



VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

The effects of smoking norms and attitudes on quitting intentions in Malaysia, Thailand and four Western nations: A cross-cultural comparison

This is the Accepted version of the following publication

Hosking, Warwick, Borland, Ron, Yong, Hua-Hie, Fong, Geoffrey, Zana, Mark, Laux, Fritz, Thrasher, James, Lee, Wonkyong Beth, Sirirassamee, Buppha and Omar, Maizurah (2009) The effects of smoking norms and attitudes on quitting intentions in Malaysia, Thailand and four Western nations: A cross-cultural comparison. *Psychology and Health*, 24 (1). pp. 95-107. ISSN 0887-0446 (print) 1476-8321 (online)

The publisher's official version can be found at
<http://www.tandfonline.com/doi/full/10.1080/08870440802385854#.VNLPxLmKCUk>
Note that access to this version may require subscription.

Downloaded from VU Research Repository <https://vuir.vu.edu.au/15489/>

Published in Psychology and Health

<https://www.ncbi.nlm.nih.gov/pubmed/20186642>

**The effects of smoking norms and attitudes on quitting intentions in Malaysia,
Thailand, and four Western nations: A cross-cultural comparison**

Warwick Hosking^{1*}, Ron Borland², Hua-Hie Yong², Geoffrey Fong³, Mark Zanna³,
Fritz Laux⁴, James Thrasher⁵, Wonkyong Lee³, Buppha Sirirassamee⁶,
Maizurah Omar⁷

1. School of Social Sciences and Psychology, Victoria University, St Albans,
Victoria, Australia
2. VicHealth Centre for Tobacco Control, The Cancer Council Victoria, Carlton,
Victoria, Australia
3. Department of Psychology, University of Waterloo, Waterloo, Ontario,
Canada
4. Department of Accounting and Finance, Northeastern State University,
Tahlequah, Oklahoma, USA
5. Department of Health Promotion, Education, and Behavior, University of
South Carolina, Columbia, South Carolina, USA
6. Institute for Population and Social Research, Mahidol University, Salaya,
Phutthamonthon, Nakhon Pathom 73170, Thailand
7. National Poison Centre of Malaysia, Universiti Sains Malaysia, 11800
Minden, Penang, Malaysia

*Correspondence to: Warwick Hosking, School of Psychology, Victoria University,
St Albans, Victoria 3021, Australia; Tel: +61 (0)3 9919 2620; Fax: +61 (0)3 9919

2218; Email: Warwick.Hosking@vu.edu.au

Abstract

This research investigated the influence of smoking attitudes and norms on quitting intentions in two predominantly collectivistic countries (Malaysia and Thailand) and four predominantly individualistic Western countries (Canada, USA, UK, and Australia). Data from the International Tobacco Control Project ($N = 13,062$) revealed that higher odds of intending to quit were associated with negative personal attitudes in Thailand and the Western countries, but not in Malaysia; with norms against smoking from significant others in Malaysia and the Western countries, but not in Thailand; and with societal norms against smoking in all countries. Our findings indicate that normative factors are important determinants of intentions, but they play a different role in different cultural and/or tobacco control contexts. Interventions may be more effective if they are designed with these different patterns of social influence in mind.

(Word count for abstract: 134)

Keywords: Smoking, social norms, attitudes, collectivism

Smoking is a leading cause of preventable death worldwide, and, thus, remains a serious public health problem. While smoking prevalence has declined in many countries, through interventions to increase awareness of its harmfulness and through tobacco control policies (Shafey, Dolwick, & Guindon, 2003), tobacco use is still widespread. In particular, smoking prevalence remains high in developing regions of the world, such as Asia, and has even increased in the past decade in some countries (Shafey et al., 2003). Therefore, determining the factors that influence smokers' quitting intentions, and exploring how these vary across countries, is important.

One potentially important factor is social influence (Van den Putte, Yzer, & Brunsting, 2005), as this has been shown to be a significant predictor of the uptake of smoking (Kobus, 2003; Mayhem, Flay, & Mott, 2000). An important model which explicitly takes into account social influence and the role of the social environment is the theory of planned behaviour (TPB; Ajzen, 1991). This theory proposes that people's intentions to behave in particular ways are informed by three main factors: their *personal attitude* towards the behaviour; their perceptions of social pressure from significant others to perform the behaviour, or *subjective norms*; and the amount of control they believe they have over performing the behaviour, or *perceived behavioural control*. In the smoking domain, TPB variables have been shown to predict both quitting intentions (Abrams & Biener, 1992; Droomers, Schrijvers, & Mackenbach, 2004; Godin, Valois, Lepage, & Desharnais, 1992; Norman, Conner, & Bell, 1999) and actual quitting (Godin et al., 1992; Norman et al., 1999), as well as the uptake of smoking among adolescents (Wilkinson & Abraham, 2004).

