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Orthodontists' Knowledge, Attitudes and Perceptions Regarding Smoking Cessation: A Pilot Study

Asma Alhusna Abang Abdullah[1]*, Noor Sam Ahmad[2]

KEYWORDS

Dental practice, orthodontic, smoking cessation, tobacco cessation

ABSTRACT

Smoking remains a significant addiction problem among young adults. Among dental specialists, orthodontists frequently interact with adolescents and young adults during regular monthly visits, are positioned to address this problem. This study aimed to assess the knowledge, attitudes, and perceptions of orthodontists regarding their role in addressing experimental smoking among patients. A cross-sectional survey was conducted using a validated self-administered online questionnaire. Forty-three orthodontists participated, the majority of whom were Malay (72%) and within the prime-working-age groups. Most demonstrated good knowledge of smoking-related issues and expressed confidence in detecting smoking habits and referring patients for further support (95%). However, key barriers to delivering counselling were identified, including time constraints (84%), limited access to educational materials (77%) and perceived lack of training (74%). Despite these challenges, the majority consistently communicated smoking risks (98%), referred patients (86%) and inquired about smoking status (79%). However, only 47% actively engaged in direct counselling. These findings highlight the need to address barriers, enhance training, and implement strategies to encourage active involvement in smoking cessation counselling among orthodontists. Such effort could expand comprehensive patient care and contribute to public health initiatives.

INTRODUCTION

Smoking is a significant addiction problem among young adults in Malaysia. A national survey found 13.8% of school-going adolescents smoke, and as many as 68.4% had tried smoking by the age of 14 years [1]. These unhealthy habits often begin during adolescence, a period marked by major biological, psychological and social changes. During this development stage, adolescents are prone to exploration and experimentation with various behaviours, including risk-taking behaviours such as substance abuse and smoking [2].

Most smokers begin smoking during their adolescent years [3]. Conversely, those who do not start smoking during this critical period are unlikely to take up this habit in adulthood [2]. Malaysia is committed to strengthening smoking cessation services as part of its obligation under the World Health Organization [4] Framework Convention on Tobacco Control (FCTC) [5]. Furthermore, treating tobacco dependence is more cost-effective [5] compared to treating tobacco-related diseases such as cancer [6]. It has been suggested that prevention programs for smoking should target early adolescence [3] to mitigate the risk of progression to more severe substances abuse, such as alcohol and illicit drugs [7]. Thus, mechanisms for detecting and preventing early experimental smoking are essential.

A clinical practical guideline for managing tobacco addiction recommends that successful intervention starts with the effective identification of tobacco users [5]. The guideline also urges all healthcare providers to seize every opportunity to intervene with patients [5]. Effective interventions include brief advice, motivational interviewing, and nicotine replacement therapy [8].

[1]Department of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, Universiti Sains Islam Malaysia
[2]Department of Family Oral Health, Faculty of Dentistry, Universiti Kebangsaan Malaysia
*Corresponding author email: asmaabdullah@usim.edu.my

Dental professionals play a critical role in addressing smoking habits among their patients, as smoking is a risk factor for oral diseases. Smoking is associated with oral cancer [9,10] and periodontal disease [11,12]. A patient's smoking status is a crucial factor in determining the prognosis for periodontal therapy [13] and wound healing after implant placement [14]. Smoking also causes discolouration of teeth and dental restorations [15], is associated with halitosis [16], and diminished taste perception [17]. Therefore, to improve oral health and treatment outcomes, dental professionals should incorporate smoking cessation therapy to help patients quit tobacco products.

Numerous studies have investigated smoking cessation practices among dental practitioners [18,19,20]. Most dentists are willing to assess patients' smoking status [20] and participate in smoking cessation therapy [18,20]. However, barriers such as insufficient training and lack of incentives hinder their ability to help patients effectively [19]. In the local context, periodontists are more likely than general practitioners to assess and refer patients for smoking cessation therapy [21].

Among dental specialities, orthodontists primarily treat adolescents and young adults seeking to improve their smile. Orthodontic patients typically attend monthly visits for several years, giving orthodontists the opportunity to detect smoking habits. Although the effects of smoking on orthodontic tooth movement are contradictory [22,23,24], its adverse effect on overall health is well-established. Thus, orthodontists have a vital role to be play in smoking cessation efforts. The objective of this study is to assess the knowledge, attitudes, and perceptions of orthodontists regarding their role in smoking cessation for patients.

MATERIALS AND METHODS

A cross-sectional online survey was conducted among orthodontists to assess their knowledge, attitudes, and perceptions regarding their role in smoking cessation among patients. The sample was drawn from orthodontists who are members of the Malaysian Association of Orthodontists, with the questionnaire distributed via WhatsApp application. The sample size was calculated using the Sample Size Calculator (Raosoft, Inc.) with a margin of error of 5%, a confidence level of 95%, and a total population of 174. The estimated sample size was 120 subjects. Ethical approval was obtained from the Research Ethics Committee (USIM/JKEP/2021-170), and informed consent was sought prior to the survey.

