

## ORIGINAL ARTICLE

# How Social Norms Actually Affected the Compliance with Smoke-Free Law? A Test of the Theory of Normative Social Behavior

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## ABSTRACT

**Introduction:** The city of Denpasar has implemented the smoke-free law for five years. However, the compliance remains low. Smoking remains highly accepted in society, and the provision of cigarettes in several religious and customary events. Hence, this study aims to assess how social smoking norms affect compliance with smoke-free laws. **Methods:** This was a cross-sectional study located in Denpasar, Bali, Indonesia. This study was conducted from December 2019 until February 2020. The sample size was 192 and was selected using multistage random sampling. Data were collected through interviews using a structured questionnaire then analyzed using multiple linear regression. **Results:** Descriptive norms of smoking affected the compliance in worship places (standardized coefficient beta of 0.175 and  $p=0.01$ ). Moreover, the effect of descriptive norms to compliance was significantly moderated by perceived of injunctive norms (standardized coefficient beta of 0.216;  $p<0.01$ ); benefits to one-self (standardized coefficient beta of 0.199;  $p<0.01$ ); benefits to others (standardized coefficient beta of 0.164;  $p=0.02$ ); anticipatory socialization (standardized coefficient beta of 0.146;  $p=0.03$ ); similarity (standardized coefficient beta of 0.141;  $p=0.04$ ); aspiration (standardized coefficient beta of 0.131;  $p=0.06$ ); and local leader role (standardized coefficient beta of 0.129;  $p=0.06$ ). **Conclusion:** The social norms of smoking remain an important predictor of compliance with the smoke-free law, particularly in countries with strong cultural characteristics. However, its effect could be moderated using appropriate culture-sensitive strategies.

**Keywords:** Compliance, Denpasar Bali, Smoke-free law, Smoking social norms, TNSB

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## INTRODUCTION

Indonesia is home to almost one hundred million smokers, where 33.6% of the adult population and 19.4% of young people aged 13–15 years are smokers. Recently, the prevalence of smokers in Indonesia was high at 28.8% (1). Indonesia is the only country in the Asia Pacific region that has yet to ratify the WHO-FCTC despite the significant tobacco-related disease. Meanwhile, smoking prevalence in Bali Province was lower than the national average at 23.5%. The city in Bali Province with the highest smoking rate was Denpasar city at 27.4%. Denpasar is the capital city of

Bali which has an area of 127.78 km<sup>2</sup> with a population of 930.600 inhabitants (2).

Even though Indonesia has yet to ratify the WHO-FCTC, several tobacco controls programs were conducted nationwide, including smoke-free law (SFL). In 2011, Bali Province was the first province to pass a comprehensive smoke-free law, followed by the City of Denpasar in 2013 (3). Denpasar's smoke-free law was officially enforced in 2014, which prohibited smoking, tobacco-producing, advertising, and selling in several venues, including health facilities, educational facilities, children's playgrounds, worship places, public transportation, workplaces, and public places (4). However, according to the recent compliance survey conducted in 2019, the compliance was low at 32.9%, below the compliance target (80%). By type of venue, only three venues such as educational facilities,

particularly schools and campuses, and primary health center (Puskesmas) have fulfilled the target of compliance. While, most public places (hotels, bars, restaurants, cafés, markets), including worship places, had compliance below the overall compliance (5). Moreover, cigarettes remain provided at almost every religious and traditional event. Thus, smoking seems part of hospitality in society. A study shows that smoking behavior is considered normal in secular and religious life in Indonesia, where cigarettes are often presented at every religious event; hence, compliance was low (6)(7).

Numerous studies have shown that many factors influenced compliance with SFL, either internal factors (sociodemographic characteristics, nicotine dependence, psychological status, past behavior, quit attempts, knowledge, and attitude) or external factors (monitoring and enforcement system of a smoke-free law), including social norms of smoking (8)(9)(10)(11). The perception of smoking norms in society could be explained from the Theory of Normative Social Behavior (TNSB). TNSB is based on the premise that the effect of descriptive norms on individual behavior is moderated through three normative mechanisms, i.e., injunctive norms, outcome expectations, and group identity (12).

Literature has confirmed that the social norm of smoking harmed compliance with SFL. Thus, the implementation of SFL, particularly in LMIC countries, should be considered to change social norms of smoking and smokers' beliefs and to smoke culture in society (13) (14). In addition, an assessment of factors related to compliance with SFL in Indonesia should also consider local smoking norms, e.g., providing cigarettes during the customary event and religious ceremony. Accordingly, we aimed to determine how smoking social norms affected compliance in worship places.

