

## ARTICLE

# Implementation of smoke-free law in Denpasar Bali: Between compliance and social norms of smoking

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## Abstract

**Background:** Since 2013, City of Denpasar government has adopted a smoke-free law. Implementation of the law faces several obstacles, partly due to the high social acceptability of smoking in the city, where cigarette and smoking has been deeply engrained within social life and become part of hospitality. This study aims to assess the smoke-free law compliance and to explore the social norms that may affect the compliance.

**Design and Methods:** The study was a mix of cross-sectional compliance survey and qualitative exploration conducted in Denpasar in 2019. Survey included 538 samples, which were selected using stratified random sampling and a walking protocol. The qualitative data was collected through in-depth interviews and Focus Group Discussion (FGD) in four sub-districts of Denpasar.

**Results:** Of the 538 venues, 32.9% complied with the seven compliance indicators. The university has the highest compliance (83.3%), while public places including worship places have a low compliance. The three most common violations were the absence of no-smoking signage (58.6%), provision of ashtray (17.5%), and smell of tobacco smoke (15.8%). The poor compliance was related to the lack of awareness of the regulation, and the fact that smoking is highly acceptable and part of the culture. The informants highlighted the essential role of public figures and potency of local policy as social disapproval of smoking.

**Conclusions:** Compliance to the smoke-free law in Denpasar remains low, continuous education, socialization and improved supervision are crucial. Meanwhile, social and cultural acceptance of smoking is considered as an essential factor that hampers the implementation of the smoke free law.

## Introduction

The tobacco epidemic is one of the biggest challenges to public health. The World Health Organization (WHO) reported cigarettes kill more than 7 million people per-year worldwide, of which 6 million were active smokers and 1 million were non-smokers but exposed to second-hand smoke, also known as passive smokers. Without prevention and continuous efforts, it is estimated that by 2025 the number of smokers will reach 1.6 billion people worldwide. According to WHO data, the ten countries with the largest consumption of cigarettes consecutively are China, Russia, USA, Indonesia, Japan, Germany, India, Turkey, Korea, and Vietnam. Globally, one of three adults are smoker, 80% of whom are living in the low and middle income countries-LMIC.<sup>1</sup>

The South East Asia (ASEAN) region has 10% of the world's smokers and contributed to the 20% of death from tobacco products globally. Among ASEAN countries, Indonesia has the highest population of smokers accounted for 53.3% of all smokers in the region, while Brunei accounted for the lowest at 0.06%. Indonesia has one of the highest male smoking rates in the world with 66.0% of adult males are smokers, while female rate is much lower at 6.7%.<sup>2</sup> Based on the recent Indonesian Basic Health Survey in 2018, the prevalence of smokers in Indonesia was 28.8%. Indonesia also has the largest number of adolescent smokers in the world: the prevalence of smokers among adolescent aged 10-18 years in 2018 was 9.1%, which was significantly increased from 2013 when it was 7.2%.<sup>3</sup>

Meanwhile, the smoking rate in Bali Province, one of the prominent tourist destinations in Indonesia, was also high at

### Significance for public health

*The tobacco epidemic is one of the major challenges for public health across the world. Smoke-free law is recommended by WHO which aim to protect non-smokers from cigarette smoke exposure. However, this policy will be more effective for public health if the society comply. Hence, the compliance appears as a big challenge in implementing smoke-free law. Numerous studies showed various strategies to improve the compliance. Nevertheless, there were few strategies based on local norms or culture, which are important particularly in developing countries where smoking behavior is reinforced by cultural and religious aspects. Through our study, we would like to find out the extent to which improvements in compliance have been made using conventional strategies and identify the potential of local wisdom among the society, which affect their smoking behavior. Ultimately, this study is expected to recommend also a culture-sensitive strategy to improve and sustain the compliance with the smoke-free law.*

23.5% with 35.2% of adult males are smokers, while female rate is much lower at 0.6%. Meanwhile, Denpasar, the capital city of Bali, had the highest prevalence among its districts at 27.4%.<sup>3</sup> City of Denpasar has an area of 127.78 km<sup>2</sup> with a population of 930.600 inhabitants spread across 43 villages in four subdistricts, *i.e.* North Denpasar, East Denpasar, South Denpasar and West Denpasar. The majority of the resident is Hindu and works in the tourism and trade sectors.<sup>4</sup>

Indonesia has yet to ratified the WHO's framework convention on tobacco control (WHO-FCTC), nevertheless, there is an ongoing progress on tobacco control including adoption of smoke free law which aims to protect non-smokers from second-hand smoke exposure.<sup>5</sup> Since 2011, Bali Province has adopted the first provincial smoke-free law in Indonesia which then followed by City of Denpasar in 2013.<sup>6</sup> Smoke-free law in Denpasar regulates seven smoke-free venues including healthcare facilities, schools, children's playgrounds, worship places, public transportation, workplaces, and public places. The implementation of smoke-free law was initiated with a one-year socialization program. The socialization was carried out regularly by a team led by the health office and all stakeholders and venue managers through meeting and signage installation. The enforcement was conducted since 2014 and was led by civil police (Satpol PP) through random inspection in several potential venues. During enforcement, trial was held on site with a maximum fine of fifty million rupiah either for smokers or venue managers.<sup>7</sup>

