

# Dental Students as Smoking Cessation Counsellors: Patients' and Providers' Perspective

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## ABSTRACT

**Introduction:** This study assesses dental students' and patients' perceptions on the role of dental students as smoking cessation counsellors as well as the patient's quit rate at the University of XX. **Materials and methods:** Self-administered questionnaires were distributed to all senior dental students (n=154) in XX University and telephone call interviews were conducted on their patients (n=169) who received smoking cessation counselling from September 2010 to June 2013. **Results:** Response rates for dental students and patients were 68.2% and 67.3% respectively. Most of the dental students in this study were females (72.3%) whereas the majority of patients were males (97.6%). An average of six months follow up indicated that 22.5% of patients had quit smoking, 65.3% reduced the number of cigarettes smoked and 6.5% had relapsed. About a third of patients surveyed (33.1%) believed that smoking cessation counselling was extremely helpful compared to what students perceived (5.7%,  $p < 0.01$ ). A higher percentage of patients (89.9%) rated the smoking cessation counselling performance as "excellent", as compared to students' rating (58.1%,  $p < 0.01$ ). The majority of the dental students and patients agreed that students should enquire about patients tobacco usage, information regarding the effects of smoking on oral health should be transmitted to patients and that quit smoking assistance should be offered. **Conclusion:** Smoking cessation counselling conducted by dental students seemed to be effective in assisting patients to reduce the number of cigarettes smoked and in quitting smoking. To some extent, both patients and students had positive attitudes towards smoking cessation counselling.

**KEYWORDS:** dental education, programme evaluation, smoking cessation

## INTRODUCTION

Tobacco use continues to be the main cause of preventable morbidity and mortality worldwide.<sup>1</sup> Apart from being the main cause for major general illnesses such as cancer, cardiovascular and respiratory problems<sup>2,3</sup>, tobacco use is also associated with mild to life-threatening oral conditions such as halitosis, discoloured teeth, periodontal disease, dental caries, impaired wound healing after extraction, oral mucosal diseases, oral precancerous lesions and oral cancers.<sup>4-6</sup>

The significant association between smoking and health hazards calls for an active participation of primary care clinicians, including oral health

professionals, in smoking cessation counselling programme.<sup>7-10</sup> A patient's visit to the dentist during dental check-ups and dental treatment provides unique opportunities for dentists to initiate, strengthen and support smoking cessation compliance. A series of Cochrane systematic reviews on smoking cessation intervention by oral health professionals reported that there is limited evidence available on the effectiveness of such programme.<sup>11,12</sup> Hence, more research is needed in this area. However, within the limited literatures, a number of studies have reported positive outcome of smoking cessation intervention by the dental team.<sup>10,12-16</sup>

Recognizing the important role that dentists have in patient smoking cessation compliance, dental schools around the world started to include smoking cessation as part of their formal undergraduate curriculum.<sup>8,9,17-19</sup> Similar trends have been observed in Malaysian dental schools. Students are taught using a range of teaching methodologies which include lectures, seminars, role play and clinical demonstrations. Some dental institutions provide hands-on smoking assessment training which include the measurement of carbon monoxide levels and

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prescriptions of nicotine replacement therapy.<sup>20</sup>

Studies on smoking cessation in the dental field have mainly focused on the providers' attitudes towards this programme.<sup>21-23</sup> Patients' perceptions on smoking cessation activity are very seldom discussed in the literature. This study aims to assess the perceptions of both students and patients on the smoking cessation programme at the University of XX. The effectiveness of smoking cessation counselling performed by senior dental students was evaluated based on self-reported patients' quit rate. Findings from this study will provide valuable feedback to improve the programme in dental school settings.

### Overview of smoking cessation programme in the University of XX

A smoking cessation programme based on the 5A's (Ask, Assess, Advise, Assist, Arrange)<sup>24</sup> approach has been incorporated in the undergraduate dental curriculum at the XX University since year 2010. The 5As smoking cessation protocol is based on the Malaysian Clinical Practice Guideline (CPG)<sup>24</sup> with the exception that if indicated for pharmacotherapy prescription and intensive care, patients will be referred to the nearest Quit Clinic conducted by the Ministry of Health. The protocol was modified to suit the dental curriculum. Third year dental students receive 2 hours of lectures and 3 hours of combined demonstration and role-play sessions. Following training, students are required to administer two smoking cessation cases with a minimum of one follow-up case during their clinical years.