Of primary interest to the present study is the role of subjective norms. Out of the three main TPB variables, norms have generally been shown to have the weakest effect on intentions (Armitage & Conner, 2001; Godin & Kok, 1996). However, it

has been argued that this is due to the poor measurement and inconsistent conceptualisation of norms (Armitage & Conner, 2001) or the lack of variation of norms within a culture at any point in time. Research by Wiium, Torsheim, and Wold (2005) demonstrated that different kinds of norms differentially influence intentions and behaviour, and argued that the assessment of different kinds of norms in the TPB model can both extend the concept of “norm” and improve its predictive power.

In the present study we distinguish between norms from significant others (i.e., perceptions of what significant others believe about smoking) and societal norms (i.e., perceptions of what society in general believes about smoking). In this respect, we depart from previous smoking research that has treated these kinds of norms as two components of a higher order social norm (e.g., Hammond, Fong, Zanna, Thrasher, & Borland, 2006). We argue that it is important to distinguish between these two sources of normative influence, as individuals’ perceptions of the broader social desirability of smoking may differ from their perceptions of what their significant others believe.

This distinction is particularly important when examining cultures that have quite different normative environments regarding smoking. In some countries, such as Australia and the USA, smoking has become a socially undesirable behaviour. This has occurred, at least partially, through decades of communication about the harms of smoking and a range of tobacco control policies, including the reduced capacity of tobacco companies to promote their products, health warnings on cigarette packs, and restrictions on where smoking is permitted. However, the social undesirability of smoking is not a global phenomenon. Some countries, such as Malaysia, have had a comparatively tobacco-friendly environment, with a relative lack of strongly enforced tobacco control policies and a higher prevalence of smoking

than in many Western countries, at least among men. Nevertheless, individual Malaysian smokers' families and close social networks may still disapprove of smoking. Thus, it is of interest to examine the relative influence of these two potentially opposing smoking norms on quitting intentions in different countries.

In examining possible cultural differences in the relative impact of TPB variables on quitting intentions, it may be useful to consider the distinction between *individualism* and *collectivism* (Hofstede, 1980; Kim, Triandis, Kagitcibasi, Choi, & Yoon, 1994; Triandis, 1995). Broadly speaking, individualism is characterised by a self-definition based on autonomy and independence, and a focus on behaving according to personal goals, attitudes, and beliefs, whereas collectivism is characterised by a self-definition based on interdependence and social embeddedness, and a focus on conforming to social norms and values (Oyserman, Coon, & Kemmelmeier, 2002; Triandis, 1995). At the cultural level, individualism tends to be higher in Western cultures, such as Australia and the USA, whereas collectivism tends to be higher in Eastern cultures, such as China and Thailand (Hofstede, 1991). A considerable amount of research has shown that these cultural differences have implications for various aspects of psychological functioning, such as well-being, attribution style, and relationality (Oyserman et al., 2002). We note that individualism and collectivism are not bipolar opposites, but are separate, orthogonal dimensions that describe different cultural patterns (e.g., Gelfand, Triandis, & Chan, 1996; Triandis & Gelfand, 1998). Furthermore, both constructs are complex and multifaceted, and show substantial intra-cultural variability (Oyserman et al., 2002). Nevertheless, meta-analytic evidence suggests that at the aggregate level, different cultures can be characterised by differences in individualism and collectivism (e.g., European Americans are more individualistic and less collectivistic than Americans of

Latin or African background; and Americans overall are reliably lower in collectivism than people of Chinese origin; Oyserman et al., 2002).

Such cultural differences may have implications for how subjective norms influence smokers' quitting intentions. Specifically, smokers in predominantly individualistic cultures may be less influenced by anti-smoking norms than by their own personal attitudes towards smoking. In contrast, anti-smoking norms may have a much greater effect on quitting intentions of smokers in more collectivistic cultures. Consistent with this proposition, though some cross-cultural research on the TPB has shown that its predictive ability generalizes across cultures (e.g., Godin et al., 1996; Hagger et al., 2007; Van Hooft, Born, Taris, & Van der Flier, 2006), the effect of norms has been shown to be relatively strong in more collectivistic cultures; for example, in predicting environmentally-friendly purchasing behaviour in China (Chan & Lau, 2001) and intentions to use contraception in Ethiopia (Fekadu & Kraft, 2001). It has also been argued that whereas attitudes are imbued with more importance than norms in more individualistic cultures, norms are given more weight than attitudes in more collectivistic cultures (e.g., Triandis & Gelfand, 1998).

Furthermore, in more collectivistic cultures, the effects of norms from significant others and society may depend somewhat on the normative environment of smoking. Thailand and Malaysia are particularly interesting cases, as their cultures are both predominantly collectivistic (Hofstede, 1991), but they have different normative smoking environments. In Thailand, smoking is prohibited in many public spaces, graphic health warning labels on cigarette packs have been introduced, and King Bhumipol Adulyadej, who is highly revered by the Thai public, has spoken out against tobacco use. Thus, because Thailand has a predominantly collectivistic culture, and societal norms are such that smoking is considered undesirable, it is

reasonable to expect that societal norms would strongly influence Thai smokers' quitting intentions. In contrast, as mentioned earlier, some tobacco control policies in Malaysia, such as bans on advertising and restricted smoking in public indoor spaces, are not strongly enforced, while other policies, such as health warnings on cigarette packs, are relatively weak. In the absence of a strong societal norm against smoking, one may expect Malaysian smokers' quitting intentions to be less related to societal norms, and to be more strongly related to other factors, such as personal attitudes or norms from significant others.

