Students’ Knowledge and Attitudes Towards Smoke-Free Universities: Changes Since Enactment of Vietnamese Tobacco Control Legislation

Nguyen Ngoc Bich¹,²*, Margaret Cook², Kelly Johnstone², Mike Capra², Vu Thi Hoang Lan¹

Abstract

Background: In 2013, legislation in Vietnam regulated smoking in public areas. Included was a ban on indoor smoking at universities. Objective: Since awareness and attitude are moderators of the effectiveness of smoke-free policy, our aim was to assess changes in students’ knowledge and attitude to second-hand smoke (SHS) and awareness and support of smoke-free legislation at four Vietnamese universities, one year after legislative changes. Methods: A two-phase cross-sectional study of undergraduate students using self-administered questionnaires (based on the Global Adult Tobacco Survey and the Thrasher survey) was conducted at the introduction of the legislation and one year thereafter. Results: One-year post legislation there were significant increases in knowledge of smoke-free legislation and awareness of universities as smoke-free environments. There was a significant increase in knowledge of harmful effects of SHS on diseases such as examples in the heart and lung, including lung cancer, and miscarriage. Students expressed strong support of smoke-free environments in universities, hospitals, schools, workplaces, public transport, libraries, cinemas and theatres; support was also increased post legislation. Changes were seen in attitude to SHS, and rights of non-smokers and smokers. Conclusions: Positive changes have occurred in knowledge and attitude toward smoke-free environments and SHS in universities since enactment of Vietnamese tobacco control legislation.

Keywords: Smoke-free environment - university - undergraduate students - knowledge - attitude

Introduction

The health effects of tobacco are a major public health issue globally. It is estimated that tobacco use is responsible for up to 90% of lung cancers, 30% of all cancers, 75% of chronic obstructive pulmonary disease (COPD), and 35% of ischemic heart disease (Mather and Lonca (2006). The World Health Organization (WHO) also states that 14% of deaths in men and 11% of deaths in women in the Western Pacific region could be attributed to tobacco use. In Vietnam, non-communicable diseases are on an increasingly upward trend, accounting for more than 62% of all hospital deaths, 17% of all deaths, and 21% of deaths caused by non-communicable diseases (2012a).

Creating a smoke-free environment has been found to have an important impact on the health of nonsmokers, as well as smokers (Ong and Glantz, 2004; Hahn et al., 2006; Rayens et al., 2008). It creates a supportive environment for smokers to quit or reduce smoking (Hahn et al., 2008; Ritchie et al., 2010), while it does not have any negative impact on business and doesn’t increase smoking at home (Corsun et al., 1996; Lal et al., 2004; Mons et al., 2012). Vietnam is one of the 15 countries in the world with the highest prevalence of male smokers (47.4%), while only 1.4% of females are smokers (MOH, 2010). Apart from the direct use of tobacco products, secondhand smoke (SHS) exposure is also a significant issue, with more than 33 million adults exposed to SHS at home, and around 38 million exposed to SHS in workplaces (MOH, 2010). The Global Adult Tobacco Survey (GATS) in Vietnam found that, among public places, restaurants and bars showed some of the highest incidences of violations of smoking bans exposure to SHS (89.7%), followed by universities (54.3%), government offices (38.7%) and public transportation (34.4%) (MOH, 2010).

Vietnam ratified the Framework Convention on Tobacco Control (FCTC) in 2004 and, together with other countries, issued legislation to implement the setting up of smoke-free public places, such as the Prime Minister’s Directive No12/CT-Ttg on strengthening tobacco control (2000), and the Prime Minister’s Decision 1315 to establish the National Plan for WHO FCTC implementation (2009). However, smoking in public and workplaces is still common in Vietnam. Most recently,
the Law on Tobacco Control was passed by members of the National Assembly on 18 June 2012, and came into effect on 1 May 2013. This study aims to evaluate the changes in students’ knowledge and attitude of second hand smoke (SHS) and awareness and support of smoke-free legislation at four Vietnamese universities in one year after legislative changes.

Materials and Methods

Study location

The study was conducted at four universities selected representatively for three main geographical regions in Vietnam (the University of Thai Nguyen and Foreign Trade University in the North; the University of Hue in the Centre and the University of Dong Thap in the South of Vietnam).