## MATERIALS AND METHODS

### Study Design

This study was a cross-sectional study located in the city of Denpasar Bali. Denpasar has 35 traditional villages (*Desa adat*) and 358 sub-village (Banjar), which spread across four districts, i.e., two traditional villages in West Denpasar District, ten traditional villages in North Denpasar District, 12 traditional villages in East Denpasar District, and 11 traditional villages in South Denpasar District (15). This study was conducted from December 2019 until February 2020.

### Samples

The sample size was determined using the formula to test the correlation hypothesis. According to the formula, the samples size of this study was 192 samples. The sample was then selected using multistage random sampling. First, using simple random sampling, eight traditional villages were selected to represent the Denpasar district.

Then, in every selected traditional village, two sub-village were selected also using simple random sampling (total 16 sub-village). Finally, we selected 12 samples (respondents) from each sub-village using simple random sampling. The eligibility to participate in this study was determined using two standard questions to consider whether a person is categorized as a smoker or not (16). Those questions were as follows: 1) "Have you smoked at least 100 cigarettes in your lifetime?"; and 2) "Have you smoked any cigarettes in the last 30 days (even a puff)?". A respondent was considered eligible in the study if they answered yes to both questions.

### Data Collection and Analysis

Data were collected through interviews using a structured questionnaire. First, the compliance was measured using a self-reported questionnaire adapted from several studies effectively (17) (18). Data were then analyzed using multiple linear regression to assess how the social norms affect compliance in worship places. In the first stage of the regression model, we analyzed the effect of control variables, i.e., age, education level, and past behavior of smoking. In the second stage, the regression model analyzed the effect of the descriptive norms on compliance.

In the third stage, the effect of each normative mechanism to compliance was analyzed, i.e., injunctive norms, outcome expectations (benefits to one-self, benefits to others, anticipatory socialization), group identity (similarity, aspirations), and the role of community leaders. The third stage began with testing one normative mechanism, then created an interaction variable (the normative mechanism × the descriptive norm). Next, the interaction variables are shown in the normative mechanism × the descriptive norm and compliance interaction (DNC- interaction). Afterward, this interaction variable was tested for moderating the effect of descriptive norms on compliance. It was the second test in the third stage, and this procedure was repeated to all normative mechanisms.

### ETHICAL APPROVAL

The ethical clearance No. 2106/UN14.2.2.VII.14/LP/2019 was obtained from The Ethical Committee of the Faculty of Medicine, Universitas Udayana, Indonesia

### RESULT

The study succeeded in interviewing 192 respondents. Table I shows that among 192 respondents, most of them were adults aged 26-45 years (51.0%). Based on sex, the respondent was mainly male (98.4%). The education level of the respondents showed that most of them passed senior high school (58.8%), while the type of occupation mainly was self-employed (38.6%). Moreover, respondents' compliance showed that most of them (80.7%) reported that they had smoked or did

**Table I The characteristics of respondents based on home visit interview**

Variable	n=192
Age (years) mean ± SD*	35.3±11.2
Adolescent (12-25 years)	53 (27.6)
Adult (26-45 years)	98 (51.0)
Elder (46-65 years)	41 (21.4)
Sex	
Female	3 (1.6)
Male	189 (98.4)
Education level	
<6 <sup>th</sup> grade	3 (1.6)
<9 <sup>th</sup> grade	19 (9.9)
>9 <sup>th</sup> grade	170 (88.5)
Occupation	
Unemployed	6 (3.1)
Government employee	13 (6.8)
Private employee	64 (33.3)
Self employed	74 (38.6)
Retired	2 (1.0)
Farmer	3 (1.6)
Housewife	2 (1.0)
Student	25 (13.0)
Others	3 (1.6)

\*SD= Standard Deviation

not comply with SFL in worship places (Table II).

To assess how the social norms affected compliance based on the theory of normative social behavior (TNSB), we analyzed using multiple linear regression, which was carried out using STATA software. Table III showed that descriptive norms affect compliance with an effect size of 17.5% (standardized coefficient beta of 0.175 and p-value of 0.01). The injunctive norms also affected the compliance with an effect size of 12.9 % (beta 0.129; p= 0.05). Moreover, when the injunctive norms were enabled as a moderator in DNC- interaction, the effect was increased with an effect size of 21.6% (beta 0.216; p<0.01).