Thus, the aim of this paper was to examine the relative influence of attitudes, norms from significant others, and societal norms on quitting intentions in two predominantly collectivistic Southeast Asian countries (Malaysia and Thailand) and four predominantly individualistic Western countries (Australia, USA, UK, and Canada). This was to explore the notion that norms may influence behaviour in different ways in different cultural contexts. Specifically, we expected that personal attitudes would have a stronger influence than norms on quitting intentions in the Western countries, and that norms would have a greater influence than personal attitudes in the Southeast Asian countries. Furthermore, we expected that societal norms would have a greater impact in Thailand than in Malaysia; and that norms from significant others would have a greater influence than societal norms in Malaysia.

Method

Data and sampling

The Southeast Asian data come from the first wave of surveys conducted between January and March, 2005, in Malaysia and Thailand as part of the International Tobacco Control Southeast Asia (ITC-SEA) project. The sample

consisted of 2000 adult smokers (1846 men, 154 women) in Malaysia and 2004 adult smokers (1906 men, 98 women) in Thailand. The small number of women reflects the low smoking prevalence among women in both countries. All of the analyses reported included the women participants, as analyses excluding them yielded almost identical results.

A stratified multi-stage survey design was used with face-to-face interviews conducted in Thai in Thailand, and in Malay (predominantly) or English in Malaysia. The surveys were carefully translated and back translated and checked by local members of the research team for accuracy of concept translation. In Thailand, the primary strata were Bangkok and one province randomly selected from each of the four regions (North, Northeast, Central, and South). In Malaysia, the primary strata were one state from each of the six zones in Malaysia (Kedah, Selangor, Johor, Terengganu, Sabah, and Sarawak). Clusters of households were selected from subdistricts and communities within each state or province. Simple random sampling in Thailand, and systematic random sampling in Malaysia, was then used to select households within each cluster. Finally, a maximum of two adult smokers (one male, one female) were selected at random within each household, using a modified Kish grid (Kish, 1949).

The “Western” country data are from the first wave of the International Tobacco Control Four Country (ITC 4) survey, conducted from October to December, 2002. The total sample of adult smokers ($N = 9058$) consisted of 2214 participants from Canada (1011 men, 1203 women), 2138 participants from the US (958 men, 1180 women), 2401 participants from the UK (1042 men, 1359 women), and 2305 participants from Australia (1091 men, 1214 women). Participants were chosen using probability sampling methods with telephone numbers selected at random within

strata defined by geographic region and community size. Unlike the face-to-face interviews conducted in Thailand and Malaysia, all interviews in the four Western countries were conducted via telephone. For further information on the research design and survey methodology, see Thompson et al. (2006; see also <http://www.itcproject.org>).

Measures

All of the measures used in this study were single items embedded within the larger ITC project questionnaire.

Attitudes and norms

Measures of attitudes and norms were based on agreement with statements (1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, or 5 = strongly agree). An additional option of “can’t say” was available to the Malaysian and Thai respondents, but not to the Western respondents. All “can’t say” responses (less than 6% of all Malaysian and Thai responses) were excluded from further analyses.

Personal attitude (PA) was assessed by “You enjoy smoking too much to give it up” (reverse-scored such that higher scores reflected more negative attitudes). Norm from significant others (NSO) was measured by “People who are important to you believe that you should not smoke.” Perceived societal norm (SN) was measured by “Society disapproves of smoking.” In Malaysia and Thailand this was prefaced by the country (e.g., “Thai society disapproves of smoking”).

Perceived control

The third TPB variable purported to influence intentions is perceived behavioural control. However, perceived behavioural control has been treated somewhat interchangeably with self-efficacy in the TPB literature. Armitage and

Conner (2001) performed a meta-analysis of **TPB** studies and compared the predictive strength of perceived behavioural control relative to that of measures of self-efficacy. They found that self-efficacy is a better predictor of intentions than is perceived behavioural control, and recommended that it be used in favour of perceived behavioural control in TPB research. Therefore, we included in our analyses a measure of self-efficacy, which was assessed with the item “If you decided to give up smoking completely in the next six months, how sure are you that you would succeed?” (1 = not at all sure; 2 = slightly sure; 3 = moderately sure; 4 = very sure; 5 = extremely sure).

Additional variables

Additional variables **assessed** were number of cigarettes smoked per day, self-reported addiction level (not at all addicted; somewhat addicted; or very addicted), and past quitting attempts (“Have you ever tried to quit smoking?”). Past behaviour is often found to be a predictor of behavioural intentions over and above the TPB components (e.g., Conner & Armitage, 1998; Sutton, 1995), though not always (e.g., Norman et al., 1999). We also controlled for education level (low, medium, high: recoded from country-specific codes to give approximate tertiles for each country), age, and sex.

