said 'A' [i.e., something], he is more probably to be heard than the Mayor's local regulation. Even the President's rule is not as strong as the ustad saying. The problem is that very rarely ustad says that smoking is haram. 1,000 to 1, very rare because there is no explicit verse that forbids smoking, that's what they say.

Regarding the smoke-free law, one of the smokers said, "I would like to add that in addition to NGOs, the health office, this should be supported by religious leaders. There is an impact."

Thus smoking is normative for men, the religious pronouncements have had limited influence to date on what is perceived to be an individual's decision, and according to some participants religious leaders could positively influence compliance with the smoke-free law.

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DISCUSSION

This is the first study to investigate the effect of religious organizations' pronouncements about smoking on the public's views about a smoke-free law. The Indonesian fatwas and the implementation of Bogor's smoke-free law occurred within the context of a largely pro-smoking social landscape in which two-thirds of men smoke. Our finding that smoking was normative for men but not women is common for Islamic[2] and Southeast Asian[30] countries. We found that the social and religious norms were generally unaffected by the smoke-free law, partially because enforcement was lax. However there was a general desire to be respectful of others, and people were willing to ask smokers not to smoke around children or pregnant women.

When we asked participants about their understanding of the Muslim position on smoking, most said it was makruh, a few said it was haram, and others were uncertain. The MUI's fatwa against public smoking carried little weight. For smokers one reason the message of smoking being haram is not more widely accepted may be cognitive, as smokers may be discounting messages that are dissonant with their behavior.[14] Reference group theory provides additional insight into why the fatwas are not exerting more influence over the population. Individual Muslims in Bogor show status similarity, likely have similar values, and have sustained interaction with the Muslim community, but there were mixed findings as to how significant individuals deem Muslim leaders' pronouncements. On matters of smoking, people saw leaders who smoked as not credible. Additionally, individuals have received differing messages about the acceptability of smoking from various local and national religious leaders. This lack of clarity is also predicted to reduce the groups' influence on individuals. Reference group theory suggests that the MUI's influence could be increased by addressing the smoking

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leaders' lack of credibility on smoking and seeking out a more uniform Muslim message on smoking. Tobacco control advocates can make the case that things that are makruh truly should be discouraged rather than accepted as normal. Although the traditionalist ustads may not agree that all smoking is haram, they would at least agree that it is makruh, and perhaps would support an indoor smoking ban on the grounds of not harming or annoying other people. An ustad who is explicit that he only smokes outdoors could have credibility regarding smoke-free laws. Local ustads may have more influence than national organizations.

The refrain of "it depends on the individual" as to whether to follow religious leaders' pronouncements on smoking was somewhat unexpected as Indonesian culture is collectivist and Islamic culture is both collectivist and proscriptive. However, this sentiment fits with the view among scholars that Islam in Indonesia is especially moderate and tolerant.[31] Muslims in Bogor vary in their religious observances (e.g. daily prayer, wearing of hijabs) and are tolerant of these differences in practice. However, local Muslim leaders do appear to have some influence and to have had some impact on smoking perceptions and behaviors. The fatwas have supported nonsmokers in their nonsmoking behavior and desire for smoke-free air, and at least some smokers said that fatwas influence their decisions on smoking. These findings are similar to research among Malaysian Muslims, of whom 30% agreed that anti-smoking messages from their religious leaders would motivate them "a lot" to quit smoking.[14] Smokers in our focus groups were reflective about the appropriate places and settings for smoking and did not want to disturb people around them. Religious and city leaders could build on the smokers' desire to be respectful along with the nonsmokers' willingness to socially enforce the law. Efforts to increase social enforcement of the law may make up for the city's sparse legal enforcement. As noted earlier, research in neighboring Malaysia suggests that where secular norms are not strongly

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against tobacco, a religious norm restricting tobacco use can be powerful.[10] In Bogor, public health officials could talk more with local Muslim leaders about supporting the smoke-free law and the importance of the example set by the Muslim leaders. Religious leaders can explain to their members that the MUI fatwa and the city law do not forbid all smoking, but they do forbid it in indoor public places. Both for religious and legal reasons, ustads should strictly enforce the smoke-free law on mosque grounds, and doing so could improve their credibility when speaking about smoking.

Limitations

The focus group participants were recruited using a convenience sample and therefore transferability of the findings may be limited. However, we did stratify the groups to gather a diversity of perspectives, and we approached saturation, with few new findings in the later focus groups. A measure of religiosity could have told us more about our sample population. Noting the limited age range of participants, we considered additional recruitment focused on adults over age 50, but were limited by the timeline and resources of the study. In addition, we did not talk with local ustads. Such conversations would likely have been helpful to our understanding of how and why the MUI fatwa has not had more of an impact, and how local and national Muslim leaders interact. Finally, the data analysis was conducted using translated data, and nuances of language and culture may have been missed, although this was mitigated by regular communication with the facilitators and translators during the analysis phase about unclear phrasings and cultural references.