According to the compliance survey conducted by Bali Tobacco Control Initiative in 2013 until 2015, the compliance with smoke-free law in Denpasar remains low. For the first period of the six-monthly survey (2<sup>nd</sup> semester of 2013), compliance remained 11.8%. However, in the following periods, compliance showed an increasing trend (2<sup>nd</sup> = 17.2%, 3<sup>rd</sup> = 25.9%, 4<sup>th</sup> = 37.8%, and 5<sup>th</sup> = 62%).<sup>8</sup> Generally, BCI surveys indicated an increasing trend of compliance, but has yet to reach the target of a minimum 80% compliance. Therefore, the government of Denpasar took action to improve the compliance particularly for the non-compliance venues through more socialization and signage installation. Meanwhile, there is an initiative to consider a cultural approach. However, this is yet to be undertaken since there is a lack of best practice regarding this approach. Based on experience in Bogor city, Indonesia, a cultural religious strategy using statement from religious organization encouraging compliance to smoke-free law was adopted, however, the approach had small effect to the compliance since many of the religious leaders themselves are smokers.<sup>9</sup> Several studies showed social norms was a significant predictor of non-compliance. In LMIC countries, the implementation should be performed together with measures to change smoker's beliefs, social and cultural smoking norms, along with the increase of ground-level will to enforce policies.<sup>10,11</sup> Thus, exploration on factors related to compliance with smoke-free law in setting such as Indonesia should include an assessment of social norms. There are two type of social norms that should be taken into accounts in such study: descriptive norms and injunctive norms. The Theory of Normative Social Behavior (TNSB) explains how these two norms relate to each other, and how they correlate to behavior. The TNSB describes that the influence of a descriptive norm on an individual's behavior is moderated by injunctive norms, outcome expectations and group identity.<sup>12</sup> Accordingly, this study aims to evaluate the most recent compliance of venues to the smoke-free law in Denpasar and to explore social norms of smoking surrounding this law.

## Design and Methods

This study was a mix of cross-sectional survey and qualitative study (concurrent mixed methods).<sup>13</sup> The survey was conducted in August until October 2019. Sample size of the cross-sectional survey was determined using sample size recommendations in the Guidance Book for Conducting Compliance Studies.<sup>14</sup> We included 538 samples including 40 health facilities (hospital, primary health care), 40 schools (elementary school, junior high school, senior high school, university), 14 children's playground (playgroup, kindergarten, child care facility), 76 work places (government office, private office), 35 worship places (mosque, Hindu temple, church, pagoda, monastery), 40 public transportation, 278 public places (shopping center, traditional market, restaurant, unregistered restaurant, budget hotel, stars hotel, pub/bar, night clubs, café), and 15 others (sport center, park) which were selected using stratified random sampling and a walking protocol. The walking protocol was applied for venues which have no sampling frame and minimum number of lists, *e.g.* unregistered restaurant, café and budget hotel. Walking protocol started by determining the starting points which was usually a government office or other prominent public places, then enumerator walked to a particular direction consistently for all starting point for a maximum of 10 minutes to find the target venues. Data were collected through observation using a checklist containing seven indicators of indoor compliance, *i.e.* observed smoking including e-cigarette, the provision of designated smoking room, the provision of ashtrays, the availability of no-smoking signs, observed cigarette butts, and smell of tobacco smoke.<sup>14</sup> Data were collected by six previously trained enumerators using open data kit application (ODK),<sup>15</sup> then analyzed descriptively using STATA.

The qualitative data were collected through in-depth interviews and Focus Group Discussions (FGDs), which were conducted in October until November 2019. The study was carried out in several traditional village (*desa adat*), which located in 4 sub-districts of Denpasar. The informants were selected to ensure varied information regarding social norms of smoking, with a maximum variation of sampling based on age, sex, smoking status, and role in society. An interview schedule with potential informants was arranged ahead of data collection by our field assistant. A semi-structured interview was conducted using an interview guideline by qualified interviewers recruited from the Center for NCDs Tobacco Control and Lung Health, Udayana University (Udayana Central). We interviewed a total of 14 informants including two traditional village leaders (Jero Bendesa), two religious leaders, two leaders of village youth organization, two smokers (1 adult and 1 adolescent), two non-smokers (1 adult, 1 adolescent), two women (1 adult and 1 adolescent), 1 person from Denpasar Traditional Village Council, and 1 government official from Denpasar Culture Office.

Meanwhile the FGD participants were recruited at village market and village meeting hall (*balai banjar*) by our field assistant then grouped based on smoking status and gender to ensure the homogeneity. Three FGDs were successfully conducted including a group of women, adult smokers, and adolescents' non-smokers for a total of 21 participants across three groups. FGDs were held with 7 participants per group which were facilitated by moderator and observer who were also recruited from Udayana Central. Both the interviews and FGDs were recorded and then transcribed verbatim. All data from the in-depth interviews and FGDs were analyzed using thematic analysis.<sup>16</sup> We conducted a step-wise thematic analysis. First, author KS conducted data immersion then created codes that indicated important features of the data and relevant to our study aim of examining social norms of smoking. Our sec-

ond step was to generate, review and refine themes: we examined our codes to identify patterns of meaning as potential themes. Third, we refined the themes and sub-themes to build a coherent story based on our study aims. The second author (PASA) reviewed the final set of themes and sub-themes to check that it was aligned with the data. The final step was writing up the analysis. We supported the results with direct quotes from the interviews completed with the respondent number and status.

## Results

### Compliance survey

The survey successfully observed 538 designated smoke-free venues in Denpasar. Based on the seven indicators (full compliance), the surveys indicated an overall low compliance (32.9%).

By type of venue, most of them remain below the target of compliance (80%). Only three of the venues have reached the compliance target, *i.e.* the university/campus, school and the primary health care. The highest compliance showed by university/campus (83.3%), followed by school (82.4%). The compliance of public places was generally low, in fact pubs, night clubs, and karaoke did not comply at all (Figure 1).

Different result of compliance (all-but-signage compliance) showed if we exclude the indicator of no-smoking signage. There were eight venues which had reached the target of compliance (80%) *i.e.* shopping center and university which both had 100% of compliance, followed by school (94.1%), children playground (92.9%), primary health care (90.6%), worship places (88.6%), government office (80.5%), and private office (80%). Moreover, result also showed that pub and bar had 42.9% of compliance, however night clubs and karaoke remained not comply at all (Figure 2).