Quitting intentions

This was a binary variable measured by “Are you planning to quit smoking?”, with the response options “within the next month”, “within the next 6 months”, and “sometime in the future, beyond 6 months” coded as positive intention; and “not planning to quit” coded as no intention. The decision to dichotomise this variable rather than retain the original four categories **or treat it as continuous** was both theoretically and empirically motivated. Theoretically, unlike some approaches

which treat only those who are planning to quit in the next month as “intending” to quit (e.g., Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992), the TPB does not explicitly involve a temporal element in the way it conceptualises intentions. Empirically, **although a preliminary multiple linear regression analysis with quitting intention treated as a continuous dependent variable yielded a similar pattern of results to those reported below, we viewed this analysis as problematic because quitting intention was highly skewed (within the next month = 9.3%, within the next 6 months = 20.3%, beyond 6 months = 36.2%; and not planning to quit = 34.2%). Moreover, the four-category quitting intention variable is, strictly speaking, an ordinal rather than a continuous variable. Therefore, we felt that using logistic regression with the dichotomous quitting intention variable was a more appropriate analytic strategy.**

Results

Country, attitudes, and norms

Table 1 shows the means and standard deviations of the attitude and norm variables, which all varied significantly as a function of country (all F s > 51.29, p s < .001). Post-hoc tests revealed that PAs were significantly more negative in Thailand than in the other five countries, and the least negative in Malaysia; that NSOs about smoking were significantly more negative in Canada, the USA, Australia, and Thailand than in the UK and Malaysia; and that SNs about smoking were significantly more negative in Canada than in the other five countries, and the least negative in Malaysia.

> Table 1 about here <

Associations between attitudes and norms

Table 2 shows that neither NSO nor SN was strongly correlated with PA, although there were some small significant correlations. However, NSO was moderately and positively correlated with SN in all countries except Malaysia. This correlation was significantly stronger in Thailand than in the other countries ($z = 4.22$, $p < .05$, when compared with the next highest correlation of $r = .24$ in the USA).

> Table 2 about here <

Quitting intentions

As shown in Table 2, PA was positively correlated with quitting intention in all countries, except Malaysia. NSO was positively associated in all countries, although only weakly in Thailand. SN was weakly correlated with quitting intention in Canada, Malaysia, and Thailand, and not at all correlated with quitting intention in the USA, UK, and Australia. There was also a significant association between country and quitting intentions, such that a greater percentage of smokers in Canada (81.4%), the US (74.9%), and Australia (75.9%), but not the UK (64.7%), intended to quit than in Malaysia (55.0%) and Thailand (40.3%), $\chi^2(5) = 1090.93$, $p < .001$.

We examined further the associations between quitting intentions and PA, NSO, and SN, as well as country, by performing logistic regression analysis. Initially, the analysis was performed with “country” as a six-category variable. This analysis revealed no significant differences between the four Western countries. Consequently, they were collapsed into a single “country” category in the final analysis reported here, with Malaysia and Thailand kept separate.

Hierarchical regression was used to examine whether attitudes and norms significantly improve the prediction of quitting intentions over and above socio-demographic variables and known predictors of quitting intention. The analysis was conducted stepwise. All of the control variables were entered in Step 1, which reliably differentiated between smokers who intend to quit and those who do not, $\chi^2(13) = 1995.39, p < .001$. Having made a past quit attempt, being in a younger age group, having completed a higher level of education, being very addicted, smoking fewer cigarettes per day, and reporting higher self-efficacy all independently increased the odds of intending to quit (all $ps < .05$).

In Step 2, the three key variables (PA, NSO, and SN) were added, and prediction was improved (χ^2 -change(3) = 748.46, $p < .001$). The odds ratios for these three variables were all significant in Step 2 (PA = 1.56; NSO = 1.48; SN = 1.14; all $ps < .001$). Finally, interactions with country, computed by multiplying PA, SN, and NSO with each of the binary coding variables for country, were added in Step 3 to determine whether any associations between the norms and attitude variables and quitting intentions differ significantly by country. This further improved the model (χ^2 -change(3) = 83.80, $p < .001$; overall model: $\chi^2(22) = 2827.65, p < .001$). A Hosmer and Lemeshow test also indicated that the final model, shown in Table 3, was a good fit to the data ($p = .10$).

> Table 3 about here <

The results for the control variables in the final model remained largely unchanged from Step 1. Furthermore, as expected, the odds of intending to quit in the final model increased with a more negative PA, NSO, and SN about smoking across

the entire sample. However, significant country \times PA and country \times NSO interactions indicated that the associations of quitting intentions with PA and NSO, but not SN, varied across countries. The nature of these interaction effects was explored by repeating the analyses for the Western countries, Malaysia, and Thailand separately, as shown in Table 4.

> Table 4 about here <

As can be seen in Table 4, a more negative PA towards smoking increased the odds of being interested in quitting in the Western countries and, to a somewhat lesser extent, in Thailand, but not in Malaysia. Conversely, a more negative NSO about smoking increased the odds of being interested in quitting in the Western countries and Malaysia, but not in Thailand.