Future work

Our research provides indication that the effects of the Indonesian fatwas alone are limited. Similarly, in Egypt simply being aware of a fatwa against smoking did not affect

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smoking behavior.[3] The public health community may need to focus on recruiting willing local religious leaders, who may be more influential, to support smoke-free laws. Both public health and religious leaders have the shared goal of bettering the well-being of their constituencies.[15] In cities where smoke-free laws are struggling, future surveys could be conducted to measure people's awareness of the positions of their religious leaders and their interest in hearing local religious leaders speak more on the issue of tobacco use. Additionally, interviews could be conducted with ustads to understand their perspective. Qualitative and quantitative studies could also explore the influence of religious organizations' statements on public perceptions about tobacco harm reduction policies. Where culturally acceptable, it may be worthwhile to pilot test health messages that cite religious justifications for following smoke-free laws. Messages could suggest that good Muslim men are responsible and do not smoke near others,[32] and that all parents should speak up to smokers to protect their children from smoke. Another line of inquiry could look at whether findings are similar in settings where waterpipe is the dominant form of tobacco use, as waterpipe may have different usage patterns and cultural and social meaning than kreteks.

Conclusion

The MUI and Muhammadiyah fatwas about smoking have had limited impact in Bogor, and appeared to function mostly in reaffirming nonsmokers in their not smoking. However, religious normative influences were apparent and participants said they would like their religious leaders to talk more about the smoke-free law. These findings suggest the need for further research and experimentation in how tobacco control officials can work with religious communities on shared goals of public wellbeing. In countries where there are limited resources

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for smoke-free law education and enforcement, religion-backed and socially-enforced smoke-free norms may be a valuable supplement.

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Contributors: MJB led project design, data collection, analysis, and writing. DHJ, JEC, JG, and SF assisted with project design, data collection oversight, revising, and final review. RN assisted with data acquisition and interpretation, revising, and final review.

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Data sharing statement: No additional data available.

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COREQ Guide for "The influence of religious organizations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study "

Domain 1: Research team and reflexivity

Personal Characteristics

No	Item	Guide questions/ description	Response
1	Interviewer/ facilitator	Which author/s conducted the interview or focus group?	Ms. Nuryunawati and three other researchers conducted the focus groups under the supervision of Dr. Byron and Dr. Jernigan.
2	Credentials	What were the researcher's credentials? E.g. PhD, MD	Drs. Cohen, Frattaroli, Gittelsohn, and Jernigan have PhD's. Mr./Dr. Byron has a master's degree in health science (MHS) and worked on this study as part of his doctoral work; he has since received his PhD.
3	Occupation	What was their occupation at the time of the study?	Drs. Cohen, Frattaroli, Gittelsohn, and Jernigan are faculty at the Johns Hopkins Bloomberg School of Public Health. At the time of the study, Dr. Byron was a PhD student within the school and Ms. Nuryunawati was a part-time employee of No Tobacco Community (an NGO in Indonesia) and an independent researcher.
4	Gender	Was the researcher male or female?	Dr. Byron, Dr. Gittelsohn, and Dr. Jernigan are male. Dr. Cohen, Dr. Frattaroli, and Ms. Nuryunawati are female. The other focus group facilitators included two males and one female.
5	Experience and training	What experience or training did the researcher have?	Dr. Byron has taken graduate-level coursework in the design, conduct, and analysis of qualitative research. Dr. Gittelsohn mentored the qualitative research aspects of the project and has over 20 years of research experience within the field. Dr. Byron lived in Indonesia for the 4 months of this study and has basic language and culture training in Bahasa Indonesia.
Relationship with participants			
6	Relationship established	Was a relationship established prior to study commencement?	The focus group facilitators also did the recruitment for the study. Therefore, participants may have met their focus group facilitators briefly in recruitment. Otherwise, there was no prior relationship.
7	Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Participants were told in the informed consent process and at the start of the focus groups that this project was being conducted by the Johns Hopkins Bloomberg School of Public Health to understand the meaning and experience of the development and implementation of a smoke-free law in Bogor. In some of the focus groups, the facilitator mentioned that Mr. Byron was a doctoral student at the School.
8	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Characteristics of the facilitator were not explicitly mentioned other than their roles (facilitator, notetaker).

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<u>Domain 2: study design</u>			
Theoretical framework			
9	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Thematic content analysis.
Participant selection			
10	Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Convenience sample, purposively sampling for variation in gender, age, and smoking status.
11	Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Face-to-face.
12	Sample size	How many participants were in the study?	89 participants.
13	Non-participation	How many people refused to participate or dropped out? Reasons?	115 participants were recruited, of whom 26 did not show up to the focus group sessions.
Setting			
14	Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Two public shopping areas in Bogor, Indonesia.
15	Presence of non-participants	Was anyone else present besides the participants and researchers?	No.
16	Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Gender: 43 female, 46 male. Ages: 18 to 50. Enthicity: All Indonesian. Religion: 87 Muslim, 2 declined to provide their religious affiliation. Date of focus groups: July, 2012.