Meanwhile, the benefits to the one-self variable did not affect compliance. However, after it was enabled as moderator, it moderated the effect of descriptive norms to the compliance with an effect size of 19,9% (beta 0,199; p <0.01). Moreover, the benefits to other variables also did not affect compliance, but when it was enabled as moderator on DNC-interaction, this variable showed a significant effect (beta 0,164; p=0.02). These results indicate that the effect size of this interaction variable to compliance was 16.4%. Finally, the last variable in the group of outcome expectations variable is anticipatory socialization. Assessment of this variable found no effect on compliance. Nevertheless, after being used as moderator on DNC-interaction, a significant effect was

shown with an effect size of 14.6% (coefficient beta of 0.146 and p-value of 0.03) (Table III).

**Table II. The Compliance of Smoke-free law at Worship Places in Denpasar**

Variable	n (%)
Compliance (n=192)	
Not smoking (comply)	37 (19.3)
Smoking (not comply)	155 (80.7)
Seldom	112 (58.3)
Sometimes	38 (19.8)
Often	5 (2.6)
Always	0 (0.0%)

The results of the group identity variables, i.e., perceived similarity and perceived aspiration, showed that both variables had no direct effect on compliance. However, after being analyzed as a moderator on DNC interaction, perceived similarity significantly affected compliance with an effect size of 14.1% (beta of 0.141 and p= 0.04). Similarly, the perceived aspiration variable also showed a significant effect on the compliance only as moderator on DNC-interaction with an effect size of 13.1% (beta of 0,131 and p= 0,06). Finally, the last normative mechanisms variable analyzed to explain how social norms affected compliance is a new variable we added in the TNSB theoretical framework, i.e., the perceived role of local leaders. The results showed that the perceived role of local leaders did not affect compliance. However, after being enabled as moderator on DNC-interaction, a significant effect was shown with an effect size of 12.9% (coefficient beta of 0.129 and p=0.06) (Table III).

**Table III. Regression Result of Compliance Predictors Based on TNSB**

Variables	r <sup>a</sup>	p value	Beta <sup>b</sup>	p value	Total R <sup>2</sup> (%)
1. Control variables					
Age	0.12	0.09	0.082	0.21	
Education level	0.16	0.03	0.128	0.05	
Past behavior of smoking	-0.42	<0.01	-0.395	<0.01	19.4
2.Descriptive norms	0.26	<0.01	0.175	0.01	21.9
3.Normative mechanism variables <sup>c</sup>					
Injunctive norms	0.20	0.01	0.129	0.05	23.6
Injunctive norms x DNC-interaction	0.31	<0.01	0.216	<0.01	23.5
Benefits to one-self	0.13	0.08	0.088	0.17	22.7
Benefits to one-self x DNC-interaction	0.28	<0.01	0.199	<0.01	22.9
Benefits to others	0.11	0.14	0.038	0.56	22.1
Benefits to others x DNC-interaction	0.27	<0.01	0.164	0.02	21.8
Anticipatory socialization	-0.01	0.91	0.032	0.63	22.1

CONTINUE

**Table III. Regression Result of Compliance Predictors Based on TNSB (CONT.)**

Variables	r <sup>a</sup>	p value	Beta <sup>b</sup>	p value	Total R <sup>2</sup> (%)
Anticipatory socialization x DNC-interaction	0.17	0.02	0.146	0.03	21.3
Similarity	-0.02	0.79	0.022	0.74	22.0
Similarity x DNC-interaction	0.16	0.03	0.141	0.04	21.2
Aspiration	-0.01	0.88	0.021	0.75	22.0
Aspiration x DNC-interaction	0.16	0.02	0.131	0.06	20.9
Role of local leader	-0.09	0.23	-0.016	0.82	22.0
Role of local leader x DNC-interaction	0.12	0.11	0.129	0.06	20.9

a= Zero-order Pearson correlation; b=coefficient of regression (standardized beta of the regression equation); R<sup>2</sup> = coefficient of determination, DNC=the interaction of descriptive norms with compliance; c=all regression equations in stage 3 (from injunctive norms to role of community leaders x DNC interactions) included all control variables in stages 1 and 2

## DISCUSSION

Since there is extensive evidence in the literature regarding the relationship between social norms and behavior, the primary purpose of assessing compliance based on the TNSB is to explain the relationship of social norms of smoking, particularly descriptive norms with the compliance, complete with several normative mechanisms that moderate the relationship between descriptive norms and compliance. In addition, we also introduce new variables as one of the normative mechanisms, namely the role of local leaders. This new normative mechanism was also analyzed around smoke-free law since the study is located in developing countries, and local leaders are well-known social influencers to community health behavior. In this study, we found that social norms of smoking (descriptive and injunctive norms) explain approximately 44% of the variance of compliance once controlled by sociodemographic characteristics. Meanwhile, an average of 21% additional variance was explained by the moderation from the normative mechanisms.

