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Adult smokers' perception of the role of religion and religious leadership on smoking and association with quitting: A comparison between Thai Buddhists and Malaysian Muslims

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Abstract

In recent years, attempts have been made to incorporate religion into tobacco control efforts, especially in countries like Malaysia and Thailand where religion is central to the lives of people. This paper is a prospective examination of the perceived relevance and role of religion and religious authorities in influencing smoking behaviour among Muslims in Malaysia and Buddhists in Thailand. Data were collected from 1,482 Muslim Malaysian and 1,971 Buddhist Thai adult smokers who completed wave 1 (early 2005) of the International Tobacco Control Southeast Asia Survey (ITC-SEA). Respondents were asked about the role of religion and religious leadership on smoking at Wave 1 and among those recontacted, quitting activity at Wave 2. Results revealed that over 90% of both religious groups reported that their religion guides their day-to-day behaviour at least sometimes, but Malaysian Muslims were more likely to report that this was always the case. The majority (79% Muslims and 88% Buddhists) of both groups believed that their religion discourages smoking. About 61% of the Muslims and 58% of the Buddhists reported that their religious leaders had encouraged them to quit before and a minority (30% and 26%, respectively) said they would be an influential source to motivate them to quit. Logistic regression models suggest that these religious factors had a clear independent association with making quitting attempts in both countries and this translated to success for Malaysian Muslims but not for the Thai Buddhists. Taken together, results from this study indicate that religion and religious authorities are both relevant and important drivers of quitting, but whether this is always enough to guarantee success is less clear. Religion can be a culturally relevant vehicle to complement other tobacco control efforts.

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Keywords

Malaysia; Thailand; religion; religious leaders; Muslims; Buddhists; smoking; quitting

INTRODUCTION

The use of religion to improve health is an age-old practice. However, the use of religion and the enlisting of religious authorities in public health campaigns for tobacco control is a relatively recent phenomenon. Previous research indicates that while religion has sometimes influenced success in smoking cessation among adult smokers (Saeed, Khoja & Khan, 1996; Swaddiwudhipong, Chaovakiratipong, Nguntra, Khumklam & Silarug, 1993), there is little evidence that religious belief or affiliation has a major impact on the general population except for followers of religions with very strong sanctions against tobacco use (Ugen, 2003).

A relevant theoretical framework for understanding how religion can play a role in shaping people's behaviour is reference group theory (Merton & Rossi, 1968). According to this theory, individuals' behaviour is influenced by the groups to which they refer for either an evaluation of their actions or normative guidelines for their behaviour. A group is likely to be used as a reference point when individuals see some similarity in status attributes between themselves and other members, orient themselves to the values of the group, engage in sustained interaction with group members, and define leaders of the group as significant others (Merton & Rossi, 1968; Bock, Beeghley & Mixon, 1983). This theoretical framework has received little attention in relation to how religion might influence smoking behaviour particularly among the adult population.

Historically, tobacco use has been ignored by major religions because it did not exist when their scriptures were written. However, most, including Islam and Buddhism, have religious principles that forbid or discourage the use of addictive substances. For example, Islam declares practices to be forbidden for Muslims (haram) if they are considered to harm health. In recent years, because of the growing evidence of the health risks of smoking, some Islamic scholars have pronounced tobacco use as haram while others have argued that it is merely makruh (advised against) (Ghouri, Atcha, & Sheikh, 2006). At present, the Islamic world is still divided over the religious ramifications of Muslims using tobacco.

Islam is the national religion of Malaysia. Sixty-five percent of the population is Muslim, including virtually all ethnic Malays. In 1995, the national Fatwa Committee for Islamic Affairs in Malaysia ruled that smoking was haram (strictly forbidden). Since then, religious authorities in some states (Selangor, Kedah and Perlis) have declared smoking forbidden while others say it is only 'makruh' (advised against) (South China Morning Post, 1995). In 1997, the Federal Government of Malaysia indicated that it would not try to enforce this fatwa since they claimed it would be unenforceable unless all states embraced it.

In late 2004, the Malaysian government launched an anti-smoking campaign during the holy month of Ramadhan to encourage Muslims to quit smoking altogether, taking advantage of the fact that they were already refraining from smoking for more than 12 hours each day during fasting. The extent to which this campaign has been effective is not known.

Although Buddhism is not officially the state religion of Thailand, around 90% of the population is Buddhist, the religion of the Thai King. Most learned monks in Thailand see tobacco use as antithetical to Buddhist precepts (World Health Organization, 2002). Two international Buddhist workshops held in Cambodia in 2002 and 2004 declared that tobacco should be classified under the fifth precept, "Suramerayamajjahpamatthana", as a harmful and

addictive substance, that offering tobacco to monks should be considered to be in the third category of wrong offerings “majjadana”, and that monks, who are of the highest moral standing, should be free of nicotine addiction and should also be active in saving lives by preventing tobacco use, establishing smoke-free areas and helping people quit (World Health Organization, 2002). However, religious rulings are typically not as strongly enforced in Buddhism (especially compared with Islam).