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Data collection

No.	Item	Guide question	Response
17	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Focus group guides were developed by Dr. Byron under the guidance of Drs. Cohen, Frattaroli, Gittelsohn, and Jernigan. The guides were then reviewed and informally tested by the Indoneisan focus group facilitators before use.
18	Repeat interviews	Were repeat interviews carried out? If yes, how many?	No.
19	Audio/visual recording	Did the research use audio or visual recording to collect the data?	Digital audio recordings.
20	Field notes	Were field notes made during and/or after the interview or focus group?	Yes, field notes were made during and after the focus groups.
21	Duration	What was the duration of the interviews or focus group?	Mean of 126 minutes (range: 81 to 160 minutes).
22	Data saturation	Was data saturation discussed?	Yes, saturation was considered and is discussed in the manuscript.
23	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No.

Domain 3: analysis and findings

Data analysis

No.	Item	Guide question	Response
24	Number of data coders	How many data coders coded the data?	1 (Dr. Byron).
25	Description of the coding tree	Did authors provide a description of the coding tree?	Yes, the coding scheme is discussed in the manuscript.
26	Derivation of themes	Were themes identified in advance or derived from the data?	Under each of the a priori research questions, the themes were derived from the data.
27	Software	What software, if applicable, was used to manage the data?	ATLAS.ti 7.0 (ATLAS.ti GmbH, Berlin).
28	Participant checking	Did participants provide feedback on the findings?	No.

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Reporting

No.	Item	Guide question	Response
29	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. participant number	Yes quotations were used to illustrate themes/findings. The gender and smoking status of the speaker is given for each quotation.
30	Data and findings consistent	Was there consistency between the data presented and the findings?	Yes.
31	Clarity of major themes	Were major themes clearly presented in the findings?	Yes.
32	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes, both minor themes and variations in responses were noted.

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BMJ Open

The influence of religious organizations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study

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Title: **The influence of religious organizations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study**

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ABSTRACT

Objective: To explore the Bogor public's perspective on Muslim organizations' pronouncements against smoking and the effect of these pronouncements on compliance with a new smoke-free law in the context of a pro-smoking social norm.

Design: Semi-structured focus group discussions were conducted, transcribed, coded using ATLAS.ti software, and analyzed using thematic content analysis. Photo elicitation was also used during the focus groups.

Setting: Bogor, Indonesia.

Participants: 11 focus groups (n=89), stratified by age, gender, and smoking status, with members of the public (46 male, 43 female, ages 18-50).

Results: There was limited knowledge of and compliance with both the smoke-free law and the religious pronouncements. In most of the focus groups, smoking was described as a discouraged, but not forbidden, behavior for Muslims. Participants described the decision of whether to follow the religious pronouncements in the context of individual choice. Some participants felt religious organizations lacked credibility to speak against smoking because many religious leaders themselves smoke. However, some nonsmokers said their religion reinforced their nonsmoking behavior and some participants stated it would be useful for religious leaders to speak more about the smoke-free law.

Conclusions: Religious organizations' pronouncements appear to have had a small effect, primarily in supporting the position of nonsmokers not to smoke. Participants, including smokers, said their religious leaders should be involved in supporting the smoke-free law. These findings suggest there is potential for the tobacco control community to partner with sympathetic local Muslim leaders to promote common goals of reducing smoking and public smoke

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exposure. Muslim leaders' views on smoking would be perceived as more credible if they themselves followed the smoke-free law. Additionally, public health messaging that includes religious themes could be piloted and tested for effectiveness. These findings may also inform similar efforts in other Muslim cities implementing smoke-free laws.

Strengths and limitations of this study

- This is the first study to explore the effect of religious organizations' pronouncements about smoking on the public's views about and compliance with a smoke-free law. This question is especially important in low- and middle-income countries where governments may have fewer resources for education and enforcement.
- The use of semi-structured focus groups with everyday Bogor residents allowed for the collection of rich insight into the complexities of religious, legal, and social norms around public smoking.
- The focus groups were stratified by gender, age, and smoking status, allowing for more open dialogue among participants.
- The use of a convenience sample may limit transferability of the findings.
- Since the data analysis was conducted using translated data, some nuances of language and culture may have been missed.

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INTRODUCTION

In the last 20 years Muslim leaders and organizations worldwide have become more outspoken against tobacco use.[1, 2] Their *fatwas* (religious rulings or opinions) forbidding smoking combined with other tobacco control efforts may help reduce smoking prevalence and reinforce emerging secular smoke-free laws that restrict smoking in public spaces.[2-5] A number of studies have shown associations between religiosity and reduced smoking prevalence[6] and potential benefits of religion-based tobacco control interventions.[7-9] In Malaysia, a majority Muslim country where male smoking is generally perceived as socially acceptable, religious norms have been shown to play a greater role than secular norms in influencing quit attempts.[10] These findings are consistent with social norms research showing that people are most likely to be influenced by groups with which they closely identify.[11] According to reference group theory, the degree to which a group serves as an influential reference point for an individual is a function of five factors: similarity in status to the group, sharing the values and beliefs of the group, having clarity about the group's values and beliefs, having sustained interaction with the group, and whether an individual defines other group members as significant.[12-14] This theory is readily applicable to understanding religious influences on smoking behavior.[14] Smokers who identify with a particular religion may look to their religion as their reference group rather than society at large, making religious leaders potentially powerful figures in the success of smoke-free laws.[14] The World Health Organization (WHO) encourages working with religious leaders in tobacco control efforts.[15] However, most investigations regarding smoking and religion have focused on Christianity in high-income countries.[6] The current study explored religion and smoking in the predominantly Muslim (87%) country of Indonesia (pop. 238 million).[16]