Study design

A pre-experimental design was employed to evaluate changes in support, compliance with smoke-free implementation, and exposure to SHS 1 year after implementation of the Tobacco Control Law and its guiding decree 176/ND-CP/2013. The new Law, its decree and the regulations put in place at the study universities are viewed as the intervention that is evaluated in this study. Baseline survey was done in December 2013 when Decree 176/ND-CP/2013 was issued, and post intervention was conducted 1 year after Phase 1.

Sample size and sampling process

The total size was calculated using sample size to compare two proportion

The sample size was calculated using the two-sided test of comparison between groups:

\[
\begin{align*}
n &= \left[ \frac{Z_{\alpha/2} \sqrt{p_1 (1-p_1) + p_2 (1-p_2)}}{p_2 - p_1} \right]^2 \\
&\times \text{D.E.} \times \text{Allowance for non-response}
\end{align*}
\]

The sample size computations were based on the following parameters: significance =95%; power =90%; \(p^2 = 0.023\) (rate of reporting change in exposure to SHS in Thrasher (2010)).

Difference to be detected = 4 percentage points (=\(p^1-p^2\) in the attached sample size formula), assuming the similar rate of higher risk intercourse in a compared group is \(p^1=0.063\). Design effect = 1.2 (based on previous studies of this type worldwide); allowance for non-response = 5%. The total sample size needed for each university was 800 students.

Total estimated sample size was 800 students. In both survey, single-stage cluster sampling was used to choose subjects from each selected university. The clusters in this study were defined as classes (average 30-100 students), and so in total approximately 25 classes were surveyed for each university, randomly selected from the list of classes in Years 1, 2 and 3. All the students in the selected classes were invited to voluntarily participate in the study. Students in the final year were not selected, as they were doing fieldwork and/or data collection for their theses and hence were frequently absent from campus.

Measurements and analytical approach

Quantitative questionnaires were developed based on previous questionnaires on SHS exposure, and support and compliance for smoke-free policies from previous studies. Major themes for knowledge and attitude evaluated in this study included knowledge about smoke-free policies for indoor areas, knowledge about university’s policies regarding indoor smoke free; attitude toward indoor smoke and toward the implementation of smoke free legislation at four Vietnamese universities in one year.

Data were entered and managed by EpiData software and were analysed using SPSS18.0 software. Appropriate descriptive statistics, including means and percentages, were used to present the main indicators. Chi-square tests were used to compare the differences between proportions in the two phases.

Ethical approval

All respondents were adults and voluntarily participating in the study. Participants were given an information sheet about the research and their rights to voluntarily participate or refuse. The consent was included in the questionnaire on the first page. All personal information is accessible only to the principal investigator and supervisors. Data are secured in safe storage that is only accessed by principal investigator. All computerised data are kept confidential, and only the study team had access to them. Ethical clearance requests were submitted to the Hanoi School of Public Health Ethics Committee and the University of Queensland Ethics Committee, and approvals obtained: from HSPH (No 127/2013/YTCC – HD3 on 26 April 2013) and UQ (Approval number 2013000614 on 14 May 2013).

Results

Characteristics of study samples

At all universities, female students were the majority

| Characteristics | University of Hue | Foreign Trade University | University of Dong Thap | University of Thai Nguyen |
|----------------|------------------|-------------------------|------------------------|--------------------------|
| Male           |                  |                         |                        |                          |
| Phase 1        | 275 (34.7%)      | 227 (31.4%)             | 213 (27.7%)            | 165 (21.4%)              |
| Phase 2        | 269 (36.1%)      | 224 (31.8%)             | 219 (28.6%)            | 160 (21.2%)              |
| Female         |                  |                         |                        |                          |
| Phase 1        | 517 (65.3%)      | 495 (68.6%)             | 555 (72.3%)            | 606 (78.6%)              |
| Phase 2        | 512 (63.9%)      | 490 (68.2%)             | 550 (71.7%)            | 600 (78.4%)              |
| Age            | 20.5 + 1.2       | 20.6 + 1.8              | 20.1 + 1.4             | 19.6 + 0.6               |
|                |                  |                         | 19.9 + 1.2             | 19.7 + 1.2               |
|                |                  |                         | 19.8 + 1.0             | 20.3 + 1.4               |

Table 1. Characteristics of Study Samples
with more than 60% of students were female. The mean age of students of four universities were approximately 20 years old as they were at year 1, 2 and 3 of the university.