A recent study indicated that smoking prevalence among Buddhist monks in Thailand is quite high (24.4%) although lower than the male prevalence rate of 39% (Charoenca, Kungskulniti, Kengganphanich, Kusolwisitkul, Pichainarong, Kerdmongkol, Silapasuwan & Hamann, 2004). The high smoking rate among monks has led some senior monks to actively conduct anti-smoking activities to educate other monks in their wats/temple and community about the danger of smoking. People were discouraged from offering cigarettes as alms to monks and encouraged to not smoke during Buddhist ceremonies. Findings from the only published study evaluating these efforts, conducted in a rural community in northern Thailand (Swaddiwudhipong et al., 1993), indicated that a greater proportion of people from a village where the monk urged the inhabitants not to smoke were found to have quit smoking for at least a year and to have greater knowledge about the harmful effects of smoking on health. Of those who quit, a greater proportion identified their monk as one important reason for quitting, compared to a control village of similar socio-demographic level. This study suggests that religious leaders can be powerful agents in community-based smoking cessation efforts.

Thailand is a leader in tobacco control in the Southeast Asia region and has had strong tobacco control measures in place for many years. By contrast, Malaysia has only stepped up its tobacco control efforts in more recent years although both of these countries have recently ratified the Framework Convention on Tobacco Control (FCTC) and are obligated to rapidly fulfill the requirements of the FCTC. This paper uses data from the International Tobacco Control Southeast Asia Survey (ITC-SEA), a large population-based cohort study of the impact of tobacco control policies on smoking behaviour to examine the role of religion and religious authorities in tobacco control efforts of these two Southeast Asian countries. For the purpose of this study, we focus on only the dominant religious group in each country: Malaysian Muslims and Thai Buddhists. The specific aims were: (1) to describe and compare the two religious groups’ perceptions of the role of their religion and religious authorities on smoking and quitting; and (2) to examine prospectively the association between these religious factors and subsequent quitting activity. We hypothesised that smokers who reported at baseline (wave 1) that they were more influenced by their religion, and who believed their religion disapproves of smoking would be more likely to have an intention to quit (assessed at wave 1) and by the next wave (wave 2), they would be more likely to have tried to quit and among those who tried, they would be more likely to succeed in quitting. We expected that measures of religious leadership influence would have similar pattern of relationship with these quitting-related variables at both waves 1 and 2. We were also interested in exploring whether effects would differ across levels of religiosity and locality (urban-rural).

METHODS

Sample

Baseline data come from 1,482 Muslim Malaysian and 1,971 Buddhist Thai adult smokers aged at least 18 years, drawn from a random national sample of 2,000 respondents each from Malaysia and Thailand, as part of the ITC-SEA survey via a face-to-face interview conducted between January and March, 2005. Adults with other religious affiliations were not included in this paper because of small numbers. Data for longitudinal analyses consist of 693 Muslim Malaysians and 1,539 Thai Buddhists from the baseline wave who also completed the wave 2 main survey (conducted from July to September, 2006 in Thailand and from August 2006 to

March 2007 in Malaysia). The notable attrition rate in Malaysia was due to the greater challenges of recontacting people in Malaysia because of flooding in some areas at the time of the follow-up fieldwork and also losing people because of work or education migration.

The baseline recruitment of respondents is described briefly here. The respondents were selected based on a multi-stage cluster sampling procedure from a total of nine provinces (Chiang Mai, Phrae, Nakhon Ratchasima, Nong Khai, Nakhon Pathom, Samut Sakhon, Nakhon Si Thammarat, and Songkhla), including Bangkok. In Malaysia, respondents were drawn from six states: Kedah, Selangor, Johor, Terengganu, Sabah and Sarawak. Within each state/province, respondents were drawn from two rural and two urban districts, with probability proportional to population size. Households were selected using simple random sampling in Thailand where the list of dwellings was arranged in random order for selection, and systematic sampling methods in Malaysia where one was selected out of every 4 dwellings until the respondent quota was filled. Adult smokers were current smokers who smoked at least weekly and had smoked at least 100 cigarettes in their lifetime, selected using "Kish Grid" (Kish, 1949) in households with multiple eligible potential respondents. The Kish Grid is a randomization procedure for making a selection based on the row of the grid corresponding to the number of household members in a particular category and the column corresponding to the last digit of the age of an adult household member.