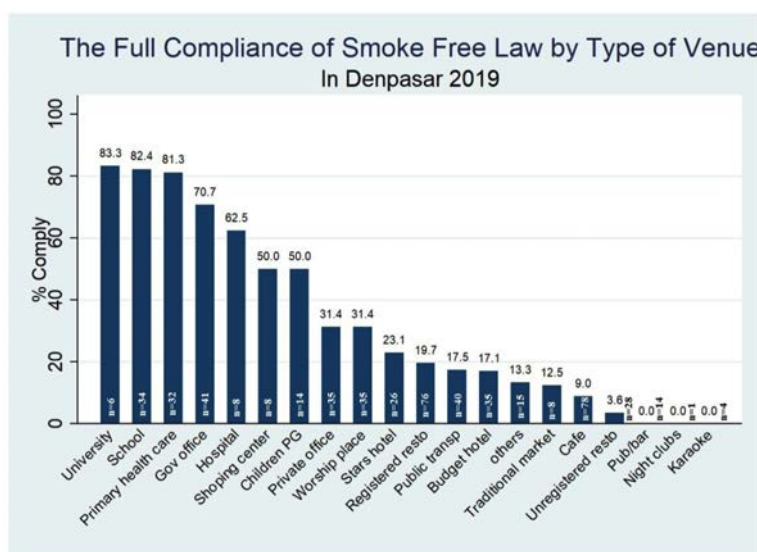


Figure 1. The full compliance with smoke-free law in Denpasar by type of venue in 2019.

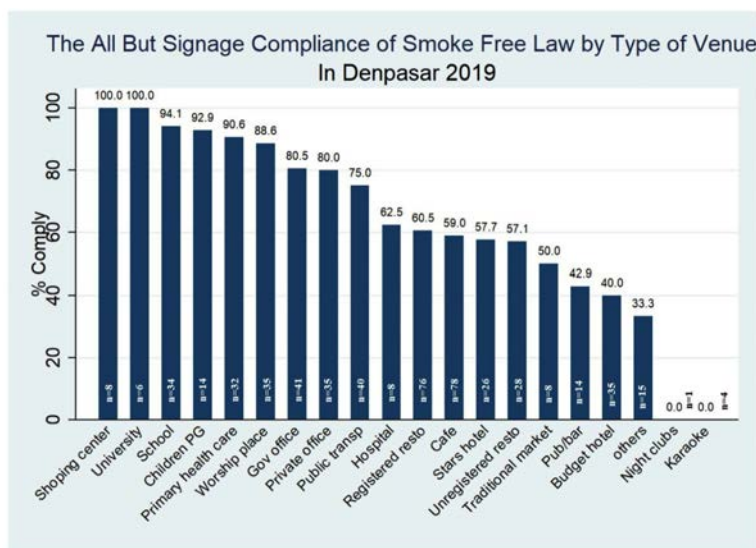


Figure 2. The all-but-signage compliance with smoke-free law in Denpasar by type of venue in 2019.

The violations to the smoke-free law explored in this study were based on the seven indicators. Beside the presence of no-smoking sign, the next three most common violations to the smoke-free law were provision of ashtray (17,5%), smell of cigarette smoke (15,8%) and observed cigarette butts (10,2%). Meanwhile, violation regarding people smoking e-cigarette in smoke-free venue remain rare (2,6%) compared to those who smoke conventional cigarette (8,9%) (Figure 3).

### Qualitative result

Of the 14 informants, the majority were male between 19 and 56 years old. The average interview duration was 32 minutes, with

the longest time being 53 minutes with informant from Denpasar Traditional Village Council (*Majelis Desa Adat*) and the shortest time was 18 minutes with an adult female of community member (Table 1).

There were 22 participants recruited for the 3 focus groups, however only 21 attended the FGDs (Table 2). FGDs were held in several places at traditional village in Denpasar and lasted in average of 50 minutes (range: 43–61). Several themes based on theory of normative social behavior (descriptive norms, injunctive norms, outcome expectations, group identity) and new themes emerged from the qualitative data were discussed, including role of local leader and the importance of local wisdom.

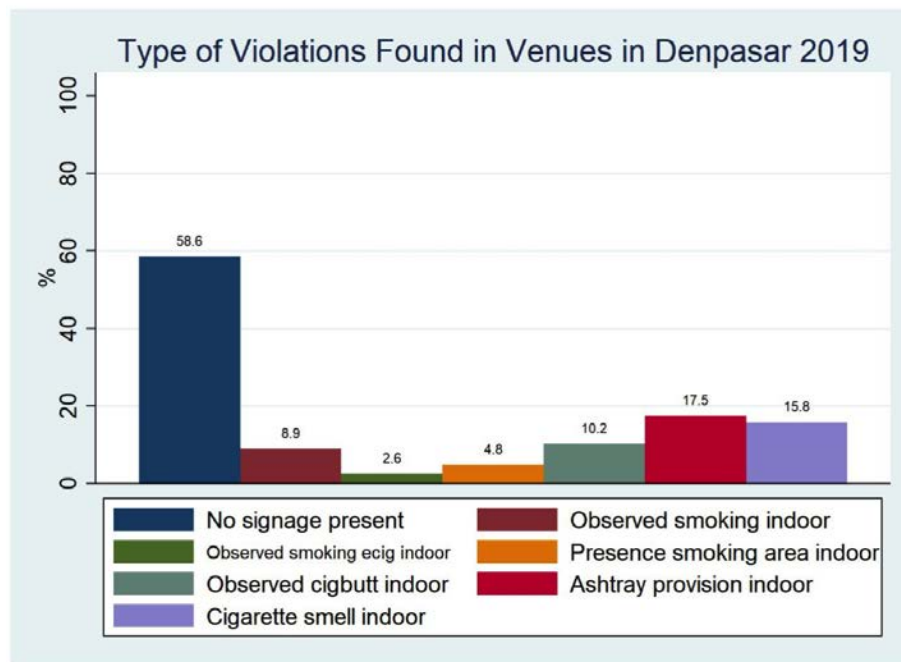


Figure 3. Type of violations by criteria observed in Denpasar.