Students are required to ask about their patient's tobacco use as part of patient's medical history taking. Following dental assessment and treatment plan, every smoker will be assessed and offered quit help. The smoking cessation counselling was conducted in the Oral Health Education Clinic, Department of Community Oral Health and Clinical Prevention, XX University under supervision of trained academic members. Any gaps in the information given by students were rectified by the academic members at the end of the counselling session. All information was recorded in a standardized smoking cessation form which was included in patient's case notes.

### MATERIALS AND METHODS

This was a cross sectional study involving all XX University senior dental students who had undertaken smoking cessation activities and their respective patients who had received smoking cessation counselling. Approval to conduct this study was obtained from the Medical Ethics Committee University XX [DFC01303/0067(U)].

The perceptions of both dental students and patients towards the smoking cessation programme was assessed using a questionnaire that was adapted

from similar studies on patients<sup>25</sup> and dental students.<sup>17</sup> The questionnaire was face validated by two senior academic faculty members. The purpose of validation was to check for suitability, clarity, simplicity, understanding and sequencing of the questions. The feedback received from the face validation only resulted in minor adjustments. The questionnaire was then pre-tested on ten XX University fourth year dental students. Following pre-testing, minimal adjustments were made to the questionnaire. The modified questionnaire was then distributed in the actual survey. The questionnaire was divided into the following sections: demographic characteristic of respondents; perceptions towards providers' performance during smoking cessation appointments, and perceptions towards the smoking cessation counselling. Eight questions were posed to the dental students. Apart from obtaining their perceptions towards smoking cessation programme, the fourth year (n=72) and the final year (n=82) dental students were also requested to rate themselves as smoking cessation counsellors from poor to excellent. The questionnaire for dental students was administered in a lecture room setting and collected on the same day. In addition, 6 questions were posed to their patients (including questions on smoking status).

Records of patients (n=251) who received smoking cessation counselling from dental students from September 2010 to June 2013 were retrieved from the registration logbook at the Oral Health Education Clinic, Department of Community Oral Health and Clinical Prevention. Patient's information (demographics, number of cigarette smoked per day during first visit, number of cigarette smoked per day at follow up and quit date) was transferred into a standardized form to facilitate data entry.

Patients' perceptions of the programme were assessed through a telephone interview. Two interviewers were trained to conduct follow-up telephone interviews based on a standard questionnaire. Patients who responded and consented to take part in the study were asked about their current smoking status, acceptance of the smoking cessation counselling, dental students' performance and how helpful the counselling was. If patients reported that they have had "smoked, even a puff in the last 7 days", they were asked further questions on (i) the number of cigarettes they smoked per day, (ii) any subsequent quit attempts made, and (iii) their readiness to quit smoking in the next 30 days. Patients were categorized as 'quitters' if they reported that they had not smoked for seven days before the telephone interview were made. Patients were classified as 'relapsed' if they reported that they have smoked at any time after their quit date. Patients were categorized as having 'reduced amount smoked' when their current number of cigarettes intake was less than what was recorded during their first counselling session.

Patients who did not respond to the calls after five attempts were excluded from the study. On average, the follow up interviews were conducted six months (SD 4.5) after patients received the smoking advice from the students.

Data were analysed using the Statistical Package for Social Sciences (SPSS) version 17.0. Appropriate statistical analysis was performed to assess smoking status and perceptions of patients and dental students towards the smoking cessation programme. For the questions relating to dental students' helpfulness in smoking cessation advice, a ten-point rating scale was used; with 1 being 'not helpful' and 10 being 'extremely helpful'. The scale was then categorized into, 'extremely helpful' (score 9-10), 'quite helpful' (score 6-8), 'neutral' (score 5) and 'less helpful' (score 1-4). Association between dental students' and patients' perceptions towards smoking cessation counselling was tested using Chi Square and Fisher's Exact tests. Significance level was set at  $\alpha < 0.05$ .

## RESULTS

Table 1 shows the demographic characteristic of both patients and students who participated in this study. Of all registered patients ( $n=251$ ), 169 responded to the telephone call follow-ups, for a 67.3% response rate. Most of these patients were male (97.6%) and of Malay ethnicity (65.1%). From the dental students' survey, 105 out of a total of 154 students completed the questionnaire, giving a 68.2% response rate. More than two third were females (76%) and more than half were Malays (58.1%).

Table 2 shows the patient's smoking status at follow up. About 22.5% of those counselled, were still smoke-free and 66.9% had continued to reduce smoking. There were a small number of patients (6.5%) who resumed smoking at follow up.