For both waves, respondents completed a survey interview, which took on average about 50 minutes and included among others, a set of questions on the religious norms and attitudes to smoking. At wave 2, they were also asked about any quitting activity. All survey questions and study procedures for both waves were standardized as far as possible across the two countries. All study protocol was cleared for ethics by the institutional review or research ethics boards at the Universiti Sains Malaysia, Mahidol University (Thailand), University of Waterloo (Canada), The Cancer Council Victoria (Australia), and Roswell Park Cancer Institute (USA). Additional information on the research design and survey methodology is available (see Thompson et al., 2006).

Measures

Respondents were asked to provide information about their age, annual household income, and highest level of education. Sex and place of residence (urban or rural) were also coded. In addition, number of cigarettes smoked per day was recorded.

Religiosity was assessed using the question "In your day-to-day life, how often do you refer to or use your religious beliefs and values to guide your actions?" (Never, Almost never, Sometimes, and All the time). This question was designed to measure the extent to which religion was a chronically accessible concept for respondents. Social psychological research has demonstrated that chronically accessible attitudes are more likely to guide behaviour (Fazio, 1986).

Four common questions were asked about religion and smoking. Perceived religious norms about smoking were assessed by "As far as you know, does your religion discourage smoking?" (Yes, No, Don't Know). Perceived involvement of religious leaders in encouraging cessation, was assessed by "Have you been told (in a sermon) by a religious leader (for Thai: an abbot or senior monk of a wat/temple) that you should try to quit smoking?" The impact of such encouragement assessed was by the question: "How motivated, if at all, would you be to quit smoking if your religious leader (Thai: an abbot or senior monk) advised you that you should quit?" (Not at all, A little, or A lot). We also assessed opinions about whether smoking should be allowed in all indoor areas, in some indoor areas or not allowed indoors at all in the place of worship.

Thai respondents were also asked “Have you ever made merit by giving cigarettes to the monks?” Malaysian Muslims were also asked “What is the ruling of cigarette smoking in Islam?” with response options: “Smoking is strictly forbidden/sinful (Haram)”, “Smoking is discouraged (makruh)”, “Other ruling”, “There isn’t any ruling on cigarette smoking” and “Don’t Know” (the last three response categories were combined for analysis because of small numbers). Malaysian Muslims were also asked two questions about Ramadhan: “Does Ramadhan motivate you to quit smoking?” (Not at all, Yes – A little, or Yes – A lot); and “During the last Ramadhan, how many cigarettes did you usually smoke per day?”

Outcome variables—Intention to quit was assessed by asking about plans to quit (within the next month, next 6 months, beyond 6 months, and not planning). Quit attempts were assessed at wave 2 by asking: “Since we last talked to you in early 2005, have you made any attempts to quit?” Those who said “Yes” and were abstinent for at least 24 hours were considered as having made a quit attempt. Among those who had made a quit attempt, quit success was assessed by: “Are you back smoking or are you still stopped?”

Data Analysis

All analyses were conducted using complex survey commands in Stata Version 10.1 where clustering, stratification, and sampling weights were taken into consideration. For cross-sectional analyses, chi-square tests and one-way analysis of variance were employed to examine differences in categorical and continuous variables, respectively. Logistic regression models were employed to examine the association between religious affiliation and the set of religion-based variables of interest while controlling for socio-demographic and daily cigarette consumption. Interaction terms were added into the regression models to test for the possible moderating effect of locality (urban vs. rural) and religiosity on the effect of religious affiliation. Logistic regression models were also employed for longitudinal analyses to examine the relationship between measures of religious influence and quitting-related variables. Crude odds ratios were obtained from bivariate analyses where each predictor variable was entered into the model one at a time for each outcome of interest and adjusted odds ratios were from multivariate analyses where all predictor variables along with socio-demographics were entered simultaneously into the model to determine their independent effects on outcomes.

RESULTS

Malaysian Muslim respondents were younger, better educated, and were more likely to be male compared to the Thai Buddhist sample (Table 1). While more than 90% in each country reported that their religious beliefs and values guide their actions at least somewhat, more of Malaysian Muslims (59% vs. 24% of Thai Buddhists) reported that this happens all the time (Table 1) (OR=5.6, 95% CI: 4.7, 6.8, $p<0.001$). This was unaffected by whether respondents were urban or rural residents ($p=0.861$).

Characteristics of the recontacted sub-sample were similar to those reported for the baseline sample in Table 1, apart from the following: those lost to follow-up were more likely to be younger, of higher income, better educated, and from urban areas (all p’s<0.01). In addition, more male Thais dropped out ($p<0.01$), as did Malaysians who were less interested in quitting ($p<0.05$).

As can be seen in Table 2, similar large majorities of smokers from both religious groups (79% of Malaysian Muslims and 88% of Thai Buddhists) indicated that their religion discouraged smoking ($p=0.165$). This belief was not significantly related to strength of religious commitment ($p >0.3$ for both groups).