Changes in knowledge after intervention

Table 2 presents the changes in student’s knowledge of the smoke-free Law and how it is implemented in the university setting. Under the Tobacco Control Law, smoking is prohibited in all indoor areas of the university. Correct knowledge was defined as students answer “Tobacco smoking is not allowed anywhere in indoor areas”. As shown in Table 2, the percentage of students who had a high level of knowledge of the smoke-free Law is low. Across all universities, approximately only one-third of students both in Phase 1 and Phase 2 correctly answered that smoking is prohibited in all indoor areas. In

| Knowledge of smoke-free policies for indoor areas | University of Hue Phase 1 | Phase 2 | Foreign Trade University Phase 1 | Phase 2 | University of Dong Thap Phase 1 | Phase 2 | University of Thai Nguyen Phase 1 | Phase 2 | Total Phase 1 | Phase 2 |
|--------------------------------------------------|--------------------------|---------|----------------------------------|---------|-------------------------------|---------|-------------------------------|---------|------------|---------|
| Tobacco smoking is allowed everywhere            | 14.0%                    | 15.0%   | 18.0%                            | 16.0%   | 14.0%                         | 11.0%   | 15.0%                         | 10.0%   | 57.0%      | 52.0%   |
| Tobacco smoking is allowed in some indoor areas  | 140                      | 162     | 206                              | 256     | 165                           | 137     | 125                           | 162     | 636        | 717     |
| Tobacco smoking is not allowed anywhere in indoor areas | 17.6%                   | 22.6%   | 26.8%                            | 33.5%   | 19.0%                         | 19.5%   | 15.6%                         | 22.3%   | 19.7%      | 24.6%   |
| Total                                            | 222                      | 257     | 230                              | 260     | 329                           | 228     | 264                           | 251     | 1045       | 996     |

Table 3. Students’ Acknowledgement of the Smoke-free Policies Issued by their University

| Correct knowledge of university smoke-free policies for indoor areas | University of Hue Phase 1 | Phase 2 | Foreign Trade University Phase 1 | Phase 2 | University of Dong Thap Phase 1 | Phase 2 | University of Thai Nguyen Phase 1 | Phase 2 | Total Phase 1 | Phase 2 |
|---------------------------------------------------------------------|--------------------------|---------|----------------------------------|---------|-------------------------------|---------|-------------------------------|---------|------------|---------|
| Indoor smoking is allowed                                           | 27                       | 20      | 14                               | 19      | 18                            | 25      | 15                            | 10      | 74         | 74      |
| Indoor smoking is not allowed, but there are exceptions             | 3.40%                    | 2.80%   | 1.80%                            | 2.50%   | 2.10%                         | 3.60%   | 1.90%                         | 1.40%   | 2.30%      | 2.60%   |
| Indoor smoking is never allowed                                     | 131                      | 68      | 81                               | 97      | 108                           | 100     | 71                            | 81      | 391        | 346     |
| Indoor smoking is not allowed, but there are exceptions             | 16.5%                    | 9.60%   | 10.5%                            | 12.6%   | 12.5%                         | 14.3%   | 8.90%                         | 11.3%   | 12.1%      | 11.9%   |
| Indoor smoking is never allowed                                     | 374                      | 430     | 389                              | 420     | 531                           | 401     | 397                           | 406     | 1691       | 1657    |
| Indoor smoking is never allowed                                     | 47.1%                    | 60.4%***| 50.3%                            | 54.8%   | 61.2%                         | 57.2%   | 49.6%                         | 56.5%*  | 52.3%      | 57.2%***|
| There is no indoor smoking regulation                               | 62                       | 47      | 74                               | 71      | 46                            | 29      | 115                           | 25      | 297        | 128     |
| Total                                                               | 794                      | 712     | 774                              | 767     | 867                           | 701     | 800                           | 718     | 3235       | 2898    |

* p<0.05, ** p<0.01
both Phase 1 and Phase 2, approximately 10% of students thought that there was no Law, and approximately 30% did not know what the Law stipulated. It was observed that the % answered correctly for the question “Tobacco smoking is not allowed anywhere in indoor areas” increased significantly in all participated universities, most evidently in University of Hue (from 28.0% to 35.8%).