Discussion

The present findings showed that attitudes and norms about smoking in Thailand and the Western countries were more negative than in Malaysia, particularly in the case of societal norms. This is not surprising, as Malaysia has had the weakest and/or least enforced tobacco control policies. This suggests that people's attitudes and perceived norms about smoking tend to conform with the anti-tobacco messages that are conveyed through such policies. However, this association is likely to be bi-directional, as there is likely to be more pressure on governments to enforce strict tobacco control policies in societies where smoking is less socially acceptable (Jacobson & Zapawa, 2001).

This study also showed that the associations between smoking norms and attitudes and quitting intentions are similar in the four western countries, but that

Malaysia and Thailand differ both with respect to each other and with respect to the west. We now discuss these patterns of cultural differences.

As expected, personal attitudes had the strongest influence on smokers' quitting intentions in the Western countries. This is consistent with the idea that the high levels of individualism in Western cultures promote behaviour designed to be consistent with personal attitudes and beliefs. Nevertheless, both norms from significant others and societal norms were also significantly associated with quitting intentions in the Western countries. This suggests that, even in a predominantly individualistic environment, Western smokers are still influenced by their perceptions of what their significant others, as well as society in general, think about the desirability of smoking. Indeed, this is consistent with the argument that individualism and collectivism are separate dimensions (Triandis & Gelfand, 1998).

We expected subjective norms to have a stronger influence than personal attitudes on quitting intentions among Malaysian and Thai smokers, as their cultures are more collectivistic than Western cultures. Furthermore, given the stronger anti-tobacco environment in Thailand, we expected that societal norms about smoking would be more strongly associated with quitting intentions in Thailand than in Malaysia, and that norms from significant others would have a greater influence than societal norms on quitting intentions in Malaysia. Our results indicated that both Thai and Malaysian smokers who reported negative societal norms about smoking were more likely to be interested in quitting smoking; however, contrary to expectations, the effect of societal norms was not significantly greater in Thailand than it was in Malaysia. Thus, even though the societal norms reported by Thai smokers were more negative overall than those reported by Malaysian smokers, *individuals'* perceptions

of the social undesirability of smoking influenced their quitting intentions to a similar extent in both countries.

However, we found a clear difference between Malaysia and Thailand regarding the roles of personal attitudes and norms from significant others. Whereas norms from significant others, but not personal attitudes, were associated with quitting intentions in Malaysia, the reverse was true in Thailand. The Malaysian findings suggest, as expected, that norms about smoking that derive from perceptions of significant others' disapproval have a greater influence than more abstract societal norms on quitting intentions in a collectivistic culture which is *not* particularly anti-tobacco at the societal level. Moreover, the lack of a significant effect of personal attitudes may indicate that Malaysian smokers place such high importance on their significant others' beliefs about correct behaviour that what they personally believe is relatively unimportant, at least for public behaviours like smoking.

It is not clear, however, why norms from significant others had little independent effect in Thailand. We initially thought that this may be due to the high proportion of Muslims (75.5%) in the Malaysian sample, relative to the proportion of Muslims in the Thai sample (1.1%). Islam is a very "public" religion which emphasises the importance of being seen to adhere to prescribed values, beliefs, and behaviours; thus, the greater inclination in Malaysia to conform to what significant others believe is desirable may be a reflection of this. However, we tested this hypothesis and found that the effect of norms from significant others on quitting intentions was no greater for Muslims than for smokers of other religious affiliations in Malaysia.

An alternative explanation may be that Thai smokers do not strongly differentiate between norms from significant others and broader societal norms. Thai

society is relatively homogeneous compared with Malaysian society, which is comprised of diverse ethnic and cultural groups. Therefore, whereas Malaysian smokers' perceptions of what their significant others think about smoking may not necessarily reflect broader societal views, Thai smokers may see the two kinds of norms as being much the same thing. Indeed, norms from significant others and societal norms were substantially correlated in Thailand, but were unrelated in Malaysia. Furthermore, we found that in Thailand, although there is a significant bivariate relationship between norms from significant others and quitting intentions, this norm does not contribute further towards quitting intentions once the effect of societal norms is taken into account.

It seems that Malaysia, Thailand, and the Western countries form three distinct groups that can be characterised by the similarities and differences in how much personal attitudes and the two forms of subjective norms influence the quitting intentions of smokers in these countries. These patterns may be due to differences in *relational* collectivism and *group* collectivism (Brewer & Chen, 2007; Brewer & Gardner, 1996). Relational collectivism refers to the extent to which the self is construed in terms of personalized, dyadic relationships with others (e.g., family and friends); whereas group collectivism refers to the extent to which the self is construed in terms of depersonalised, non-specific relationships with others within a symbolic group or social category (e.g., cultures and societies). Brewer and colleagues argue that all people have individual, relational-collective, and group-collective representations of the self, but that people differ across cultures in the relative salience of these representations. It may be that in Western countries as well as in Malaysia, perceptions of significant others' beliefs about desirable behaviour, which relate to relational-collectivistic self-representations, are particularly important; whereas in

Thailand, perceptions of society's views of desirable behaviour, which relate to group-collectivistic self-representations, exert a greater influence. Finally, it would seem that personal attitudes, which relate to individual self-representations, are important in the Western countries as well as in Thailand, but perhaps not as much in Malaysia. To explore this notion further requires individual data on levels of these variables in each country, which is something we plan to explore in subsequent waves of these studies, along with their prospective effects on actual quitting activity.