A majority (Malaysian Muslims, 61%, Thai Buddhists 58%, p=0.409) reported that they had been told by their religious leader to quit smoking. Fewer (30% Muslims and 26% of Buddhists, p=0.682) reported that their religious leader would motivate them to quit a lot (Table 2). Thai Buddhists from rural areas were more likely to have heard their religious leaders encouraging them to quit than those from urban areas (63.3% vs. 43.4%, OR=1.8, 95% CI: 1.2-2.7, p<0.01); this difference was not found among the Malaysian Muslims. In addition, the very religious among both groups were more likely to report that their religious leaders had encouraged them to quit (OR=2.3, 95% CI: 1.1-4.7 for Muslims; OR=1.7, 95% CI: 1.3-2.1, for Buddhists) and were also more likely to view their religious leader as an important source of quitting motivation (OR=2.2, 95% CI: 1.3-3.6, p<0.01 for Muslims; OR=3.7, 95% CI: 2.5-5.4, p<0.001 for Buddhists).

Malaysian Muslims were also more likely than Thai Buddhists to believe that smoking should not be allowed indoors at their mosque/temple (86% vs. 50%; OR=6.7, 95% CI: 4.2-10.5, p<0.001 controlling for socio-demographic and religiosity). The very religious smokers in both groups were more likely to have such a preference (OR=2.7, 95% CI: 1.6-4.8, p<0.01 and OR=1.5, 95% CI: 1.2-1.9, p<0.01 for Malaysian Muslims and Thai Buddhists, respectively).

Table 3 shows that only a small proportion of the Malaysian Muslims (8%) reported that an Islamic ruling had forbidden smoking; the majority (76%) reported that smoking was only discouraged. Beliefs about the ruling on smoking was not related to religiosity (p=0.664).

The majority of the Malaysian Muslims (87%) reported the fasting month (Ramadhan) motivated them to quit, although only 15% said it motivated them a lot. After controlling for socio-demographic variables, those who were very religious were more likely to perceive Ramadhan as a strong motivating factor (OR=3.9, 95% CI: 2.0-7.4, p<0.001). Overall, Malaysian Muslims reported that on average they smoked about 4.8 cigarettes per day during the last Ramadhan (compared to 13.2 usually), 36% of their usual amount. This was unrelated to religiosity (p=0.914).

Of the Thai Buddhist sample, 45% reported that they had given cigarettes as alms to monks before, but this was not related to religiosity in the regression analyses (p=0.525).

Religious factors, intention to quit and subsequent quitting

Table 4 shows that overall, Thai Buddhists were more likely to be interested in quitting within the next 6 months than the Malaysian Muslims (p<0.01). Measures of religious attitudes and institutional forces were all positively associated with the intention to quit, but only religiosity and “leader would motivate quitting” had independent effects with no evidence of differences by religious affiliation.

With respect to quitting behaviour, overall, Thai Buddhists were more likely to have made a quit attempt (74.2% vs 47.9%, OR=3.13, 95% CI=2.09-4.68, p<0.001) but among those who tried, the Malaysian Muslims were marginally more likely to quit successfully (23.2% vs 16.8%, OR=1.49, 95% CI=0.99-2.24, p=0.053).

Preliminary analyses suggest the predictive effect of the baseline religious factors on quitting differs across the two religious groups and thus, the results are presented separately in Table 5. Logistic regression models showed that for the Malaysian Muslims, the four common religious factors were all positively associated with both subsequent quit attempts and the success of such attempts but only the perception that their religion discourages smoking had a significant bivariate and independent multivariate effect on quit attempts (p<0.01). Religiosity was significantly associated with increased success in the bivariate association, but this was not significant in the multivariate analyses.

For the Thai Buddhists, however, the religious measures appeared to have different effects on quit attempts compared to quit success. As in Malaysia, all four beliefs were positively associated with quit attempts. Both "leader said to quit" and "leader would motivate quitting" were significant in the bivariate association but only the latter was significant in the multivariate analysis. By contrast, for success among those who tried, the "leader would motivate" variable was a negative predictor in the multivariate analysis and there was no clear pattern among the non-significant effects in the others.

We also explored if any of the effects found above were mediated through Wave 1 intention to quit and found the only mediated effect was the belief among Thai Buddhists that their religious leader would motivate quitting on subsequent quit attempt (results not shown in Table 5). Additional analyses were conducted to explore whether religiosity moderated the effect of religious norms against smoking on quitting attitudes and behaviour but none was found. However, whether a leader would motivate quitting was found to be a moderating factor for the effect of "leader said to quit" on quitting intention but not on quitting behaviour (quit attempts or success) (results not shown in tables). If a religious leader said to quit, quit intentions were higher for those who said their leaders would be a source of motivation for quitting (OR=1.39, 95%CI: 1.00-1.92, p=0.05) but the opposite was the case for those who did not consider their leaders would motivate them to quit (OR=0.32, 95%CI: 0.11-0.94, p=0.04).