Table 1. The informant characteristics based on home visit interview.

| Age (years) | Sex | Informant status            | Interview duration |
|-------------|-----|-----------------------------|--------------------|
| 25          | M   | Youth organization leader   | 25                 |
| 24          | M   | Youth organization leader   | 28                 |
| 56          | M   | Adult non-smoker            | 37                 |
| 19          | M   | Adolescent non-smoker       | 20                 |
| 26          | F   | Adult female                | 18                 |
| 20          | F   | Adolescent female           | 31                 |
| 22          | M   | Adolescent smoker           | 29                 |
| 32          | M   | Adult smoker                | 35                 |
| 56          | M   | Traditional leader          | 40                 |
| 52          | M   | Traditional leader          | 36                 |
| 55          | M   | Religious leader            | 34                 |
| 50          | M   | Religious leader            | 30                 |
| 55          | M   | Traditional village council | 53                 |
| 52          | M   | Government official         | 26                 |

M, male; F, female.

## General impressions: incomplete awareness but support the smoke-free law

In the beginning of qualitative study, informants and participants were asked regarding their knowledge and attitude to the smoke-free law. Nearly all informants and participants were aware of the smoke-free law, particularly at health facilities such as primary health cares and hospitals. However, they did not know that worship places, including the Hindu temple, are also smoke-free venues, as described by one informant below:

*...for now, what I know about this is just in the public places for the implementation of this law, but for the worship places like Hindu temple or other holy areas, I have not known for the locations that ruled... (Informant 2, Youth organization leader)*

In general, all informants and participants, both smokers and non-smokers supported the smoke-free law. However, several informants argued that Hindu temple is more an open space compared to other worship places, so cigarette smoke should be harmless. They also mentioned that worship places are usually ruled by local (traditional) authority. Moreover, there were concerns that the implementation of the law may be obstructed by smoking habits of certain groups including the traditional and religious leader.

*...we, in this village with the law are very, very supportive. However, the implementation will face obstacles especially in Hindu temples. Not only in our village, but also the others in Denpasar; during religious ceremonies in temple, there are group of traditional gamelan and religious singer who mostly smoker. If it is forbidden to smoke, they said not strong enough to bear, well that's the problem... (Informant 9, Traditional leader)*

## Descriptive norms: smoking is common for adolescents and elderly men at smoke-free venues

Opinion relating to what the informants and participants received by others behavior at the smoke-free venues were considered as descriptive norms. Generally, informants and participants perceived that smoking is common for men, both adolescents and adults. Most of the informants and participants described that smoking behavior is a male habit but not common among women, neither adolescents nor adult. In addition, some informants and participants observed that as part of their habit, smokers are smoking almost anywhere, including the religious leaders were also smoking at smoke-free venue.

*Don't mention ordinary people, even the religious leaders sometimes smoke, those who keep on at temple...because it's a habit, sometimes there are long period of ceremonies and people have to stay up late then smoking inside. (Participant from FGD1)*

## Injunctive norms: smoking at smoke-free venues remains acceptable in the society

Comments about what informants and participants believe they are expected to do were classified as injunctive norms. Informants

and participants perceived that smoking at smoke-free venues remain acceptable in the community. Most of the informants and participants described that smokers get neither prohibition nor warning from the communities including local leaders. Some degree of rejection is starting to exist but only to friends and family, hence, if the smokers are not family or friends usually people choose to stay away from smokers to avoid conflict.

*...I have never reprimanded but I have seen someone who did although not so often, sometimes I prefer stay away to avoid conflicts... (Informant 4, non-smoker)*

*...if they are only friend, the most likely to say, for example, "shameless", something like that, saying "don't smoke here", it's seldom... (Participant from FGD.3)*

Some informants also mentioned that peoples in Bali are usually more abide to traditional regulation especially in venues or setting outside formal/government institution. They highlighted the need of local wisdom to enhance community compliance through local law, so called *pararem*. Community tend to more comply to the local law because of its social sanctions.

*...in Bali, especially if it's already had local wisdom (pararem), it's really feared, violations were rare and the social sanction is clear, for example like fighting in the public or at temple will be punished with some social sanctions... (Informant 10, Traditional leader)*

## Outcome expectations: smoking at smoke free venues is less beneficial due to moral and social values

Both smokers and non-smokers perceived that smoking has less benefits than not smoking, however, most of them asserted the benefits on other aspects instead of health concerns. Most of the informants and FGDs participants, either smokers or non-smokers, agreed that there will be more self-benefit if they do not smoke at smoke-free venues. They stressed the self-benefits were related to manner or moral value rather than health. The participants also explained other kind of benefits to others if ones do not smoke at smoke-free venues for instance at worship places. These benefits mostly related to religious values such as preserving the holiness of the worship place and keeping the solemnity of the religious ceremony

*...we as social beings, what do we know by the terms, manners and maintain the sanctity of worship place and keep what are the solemnity of the prayers anyway... (Informant 12, Religious leader)*

Some smokers explained that even though they knew that smoking is an unhealthy and may be unethical behavior, but they keep smoking because of the addiction that has made smoking become an entrenched habit. Conversely to common notion that smoking is a form of socializing, participants emphasized that it does not necessarily affect individual ability to socialize.

