

## Practices and Beliefs Among Malaysian Dentists and Periodontists Towards Smoking Cessation Intervention

(Kepercayaan dan Amalan Pegawai Pergigian dan Pakar Periodontik  
di Malaysia Terhadap Intervensi Berhenti Merokok)

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### ABSTRACT

*This study compared the attitudes, practices and perceived barriers among Malaysian dentists and periodontists towards smoking cessation interventions (SCI) for patients. A self-administered questionnaire, which covered respondents beliefs, practices as well as barriers and limitations towards SCI, were posted to 289 dentists from four Malaysian states and 35 Malaysian periodontists. In all, 236 (82%) dentists and 26 (80%) periodontists responded. More periodontists than dentists routinely record patient's smoking status at first visit (89.3% vs 19.1%) ( $p < 0.001$ ), recommend nicotine replacement aids (37% vs 16.3%) ( $p = 0.031$ ), refer to smoking cessation clinics (40.7% vs 14%) ( $p = 0.001$ ), followed-up smoking cessation with patients (70.4% vs 11.3%) ( $p < 0.001$ ) and described themselves as being committed to patients' SCI (81.5% vs 53.4%) ( $p = 0.013$ ). Limitations faced by dentists as compared to periodontists in SCI were due to insufficient time ( $p < 0.001$ ) and fear it will affect dentist-patient relationship ( $p = 0.034$ ). The findings in this study emphasize the importance of SCI and the need for further training in SCI among Malaysian periodontists and government dentists.*

*Keywords: Beliefs and attitudes; perceived barriers; smoking cessation intervention*

### ABSTRAK

*Dalam kajian ini kami membandingkan sikap, amalan dan rintangan di kalangan pegawai pergigian dan pakar periodontik di Malaysia terhadap intervensi berhenti merokok kepada pesakit. Soalan meliputi kepercayaan, amalan, rintangan dan kekangan responden terhadap intervensi berhenti merokok diedarkan/diposkan kepada 289 pegawai pergigian dari 4 buah negeri dan juga kepada 35 pakar periodontik di Malaysia. Secara keseluruhannya, 236 (82%) pegawai pergigian dari 4 buah negeri dan 26 (80%) pakar periodontik di Malaysia telah menjawab soalan tersebut. Lebih banyak pakar periodontik berbanding pegawai pergigian merekod secara rutin status pesakit yang merokok pada lawatan pertama (89.3% vs 19.1%) ( $p < 0.001$ ), menyarankan untuk mengambil bantuan penggantian nikotin (37% vs 16.3%) ( $p = 0.031$ ), merujuk pesakit kepada klinik berhenti merokok (40.7% vs 14%) ( $p = 0.001$ ), mengikuti perkembangan berhenti merokok bersama-sama pesakit (70.4% vs 11.3%) ( $p < 0.001$ ) dan terlibat diri mereka sebagai seorang yang komited terhadap penghentian merokok pesakit (81.5% vs 53.4%) ( $p = 0.013$ ). Kekangan yang dihadapi oleh pegawai pergigian berbanding pakar periodontik dalam melaksanakan intervensi berhenti merokok adalah kerana kekurangan masa ( $p < 0.001$ ) dan khuatir ianya akan memberi kesan kepada hubungan antara pegawai pergigian dan pesakit ( $p = 0.034$ ). Kesimpulan kajian ini menekankan kepentingan intervensi berhenti merokok dan keperluan untuk mempertingkatkan latihan dalam intervensi berhenti merokok di kalangan pakar periodontik dan pegawai pergigian di Malaysia.*

*Kata kunci: Intervensi berhenti merokok; kekangan yang dihadapi; kepercayaan dan sikap*

### INTRODUCTION

Smoking has been associated with a wide spectrum of diseases including cardiovascular, pulmonary and neoplastic diseases. Approximately 50% of regular smokers are killed by this habit (Doll et al. 1994) and in Malaysia, it is estimated that smoking causes 10,000 deaths yearly (Ministry of Health Malaysia 2003).