Descriptive norms refer to what respondents perceive other people do or their beliefs regarding the prevalence of smoking behavior in the community. The results showed that descriptive norms had a significant effect on compliance. It means smokers who perceive the presence or absence of smoking behavior by their relatives, friends, or other community members affect smoking behavior or compliance with SFL. This effect has been consistently found in several studies. For example, a study reported that children who saw that many of their colleagues smoked had a greater intention to smoke in the future, while another study found that perceived cigarette smoking among friends in junior high school affects their level of cigarette smoked in senior high school (19)(20).

Strategies that may be useful to counter descriptive norms of smoking in the community are to eliminate evidence that smoking has occurred in such venues, e.g., simply removing the ashtray or clearing from cigarette butts. In addition, the presence of no-smoking signage is essential to gain awareness in the community regarding SFL and could be potential to initiate social enforcement in the community (21)(22)(23)(24). However, the signage should be official by putting a government or institution logo to emphasize that the law was officially enacted by the government or manager of the venues.

Meanwhile, injunctive norms refer to what respondents believe they are expected to do or expect them to obey. The results showed that injunctive norms significantly moderate the relationship between descriptive norms and compliance. It shows that the more people perceive that friends, relatives, and other community members expect them not to smoke, the more it strengthens their descriptive perception that smoking behavior is no longer standard. It is consistent with studies that found that reprimand from colleagues or family members was associated with better smoking avoidance behavior, confidence not to smoke in the presence, and stronger intention to quit smoking (25) (26).

This result indicated that it is necessary to develop a social enforcement culture for non-smokers to moderate the perceived high prevalence of smoking and that smoking behavior remains normal in society. Social norms around smoking still respond positively, particularly in LMIC countries. Otherwise, in developed countries, the implementation of SFL has shown decreasing social approval of smoking in public places and increasing self-regulation in society (27)(28). This environment is yet to be achieved in Indonesia because smoking has been part of social and religious life. Local smoking norms such as the provision of cigarettes remains a hospitality symbol to house guests, particularly during traditional and religious activities. Thus, smoking behavior and facilitating smoking activities have been embedded and become social norms both in society and in the household (29)(30)(31). The local smoking norms approach to increase compliance has been taken in Bogor city Indonesia, in the form of pronouncement (fatwa) from religious organizations. However, it appears to have had a small effect, primarily in supporting the position of non-smokers not to smoke (6). Thus, it is necessary to develop more promising social enforcement strategies, e.g., local or customary policies that are more assertive because they are completed with social sanctions. It is in line with a study that confirms that cultural interventions or synergies with local policies are essential to increase compliance with SFL (11)(5).

Perceived benefits to one-self significantly moderate the effect of descriptive norms on compliance. For example, smokers perceive that worship places are familiar for people to smoke. However, they also believe

that smoking in worship places will be considered an impolite behaviour. This belief will moderate their decision to smoke. Hence, it is essential to maintain this belief among smokers.

Meanwhile, the results of benefits to others also significantly moderate the effect of descriptive norms on compliance. Hence, if smokers perceive that worship places are familiar places for smoking, they also believe that smoking in worship places will interfere with the solemnness of praying and temple sanctity. This belief will moderate their decision to smoke in worship places. The last variable of outcome expectations analysed was anticipatory socialization. The result showed that this variable is also significant as a moderator, which means that if smokers perceive that worship places remain common for people to smoke, however at the same time they also perceive that smoking has nothing to do with ease in social interaction, this belief probably moderates their intention to smoke in worship places. Several studies have shown that smoking in public places is partly due to socializing easier, especially with peer groups. Smoking is also a social lubricant in social interactions, particularly among adolescents and young adults (26) (32). This difference shows that although smoking is a behaviour that is mainly considered to facilitate social interaction, however, in our setting, smoking in worship places does not see the aspect of social interaction. Thus, the perception of smoking as a social lubricant is weakened, then moderates their intention to smoke.