Table 3 showed the student acknowledgement of smoke-free policies issued by their own universities. All of the four universities had their own smoking bans in indoor areas before Phase 1 of the study was conducted. Correct knowledge was defined as students answer “Indoor smoking is never allowed”. Results in Table 3 shows that the prevalence of students who correctly acknowledged the universities’ policies was approximately 50%, increasing significantly in Phase 2 compared to Phase 1 at the University of Hue (from 47.0% to 55.1%) and FTU (from 50.3% to 61.9%), University of Thai Nguyen (from 49.6% to 61.9%). At the University of Dong Thap, there was no significant change in Phase 2 compared to Phase 1.

Change in attitude after intervention

Table 4 indicates the changes in student’s attitude after 1 year intervention. Likert scale was used to evaluate attitude (5 scales from strongly disagree to strongly agree). An appropriate attitude was defined as follows: (1) Smokers have a right to smoke in smoke-free areas (appropriate attitude is strongly disagree or disagree (2) If someone does not want to breathe cigarette smoke, then they should go somewhere else (appropriate attitude is strongly disagree or disagree) (3) Nonsmokers have a right to breathe air without tobacco smoke (the appropriate attitude is strongly agree or agree) (4) Nonsmokers don’t have to worry about being with smokers in the same room (appropriate attitude is strongly disagree or disagree) (5) Smoke-free policy improves the health of non-smokers (appropriate attitude is strongly agree or agree) and (6) Smoke-free policy improves the health of smokers (appropriate attitude is strongly agree or agree)

Table 4 reports the percentage of students having appropriate attitude on SHS.

The percentage of students who had an appropriate attitude to the statement “Smokers have a right to smoke in smoke-free areas” slightly increased in phase 2 at the University of Hue and significantly increased at the University of Thai Nguyen. At the FTU, the percentage of students with the appropriate attitude decreased significantly while at the University of Dong Thap there was an insignificant decrease.

For the statement “Nonsmokers have a right to breathe air without tobacco smoke”, a significant decrease was found at the University of Hue and non-significant decreases were found at the FTU and the University of Thai Nguyen. In contrast, the students’ attitude at
Discussion

Regarding awareness of the Tobacco Control Law and university-specific regulations, the percentage of students from all the universities combined who chose the correct answer ("Tobacco smoking is not allowed anywhere in indoor areas") in relation to the Tobacco Control Law increased significantly \( (p < 0.05) \) one year after the enactment of the legislation. There was a significant increase in correct answers by the students from the University of Hue; however, there were non-significant increases by the students from the FTU and the University of Thai Nguyen. At the University of Dong Thap, there was a significant decrease in correctly answering this question.

One year after the introduction of the Tobacco Control Law, more students knew about the universities’ regulations \( (57.2\%) \) than the national legislation \( (34.2\%) \). The percentage of students in three of the four universities (the University of Hue, the FTU and the University of Thai Nguyen) who correctly knew about the universities’ regulations increased in Phase 2, with significant increases at the universities of Hue and Thai Nguyen, and a non-significant increase at the FTU. The percentage of students at the University of Dong Thap who knew about the university regulations reduced slightly, but non-significantly from 61.2\% to 57.2\%. However, this was still higher than the percentage of students who knew correctly about the national Law \( (37.9\% \text{ in Phase 1 and } 32.5\% \text{ in Phase 2}) \).

A study in Australia at Curtin University found similar results for student awareness of an institutional smoke-free policy, with only 56\% of students aware that the university had a tobacco policy (Burns et al., 2013). This is comparable to the current study, where 57.2\% were aware of the smoke-free policy in Phase 2. The percentage of smokers aware of the Curtin University policy \( (72.2\%) \) was significantly higher than the percentage of ex-smokers \( (67.3\%) \) and non-smokers \( (52.5\%) \) (Burns et al., 2013).

The level of knowledge of students about the possible general harmful effects of SHS on nonsmokers was very high in both Phase 1 and Phase 2. In the combined student group, the knowledge in Phase 2 was significantly higher than in Phase 1. There was a significant increase of knowledge at the University of Thai Nguyen, and non-significant increases at the University of Hue and the FTU. However, there was a significant decrease in knowledge at the University of Dong Thap. For staff, there were minor changes in both directions; however, there were no significant changes in the knowledge of the harmful effects of SHS. Students’ knowledge in relation to specific diseases caused by SHS considerably increased compared to staff knowledge.