Smoking is also associated with periodontal diseases and is undoubtedly a significant risk factor for chronic periodontitis (Brothwell 2001). Tobacco smoking not only increases the risk of periodontal disease two to six times (Heasman et al. 2006) but is also dose-dependent

(Heasman et al. 2006). Tobacco smoking is associated with poorer healing response in both non-surgical and surgical periodontal therapy (Tonetti et al. 1995).

Smoking is the strongest modifiable risk factor for periodontal disease (Johnson & Guthmiller 2007). Studies comparing healing and microbial response of ex-smokers and smokers noted that smoking cessation may restore the normal periodontal healing response (Grossi et al. 1997). Smoking cessation advice benefited patient's periodontal status (Preshaw et al. 2005). Consequently smoking cessation may result in long term benefits to periodontal conditions (Ramseier 2005). It can also result in additional

benefits such as reduction in staining, bad breath (Newton & Palmer 1997), oral cancer (Warnakulasuriya et al. 2010), leukoplakia (Warnakulasuriya et al. 2010) and failure rates of dental implants (Johnson & Hill 2004).

The dental team has an important role in smoking cessation intervention (SCI). They have regular contact with their patients and can assess and detect oral ill effects caused by smoking during routine examination of the mouth as well as head and neck areas (Binnie 2008). The ill-effects of smoking can be easily demonstrated to the individual patient in the course of any routine dental visit, making the anti-smoking message more effective (John et al. 1997). This can be done through the 5 A's model consisting of asking about smoking and the desire to stop, advising on the value of quitting, assessing readiness to quit, assisting the patient to stop through access to appropriate support and arranging follow-up support (Fiore 2000).

The present study investigated and compared the attitudes, practices and perceived barriers of Malaysian periodontists and government dentists with respect to SCI.

#### MATERIALS AND METHOD

This cross-sectional study was conducted among all Malaysian periodontists as well as a convenient sampling of all government dentists involved in clinical work in the states of Selangor, Wilayah Persekutuan Kuala Lumpur, Pahang and Terengganu. Periodontists and government dentists involved in purely administrative work were excluded from the study. The distribution and subsequent collection of the questionnaire forms from the government dentists was done through the Senior Dental Officer in-charge of each district in the four states. For periodontists, the questionnaires were posted together with a reply-paid envelope.

#### QUESTIONNAIRE

A self-administered questionnaire was developed to cover the objectives of the study. Details of the respondent's age, sex, number of years since graduation as well as smoking status were obtained. The questionnaire was divided into 3 separate sections.

The first section was on beliefs which covered respondent's perceptions and beliefs on the effectiveness of the role of dentists and other healthcare workers in SCI. Respondents were asked questions like "should dentists take a greater role in SCI?", "will dental auxiliaries have an important role as smoking cessation counselors?" and "Are smoke free zones effective?".

The second section was on practices. Respondents were asked what daily practices were used with patients who smoked. The respondents who responded "yes" or "sometimes" to the question "do you advice smoking cessation to all patients who smoke?" were then asked to proceed to the section on techniques and tools used for

SCI. These techniques and tools were noted. Respondents were also asked to describe their commitment in helping patients stop smoking.

The third section was on barriers and limitations faced in smoking cessation programmes. Respondents were asked what aspects (insufficient time, lack of counseling skills, lack of knowledge in smoking cessation, fear that it will affect dentist-patient relationship) limited them from providing their best in educating patients pertaining to smoking cessation.

The questionnaire was validated by two Dental Public Health specialists and pre-tested with a sample of 10 dental lecturers from the University of Malaya. Following this, minor amendments were made to the questions.

#### DATA COLLECTION

The questionnaire forms were distributed to 289 government dentists in the four states as well as to all 35 periodontists in Malaysia. Two reminder circulations were posted to non-responding periodontists. All those who completed the questionnaire remained anonymous. All returned questionnaire forms were checked for completeness by two investigators and only those with two or less unanswered questions were included for the analysis.

#### DATA ANALYSIS

Completed questionnaires were then analysed using the SPSS Version 12 for Windows. Descriptive statistics was done for all variables. The data was cross-tabulated and statistical significance was calculated using Fisher's Exact test for beliefs, and techniques for SCI, while chi-square test was used for practices of respondents, their commitment as well as barriers faced in SCI. Level of significance was set at  $p < 0.05$ .