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Islam has a strong legal tradition that works to minimize harm to society and individuals.[2] All human affairs are classified as *fard* (mandatory), *mustahabb* (encouraged), *mubah* (neutral), *makruh* (discouraged, not sinful but those abstaining from it will be blessed by God), or *haram* (prohibited). In January of 2009, Majelis Ulama Indonesia (MUI), the government-funded council in Jakarta that includes representation from many Indonesian Muslim organizations, issued a fatwa classifying smoking in public and smoking by children or pregnant women as haram (Table 1).[17] Otherwise smoking was said to be makruh. Among the members of the MUI council are representatives of Indonesia's two dominant social and religious organizations, which oversee thousands of Muslim schools, clinics, and hospitals. At the time, Nahdlatul Ulama (NU), the larger of these organizations, disagreed with the MUI fatwa, saying, "the danger of smoking is relative, not as significant as the danger of drinking [alcohol]. Also, those who smoke have relative benefit, for example, their thinking is clear when smoking."[18] (Recently, NU has become more open to tobacco control, as evidenced by its prohibition on smoking within some of its venues.[19]) In March 2010, Muhammadiyah, the other large Muslim organization, declared all smoking haram for its followers, citing the Quran's prohibition on suicide,[20] "make not your own hands contribute to your own destruction" (2;195).[2] Other Muslim scholars have additionally cited the Quran's statements against causing willful harm or annoyance to others.[1, 2]

Indonesia is a country struggling with a large and growing tobacco problem. With 61.4 million smokers, Indonesia is third only to China and India in number of smokers.[21] Between 1995 and 2011, smoking rates rose from 54% to 67% among men and from 1.7% to 4.5% among women.[21] Additionally, the clove cigarettes (*kreteks*) that comprise most of Indonesian tobacco consumption (92%) may be more toxic than tobacco-only cigarettes.[22] Smoking in

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public places in Indonesia is common: 51% of adults are exposed to tobacco smoke in the workplace, and 85% of restaurant-goers are exposed to smoke in restaurants.[21] There is limited public awareness of the risks of secondhand smoke, especially among smokers, older adults, and less-educated populations.[21]

At the national level, Indonesia has minimal tobacco control measures and is one of the few countries that have not signed the WHO Framework Convention on Tobacco Control. However, some progress is being made in Indonesia's cities. Bogor, a city of 1 million people located 50km south of Jakarta, was the first Indonesian city to pass a comprehensive smoke-free law, restricting tobacco smoking in most public spaces. Bogor is in a province that is 97% Muslim.[16] The 2009 law, which took effect in May 2010, banned smoking in all hotels, restaurants, public markets, malls, places of worship, workplaces, playgrounds, schools, health facilities, and public transportation.[23] The city does not allow indoor designated smoking areas or exemptions. An evaluation in early 2011 found that overall 87% of venues were free of smoke but there was still smoking in 84% of traditional markets, 43% of restaurants, 29% of government buildings, and 11% of places of worship.[24]

To our knowledge, this is the first study to examine how religious anti-smoking pronouncements influence the public's perspectives about smoke-free laws. If the messages are influential, the tobacco control community may benefit from a partnership with religious organizations. This manuscript explores the role of smoking in Indonesian religion and society, what Bogor's residents think about the religious status of smoking and smoking in public, and how the fatwas affect compliance with the smoke-free law in Bogor.

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Table 1: Positions of major Muslim bodies in Indonesia

Name	Type	Members	Decree on smoking (year)
Majelis Ulama Indonesia (MUI)	Muslim leadership body	~700 [17]	Smoking by children and pregnant women and smoking in public is haram (forbidden); otherwise smoking is makruh (discouraged).(2009)
Muhammadiyah	Muslim organization	30 million[25]	All smoking is haram for its followers.(2010)
Nahdlatul Ulama (NU)	Muslim organization	40 million[25]	All smoking is makruh.(2009)

METHODS

In July 2012 eleven semi-structured focus groups were conducted with residents of Bogor. Participants were recruited from a shopping mall frequented by middle-class Bogor residents and an outdoor market where lower-income Bogor residents shop. Shopping areas were chosen because they are safe, accessible public spaces that provide access to a diverse sample of the population. To encourage participants to speak freely, focus groups were stratified by age, gender, and smoking status. Five local researchers were trained in recruitment and focus group facilitation. The focus groups were held in rented rooms within public venues and were conducted in Bahasa Indonesia, the national language. Facilitators followed a focus group guide structured around the research questions. Photo elicitation was also used,[26] by having participants comment on the appropriateness and legality of smoking in public places depicted in 5 photographs. Participants were provided with snacks and compensation (81,000 rupiah, about $8.67) for their time. The facilitators transcribed the focus group recordings. Professional translators then translated the transcripts into English and an additional professional translator checked the translations for thoroughness and accuracy.