We note a number of limitations to the present study. First, we acknowledge that this study relied on single-item measures to assess each key construct. This may cause concerns about the validity and reliability of the measures. We also acknowledge that our items depart from more conventional measures of TPB constructs, although we note that there has been considerable variation in the literature in how TPB variables have been assessed (see Armitage & Conner, 2001, for a review). However, our items have good face validity, and the fact that we found the predicted associations with quitting intentions demonstrates a degree of construct validity¹. We accept that the strength of associations may have been different, and the relative predictive strengths of the measures altered, if we had used more conventional measures; only future research can resolve this issue.

Another main limitation is the cross-sectional nature of the study. Even though it is logical to argue that intention, which looks forward, is subsequent to norms and attitudes, some of the association may be due to interest in quitting affecting perceptions of norms. Longitudinal studies will be needed to control better for such possibilities. In addition, it is possible that the associations we found can be

¹ In addition, a preliminary examination of the results of an in-depth cognitive interviewing study we conducted in Thailand, Malaysia, and Australia revealed no appreciable differences between these countries in what smokers consider to be "important others" or "society". This suggests a degree of robustness of our measures to both issues of translation and cultural context.

explained by other variables that we did not measure or control for in our analyses. Further research should investigate potential third variables that may be responsible for the associations of attitudes and norms with quitting intentions. Finally, we acknowledge that the Southeast Asian surveys were conducted three years after the Western country surveys. However, it seems unlikely that this time difference would be responsible for any of the differences we found between the western and eastern countries.

To conclude, our results generally support the TPB, and particularly emphasise the role of subjective norms, which have typically been found to be only weakly associated with behavioural intentions (Armitage & Conner, 2001). Consistent with arguments advanced by other researchers (e.g., van den Putte et al., 2005; Wium et al., 2006) it is clearly important to consider various kinds of subjective norms when examining people's behavioural intentions, as norms that emerge from one source of social influence (e.g., relationships with significant others) can have a different impact on intentions than those deriving from other sources (e.g., society). The present research also demonstrates that it is informative to take into account the cultural context in applications of the TPB, because the relative contribution of each of the TPB components towards behavioural intentions appears to vary between countries.

The present findings have implications for the design and implementation of tobacco control policies which are intended to influence attitudes and norms about tobacco use. Specifically, as the effects of these variables on quitting intentions are subtly different across countries, it is important for policies to reach the levels of social structure at which they are likely to have the most impact in a particular cultural setting. For example, policies that focus on the role of the family and close social networks in encouraging smokers to quit may be more effective in a country

such as Malaysia, whereas policies that draw attention to the social unacceptability of smoking may have a greater impact in a country like Thailand. In conclusion, keeping socio-cultural factors firmly in mind may be key for policy makers aiming to reduce the burden of tobacco use.

Acknowledgments

The ITC Project is supported by grants P50 CA111236 and R01 CA 100362 (Roswell Park Transdisciplinary Tobacco Use Research Center) from the National Cancer Institute of the United States, Robert Wood Johnson Foundation (045734), Canadian Institutes of Health Research (57897 and 79551), National Health and Medical Research Council of Australia (265903 and 450110), Cancer Research UK (C312/A3726), Canadian Tobacco Control Research Initiative (014578); Centre for Behavioural Research and Program Evaluation, National Cancer Institute of Canada/Canadian Cancer Society; the Thai Health Promotion Foundation and the Malaysian Ministry of Health. We would like to thank Marie Helweg-Larsen and two anonymous reviewers for their helpful comments on an earlier version of this manuscript. We also acknowledge the other members of the ITC team.

References

- Abrams, D. B., & Biener, L. (1992). Motivational characteristics of smokers at the workplace: A public health challenge. *Preventive Medicine, 21*, 679-687.
- Ajzen, I. (1991). The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes, 50*, 179-211.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology, 40*, 471-499.
- Brewer, M. B., & Chen, Y. (2007). Where (who) are collectives in collectivism? Toward conceptual clarification of individualism and collectivism. *Psychological Review, 114*, 133-151.
- Brewer, M. B., & Gardner, W. (1996). Who is this “we”? Levels of collective identity and self representation. *Journal of Personality and Social Psychology, 71*, 83-93.
- Chan, R. Y. K., & Lau, L. B. Y. (2001). Explaining green purchasing behavior: A cross-cultural study on American and Chinese consumers. *Journal of International Consumer Marketing, 14*, 9-40.
- Conner, M., & Armitage, C. J. (1998). Extending the theory of planned behaviour: A review and avenues for future research. *Journal of Applied Social Psychology, 28*, 1429-1464.
- Droomers, M., Schrijvers, C. T. M., & Mackenbach, J. P. (2004). Educational differences in the intention to stop smoking. *European Journal of Public Health, 14*, 194-198.
- Fekadu, Z., & Kraft, P. (2001). Predicting intended contraception in a sample of Ethiopian female adolescents: The validity of the theory of planned behaviour. *Psychology and Health, 16*, 207-222.