#### RESULTS AND DISCUSSION

##### DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Of the 289 questionnaire forms circulated to dentists, 236 (82%) of the subjects responded. For periodontists, 28 (80%) from a total of 35 questionnaires posted were returned. The study subjects (Table 1) comprised of a young dental population since 61% ( $n=143$ ) of the dentists were aged 30 and below and 64.3% of the periodontists were between 30-39 years of age. Three (10.7%) of the periodontists are former smokers and among the dentist, 4 (2%) are current smokers while 10 (4%) are former smokers.

##### BELIEFS OF RESPONDENTS

Most dentists and periodontists agree that doctors, dentists, health workers and the family play an effective role in helping patients quit smoking (Table 2). Periodontists (100%) and dentists (97.9%) also believed that dentists

TABLE 1. Demographic profile of study respondents

	Dentists	Periodontists
Respondents	236/289 (81.7%)	28/35 (80%)
Gender		
Male	42 (18%)	8 (28.6%)
Female	194 (82%)	20 (71.4%)
Age (years)		
< 30	143 (61%)	-
30-39	54 (23%)	18 (64.3%)
>40	39 (16%)	10(35.7%)
Race		
Malay	183 (78%)	23 (82.1%)
Chinese	18 (8%)	3 (10.8%)
Indian	22 (9%)	2 (7.1%)
Others	13 (5%)	-
Smoking status		
Current smokers	4 (2%)	-
Never smoked	222 (94%)	25 (89.3%)
Former smokers	10 (4%)	3 (10.7%)

should play a greater role in SCI (Table 3). John and colleagues (1997) noted similar trends in the Oxford region. However, Chestnutt & Binnie (1995) in Scotland found only 55% of general dental practitioners believed dentists had a role to play in helping their patients in the smoking cessation programme.

There was no difference among the respondents in other aspects of beliefs e.g. importance of the role played by dental auxiliaries in helping patients quit smoking; and effectiveness of smoke free zone policy by the government (Table 3). Majority of dentists agreed that dentists (97.9%) and dental auxiliaries (with proper training) (97.5%) should play a greater role in helping patients quit smoking as compared to the current practice while all periodontists agreed to this. The majority of respondents (78.8% dentists and 92.9% periodontists) also agreed that the smoke free zone policy by the government was effective.

## PRACTICE OF RESPONDENTS

More periodontists (89.3%) than dentists (19.1%) routinely record patient's smoking status during their

TABLE 2. Dentists' and Periodontists' beliefs on the effectiveness of the role played by different groups in helping patients quit smoking

	Group	Effective <i>n</i> (%)	Not Effective <i>n</i> (%)	<i>p</i> value*
a) Doctors	Dentist	198(83.9%)	38(16.1%)	0.062
	Periodontist	19(67.9%)	9(32.1%)	
b) Dentist	Dentist	182(77.1%)	54(22.9%)	0.486
	Periodontist	20(71.4%)	8(28.6%)	
c) Health workers	Dentist	168(71.2%)	68(28.8%)	1.0
	Periodontist	20(71.4%)	8(28.6%)	
d) Family	Dentist	167(70.8%)	69(29.2%)	0.283
	Periodontist	17(60.7%)	11(39.3%)	

\* Fisher's Exact test

TABLE 3. Other aspects of beliefs regarding smoking cessation intervention

	Group	Agree <i>n</i> (%)	Disagree <i>n</i> (%)	<i>p</i> value*
Dentist should take a greater role	Dentist	231 (97.9)	5 (4.5)	1.0
	Periodontist	28 (100.0)	0 (0.0)	
Role of dental auxiliaries	Dentist	230 (97.5)	6 (2.5)	1.0
	Periodontist	28 (100)	0 (0.0)	
Smoke free zones are effective	Dentist	186 (78.8)	50 (21.2)	0.083
	Periodontist	26 (92.9)	2 (7.1)	

\* Fisher's Exact test

first visit ( $p < 0.001$ ) (Table 4). 78.6% periodontists advised all patients who smoke about smoking cessation programme while only 34.7% dentists did likewise. Similar observations have been reported in other studies (Dolan et al. 1997). Regarding attitudes and behaviour of periodontists in smoking cessation counselling in United Kingdom, Dalia et al. (2007) found 99% of periodontists routinely asked about smoking and 68% considered counselling very important. They reported an upward trend in the number of dentists enquiring their patients about smoking status in the United Kingdom (Chestnutt & Binnie 1995; John et al. 1997; Johnson et al. 2006).