Similar results were found in a study from Saudi Arabia (Almutairi, 2014), which indicated that 86.8\% of university students who smoked were aware that SHS could harm nonsmokers. The percentage was much higher \( (97.6\%) \) in nonsmoking students.

Regarding support for smoke-free policies, students were asked if they supported a ban on indoor smoking and a total ban on smoking. Approximately 70\% of students across all universities supported a total ban on smoking in both Phase 1 and Phase 2 of the study. Although there

Table 5. Proportion of Students who Supported a Ban on Tobacco Smoking on the University Campus

| University of Hue | Foreign Trade University | University of Dong Thap | University of Thai Nguyen | Total |
|------------------|--------------------------|------------------------|--------------------------|-------|
|                  | Phase 1 | Phase 2 | Phase 1 | Phase 2 | Phase 1 | Phase 2 | Phase 1 | Phase 2 | Phase 1 | Phase 2 | Phase 1 | Phase 2 |
| Just indoors at the university | 315     | 427     | 353     | 405     | 409     | 377     | 369     | 383     | 1446    | 1592    |
| Both indoors and outdoors at the university | 542     | 504     | 571     | 541     | 640     | 517     | 540     | 514     | 2293    | 2076    |
| 39.7\%*** | 59.9\%*** | 45.7\%** | 52.7\%** | 47.2\%* | 53.8\%* | 46.0\% | 53.3\%** | 44.7\% | 54.9\%*** |
| 68.3\% | 70.7\% | 74.0\% | 70.4\% | 73.9\% | 73.8\% | 67.2\% | 71.5\% | 70.9\% | 71.5\% |
were minor variations between Phase 1 and Phase 2 among the students at different universities, in all universities and the combined group no significant changes were found. Paradoxically, fewer students favoured a smoking ban restricted to indoor smoking (Phase 1, 44.7%; Phase 2, 54.9% (combined results)). However, there was a significant increase for support of an indoor smoking ban in Phase 2. It would seem that students prefer the implementation of a total ban on the campus, rather than restricting the ban to indoor areas.

A study in Saudi Arabia (Almutairi, 2014) showed strong support among nonsmokers for a total ban at a university (97.4% of students, 75.3% of academics, and 87.4% of staff), while support among smokers was significantly lower (75.1% of students, 63.2% of academics and 26.1% of staff). In another study, the support for a total smoking ban at Curtin University in Australia was lower than the above study, with 70.4% of staff and 74.7% of students agreeing that a completely smoke-free campus has a positive effect on quality of life (Burns et al., 2013).

In the current study, the support for an indoor smoking ban among students significantly increased in Phase 2 for workplaces, restaurants, libraries, cinemas, theatres and community culture houses, but increased non-significantly for bars and places of worship, and decreased non-significantly for public transport. Except for bars, the percentage of students who supported a ban at the nominated public places was high, ranging from 73.1% to 93.4% across both phases of the study. For bars, only 48.3% of students in Phase 1 and 49.8% in Phase 2 supported a ban on smoking.

The pattern for staff in relation to indoor smoking at public places varied, in that there were no significant increases between Phase 1 and Phase 2 for any location, while slight increases occurred in five indoor smoking areas, slight decreases in four locations, and a significant decrease for places of worship.

References

Almutairi KM (2014). Attitudes of students and employees towards the implementation of a totally smoke free university campus policy at King Saud University in Saudi Arabia: a cross sectional baseline study on smoking behavior following the implementation of policy. J Community Health, 39, 894-900.

Burns S, Jancey J, Bowser N, et al (2013). Moving forward: a cross sectional baseline study on staff and student attitudes towards a totally smoke free university campus. BMC Public Health, 13.

Corsun DL, A. Young C, A. Enz C (1996). Should NYC’s restaurateurs lighten up? Effects of the city’s smoke-free-air act. Restaurant Management, 37, 25-33.

Government (2000). Resolution No. 12/2000/NQ-CP on National Tobacco Control Policies in the period 2000–2010.

Government (2009). Decision 1315/QD-TTg National Plan for WHO FCTC implementation.

Lal A, Siahpush M, Scollo M (2004). The economic impact of smoke-free legislation on sales turnover in restaurants and pubs in Tasmania. Tobacco Control, 13, 454-5.

Mather CD, Lonca D (2006). Projections of global mortality and burden of disease from 2002 to 2030. PLOS Med, 3, 2011-30.