Table 3 shows the dental students' performance in smoking cessation counselling as rated by themselves and by patients. Generally, patients were more likely to have positive perceptions towards smoking cessation counselling compared to the students themselves. About 33% of patients perceived the smoking cessation counselling as 'extremely helpful' compared to only about 6% of students who rated the same ( $p < 0.01$ ). The majority (89.9%) of the patients rated XX students' performance in providing smoking cessation counselling as 'excellent'. In contrast, fewer students rated their own performance as excellent (58.1%), with the remaining (41.9%) who rated themselves as average.

**Table 1.** Demographic characteristic of the respondents

	Dental students n (%)	Patients n (%)
Response rate	105 (68.2)	169 (67.3)
<b>Gender</b>		
Male	29 (27.6)	165 (97.6)
Female	76 (72.3)	4 (2.4)
<b>Ethnicity</b>		
Malay	61 (58.1)	110 (65.1)
Chinese	41(39.0)	38 (22.5)
Indian	3 (2.9)	20 (11.8)
Others	0 (0)	1 (0.6)

**Table 2.** Patients' self-reported smoking status after receiving smoking cessation counselling by dental students

Smoking status	Six months follow-up after cessation advice n =169 n (%)
Quit	38 (22.5)
Reduce amount smoked	113 (66.9)
No intention to quit	7 (4.1)
Relapsed	11 (6.5)

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Nearly all patients agreed that dental students should ask patients about their smoking status (98.2%), should inform patients about the hazardous effect of smoking (99.4%) and offer assistance to quit smoking and other services to patients who smoke (98.8%) (Table 4).

**Table 3.** Dental students' performance in smoking cessation counselling rated by themselves and their patients

	Dental students n=105 n(%)	Patients n =169 n (%)	p value
<b>The helpfulness of the smoking cessation counselling</b>			
Extremely helpful	6 (5.7)	56 (33.1)	0.000*
Quite helpful	73 (69.5)	104 (61.5)	
Neither	17 (16.2)	8 (4.7)	
Less helpful	9 (8.6)	1 (0.6)	
<b>Performance in giving cessation counselling</b>			
Excellent	61 (58.1)	152 (89.9)	0.000*
Average	44 (41.9)	16 (9.5)	
Poor	0 (0.0)	1 (0.6)	

Chi square test, the variations were found to be statistically significant ( $p < 0.05$ )

Fisher's Exact test (for a cell contained an expected count less than 5)

**Table 4.** Perceptions of dental students and patients towards smoking cessation advice

Questions	Dental students (n=105) n (%)	Patients (n=169) n (%)	P value
<b>Should your student dentist/you ask patients whether or not they smoke?</b>			
Yes	98 (93.3)	166 (98.2)	0.089
Not sure	6 (5.7)	2 (1.2)	
No	1 (1.0)	1 (0.6)	
<b>Should your student dentist/you tell patients who smokes how smoking can affect oral health (mouth, gums, and teeth)?</b>			
Yes	105 (100)	168 (99.4)	0.617
Not sure	0 (0)	1 (0.6)	
No	0 (0)	0 (0)	
<b>Should your student dentist/you offer quit smoking assistance and services to patients who smokes ?</b>			
Yes	100 (95.2)	167 (98.8)	0.155
Not sure	4 (3.8)	2 (1.2)	
No	1 (1.0)	0 (0)	

Chi square test, the variations were found to be not statistically significant ( $p > 0.05$ )

Fisher's Exact test (for a cell contained an expected count less than 5)

## DISCUSSION

The smoking cessation counselling given by XX University senior dental students seemed to be effective at facilitating patients to quit smoking. About 22.5% patients who smoked during their initial visit quit smoking after receiving counselling from their dental student's clinicians. However, this should be interpreted with caution because there is no control group used in the present study. Nevertheless, the quit rate was higher in comparison to the Global Adult Tobacco Survey (GATS, 2011) among general Malaysian adult population, whereby 9.5% among those who smoked on a daily basis have quit successfully.<sup>26</sup> It is also difficult to compare the data of this study with others because of the variations in the smoking cessation method employed.

The percentage quit rate reported in this study (22.5%) is similar to the findings of a study carried out at the University at Buffalo, United States (US), where 22% of patients quit smoking after receiving counselling from dental students.<sup>17</sup> However, it was reported that the US dental students used nicotine replacement therapy (NRT) as part of their intervention. Students in XX University were not allowed to prescribe any medications to assist patients in smoking cessation, however they were advised to inform patients on where these medications could be obtained if necessary. XX University students only provided cessation counselling using materials such as pamphlets, motivational photographs/videos. It can be speculated that if XX University students had used NRT or other medication (Zyban or Chantix), the quit rate could have been higher. Some studies have shown the quit rate at 12 months after an intensive intervention (combination of counselling and medication) by the dental professionals to be between 7% to 18.8%.<sup>15,27-29</sup>