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Focus group transcripts were iteratively coded in ATLAS.ti 7.0 qualitative analysis software (ATLAS.ti GmbH, Berlin) using a thematic content analysis strategy,[27] seeking both recurrent themes and variations in responses to the questions. The lead author (MJB) developed the codebook and assigned the codes, noting emergent themes. MJB had some assistance from RN and other Indonesian colleagues in understanding the findings within the context of Indonesian language and culture. With the recurring responses we approached saturation around our research questions.[27] To increase credibility we triangulated the focus group findings with data collected from interviews with venue managers and city leaders that were part of the larger research project.[28] In triangulation, multiple data sources are used on the assumption that findings are more credible if they are consistent.[27] MJB also searched for negative cases within the data and we present examples of these within the results where relevant.[29]

RESULTS

In all, 89 adults (46 male and 43 female) ranging in age from 18 to 50 participated in the 11 focus groups (Table 2). Of these, 87 self-identified as Muslim, including one who identified as a member of the religious group Muhammadiyah. Two participants declined to provide their religion. The focus group discussions averaged 126 minutes (range: 81 to 160 minutes) in length. While we did not see differences in responses by age group, gender played a central role. The three primary themes that emerged were: 1) public smoking is a cultural norm for Indonesian men and the smoke-free law is only partially effective, 2) opinions vary about the religious acceptability of smoking and about the credibility of religious leaders to speak about tobacco use, and 3) decisions about following religious pronouncements about smoking are often described in terms of individual choice.

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Table 2: Focus group participants

Gender and smoking status	Ages Recruited	Recruitment Venue	No. Recruited	No. Attended
Male smokers	18-25	Mall	12	10
Male smokers	18-25	Mall	10	9
Male smokers	26+	Mall	12	8
Male smokers	26+	Mall	10	5
Male smokers	18+	Market	10	7
Male nonsmokers	18+	Mall	10	7
Female smokers	18+	Mall	10	8
Female nonsmokers	18-25	Mall	12	10
Female nonsmokers	26+	Mall	9	7
Female nonsmokers	26+	Mall	10	10
Female nonsmokers	18+	Market	10	8
			115	**89**

Role of smoking in Indonesian religion and society

Participants described smoking as a normal part of secular and religious Indonesian life, with smoking and smoke exposure frequent in both public and private spaces. Cigarettes are commonly offered alongside traditional snacks and beverages in meetings, funerals, weddings, and other religious events. As one male smoker explained:

> If it is in our culture that it is a habit to smoke after eating, drinking coffee and smoking, drinking tea and smoking, and reading Quran and smoking—I don't know for the smoking when it is stated as haram by MUI or maybe KTR perda [the local smoke-free law]—but if from the surrounding people they have this negative culture, to stop smoking is difficult.

The focus groups revealed that smoking is normative for Indonesian men. Smoking is often portrayed as a part of manhood, and men who do not smoke risk being mocked as *banci* (transvestites), implying they are effeminate and atypical. However, the male nonsmokers reframed smoking as contrary to the masculine ideal: "a gentleman is healthy and responsible to his family. He is not a gentleman if he coughs all the time." The social norm for women is not to smoke and women who smoked described feeling ashamed to be seen doing so in public. They

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saw themselves as not being pious: “since we wear *hijab* [Muslim headscarf] it’s embarrassing to not behave accordingly.” To avoid this stigma, some women refrained from smoking in public entirely, while others said they would only smoke in public if they were with other smoking women. A focus group facilitator later explained to us a common “code” that a woman smoking alone is viewed by others as a prostitute soliciting customers.

The smoke-free law had only been partially effective in changing the social acceptability of indoor public smoking. Participants described uncertainty about where the law applied, and said that the law was rarely enforced. Some of the nonsmoking women were frustrated about this lack of enforcement while others took some of the responsibility on themselves: “it is our shared responsibility, not only the government’s responsibility.”

Some of the smokers we talked with explained that they try not to bother people with their smoke. Nonsmokers, and even a few smokers, told of how they had admonished people for smoking in air-conditioned venues or around children or pregnant women. One nonsmoker explained his perspective on seeing someone smoke around others: “I thought in my mind, this person is *dzalim* [Islamic term meaning evil because they hurt people on purpose]. There are women, children, but they smoke as they like. That is dzalim. That is a big sin.”