*...yes, it does not have that influence, I mean that if people*

**Table 2. The characteristics of focus group discussion participants.**

| Sex and smoking status      | Age (years) | Recruitment venue | No. recruited | No. attended | FGD duration |
|-----------------------------|-------------|-------------------|---------------|--------------|--------------|
| Adult female non-smoker     | 30 - 42     | Village market    | 8             | 7            | 45           |
| Adult male smoker           | 40 - 55     | Village hall      | 7             | 7            | 61           |
| Adolescent male non-smokers | 17 - 20     | School            | 7             | 7            | 43           |
| <b>Total</b>                |             |                   | <b>22</b>     | <b>21</b>    |              |

FGD, Focus Group Discussion.

*smoke, to socialize is not seen from smoking. People smoke because it is a habit, but if the habit continue, he becomes more and more addicted...* (Informant 8, Smoker)

### **Group identity: sense of becoming part of a group but increasingly viewed as not respectable behavior**

The informants and the FGD participants expressed their comments regarding group identity related to smoking, they stated that smoking could make affiliation to others easier and the sense of becoming part of the group. However, it is not generally respectable in some venues such as worship places. They described that smoking could be influenced by the behavior of the community group, prominent person within the group or the local leader.

*...in my opinion, it depends on the view of people, for example he really does have such characters or hard soul so maybe he just saw their leader as a role model like "oh so cool the leader was sitting in front while smoking..."* (Informant 1, Youth organization leader)

Few participants perceived smoking is a behavior that reflects the maturity of a man, or a sign to becoming similar to the adult and older people in the community. Nevertheless, generally, they felt that smoking is beginning to be viewed as disrespected behavior in society based on their experience viewing peoples smoking in some places that they are not supposed to such as in the designated smoke free venues.

*...if smoking in worship place, it means that such behavior does not have respect for people" how come he smokes there? sometimes there are things like that. So, if we respect it, it will be weird...* (Informant 11, Religious leader)

### **Role model: the importance of public figure to control smoking behavior and increase compliance**

A new and important theme emerged in interviews and FGDs was the role of public figure in smoking behavior at smoke-free venues. In term of social life, there are several public figures that can be seen as a role model including the head of the village (known as traditional/local leader), religious leaders, elders, and also politicians. Those leaders were described as having an essential influence to community actions or behaviors due to perceived importance of traditional and social values and also the essence of social ruling through local wisdom.

*...in the traditional village is automatically the head of the village, the elders want to participate in smoke-free implementation, they are certainly trusted... the public figures in the village can be wider either from religious leaders, generous people, even politicians...* (Informant 14, Government official)

The informants and participants explained that the community leader will be able to play their role optimally if they become a good role model themselves and conduct supervision and enforcement regularly. A good model means avoiding smoking at smoke-free venues, while supervision and enforcement should be performed as giving warning or punishment for people who smoke at smoke-free venues, in accordance with the smoke-free law or through their own local wisdom.

*...This is what we need to make a true example of public figures, especially traditional leaders, at least if there is no local wisdom regarding smoke-free yet, give examples, become role model or if the initiative can be built from these leaders to make an agreement or local wisdom regarding smoke-free, that's even better...* (Informant 13, Denpasar Traditional Village Council)

### **Local wisdom: a social disapproval of smoking at smoke-free venues**

During the final session of the interviews and FGDs, we asked the informants and participants about their recommendation to increase compliance with the smoke-free law. Beside highlighting the importance of involving public figures both on the education or enforcement of the law, they asserted the importance of complementing the current smoke free law with a traditional law. They viewed that incorporation of a local wisdom in form of regulation (known as *pararem*) will enhance the compliance especially in the community institution or setting outside formal government context.

## **Discussion**

This study evaluated the compliance and explored a unique look into social norms around smoke-free law in a setting where smoking prevalence is high and often viewed as part of the cultural heritage. The results showed that overall compliance remain low, in fact the compliance was decreasing, compared to the previously published compliance study.<sup>8</sup> Nevertheless, some venues consistently showed high compliance such as health facilities, schools and children's playground, whilst other areas such as places of worship, working places and public places remained as low as the previous study.<sup>8</sup> These findings are consistent with several studies, whereas a lower compliance were observed in public places particularly at the hospitality sectors e.g. restaurants, pub, bar, night club.<sup>17-19</sup> This result indicated that the current strategies were yet to successfully increase the compliance.

The low compliance in public places may be related to the fact that Bali province is a famous tourist destination in the world where numerous public places were built to support tourism including in Denpasar. To improve compliance in these hospitality sectors, a better engagement of stakeholders such as Bali Hotels Association (BHA) and Bali Hotels and Restaurants Owner Association (PHRI Bali) in all stages of smoke free law implementation should be considered. They should be involved not only for the socialization or education but also for enforcement through enhancing the internal monitoring system.<sup>20</sup>