The results of outcome expectations analysis show that the intention of smokers to smoke in an area that SFL regulates can be modified through embedding a solid belief that the benefits of smoking behaviour, such as reducing stress or boredom and giving inspiration, will be overcome by feeling embarrassed or impolite if smoking in the worship places and tarnishing the sanctity of the places. This belief can be further strengthened by implementing a strict supervision and enforcement system, mainly when venue managers develop it as an internal monitoring system (7)(33). Moreover, this belief also could be maintained through increasing the education, supervision, and enforcement of SFL using various contexts, including the social and cultural approach (34). Hence, the combination of enforcement management and applying an internal monitoring system or customary law completed with social sanctions will moderate the belief that smoking in worship places remains common.

The regression analysis of the group identity variable, particularly perception of similarities, significantly moderates the effect of descriptive norms on compliance. Thus, it is indicated that if smokers perceive that worship places remain commonplace to smoke, while there is also a perception that smoking is a symbol of maturity or group behaviour, this belief will strengthen

their decision to smoke. Similarly, the other variables of group identity, namely perception of group aspirations, also significantly moderates the effect of descriptive norms on compliance. This result shows that if smokers perceive worship places as commonplace to smoke and perceive smoking as a behaviour to show dignity, respect, or self-esteem, this belief will strengthen their decision to smoke.

Generally, the perception of group identity in this study shows that these variables moderate the effect of descriptive norms on compliance. This result is consistent with several studies that suggest that individuals in community-oriented cultures may be highly influenced by group identity (35). Smokers who smoke in public places facilitate inclusiveness among their peers and emphasize maturity. A study conducted in Bogor City, Indonesia, also showed that smoking symbolizes masculinity and manhood. Thus, if a man does not smoke, their friends are sometimes made fun of as transvestites (7). It reflects that it will be very difficult for smokers, especially men, to comply with SFL since most are smokers; hence the urge to smoke remains strong.

Meanwhile, the results of the new variable which added to TNSB, namely the role of local leaders, did not affect compliance with SFL. However, it moderated the effect of the descriptive norm to the compliance, so if smokers perceive worship places as a commonplace to smoke, and they also perceive that their local leaders do not take part in giving education, advice, or reprimands, this belief will strengthen their intention to smoke in worship places. This result proves that explaining smoking behaviour based on TNSB, the variable role of local leaders also should be considered in this theory. Several studies show that involving local leaders, particularly religious and respected local figures to conduct education, supervision, and reprimands is one of the effective ways of socializing and supervising SFL. For example, a study among Muslims in Malaysia showed that 30% of respondents agreed that they were motivated to quit smoking because of an anti-smoking message from their religious leader (36)(37).

In contrast, several situations in Indonesia, particularly in our study, showed respondents stated that many local and religious leaders remain smoking in public places, including in places of worship. Hence, those leaders' behaviour tends to hamper compliance. This situation is emphasized with the study in Bogor City, Indonesia, which also showed less effectiveness of religious pronouncement against smoking behaviour and the failure to increase compliance with SFL were since many religious leaders remain smoking in public places. Thus, information delivery is perceived as inconsistent with reality (6). Hence, the role of those leaders in changing smoking behaviour needs to be improved. In addition, those local leaders should have health literacy

in order to be able to make the best decisions towards a healthier community. Recently, many health programs involved local leaders in improving their health literacy on various public health problems. The problem of smoking behaviour, particularly compliance with SFL, might become more effective if the role of local leaders is prioritized to change smokers' beliefs social and cultural norms of smoking. One of the strategies that these leaders could take is developing a culture-based local policy regarding smoking in the public area in their community, which could strengthen the implementation of SFL.

### Limitations

The compliance in this study was measured based on the self-reported instruments. This instrument has been used in several studies effectively, with an objective response to smoking behavior. However, the opportunity for participants to provide socially desirable responses and the possibility of recall bias in answering this question remains to exist. Hence, we tried to anticipate by modifying the answer (smoking behavior) into four categories, i.e., rare, sometimes, often, and always.

### CONCLUSION

We concluded that both social norms of smoking (descriptive and injunctive) affect compliance with SFL in worship places. Moreover, based on the TNSB approach, the effect of descriptive norms of smoking to compliance was moderated by several normative mechanisms such as injunctive norms, outcome expectation (benefits to one-self, benefits to others, anticipatory socialization), group identity (perceived similarity and aspiration) and role of the local leader. It shows that social norm factors also need more attention; thus, religiosity and a culturally sensitive approach must be considered in promoting SFL in communities, particularly in rural areas. Complementing current law, exceptionally customary law completed with social sanctions, could be a potential strategy since this law is more respected in a social community. Changes in social norms of smoking involve beliefs, attitudes, or behavior and are a prerequisite for maintaining compliance with SFL in the future.

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