Perceptions of Bogor’s residents about the religious status of smoking and smoking in public

Nearly all participants who expressed an opinion about the Islamic status of smoking said that smoking is makruh (discouraged); a few others said it was haram (forbidden). Participants explained how the message they received regarding smoking could depend on the type of *ustad* (Muslim cleric or teacher):

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> Among conventional ustads, it is difficult. They will ask to which verse we refer. They are very fluent in Quran verses. The modern ustads, even though it is not stated explicitly in the verse, they think that if we do something that does not benefit us, it is haram.

Participants considered Muslim leaders' positions along with their own interpretations. Notably, no smoker said they believe smoking is always haram. One woman, a smoker, explained her opinion: "...there was a religious leader who said smoking was haram. But, I think it is more makruh," while others spoke about the status of smoking as a fact, e.g., "smoking is not haram, it is makruh," perhaps indicating differences in how subjective they consider Muslim law. One male smoker had a more nuanced perspective, one which fit well with MUI's fatwa and Bogor's smoke-free law: "now, actually smoking is not haram, it is makruh. Only haram when it is in public places because the smoke, the smell, and flavor may cause people who do not smoke to experience difficulty in breathing and coughing." Another said that smoking is acceptable in moderation in Islam, but that if a smoker gets sick, they should reduce their smoking: "It is alright but when it is too much it will cause diseases, now [quoting Quran:] *'everything that tortures our body, ourselves, is haram'* only if it is already too much. After it causes diseases, we have to reduce." Nonsmokers were more amenable to smoking as being haram. Among nonsmokers, some cited their religion as one reason among many for not smoking; as a woman explained:

> The religion said it is not allowed, the law said so too… maybe, excuse me, my family, errr… very obedient... So it is like this, religion said no, law said no, doctor said no. You see… so I really obey them.

One male nonsmoker framed his perspective on smoking in religious terms: "people who smoke are people who have not received *hidayah* [Islamic term meaning enlightenment]."

Participants commonly expressed that it was not credible for Muslim leaders to talk negatively about smoking, as many of these leaders themselves smoke. When one focus group

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was asked if they had heard religious leaders forbidding smoking, a woman said, "No, because ustad is identical to cigarette," which prompted laughter from the other participants. In another group, a participant said, "even though he is the leader, he can only talk, but cannot implement it for himself." Additionally, participants talked about seeing Muslim school leaders and Muslims who had been to Mecca (and were thus seen as Muslim exemplars) who smoked, and noted that smoke-free signage at mosques is often ignored.

Impact of religious pronouncements on compliance with the smoke-free law in Bogor

When participants were asked whether they perceived that the religious leaders' statements influenced other people, common responses included "it is an individual matter" or "depends on the individual, personally." One male smoker explained that his first reaction to hearing about the city's smoke-free law was, "What is this, prohibiting this and that? At that time, my thought was 'your religion is for you, my religion is for me.'" although he later came to see the law as "fair" (*adil*). While most smokers said they were unaffected by religious pronouncements, others said these messages are important and useful. Some people expressed that the local Muslim leaders could have some influence:

> But in my opinion when ustad says 'A' [i.e., something], he is more probably to be heard than the Mayor's local regulation. Even the President's rule is not as strong as the ustad saying. The problem is that very rarely ustad says that smoking is haram. 1,000 to 1, very rare because there is no explicit verse that forbids smoking, that's what they say.

Regarding the smoke-free law, one of the smokers said, "I would like to add that in addition to NGOs, the health office, this should be supported by religious leaders. There is an impact."

Thus smoking is normative for men, the religious pronouncements have had limited influence to date on what is perceived to be an individual's decision, and according to some participants religious leaders could positively influence compliance with the smoke-free law.

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DISCUSSION

This is the first study to investigate the effect of religious organizations' pronouncements about smoking on the public's views about a smoke-free law. The Indonesian fatwas and the implementation of Bogor's smoke-free law occurred within the context of a largely pro-smoking social landscape in which two-thirds of men smoke. Our finding that smoking was normative for men but not women is common for Islamic[2] and Southeast Asian[30] countries. We found that the social and religious norms were generally unaffected by the smoke-free law, partially because enforcement was lax. However there was a general desire to be respectful of others, and people were willing to ask smokers not to smoke around children or pregnant women.

When we asked participants about their understanding of the Muslim position on smoking, most said it was makruh, a few said it was haram, and others were uncertain. The MUI's fatwa against public smoking carried little weight. For smokers one reason the message of smoking being haram is not more widely accepted may be cognitive, as smokers may be discounting messages that are dissonant with their behavior.[14] Reference group theory provides additional insight into why the fatwas are not exerting more influence over the population. Individual Muslims in Bogor show status similarity, likely have similar values, and have sustained interaction with the Muslim community, but there were mixed findings as to how significant individuals deem Muslim leaders' pronouncements. On matters of smoking, people saw leaders who smoked as not credible. Additionally, individuals have received differing messages about the acceptability of smoking from various local and national religious leaders. This lack of clarity is also predicted to reduce the groups' influence on individuals. Reference group theory suggests that the MUI's influence could be increased by addressing the smoking

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leaders' lack of credibility on smoking and seeking out a more uniform Muslim message on smoking. Tobacco control advocates can make the case that things that are makruh truly should be discouraged rather than accepted as normal. Although the traditionalist ustads may not agree that all smoking is haram, they would at least agree that it is makruh, and perhaps would support an indoor smoking ban on the grounds of not harming or annoying other people. An ustad who is explicit that he only smokes outdoors could have credibility regarding smoke-free laws. Local ustads may have more influence than national organizations.