The reasons why patients' quit rate was higher in the present study compared with the aforementioned studies was possibly because XX dental students received a number of comprehensive training sessions in smoking cessation counselling before they were allowed to conduct smoking cessation counselling to patients. Additionally, the dental students were supervised by academic staff members as part of their competency requirement and any gaps in the counselling given by students were rectified during patient's clinical visit. Other factors such as the implementation of the national tobacco policy (i.e. increase in tobacco taxes, indoor air laws), patients' (i.e. motivated patient) and providers' factors (i.e. the type of clinicians, person-to-person contact, session length and frequency of counselling sessions) may have also contributed to the improved quit rate obtained in this study.

There were a small number of patients who resumed smoking following follow-up (6.5%).

However, there is difficulty in comparing the current results with other studies due to lack of evidence in the literature on relapse rates following an intervention by dental professionals as well as the different definitions of relapse used. The only study available for comparison reported that about 19% quitters relapsed after an intervention presented by dental students<sup>18</sup> which is much higher than our findings. The relapse rate may be further reduced if more effective follow-ups are inbuilt into the dental school curriculum. Several studies suggest that continuous reinforcement of cessation counselling during dental visits provide a good opportunity to reduce relapse rates of former smokers.<sup>10,28,30-31</sup> However, in contrast, a systematic review concluded that there is insufficient evidence to support the use of any specific behavioural intervention in helping smokers who have successfully quit for a short time to avoid relapse.<sup>32</sup> Therefore further research is recommended in this area.

Findings from the present study indicate some variances between patients' and students' views on the helpfulness of smoking cessation counselling and students' performance in delivering the counselling. Majority of the patients perceived the counselling as "extremely helpful to quite helpful" and the majority rated students' performance in giving the intervention as "excellent". The result of this study suggests that patients might be more receptive to smoking cessation counselling than what students had perceived. Discrepancies in perceptions regarding smoking cessation between dental professionals and their patients was similarly reported in a study from Canada.<sup>33</sup> Dental providers should have more confidence in the benefit of the message they deliver as well as their ability to deliver such message. For dental students, this can be in the form of positive feedback and encouragement from a dental faculty in order to boost their confidence.

Almost all students and patients responded positively towards the smoking cessation counselling provided. Similar trends were reported in many smoking cessation related literature whereby dental students tend to answer positively about their role as smoking cessation provider.<sup>21-23</sup> From the patient's perspective, the majority of them agreed that the dental students should ask about whether the patient smokes, provide information on the effect of smoking on their oral health and offer quit smoking assistance and services to patients who smoke. Studies conducted in the US,<sup>25</sup> India<sup>19,34</sup> and Australia<sup>35</sup> also reported that patients are prepared to receive smoking cessation counselling from dental providers. This provides evidence about the need for dental provider to assess each patient's willingness to quit and to give them the appropriate support and encouragement.<sup>25,28,36,37</sup>

This study has some limitations. As this is a self-

reported survey, the findings may be subjected to a social desirability bias. The findings were only reflective of smokers who attended XX University Dental Clinic and should not be generalized to the general Malaysian population. In addition, the smokers in the present study were almost entirely male. However, this finding is consistent with the GATS report<sup>26</sup> which indicates that smoking is a predominantly male habit in Malaysia with the prevalence of female smokers being only 1%.<sup>26</sup>

Future studies incorporating appropriate control groups should be undertaken in other dental schools in Malaysia to assess the effectiveness of their smoking cessation programme which may vary in content and approach. Such studies should also consider assessing other factors that may have an impact on the effectiveness of smoking cessation counselling such as smokers' reasons for quitting and dental providers' characteristics. This may provide feedback to further strengthen the smoking cessation curriculum in dental schools.

## CONCLUSION

Within the limitation of the present study, it can be concluded that smoking cessation counselling conducted by the dental students seemed to be effective in assisting patients to reduce the amount of cigarettes smoked or to quit smoking completely. Both patients and dental students had positive attitudes towards the smoking cessation programme. However, patients were more positive than dental students on the helpfulness of smoking cessation counselling and on the students' performance in delivering the counselling. Findings from this study could be used to improve the smoking cessation programme in the dental curricula because dental school offers an appropriate avenue to promote smoking cessation services. The positive outcome from the programme could be used to motivate dental health professionals to continue and strengthen their role as smoking cessation counsellors.

## Conflict of Interest

The authors confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

## Submission Declaration

The authors declare that this manuscript is original, has not been published before and is not currently being considered for publication elsewhere.

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