Beside hospitality venues, worship places were another venue which is consistently showed low compliance especially the Hindu temple. Worship places in Denpasar are dominated by Hindu temple since the majority of the residents are Hindus. In contrast to other worship places which are mostly enclosed buildings, the Hindu temples are mostly opened or semi-opened spaces. For this reason, the informants and participants said that smoking is less dangerous at Hindu temple since the smoke is directly in contact with and dilute in the open air. This argument is not reasonable since in this setting a lot of people are congregated especially during the ceremony which make exposure to second hand smoke is high. Smoke free provision in open spaces which are a popular public destination is increasingly implemented such as adoption of smoke free beach and park. The implementation of these outdoor smoke free laws aims not only to protect from smoke free exposure but also to emphasize on the importance of environmental health since cigarette butt is one of the most observed pollutants, and also to denormalize smoking norms, and to improve the quality of community life.<sup>21-23</sup> Evidence shows that low compliance to smoke-free law associated with many factors, including knowledge and attitude to the law, support from venue managers, enforcement system from the government, and social norms of smoking.<sup>24-26</sup> Positive social norm around smoking that remain

rooted in the society especially in LMIC countries consistent with our finding which showed smoking still highly acceptable in public places and in the society. While in other setting, the implementation of smoke-free law was significantly associated with lower social acceptability of smoking and higher social disapproval of smoking in the community.<sup>27,28</sup> In Indonesia, this effect has not been achieved yet. Smoking has been a longstanding part of social life which has become a social norm in the society<sup>29,30</sup> and high social acceptability of smoking has been also partly due to extensive marketing of cigarettes.<sup>31</sup> Provision of cigarette becomes part of hospitality as well as tradition at almost every religious and customary event. Thus, smoking behavior become very normative not only among the society but also within households.<sup>32</sup> The availability of a no-smoking sign is one of the most important criteria in smoke-free law. Display of no-smoking signs is important to increase public awareness to the law and a visual sign to inhibit smoking in public places.<sup>33-36</sup> In this study, we found that no-smoking sign coverage was low, and it was decreased compared to previous compliance.<sup>8</sup> Nearly all informants and participants emphasized the importance to install no-smoking sign and to renew the signs that have been damaged or faded. Low coverage of the signage indicated the lack of internal monitoring system among stakeholders in this case the venue managers and the government particularly at the local jurisdictions.<sup>37</sup> In another study, the importance of the signage was associated with descriptive norms whereas installation of no-smoking signs, removal of ashtrays, and sweeping of cigarette butts could inform that smoking in that venues is no longer acceptable which should be perceived as a non-normal behavior in society.<sup>24</sup>

Even though, we found high supports toward the implementation of the law and most of the informants and participants considered that smoking has no benefit. However, the compliance survey showed pretty high violations occurred in smoke-free venues including provision of ashtrays, smell of cigarette smoke, observed people smoking and observed cigarette butts. Those violations indicated the discrepancy between the perceived community supports and the actual implementation of the law which could be due to the lack of proper awareness regarding the regulation, lack of internal monitoring by the venues manager, and also the enforcement management by the local government.<sup>38</sup> Moreover, the violations may also occur because the support to the law was not complemented with either self-enforcement or social disapproval mechanisms which are important to discourage people from smoking in public places.<sup>39</sup> Lack of social enforcement because most people are feelings reluctance to approach and to reprimand smoker due to concerns of breaching ones privacy, concerns with their reactions especially when smoking is common, fear of conflict, and lack of additional support from groups of society.<sup>40</sup>

Enhancing community support is an important aspect of the effective implementation of smoke free law. One of the effective promotions and enforcement methods is by involving the local public figures including religious leaders and local political leaders to convey the message in the society.<sup>41</sup> A study among Malaysian Muslims, of whom 30% agreed that antismoking messages from their religious leaders would strongly motivate them to quit smoking.<sup>42</sup> However, the smoking status of the leaders may hamper this effort such has been found in Indonesia and from our study when many of the local and religious leaders are smoking in public

places including in the designated smoke free venues. This finding is consistent with the study from Byron *et al.* which found that the obedient to religion and to religious leader who smoke and deliver an inconsistent information was a negative predictors of the effectiveness of religious pronouncement against smoking and the increase of compliance.<sup>9</sup> Based on this situation, more comprehensive and binding strategies that incorporate culture-sensitive approaches are needed to improve the implementation of smoke-free law in countries which have strong social smoking culture. The implementation may be more effective when performed together with measures to change smoker's beliefs, social and cultural smoking norms, along with the increase of ground-level will to enforce policies.<sup>11,43</sup> One strategy recommended by our informants and participants in order to change social and cultural norms is through development of a local wisdom or local policy. In accordance with research by Echeverría *et al.*,<sup>10</sup> a cultural intervention or synergy with local policies is essential to improve compliance to smoke-free law. *Pararem* is one of the local/traditional policies established within the traditional village system (*Desa Adat*) of Bali. The regulation differs from pronouncement by religious or local leaders adopted in Bogor city because it is a written law which is generated through community meeting and agreement; and more importantly the law includes and imposes some forms of social sanctions. Balinese people who are mostly indigenous and as a member of the *desa adat* are usually more comply to this local policy than the government law. Therefore, this *pararem* could potentially become a vigorous social disapproval tool of smoking in the society. Evidence suggests that a strong and robust social disapproval method is important to suppress smoking behavior in public places.<sup>39,44</sup> Moreover, strengthening and complementing the smoke-free law with local policies provide a more promising outcome to improve compliance in all different types of designated smoke free venues and this combination of laws is expected to be able to change the smoking culture in the society which is the key to long-term compliance with smoke-free law.<sup>45</sup>

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## Conclusions

Compliance with smoke-free law in Denpasar remains low especially at public places, including worship places and hospitality sectors. The availability of no-smoking sign and social acceptance of smoking in public considered as important factors that affected the compliance. The improvement of smoke free implementation is essential through a routine and better socialization and supervision involving venue managers and other stakeholders including the community members. A culture-sensitive strategy should be considered in the efforts of improving compliance to smoke free law partly due to the high social acceptability and entrenched social norms around smoking. Adoption of a local wisdom in the form of traditional law could be a potential measure to complement the current regulation especially when it is more abiding to the community members. This concept needs further exploration in the future, development of such strategy and assessment of its effectiveness should be conducted in order to ensure optimal protection to second-hand smoke and to boost the efforts to de-normalize smoking norms in the community.

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**Keywords:** Smoke-free law; smoking social norms; compliance; tobacco control; Denpasar.