Conversely, in the present study, only 19.1% of dentists routinely recorded their patient's smoking status. This practice seems to contradict their belief whereby 97.9% dentists believed that dentists should play a greater role in SCI. The low number of dentists recording their

patients smoking status appears to be consistent with a previous study done in Kelantan, Malaysia (Ibrahim & Norkhafizah 2008) where only 17.8% of dentists did so. This could be due to the high number of patients scheduled in a day by Malaysian government dentists resulting in insufficient time to record a comprehensive history which included smoking status. Periodontists generally treat fewer patients with longer scheduled visits.

Dalia et al. (2007) suggested the large range of difference between periodontists and dentists in recording smoking history could be due to the impact smoking has on all aspects of periodontal disease and its treatment.

The 221 dentists and 27 periodontists who advised current smoker patients regarding smoking cessation were then questioned regarding techniques or tools utilized (Table 4). Periodontists recommended nicotine replacement aids ( $p = 0.016$ ), referred them to smoking cessation clinics

TABLE 4. Practices and techniques of respondents in SCI

	Group	Yes n(%)	No n(%)	Sometimes n(%)	p value
<b>Practices</b>					
Record smoking status on 1 <sup>st</sup> visit	Dentist (n=236)	45 (19.1%)	78 (33.1%)	113 (47.9%)	< 0.001*
	Periodontist (n=28)	25 (89.3%)	1 (3.6%)	2 (7.1%)	
Advice about smoking cessation to all patients who smoke	Dentist (n=236)	82 (34.7%)	15 (6.4%)	139 (58.9%)	
	Periodontist (n=28)	22 (78.6%)	1 (3.6%)	5 (17.9%)	
<b>Techniques / tools</b>					
Advice patients on hazards of smoking and benefits of quitting the habit	Dentist (n=221)	169 (76.5%)	52 (23.5%)		0.08**
	Periodontist (n=27)	25 (92.6%)	2 (7.4%)		
Provide self-help material	Dentist (n=221)	25 (11.3%)	196 (88.7%)		0.06**
	Periodontist (n=27)	7 (25.9%)	20 (74.1%)		
Recommend nicotine replacement aids	Dentist (n=221)	36 (16.3%)	185 (83.7%)		0.016**
	Periodontist (n=27)	10 (37%)	17 (63%)		
Refer to smoking cessation clinic	Dentist (n=221)	31 (14.0%)	190 (86%)		0.002**
	Periodontist (n=27)	11 (40.7%)	16 (59.3%)		
Follow up patient on subsequent visit	Dentist (n=221)	25 (11.3%)	196 (88.7%)		< 0.001**
	Periodontist (n=27)	19 (70.4%)	8 (29.6%)		

\* Chi square test

\*\* Fisher's Exact test

( $p=0.002$ ) and followed up with patients regarding their smoking status on subsequent visits ( $p<0.001$ ) as compared to general dentists. Most periodontists (92.6%) and dentists (76.5%) would advise patients on hazards of smoking and benefits of quitting the habit.

The respondents were also enquired on their level of commitment in helping patients to quit smoking. More periodontists described themselves as being committed compared to dentists ( $p=0.013$ ) (Table 5).

#### BARRIERS AND LIMITATIONS

Dentists (82.6%) as compared to periodontists (46.4%) ( $p<0.001$ ) perceived their main barrier in SCI was insufficient time (Table 6). Dentists feared that SCI would affect the dentist-patient relationship ( $p=0.034$ ). Both respondents agreed that lack of skills in counseling and lack of knowledge in SCI were also barriers faced. In previous studies, factors cited by dentists as barriers in delivering SCI were a lack of reimbursement and inadequate training in counseling (Warnakulasuriya & Johnson 1999) as well as lack of time (Warnakulasuriya et al. 2002).