- Gelfand, M. J., Triandis, H. C., & Chan, D. K-S. (1996). Individualism versus collectivism or versus authoritarianism? *European Journal of Social Psychology, 26*, 397-410.
- Godin, G., Adrien, A., Willms, D., Maticka-Tyndale, E., Manson-Singer, S., & Cappon, P. (1996). Cross-cultural testing of three social cognitive theories: An application to condom use. *Journal of Applied Social Psychology, 26*, 1556-1586.
- Godin, G., & Kok, G. (1996). The theory of planned behavior: A review of its applications to health related behaviours. *American Journal of Health Promotion, 11*, 87-98.
- Godin, G., Valois, P., Lepage, L., & Desharnais, R. (1992). Predictors of smoking behavior: An application of Ajzen's theory of planned behavior. *British Journal of Addiction, 87*, 1335-1343.
- Hagger, M. S., Chatzisarantis, N. L. D., Barkoukis, V., Wang, J. C. K., Hein, V., Pihu, M., Soós, I., & Karsai, I. (2007). Cross-cultural generalizability of the theory of planned behavior among people in a physical activity context. *Journal of Sport & Exercise Psychology, 29*, 1-20.
- Hammond, D., Fong, G. T., Zanna, M. P., Thrasher, J. F., & Borland, R. (2006). Tobacco denormalization and industry beliefs among smokers from four countries. *American Journal of Preventive Medicine, 31*, 225-232.
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage.
- Hofstede, G. (1991). *Culture and organization: Software of the Mind*. London: McGraw-Hill.

- Jacobsen, P.D., & Zapawa, L. M. (2001). Clean indoor air restrictions. In R. L. Rabin & S. D. Sugarman (Eds.), *Regulating tobacco* (pp. 207-224). New York: Oxford University Press.
- Kim, U., Triandis, H., Kagitcibasi, C., Choi, S., & Yoon, G. (1994). *Individualism and collectivism: Theory, method, and applications*. Thousand Oaks, CA: Sage.
- Kish, L. A. (1949). A procedure for objective respondent selection within the household. *Journal of the American Statistical Association*, *44*, 380-387.
- Kobus, K. (2003). Peers and adolescent smoking. *Addiction*, *98* (Suppl. 1), 37-55.
- Mayhem, K. P., Flay, B. R., & Mott, J. A. (2000). Stages in the development of adolescent smoking. *Drug and Alcohol Dependence*, *59*, S61-S81.
- Norman, P., Conner, M., & Bell, R. (1999). The theory of planned behavior and smoking cessation. *Health Psychology*, *18*, 89-94.
- Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, *128*, 3-72.
- Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, *51*, 390-395.
- Prochaska, J. O., DiClemente, C. C., & Norcross (1992). In search of how people change: Applications to addictive behaviours. *American Psychologist*, *47*, 1102-1114.
- Shafey, O., Dolwick, S., Guindon, G.E. (Eds). (2003). *Tobacco Control Country Profiles 2003*. Atlanta, GA: American Cancer Society.
- Sutton, S. (1995). The past predicts the future: Interpreting behaviour-behaviour relationship in social psychological models of health behaviour. In D. R. Rutter

- and L. Quine (Eds.), *Social Psychology and Health: European Perspectives* (pp. 71-88). Newcastle: Athenaeum Press Ltd.
- Thompson, M. E., Fong, G. T., Hammond, D., Boudreau, C., Driezen, P. R., Hyland, A., Borland, R., Cummings, K. M., Hasting, G., Siahpush, M., Mackintosh, A. M., & Laux, F. (2006). The methodology of the International Tobacco Control Four-Country Survey. *Tobacco Control, 15* (Suppl. III), iii12-iii18.
- Triandis, H. C. (1995). *Individualism and collectivism*. Boulder, CO: Westview.
- Triandis, H. C., & Gelfand, M. (1998). Converging measurement of horizontal and vertical individualism and collectivism. *Journal of Personality and Social Psychology, 74*, 118-128.
- Van Hooff, E. A. J., Born, M. P. H., Taris, T. W., & Van der Flier, H. (2006). The cross-cultural generalizability of the theory of planned behavior: A study on job seeking in the Netherlands. *Journal of Cross-Cultural Psychology, 37*, 127-135.
- Van den Putte, B., Yzer, M. C., & Brunsting, S. (2005). Social influences on smoking cessation: A comparison of the effect of six social influence variables. *Preventive Medicine, 41*, 186-193.
- Wiium, N., Torsheim, T., & Wold, B. (2006). Normative processes and adolescents' smoking behaviour in Norway: A multilevel analysis. *Social Science and Medicine, 62*, 1810-1818.
- Wilkinson, D., & Abraham, C. (2004). Constructing an integrated model of the antecedents of adolescent smoking. *British Journal of Health Psychology, 9*, 315-333.