We extended the predictive analyses for the Muslim-specific variables controlling for all relevant covariates and found that baseline measure of quit motivation from the Ramadhan anti-smoking campaign was the only variable independently and positively associated with Wave 1 quit intention (Table 6). Curiously, for quitting behaviour, those who reported smoking 5 or more cigarettes per day during their last Ramadhan were more likely to have made a quit attempt subsequently than those smoking less ($p<0.01$). Unexpectedly, among those who made a quit attempt, believing that smoking is prohibited or discouraged by Islamic rules was associated with lower likelihood of success ($p<0.05$).

For all of the above analyses, we also explored for possible moderating effect of locality for each quitting related outcome variable but found none.

DISCUSSION

While religion is perceived by nearly all adult smokers of Muslim and Buddhist faiths as being important, far more Muslim Malaysians see it as playing a central role on their day-today lives. The more religious smokers in both faith groups are more likely to have an interest in quitting but they do not appear to be more likely to make quit attempts although they may be more likely to succeed when they try (significant for Malaysian Muslims) compared to their less religious counterparts. While both faith groups perceive their religion to have played a similar role in discouraging smoking, its effect on their smoking behaviour and attitudes, however, appears to be different. There is some evidence to suggest that perceived religious norms on smoking encourage Malaysian Muslim smokers towards making a quit attempt but this appears to have no clear effect on Thai Buddhist smokers while the role of religious leaders seems to play a more critical role for the Thais. One possible explanation for the differences may have to do with differences in the tobacco control environment of the two countries. In the absence of a strong societal sanction against smoking in Malaysia, religious norms on smoking may have become more important in shaping how Malaysian Muslims should behave. By contrast, because of the strong societal norms against smoking in Thailand, the religious norms on smoking become less influential in shaping the behaviour of Thai Buddhists. This notion is consistent with reference group theory, which posits that individual's behaviour is influenced by the groups to which they refer for normative guidelines for their behaviour (Bock, Beeghley & Mixon, 1983). Past research on alcohol use has demonstrated that where secular norms are

congruent with religious norms, religion no longer serves as a reference group to influence behaviour (Cochran, Beeghley & Bock, 1988). Differences in the practice of the two religions could also explain these differences. Buddhist teaching emphasizes personal beliefs and private observances as a sign of religious obedience whereas Islamic teaching emphasizes public display of obedience, that is, conformity with what is expected from the religious community. However, this latter explanation is less plausible given that we did not find any evidence of an effect of religiosity on quitting behaviour among the Thai Buddhists.

This study provides evidence that religious authorities in both countries are actively involved in tobacco cessation efforts and that they are perceived as influential sources of motivation for quitting, supporting previous work (Saeed, Khoja & Khan, 1996; Swaddiwudhipong et al., 1993). However, this study suggests that the impact of religious leaders on quitting among their followers comes mainly from the credibility of their religious leaders, albeit in somewhat different ways for the two religions. If this is so, it suggests the importance of religious authorities being genuine about the issue and respected as authorities. There is evidence among the Thai Buddhists but not among the Malaysian Muslims that those motivated by their religious leaders to quit were also more likely to relapse, suggesting that the Thais might have greater difficulty in quitting and additional support is needed to help them stay quit. Previous research has shown that more dependent smokers are more likely to fail in their quit attempts (Hyland et al., 2006). The longer history of tobacco control efforts in Thailand might have resulted in a greater proportion of more addicted smokers in Thailand as compared to Malaysia which has only stepped up its efforts more recently.

The marked difference in attitudes to a smoke-free place of worship between the two religious groups (87% of the Malaysian Muslims in support versus 50% of the Thai Buddhists) is rather surprising given the “Smoke-Free Wat” campaign conducted by ASH Thailand, and the generally much stronger and more comprehensive smoke-free public place policies in Thailand compared to that in Malaysia. One possible explanation might be that the frame of reference used by the two groups to answer this question was not the same (Byrne & Campbell, 1999). For example, the term “place of worship” refers to quite different things for the two religious groups (mosque versus temple/wat). The boundary that marks the place of worship for a mosque in Malaysia is usually quite clear but less obvious for a temple/wat in Thailand, where the large outdoor compound surrounding it is typically considered part of the temple. Worshippers who are smokers would find it more difficult to go “outside” to smoke if there were to be a total ban at the place of worship for a temple/wat than for a mosque. Further, the tradition of burning incense in Wats may make smoking a more normal activity compared to the austerity of the Muslim prayer hall.

Our findings also suggest that the practice of giving cigarettes as alms to monks was quite common among Thai smokers as part of making merit for themselves even though in 1986, ASH Thailand and the Ministry of Public Health launched a campaign to discourage Thai people from offering cigarettes as alms (Charoenca et al., 2004). This practice should continue to be discouraged since it sends an inappropriate message and is likely to discourage quitting among monks who smoke.