In Malaysian government dental clinics, dentists are frontliners who assess patients before either providing appropriate treatment or referring them to a specialist. Due to the large number of patients attending these clinics and the inadequate number of dentists, time spent on each patient is limited and thus compromises time which may be spent for smoking cessation counselling. This problem may be overcome by increasing dentist:patient ratio or providing special SCI sessions for smokers.

Macgregor (1996) took 4 to 6 min to successfully reduce smoking in patients by giving relevant information on harmful effects of smoking and recommending techniques to help the patient stop. Fiore (2000) suggested a brief clinical intervention of about three minutes as sufficient. Among medical practitioners in Malaysia, this short period of advice, supported by educational materials and mutual understanding that there would be follow up appointments, resulted in a 5% decrease in smoking rate (Ministry of Health Malaysia 2003). This translated to about 25 ex-smokers per year per doctor. Malaysian dentists, having identified smokers from their

TABLE 5. Respondents commitment toward smoking cessation

Status	Committed <i>n</i> (%)	Not committed <i>n</i> (%)	Not sure <i>n</i> (%)	<i>p</i> value*
Dentists	118 (53.4%)	49 (22.2%)	54 (24.4%)	0.013
Periodontists	22 (81.5%)	4 (14.8%)	1 (3.7%)	

\* Chi square test

TABLE 6. Barriers and limitations faced in smoking cessation interventions

Barriers and limitations	Group	Yes <i>n</i> (%)	No <i>n</i> (%)	<i>p</i> value*
Insufficient time	Dentist	195 (82.6%)	41 (17.4%)	< 0.001
	Periodontist	13 (46.4%)	15 (53.6%)	
Lack of skills of counselling	Dentist	165 (69.9%)	71 (30.1%)	0.169
	Periodontist	16 (57.1%)	12 (42.9%)	
Lack of knowledge in smoking cessation	Dentist	112 (47.5%)	124 (52.5%)	0.645
	Periodontist	12 (42.9%)	16 (57.1%)	
Fear it will affect dentist-patient r/ship	Dentist	47 (19.9%)	189 (80.1%)	0.034
	Periodontist	1 (3.6%)	27 (96.4%)	

\* Chi square test

history and oral examination, should emulate their medical counterparts in enforcing SCI. Dyer & Robinson (2006) demonstrated brief interventions by dental team members produce benefits to a level similar to that achieved by physicians.

The fear that SCI will affect dentist-patient relationship is unwarranted as Severson and colleagues (1990) found patients not only expected oral health professionals to advise them on smoking related matters but welcomed such involvement. Concerns regarding lack of smoking cessation counselling skills can be addressed by developing the contents of dental education with respect to SCI to enable graduates to confidently counsel SCI.

#### CONCLUSION

More periodontists routinely record smoking status at first visit, recommend nicotine replacement aids, refer to smoking cessation clinics, follow-up with SCI at subsequent visits and were committed to these interventions than general dentists. The main barrier given by dentists was insufficient time and fear that SCI will affect the dentist-patient relationship.