The refrain of "it depends on the individual" as to whether to follow religious leaders' pronouncements on smoking was somewhat unexpected as Indonesian culture is collectivist and Islamic culture is both collectivist and proscriptive. However, this sentiment fits with the view among scholars that Islam in Indonesia is especially moderate and tolerant.[31] Muslims in Bogor vary in their religious observances (e.g. daily prayer, wearing of hijabs) and are tolerant of these differences in practice. However, local Muslim leaders do appear to have some influence and to have had some impact on smoking perceptions and behaviors. The fatwas have supported nonsmokers in their nonsmoking behavior and desire for smoke-free air, and at least some smokers said that fatwas influence their decisions on smoking. These findings are similar to research among Malaysian Muslims, of whom 30% agreed that anti-smoking messages from their religious leaders would motivate them "a lot" to quit smoking.[14] Smokers in our focus groups were reflective about the appropriate places and settings for smoking and did not want to disturb people around them. Religious and city leaders could build on the smokers' desire to be respectful along with the nonsmokers' willingness to socially enforce the law. Efforts to increase social enforcement of the law may make up for the city's sparse legal enforcement. As noted earlier, research in neighboring Malaysia suggests that where secular norms are not strongly

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against tobacco, a religious norm restricting tobacco use can be powerful.[10] In Bogor, public health officials could talk more with local Muslim leaders about supporting the smoke-free law and the importance of the example set by the Muslim leaders. Religious leaders can explain to their members that the MUI fatwa and the city law do not forbid all smoking, but they do forbid it in indoor public places. Both for religious and legal reasons, ustads should strictly enforce the smoke-free law on mosque grounds, and doing so could improve their credibility when speaking about smoking.

Limitations

The focus group participants were recruited using a convenience sample and therefore transferability of the findings may be limited. However, we did stratify the groups to gather a diversity of perspectives, and we approached saturation, with few new findings in the later focus groups. A measure of religiosity could have told us more about our sample population. Noting the limited age range of participants, we considered additional recruitment focused on adults over age 50, but were limited by the timeline and resources of the study. In addition, we did not talk with local ustads. Such conversations would likely have been helpful to our understanding of how and why the MUI fatwa has not had more of an impact, and how local and national Muslim leaders interact. Finally, the data analysis was conducted using translated data, and nuances of language and culture may have been missed, although this was mitigated by regular communication with the facilitators and translators during the analysis phase about unclear phrasings and cultural references.

Future work

Our research provides indication that the effects of the Indonesian fatwas alone are limited. Similarly, in Egypt simply being aware of a fatwa against smoking did not affect

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3 smoking behavior.[3] The public health community may need to focus on recruiting willing local religious leaders, who may be more influential, to support smoke-free laws. Both public health and religious leaders have the shared goal of bettering the well-being of their constituencies.[15] In cities where smoke-free laws are not adhered to by the public, surveys could be conducted to measure people's awareness of the positions of their religious leaders and their interest in hearing local religious leaders speak more on the issue of tobacco use. Additionally, interviews could be conducted with ustads to understand their perspective. Qualitative and quantitative studies could also explore the influence of religious organizations' statements on public perceptions about tobacco harm reduction policies. Where culturally acceptable, it may be worthwhile to pilot test health messages that cite religious justifications for following smoke-free laws. Messages could suggest that good Muslim men are responsible and do not smoke near others,[32] and that all parents should speak up to smokers to protect their children from smoke. Another line of inquiry could look at whether findings are similar in settings where waterpipe is the dominant form of tobacco use, as waterpipe may have different usage patterns and cultural and social meaning than kreteks.

Conclusion

The MUI and Muhammadiyah fatwas about smoking have had limited impact in Bogor, and appeared to function mostly in reaffirming nonsmokers in their not smoking. However, religious normative influences were apparent and participants said they would like their religious leaders to talk more about the smoke-free law. These findings suggest the need for further research and experimentation in how tobacco control officials can work with religious communities on shared goals of public wellbeing. In countries where there are limited resources

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for smoke-free law education and enforcement, religion-backed and socially-enforced smoke-free norms may be a valuable supplement.

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Contributors: MJB led project design, data collection, analysis, and writing. DHJ, JEC, JG, and SF assisted with project design, data collection oversight, revising, and final review. RN assisted with data acquisition and interpretation, revising, and final review.

Ethics approvals: The study was approved by the City of Bogor and the institutional review boards of the Johns Hopkins Bloomberg School of Public Health and the University of Muhammadiyah Yogyakarta.