Most Malaysian Muslim smokers do not view smoking as haram, perhaps reflecting the failure to fully implement the national decree to this effect. This lack of unanimity in Malaysia reflects similar differences in opinions among scholars in the Islamic world (Ghouri, Atcha, & Sheikh, 2006). However, we suspect that there is a motivation for current smokers to view smoking as non-haram wherever possible, as to believe it to be haram and continue to smoke would cause dissonance.

There is no evidence that Muslim adherents who believed that smoking is prohibited or discouraged were any more interested in quitting or any more likely to quit. It is unclear, however, why those who tried to quit were more likely to relapse suggesting that if anything, rulings (both perceived and actual) have not been helpful in any way. Previous studies have demonstrated that religious rulings alone are ineffective in reducing smoking rates with patterns of smoking in Middle Eastern and North African countries largely unchanged following clear religious rulings prohibiting tobacco smoking (Hameed, Jalil, Noreen, Mughal & Rauf, 2002; Radwan, Israel, El-Setouhy, Abdel-Aziz, Mikhail, & Mohamed, 2003). This suggests that for religious rulings to be helpful, they need to be supported by a comprehensive set of policies to inform the public about the harm of smoking, denormalize smoking and provide help for those who need it. Mere decrees are not enough.

The high percentage of Malaysian Muslims who reported that Ramadhan motivated them to consider quitting is certainly encouraging. Since Ramadhan prohibits smoking during the daylight hours, it should be a good time to try to quit (Mohamed, 2003). However, the evidence from this study suggests that the anti-smoking campaign initiated by the Malaysian government during the fasting month in October 2004 has only increased individuals' motivation for quitting. We found no clear evidence that it translates into action. What may motivate action is difficulty in complying. Those who reported smoking more per day during Ramadhan were more likely to try to quit subsequently.

The following limitations must be kept in mind when interpreting the findings of this study. First, the high attrition rate in the Malaysian sample may make the results less generalizable although we have taken care to include all baseline variables associated with increased probability of attrition as covariates in all our models. Second, the surveys were asked in different languages in the two countries, and thus there is an increased risk that differences in interpreting the questions may be responsible for some effects found. That said, we do not have any evidence of such effects for the questions reported on here. Third, this study confounds religion and country. We cannot be certain that differences we attribute to religion are not country-specific factors, or attributable to idiosyncrasies in the ways in which each religion is interpreted in the respective country. Care should be taken in generalizing to other Muslim countries, especially outside Asia, and to other Buddhist countries. Fourth, given the predominantly male smokers in our sample from both of these two countries consistent with the low smoking prevalence rate among women in these countries, the findings from this study may not generalize to other similar countries with a higher proportion of women smokers.

Taken together, these findings suggest that in countries like Malaysia and Thailand, in which religion plays a very prominent role in society, religion can play an important role as part of an integrated set of programmes and policies for tobacco control. For example, religious authorities and tobacco control advocates can work together to develop appropriate programmes that capitalize on religious festivals and gatherings to educate those in their faith community about the harm of smoking and encourage those who are smokers to quit. The effectiveness of these religious-based programmes can be further enhanced by providing relevant information on cessation aids and services available to assist those who want to quit. Religious leaders can be engaged to further this effort through active participation as they have good religious as well as social reasons for action. Their actions can be important in helping to facilitate the social and cultural denormalization of smoking. Religious leaders who are smokers themselves should set an example by quitting smoking so that what they preach will have credibility. They can also help with the enforcement of smoke-free policy in their place of worship. The two countries studied here demonstrate that religion can be a culturally relevant vehicle to complement other efforts being undertaken to fulfil their obligation as parties of the Framework Convention on Tobacco Control and to improve the health and well-being of their citizens.

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Table 1

Baseline sample characteristics and reported importance of religion to everyday lives.

	Malaysian Muslims (%) N=1482	Thai Buddhists (%) N=1971	Group differences
Age			
18-24	18.7	6.7	$\chi^2(3)=207.46$, $p<0.001$
25-39	34.2	23.8	
40-54	30.5	41.5	
55+	16.6	27.9	
Sex			
Male	96.9	94.4	$\chi^2(1)=12.01$, $p=0.058$
Income			
Low	37.8	37.5	$\chi^2(2)=1.78$, $p=0.836$
Medium	31.3	33.3	
High	30.9	29.1	
Education			
No schooling/elementary	26.1	75.7	$\chi^2(2)=843.68$, $p<0.001$
Secondary	60.5	17.2	
Post-secondary	13.4	7.1	
Locality			
Rural	44.9	73.8	$\chi^2(1)=275.94$, $p=0.069$
Cigarette per day			
5 or less	17.9	19.5	$\chi^2(3)=25.51$, $p=0.032$
6-10	32.4	35.0	
11-20	45.1	37.7	
21+	4.6	7.8	
Intention to quit			
Not planning to quit	41.5	58.6	$\chi^2(3)=226.06$, $p<0.001$
Beyond 6 months	43.9	20.4	
Within 6 months	7.9	13.7	
Within 1 month	6.7	7.2	
Religious beliefs guide actions			
Never	5.4	4.9	$\chi^2(3)=446.39$, $p<0.001$
Almost never	1.4	3.1	
Sometimes	33.9	67.6	
All the time	59.3	24.4	

NB. Missing cases range from 3 to 30 for Malaysia and 2 to 11 for Thailand.