**Acknowledgments:** The authors sincerely thank Center for NCDs, Tobacco Control and Lung Health, Universitas Udayana (Udayana Central) for the support throughout the project, to all respondents who kindly consented to participate in this study and to all enumerators for their valuable contribution to the study. We also thank the reviewers for their thoughtful review of our paper. The study was funded by The Union and The Ministry of Technology, Research and Higher Education of Indonesia. KS received an Indonesian National Postgraduate Education Scholarships (BPPDN) for his PhD.

**Contributions:** KS designed the study, developed methodology, data collection tools, and drafted the manuscript. PASA contributed to the design of the study and drafted the manuscript. AEP contributed to the development of methodology and data analysis. MKD and KHM contributed to data collection and imputation. DC critically reviewed the study protocol and supervised the research implementation. BQ critically reviewed all aspects of the study. CUW critically reviewed all aspects of the study and assisted in drafting the manuscript. All of the authors have approved the final manuscript.

**Conflicts of interest:** The authors declare that they have no potential conflicts of interest.

**Ethical approval:** The study was approved by the ethics committee, Faculty of Medicine of Universitas Udayana, Denpasar Bali.

Received for publication: 8 February 2020

Accepted for publication: 25 June 2020.

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Journal of Public Health Research 2020;9:1747

doi:10.4081/jphr.2020.1747

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## References

1. WHO. Global report on trends in prevalence of tobacco smoking 2000-2025, second edition. Geneva; 2018. Available from: <https://www.who.int/tobacco/publications/surveillance/trends-tobacco-smoking-second-edition/en/>
2. Lian TY, Dorotheo U. The Tobacco Control Atlas: ASEAN Region. Southeast Asia Tobacco Control Alliance (SEATCA). 2016. Available from: [https://seatca.org/dmdocuments/The Tobacco Control Atlas ASEAN Region 3rd Edition 2016.pdf](https://seatca.org/dmdocuments/The_Tobacco_Control_Atlas_ASEAN_Region_3rd_Edition_2016.pdf)
3. Kementerian Kesehatan Republik Indonesia. Laporan\_Nasional\_RKD2018\_FINAL.pdf. Badan Penelitian dan Pengembangan Kesehatan. 2018;198. Available from: [http://labdata.litbang.kemkes.go.id/images/download/laporan/RKD/2018/Laporan\\_Nasional\\_RKD2018\\_FINAL.pdf](http://labdata.litbang.kemkes.go.id/images/download/laporan/RKD/2018/Laporan_Nasional_RKD2018_FINAL.pdf)
4. Dinas Kesehatan Kota Denpasar. PROFIL DINAS KESEHATAN KOTA DENPASAR TAHUN 2018. Denpasar; 2019. Available from: <https://www.diskes.baliprov.go.id/download/profil-kesehatan-denpasar-tahun-2018/>
5. WHO. Framework Convention on Tobacco Control. WHO Press. 2005;270–1. Available from: <https://apps.who.int/iris/bitstream/handle/10665/42811/9241591013.pdf?sequence=1>
6. Pemerintah Provinsi Bali. Peraturan Daerah Provinsi Bali No. 10 Tahun 2011 Tentang Kawasan Tanpa Rokok (KTR). 2011. Available from: <https://peraturan.bpk.go.id/Home/Details/22411/perda-prov-bali-no-10-tahun-2011>
7. Pemerintah Kota Denpasar. Perda KOTA DENPASAR No.7 Tahun 2013 tentang Kawasan Tanpa Rokok.pdf. Denpasar; 2013. Available from: <https://peraturan.bpk.go.id/Home/Details/20257/perda-kota-denpasar-no-7-tahun-2013>
8. Suarjana K, Putra AE, Astuti PAS, et al. Compliance with smoke-free legislation and associated factors: A serial survey in Bali, Indonesia. Indian J Public Heal Res Dev 2018;9:1840–5.
9. Byron MJ, Cohen JE, Gittelsohn J, et al. Influence of religious organisations' statements on compliance with a smoke-free law in Bogor, Indonesia: A qualitative study. BMJ Open 2015;5:1–7.
10. Echeverría SE, Gundersen DA, Manderski MTB and CDD. Social norms and its correlates as a pathway to smoking among young Latino adults. Soc Sci Med 2013;6:187–95.
11. Byron MJ, Cohen JE, Frattaroli S, et al. Implementing smoke-free policies in low- And middle-income countries: A brief review and research agenda. Tob Induc Dis 2019;17:1–10.
12. Rimal RN, Real K. How behaviors are influenced by perceived norms a test of the theory of normative social behavior. Communic Res 2005;32:389–414.
13. Creswell JW. Research design: Qualitative, quantitative, and mixed methods approaches. 3rd ed. Thousand Oaks; Sage Publications: 2009.
14. The Union, CTFK JHBS of PH. Assessing compliance with smoke-free laws. 2nd ed. 2014. available from: <https://www.theunion.org/what-we-do/publications/technical/assessing-compliance-with-smoke-free-laws>
15. Open Data Kit [Internet]. ODK Tools. Available from: <https://opendatakit.org/>
16. Maguire, Moira BD. Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. AISHE J 2017;8:3351–33514.
17. Barnoya J, Arvizu M, Jones MR, et al. Secondhand smoke exposure in bars and restaurants in Guatemala City: before and after smoking ban evaluation. Cancer Causes Control 2011;22:151–6.
18. Reis MF, Namorado S, Aguiar P, et al. Patterns of adherence to and compliance with the Portuguese smoke-free law in the leisure-hospitality sector. PLoS One 2014;9:e102421.
19. Gravely S, Nyamurungi KN, Kabwama SN, et al. Knowledge, opinions and compliance related to the 100% smoke-free law in hospitality venues in Kampala, Uganda: Cross-sectional results from the KOMPLY Project. BMJ Open 2018;8:e017601.
20. Devhy NLP, Astuti PAS, Duarsa DP. [Pengaruh Faktor Pengelola terhadap Kepatuhan Pelaksanaan Peraturan Daerah tentang Kawasan Tanpa Rokok pada Hotel Berbintang di Kabupaten Badung]. [Article in Indonesian]. Public Heal Prev Med Arch 2014;2:158-64.
21. Gallus S, Rosato V, Zuccaro P, et al. Attitudes towards the extension of smoking restrictions to selected outdoor areas in Italy. Tob Control 2011;21:59–62.
22. Hyland A, Barnoya J, Corral JE. Smoke-free air policies: Past, present and future. Tob Control 2012;21:154–61.