Table 1

Means and Standard Deviations of Attitude and Norm Variables

	Norm from		
	Personal attitude (PA)*	significant others (NSO)*	Societal norm (SN)*
Canada	2.73 _a (1.23)	4.22 _{a,c} (0.85)	4.15 _{a,b} (0.84)
USA	2.78 _b (1.24)	4.20 _b (0.82)	3.88 _b (0.97)
UK	2.54 _{a,b} (1.09)	4.00 _{a,b,c} (0.84)	3.84 _a (0.84)
Australia	2.65 _{a,b} (1.21)	4.16 _a (0.81)	3.95 _{a,b} (0.88)
Malaysia	2.32 _{a,b} (0.90)	3.89 _{a,b,c} (0.84)	2.74 _{a,b} (0.99)
Thailand	3.08 _{a,b} (1.14)	4.16 _c (0.79)	3.81 _b (0.89)

*Higher scores indicate more negative personal attitudes, norms from significant others, and societal norms. Pairwise comparisons were conducted to test differences between means. Those with shared subscripts within the same column are significantly different from each other ($p < .05$). Standard deviations are in parentheses.

Table 2

Correlations Between Attitudes, Norms, and Quitting Intentions

Country	PA with NSO	PA with SN	NSO with SN	Intention with PA	Intention with NSO	Intention with SN
Malaysia	-.03	.01	.05	.03	.18***	.09***
Thailand	.04	.01	.36**	.20***	.06**	.08***
Canada	.05*	-.04	.22**	.23***	.23***	.09***
USA	.06*	-.09**	.24*	.27***	.19***	.04
UK	.02	-.09**	.18**	.29***	.16***	.01
Australia	-.02	-.08**	.22**	.26***	.21***	.03

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3

Covariates of Quitting Intentions: Wald Statistics, Odds Ratios, and 95% Confidence Intervals from the Overall Logistic Regression Model

Covariates	Odds Ratio	95% Confidence
		Interval
Country (ref = Western countries)	–	–
Malaysia	1.94	0.90 – 4.20
Thailand	1.29	0.61 – 2.74
Past quit attempt (ref = No)	3.00 ^{***}	2.71 – 3.31
Sex (ref = Female)	0.97	0.86 – 1.06
Age group (ref = 18-24)	–	–
25-39	0.75 ^{***}	0.64 – 0.87
40-54	0.57 ^{***}	0.49 – 0.67
55+	0.38 ^{***}	0.33 – 0.45
Education level (ref = Low)	–	–
Medium	1.27 ^{***}	1.14 – 1.42
High	1.33 ^{***}	1.14 – 1.54
Addiction level (ref = Not at all addicted)	–	–
Somewhat addicted	1.37 ^{***}	1.17 – 1.60
Very addicted	1.48 ^{***}	1.25 – 1.75
Cigarettes per day	0.85 ^{***}	0.82 – 0.89
Self-efficacy	1.04 ^{***}	1.02 – 1.07
Personal attitude (PA)	1.72 ^{***}	1.63 – 1.81
Norm from significant others (NSO)	1.59 ^{***}	1.50 – 1.70
Societal norm (SN)	1.14 ^{***}	1.07 – 1.21

PA × Country (ref = Western countries)	–	–
PA × Malaysia	0.64***	0.56 – 0.73
PA × Thailand	0.81***	0.73 – 0.90
NSO × Country (ref = Western countries)	–	–
NSO × Malaysia	0.96	0.83 – 1.11
NSO × Thailand	0.64***	0.55 – 0.74
SN × Country (ref = Western countries)	–	–
SN × Malaysia	1.04	0.91 – 1.18
SN × Thailand	1.10	0.96 – 1.25

*** $p < .001$

Table 4

Examining the Country × TPB Variable Interaction Effects on Quitting intentions:Odds Ratios and 95% Confidence Intervals from Logistic Regression Analysis

Covariates	Odds Ratio ^a	95% Confidence Interval
<i>Western countries</i>		
Personal attitude (PA)	1.76 ^{***}	1.67 – 1.86
Norm from sig. others (NSO)	1.57 ^{***}	1.47 – 1.67
Societal norm (SN)	1.15 ^{***}	1.08 – 1.22
<i>Malaysia</i>		
Personal attitude (PA)	1.03	0.90 – 1.17
Norm from sig. others (NSO)	1.52 ^{***}	1.32 – 1.73
Societal norm (SN)	1.14 [*]	1.01 – 1.28
<i>Thailand</i>		
Personal attitude (PA)	1.26 ^{***}	1.15 – 1.38
Norm from sig. others (NSO)	0.99	0.86 – 1.14
Societal norm (SN)	1.22 ^{**}	1.08 – 1.38

* $p < .05$; ** $p < .01$; *** $p < .001$

^aOdds ratios were adjusted for the following control variables: past quitting attempts, sex, age, education level, self-reported addiction level, cigarettes smoked per day, and self-efficacy.