Table 2

Reported religious norms against smoking and religious leadership against smoking by religiosity.

Variables	Malaysian Muslims N=1482			Thai Buddhists N=1971		
	Rel	NRel	Total	Rel	NRel	Total
Religion discourages smoking (%)						
Yes	84.6	71.5	79.0	90.3	87.1	87.9
No	10.7	16.1	12.8	8.7	10.1	9.8
Don't Know	4.7	12.4	8.2	1.0	2.8	2.4
Religious leader said to quit (% Yes)	69.9	47.8	60.9	67.9	55.0	58.2
Religious leader would motivate quitting (%)						
Not at all	10.7	16.2	13.0	16.4	31.2	27.6
A little	52.8	64.2	57.5	41.8	47.8	46.4
A lot	36.5	19.6	29.5	41.8	21.0	26.0
Rule for smoking in places of worship (%)						
Allowed in all/some indoor areas	8.7	21.3	14.5	39.6	52.8	49.6
Not allowed at all	91.3	78.7	85.5	60.4	47.2	50.4

Note: Rel– reported "All the time" on beliefs guide actions (religiosity); NRel – reported "Never" to "Sometimes" on beliefs guide actions.

Table 3

Reported views of Malaysian Muslim smokers on Islamic ruling on smoking and effect of Ramadhan anti-smoking campaign by religiosity.

	Religious [a] N=801	Not Religious [b] N=577	Total N=1378
Ruling on smoking in Islam (%)			
Forbidden	8.2	7.9	8.1
Discouraged	80.9	69.9	76.2
Other/No ruling	3.0	5.3	4.1
Don't know	7.8	16.8	11.5
Ramadhan motivates quitting (%)			
Not at all	10.4	17.2	13.4
A little	70.1	74.3	71.7
A lot	19.4	8.5	14.9
# cigarettes smoked during last Ramadhan			
Mean	4.75	4.92	4.83
SE	0.24	0.19	0.16
% not at all	4.2	2.4	3.5

Note:

[a] reported "All the time" on beliefs guide actions;

[b] reported "Never" to "Sometimes" on beliefs guide actions.

Table 4

Logistic regression showing association between religion-related variables and quit intention assessed at baseline.

Wave 1 predictors	Wave 1 Intend to quit within 6 months	
	Crude OR (95% CI) N=3453	Adjusted OR (95% CI) N=3106
Religious affiliation		
Malaysian Muslims	0.64 (0.42-0.98)*	0.60 (0.39-0.92)*
Thai Buddhists	Reference	Reference
Religiosity		
Very religious	1.29 (1.07-1.56)**	1.39 (1.05-1.86)*
Other	Reference	Reference
Religion discourages smoking		
Yes	1.50 (1.07-2.09)*	1.19 (0.74-1.89)
No	Reference	Reference
Don't Know	0.50 (0.28-0.90)*	0.80 (0.39-1.64)
Leader said to quit		
Yes	1.69 (1.26-2.26)**	1.19 (0.86-1.65)
No	Reference	Reference
Leader would motivate quit		
Not at all	Reference	Reference
A little	1.84 (1.26-2.68)**	1.70 (1.17-2.48)**
A lot	3.44 (2.46-4.82)***	2.65 (1.82-3.86)***

NB. Crude odds ratio (OR) represents the bivariate relationship between the predictor and the outcome variable. Adjusted OR represents the independent effect of the predictor on outcome after controlling for all other variables including those not reported in the table: age, sex, income, education, locality, and daily cigarette consumption.

Table 5

Logistic regression predicting quitting at Wave 2.