23. Kennedy RD, Behm I, Craig L, et al. Outdoor smoking behaviour and support for outdoor smoking restrictions before and after France's national smoking ban. *Eur J Public Health* 2012;22:29–34.
24. Byron MJ, Cohen JE, Frattaroli S, et al. Using the theory of normative social behavior to understand compliance with a smoke-free law in a middle-income country. *Health Educ Res* 2016;31:738–48.
25. Tadesse T, Zawdie B. Non-compliance and associated factors against smoke-free legislation among health care staffs in governmental hospitals in Addis Ababa, Ethiopia: An observational cross-sectional study. *BMC Public Health* 2019;19:1–11.
26. Wynne O, Guillaumier A, Twyman L, et al. Signs, fines and compliance officers: A systematic review of strategies for enforcing smoke-free policy. *Int J Environ Res Public Health* 2018;15:1386.
27. Thrasher JF, Pérez-Hernández R, Swayampakala K, Arillo-Santillán E, Bottai M. Policy support, norms, and secondhand smoke exposure before and after implementation of a comprehensive smoke-free law in Mexico City. *Am J Public Health* 2010;100:1789–98.
28. Rennen E, Nagelhout GE, Van Den Putte B, et al. Associations between tobacco control policy awareness, social acceptability of smoking and smoking cessation. Findings from the International Tobacco Control (ITC) Europe Surveys. *Health Educ Res* 2014;29:72–82.
29. Nichter M, Padmawati S, Danardono M, Ng N, Prabandari Y, Nichter M. Reading culture from tobacco advertisements in Indonesia. *Tob Control* 2009;18:98–107.
30. Astuti PAS, Assunta M, Freeman B. Why is tobacco control progress in Indonesia stalled? - A qualitative analysis of interviews with tobacco control experts. *BMC Public Health* 2020;20:1–12.
31. Astuti PAS, Kurniasari NMD, Mulyawan KH, et al. From glass boxes to social media engagement: An audit of tobacco retail marketing in Indonesia. *Tob Control* 2019;28:E133–40.
32. Luntungan N, Byron M, Hovell M, et al. Children's exposure to secondhand smoke during ramadan in Jakarta, Indonesia. *Int J Environ Res Public Health* 2016;13:952.
33. Kumar R, Goel S, Harries AD, et al. How good is compliance with smoke-free legislation in India? Results of 38 subnational surveys. *Int Health* 2014;6:189–95.
34. Farley SM, Waddell EN, Mandel-Ricci J, Kansagra SM. Public support for smoke-free air strategies among smokers and non-smokers, New York City, 2010–2012. *Prev Chronic Dis* 2014;11:2010–2.
35. Goel S, Sharma D, Gupta R, Mahajan V. Compliance with smoke-free legislation and smoking behaviour: Observational field study from Punjab, India. *BMJ Tob Control* 2018;27:407–13.
36. Navas-Acien A, Çarkoğlu A, Ergör G, et al. Compliance with smoke-free legislation within public buildings: a cross-sectional study in Turkey. *Bull World Health Organ* 2016;94:92–102.
37. Tripathy JP, Goel S, Patro BK. Compliance monitoring of prohibition of smoking (under section-4 of COTPA) at a tertiary health-care institution in a smoke-free city of India. *Lung India* 2013;30:312–5.
38. Peruga A, Hayes LS, Aguilera X, et al. Correlates of compliance with national comprehensive smoke-free laws. *Tob Control* 2018;27:608–13.
39. Page RM, Huong NT, Chi HK, Tien TQ. Social normative beliefs about smoking among Vietnamese adolescents. *Asia-Pacific J Public Heal* 2012;24:68–81.
40. Fallin-Bennett A, Roditis M, Glantz SA. The carrot and the stick? Strategies to improve compliance with college campus tobacco policies. *J Am Coll Heal* 2017;65:122–30.
41. Robertson L, Nyamurungi KN, Gravely S, et al. Implementation of 100% smoke-free law in Uganda: a qualitative study exploring civil society's perspective. *BMC Public Health* 2018;18:927.
42. Yong H-H, Savvas S, Borland R, et al. Secular versus religious norms against smoking: Which is more important as a driver of quitting behaviour among Muslim Malaysian and Buddhist Thai smokers? *Int J Behav Med* 2013;20:252–8.
43. Kostygina G, Hahn EJ, Rayens MK. "It's about the smoke, not the smoker": Messages that motivate rural communities to support smoke-free policies. *Health Educ Res* 2014;29:58–71.
44. Kamimura A, Ahmmad Z, Pye M, Gull B. Peer smoking and smoking-related beliefs among college students in Bangladesh. *J Prev Med Public Heal* 2018;51:51–8.
45. Kaufman MR, Merritt AP, Rimbatmaja R, Cohen JE. "Excuse me, sir. Please don't smoke here". A qualitative study of social enforcement of smoke-free policies in Indonesia. *Health Policy Plan* 2015;30:995–1002.