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#### REFERENCES

- Binnie, V. I. 2008. Addressing the topic of smoking cessation in a dental setting. *Periodontology* 2000 48:170-178.
- Brothwell, D.J. 2001. Should the of smoking cessation products be promoted by dental offices? An evidence based report. *Journal of Canadian Dental Association* 67: 149-155.
- Chestnutt, I. G. & Binnie V. I. 1995. Smoking cessation counseling – a role for the dental profession? *British Dental Journal* 79: 11-15.
- Dalia D., Palmer R. M. Wilson R. F. 2007. Management of smoking patients by specialist periodontists and hygienists in the United Kingdom. *Journal of Clinical Periodontology* 34: 416-422.
- Dolan, T. A, McGorray, S. P, Grinstead-Skigen, C. L. & Mecklenburg, R. 1997. Tobacco control activities in US dental practices. *Journal of American Dental Association* 128: 1669-1679.
- Doll, R, Peto R, Hall, E, Wheatley, K., Gray, R. & Sutherland I. 1994. Mortality in relation to smoking: 40 years observation on male British doctors. *British Medical Journal* 309: 901-911
- Dyer, T. A. & Robinson, P. G. 2006. General health promotion in general dental practice- the involvement of the dental team. Part 1: a review of the evidence of effectiveness of brief public health interventions. *British Dental Journal* 200: 679-685.
- Fiore, M. C. 2000. Treating Tobacco Use and Dependence: an introduction to the US Public Health Service Guidelines. *Respiratory Care* 45(10): 1196-1199.
- Grossi, S. G, Zambon, J., Machtei E. E., Schifferle, R., Andreana, S, Genco R.J. et al. 1997. Effects of smoking and smoking cessation on healing after mechanical periodontal therapy. *Journal of American Dental Association* 128: 599-607.
- Heasman, L. Stacey, F. Preshaw, P. M., McCracken, G. I., Hepburn, S. & Heasman, P.A. 2006. The effect of smoking on periodontal treatment response: a review of clinical evidence. *Journal of Clinical Periodontology* 33: 241-253
- Ibrahim, H. Norkhafizah, S. 2008. Attitudes and practices in smoking cessation counseling among dentists in Kelantan. *Archives Orofacial Science* 3(1): 11-16
- John, J. H., Yudkin, P. Murphy, M., Ziebland, S. & Fowler, G. H. 1997. Smoking cessation interventions for dental patients- attitudes and reported practices of dentist in the Oxford region. *British Dental Journal* 183: 359-364.
- Johnson, G. K. & Guthmiller, J. M. 2007. The impact of cigarette smoking on periodontal disease and treatment. *Periodontology* 2000 (44): 178-194.
- Johnson, G. K. & Hill, M. 2004. Cigarette smoking and the periodontal patient. *Journal of Periodontology* 75: 196-209.
- Johnson, N. W., Lowe, J.C. & Warnakulasuriya, K. A. A. S. 2006. Tobacco cessation activities of UK dentists in primary care- signs of improvement. *British Dental Journal* 200: 85-89.
- Macgregor, I. D. M. 1996. Efficacy of dental health advice as an aid to reducing cigarette smoking. *British Dental Journal* 180: 292-296.
- Ministry of Health, Malaysia. 2003. *Clinical Practice Guidelines on Treatment of Tobacco Use and Dependence*. Ministry of Health Malaysia, 2003.
- Newton, T. & Palmer, R. M. 1997. The role of dental team in the promotion of smoking cessation. *British Dental Journal* 182: 353-355
- Preshaw, P.M., Heasman, L., Stacey, F., Steen, N., McCracken G.I. & Heasman, P.A. 2005. The effect of quitting smoking on chronic periodontitis. *Journal of Clinical Periodontology* 32: 869-879.
- Ramseier, C. A. 2005. Potential impact of subject-based risk factor control on periodontitis. *Journal of Clinical Periodontology* 32: 283-290.
- Severson, H. H, Eakin, E. G., Stevens, V. J. & Lichtenstein, E. 1990. Dental office practices for tobacco users: independent practice and HMO clinics. *American Journal of Public Health* 80: 1503-1505.
- Tonetti, M. S., Pini-Prato, G. & Cortellini, P. 1995. Effect of cigarette smoking on periodontal healing following GTR in infrabony defects. A preliminary retrospective study. *Journal of Clinical Periodontology* 22: 229-234.
- Warnakulasuriya, K. A. A. S. & Johnson, N.W. 1999. Dentists and oral cancer prevention in the UK: Opinions, attitudes and practices to screening for mucosal lesions and to counseling patients on tobacco and alcohol use: baseline data from 1991. *Oral Disease* 5(1):10-14.
- Warnakulasuriya, S. 2002 Effectiveness of tobacco counseling in dental office. *Journal of Dental Education* 66(9): 1079-1087.
- Warnakulasuriya, S., Dietrich, T., Bornstein, M. M., Casals Peidr , E., Preshaw, P. M., Walter, C. et al. 2010. Oral health risks of tobacco use and effects of cessation. *International Dental Journal* 60(1): 7-30.

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