Data sharing statement: No additional data available.

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COREQ Guide for "The influence of religious organizations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study "

Domain 1: Research team and reflexivity

Personal Characteristics

No	Item	Guide questions/ description	Response
1	Interviewer/ facilitator	Which author/s conducted the interview or focus group?	Ms. Nuryunawati and three other researchers conducted the focus groups under the supervision of Dr. Byron and Dr. Jernigan.
2	Credentials	What were the researcher's credentials? E.g. PhD, MD	Drs. Cohen, Frattaroli, Gittelsohn, and Jernigan have PhD's. Mr./Dr. Byron has a master's degree in health science (MHS) and worked on this study as part of his doctoral work; he has since received his PhD.
3	Occupation	What was their occupation at the time of the study?	Drs. Cohen, Frattaroli, Gittelsohn, and Jernigan are faculty at the Johns Hopkins Bloomberg School of Public Health. At the time of the study, Dr. Byron was a PhD student within the school and Ms. Nuryunawati was a part-time employee of No Tobacco Community (an NGO in Indonesia) and an independent researcher.
4	Gender	Was the researcher male or female?	Dr. Byron, Dr. Gittelsohn, and Dr. Jernigan are male. Dr. Cohen, Dr. Frattaroli, and Ms. Nuryunawati are female. The other focus group facilitators included two males and one female.
5	Experience and training	What experience or training did the researcher have?	Dr. Byron has taken graduate-level coursework in the design, conduct, and analysis of qualitative research. Dr. Gittelsohn mentored the qualitative research aspects of the project and has over 20 years of research experience within the field. Dr. Byron lived in Indonesia for the 4 months of this study and has basic language and culture training in Bahasa Indonesia.
Relationship with participants			
6	Relationship established	Was a relationship established prior to study commencement?	The focus group facilitators also did the recruitment for the study. Therefore, participants may have met their focus group facilitators briefly in recruitment. Otherwise, there was no prior relationship.
7	Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Participants were told in the informed consent process and at the start of the focus groups that this project was being conducted by the Johns Hopkins Bloomberg School of Public Health to understand the meaning and experience of the development and implementation of a smoke-free law in Bogor. In some of the focus groups, the facilitator mentioned that Mr. Byron was a doctoral student at the School.
8	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Characteristics of the facilitator were not explicitly mentioned other than their roles (facilitator, notetaker).

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Domain 2: study design			
Theoretical framework			
9	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Thematic content analysis.
Participant selection			
10	Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Convenience sample, purposively sampling for variation in gender, age, and smoking status.
11	Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Face-to-face.
12	Sample size	How many participants were in the study?	89 participants.
13	Non-participation	How many people refused to participate or dropped out? Reasons?	115 participants were recruited, of whom 26 did not show up to the focus group sessions.
Setting			
14	Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Two public shopping areas in Bogor, Indonesia.
15	Presence of non-participants	Was anyone else present besides the participants and researchers?	No.
16	Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Gender: 43 female, 46 male. Ages: 18 to 50. Enthicity: All Indonesian. Religion: 87 Muslim, 2 declined to provide their religious affiliation. Date of focus groups: July, 2012.

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Data collection

No.	Item	Question	Response
17	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Focus group guides were developed by Dr. Byron under the guidance of Drs. Cohen, Frattaroli, Gittelsohn, and Jernigan. The guides were then reviewed and informally tested by the Indoneisan focus group facilitators before use.
18	Repeat interviews	Were repeat interviews carried out? If yes, how many?	No.
19	Audio/visual recording	Did the research use audio or visual recording to collect the data?	Digital audio recordings.
20	Field notes	Were field notes made during and/or after the interview or focus group?	Yes, field notes were made during and after the focus groups.
21	Duration	What was the duration of the interviews or focus group?	Mean of 126 minutes (range: 81 to 160 minutes).
22	Data saturation	Was data saturation discussed?	Yes, saturation was considered and is discussed in the manuscript.
23	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No.

Domain 3: analysis and findings

Data analysis

No.	Item	Question	Response
24	Number of data coders	How many data coders coded the data?	1 (Dr. Byron).
25	Description of the coding tree	Did authors provide a description of the coding tree?	Yes, the coding scheme is discussed in the manuscript.
26	Derivation of themes	Were themes identified in advance or derived from the data?	Under each of the a priori research questions, the themes were derived from the data.
27	Software	What software, if applicable, was used to manage the data?	ATLAS.ti 7.0 (ATLAS.ti GmbH, Berlin).
28	Participant checking	Did participants provide feedback on the findings?	No.

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Reporting

29	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. participant number	Yes quotations were used to illustrate themes/findings. The gender and smoking status of the speaker is given for each quotation.
30	Data and findings consistent	Was there consistency between the data presented and the findings?	Yes.
31	Clarity of major themes	Were major themes clearly presented in the findings?	Yes.
32	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes, both minor themes and variations in responses were noted.

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