Wave 1 predictors	Wave 2 Quit attempts[a]				W2 Quit success[b]			
	Malaysia Crude OR (95% CI) N=607	**Malaysia Adjusted OR (95% CI) N=507**	**Thailand Crude OR (95% CI) N=1522**	**Thailand Adjusted OR (95% CI) N=1456**	**Malaysia Crude OR (95% CI) N=292**	**Malaysia Adjusted OR (95% CI) N=244**	**Thailand Crude OR (95% CI) N=1126**	**Thailand Adjusted OR (95% CI) N=1078**
Religiosity								
Very religious	1.43 (0.69-2.95)	1.07 (0.49-2.31)	1.17 (0.89-1.52)	1.06 (0.80-1.40)	2.09 (1.17-3.71)*	1.45 (0.61-3.46)	1.50 (0.99-2.29)	1.36 (0.89-2.09)
Other	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Religion discourages smoking								
Yes	3.35 (1.83-6.13)**	3.37 (1.77-6.40)**	1.04 (0.64-1.69)	0.86 (0.52-1.44)	1.68 (0.35-8.20)	1.33 (0.31-5.71)	0.83 (0.39-1.75)	0.85 (0.36-1.97)
No	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Don't Know	0.63 (0.22-1.78)	0.61 (0.29-1.27)	0.47 (0.15-1.43)	0.46 (0.15-1.41)	1.10 (0.17-7.19)	0.86 (0.11-6.69)	0.13 (0.01-1.82)	0.13 (0.01-1.99)
Leader said to quit								
Yes	1.86 (0.92-3.78)	1.21 (0.64-2.29)	1.41 (1.02-1.94)*	1.07 (0.71-1.61)	2.16 (0.87-5.37)	2.05 (0.41-10.29)	0.79 (0.50-1.24)	0.87 (0.49-1.57)
No	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
Leader would motivate quit								
Not at all	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
A little	1.17 (0.56-2.45)	1.20 (0.60-2.44)	1.43 (0.96-2.15)	1.47 (0.92-2.35)	2.04 (0.76-5.42)	0.81 (0.15-4.56)	0.70 (0.49-1.01)	0.66 (0.44-0.99)*
A lot	1.16 (0.49-2.74)	0.88 (0.42-1.85)	1.89 (1.24-2.89)**	1.87 (1.13-3.09)*	4.98 (0.97-25.52)	1.97 (0.22-17.64)	0.78 (0.47-1.28)	0.66 (0.34-1.28)

Note: Adjusted OR control for the other variables in the table plus the following variables not reported in the table: age, sex, income, education, locality, and daily cigarette consumption.

[a] Quit for at least 24 hours;

[b] Among baseline current smokers who made quit attempts between waves 1 and 2.

* p<0.05;

** p<0.01;

*** p<0.001

Table 6

Influence of Islamic ruling on smoking and Ramadhan anti-smoking campaign in Malaysia on Muslim smokers' intention to quit and subsequent quitting activity.

Wave 1 predictors	Wave 1 Intend to quit within 6 months		Wave 2 Quit attempts		Wave 2 Quit success	
	Crude OR (95% CI) N=1378	Adjusted OR (95% CI) N=1100	Crude OR (95% CI) N=617	Adjusted OR (95% CI) N=449	Crude OR (95% CI) N=294	Adjusted OR (95% CI) N=218
Ruling on smoking in Islam						
Forbidden	2.22 (0.97-5.09)	2.48 (0.76-8.14)	1.52 (0.43-5.30)	1.05 (0.23-4.90)	0.32 (0.08-1.37)	0.19 (0.04-0.83)*
Discouraged	1.23 (0.65-2.32)	1.56 (0.63-3.88)	1.27 (0.39-4.11)	1.00 (0.27-3.71)	0.38 (0.07-2.08)	0.18 (0.03-0.99)*
Other/No ruling/Don't Know	Reference	Reference	Reference	Reference	Reference	Reference
Surveyed states with fatwa						
Selangor & Kedah [a]	0.94 (0.42-2.08)	1.08 (0.41-2.88)	1.13 (0.52-2.46)	1.69 (0.71-3.54)	0.88 (0.39-1.96)	0.69 (0.15-3.31)
Other states without fatwa	Reference	Reference	Reference	Reference	Reference	Reference
Ramadhan motivates quitting						
Not at all	Reference	Reference	Reference	Reference	Reference	Reference
A little	3.02 (1.09-8.34)*	2.92 (0.90-9.44)	0.87 (0.48-1.56)	1.13 (0.48-2.64)	1.74 (0.52-5.89)	0.72 (0.09-5.43)
A lot	4.64 (1.64-13.09)**	3.46 (1.08-11.04)*	0.85 (0.31-2.34)	1.09 (0.39-3.05)	2.93 (0.79-10.85)	2.74 (0.56-13.37)
# cigs smoked last Ramadhan						
0-4	Reference	Reference	Reference	Reference	Reference	Reference
5 or more	0.87 (0.55-1.40)	1.05 (0.59-1.88)	1.49 (0.86-2.57)	2.36 (1.35-4.12)**	0.55 (0.22-1.41)	0.82 (0.28-2.44)

Note:

[a] Perlis was not sampled and thus not included.

Adjusted odds ratio control for the other variables in the table plus the following variables not reported in the table: age, sex, income, education, locality, daily cigarette consumption, religiosity, and religious norms on smoking;

* p<0.05;

** p<0.01;

*** p<0.001