The survey utilised a validated self-administered online questionnaire, adapted from published studies [25,26,27]. To validate the content of the adapted questionnaire, 10 experts were consulted and asked six specific questions regarding its clarity, appropriateness, and overall purpose. Feedback from the experts was reviewed and incorporated into the final version to enhance the questionnaire's clarity, relevance, and suitability for the target population.

The questionnaire consisted of 37 questions divided into five sections. The first section gathered demographic information (age, gender, race, workplace). The second section assessed knowledge of smoking and smoking cessation therapy. The remaining three sections evaluated attitudes, practices and barriers to smoking cessation therapy (Table 1).

Respondents were asked to rank their agreement with statements in sections two to five on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree". To simplify data analysis for the knowledge assessment, responses of "strongly agree" and "agree" were considered correct answers and combined to calculate the final score. A cut-off point of 80% was set to indicate a high level of knowledge [28].

All data were analysed using SPSS software version 29 (IBM Corporation, USA). Frequencies and percentages were used for categorical data. The correlation between orthodontic practices (government, university, private) and perceptions was analysed using the Pearson correlation test, with a p-value of less than 0.05 considered statistically significance.

RESULTS

Demographic Profile

A total of 43 orthodontists responded to the survey, yielding a response rate of 36%. Most of the respondents (n=42, 98%) were prime working-age adults between 25 and 54 years of age, with 72% being Malay and 5% being Chinese and Indian, respectively. The ratio of male to female respondents was 1:6. More than half of the respondents (n=26, 52%) worked with the government under the Ministry of Health and Ministry of Defence; 26% worked at universities, and 22% were private orthodontists (Table 2).

Table 1 Knowledge, Attitude, Practices and Barriers to Smoking Cessation Questions

Knowledge of the effects of smoking	
1	Tobacco increases the risks for various cancers
2	Passive smoking linked to lung diseases and increasing risk for cancer
3	Maternal smoking increases risk of sudden infant death syndrome
4	The active ingredient in tobacco is nicotine
5	Nicotine is an active psychoactive substance
6	Smoking can cause halitosis
7	Smoking increases risks of caries
8	Smoking can increase risk of periodontal disease
9	Smoking can affect oral wound healing
10	Smoking can affect implant success rate
11	Smoking interferes with orthodontic tooth movement
Knowledge of smoking cessation method	
1	Nicotine patches can reduce nicotine craving in smokers
2	Nicotine gums are a type of nicotine replacement therapy
3	Anti-depressant is prescribed for smoking cessation
4	There are behaviour strategies to smoking cessation
Attitudes towards smoking cessation counselling	
1	Orthodontist should take responsibility in providing smoking cessation counselling
2	Orthodontist can confidently offer effective smoking cessation counselling
3	Orthodontic patients expect smoking cessation advice from his/her orthodontist
4	Orthodontist can change a patient's smoking habit
5	Orthodontist can detect patients with smoking habit
6	Orthodontist can refer patients for smoking cessation counselling
Practices on smoking cessation	
1	Ask about my patient's smoking status
2	Offer smoking cessation counselling to my patients
3	Explain to my patients regarding the health risks due to smoking
4	Provide advice or helpful tips to motivate my patients to quit smoking
5	Refer my patient to smoking cessation counselling when necessary
6	Provide reading materials on smoking cessation in my waiting area
Perceived barriers to smoking cessation	
1	Lack of training in giving effective advice
2	Lack of remuneration
3	Lack of available time during appointments
4	Lack of patient education materials in the clinic
5	Patients may leave the practice if counselled to give up smoking
6	Patient disinterest in receiving advice

Table 2 Demographic profile of the respondents

Demographic profile		**n**	**%**
Age	25-34	1	2
	35-44	24	56
	45-54	17	40
	55-64	1	2
	Total	**43**	**100**
Gender	Female	37	86
	Male	6	14
	Total	**43**	**100**
Ethnicity	Malay	31	72
	Chinese	5	12
	Indian	5	12
	Others	2	4
	Total	**43**	**100**
Workplace	Government	26	52
	University	13	26
	Private	4	22
	Total	**43**	**100**

Knowledge of Smoking Effect and Its Cessation Therapy

The respondent's level of knowledge was considered high if they correctly answered 80% of the questions [27]. From the survey, the majority (81%, n=35) demonstrated a high level of knowledge the effects of smoking on various health problems. Most respondents displayed a comprehensive understanding of the impact of smoking on dental health across eleven surveyed aspects, except for two specific variables: "do not affect tooth movement" (28%) and "increased risk of caries" (60%). Nearly all respondents (98%) exhibited the highest knowledge regarding the statements "smoking increases periodontal disease" and "passive smoking causes cancer" (Figure 1).

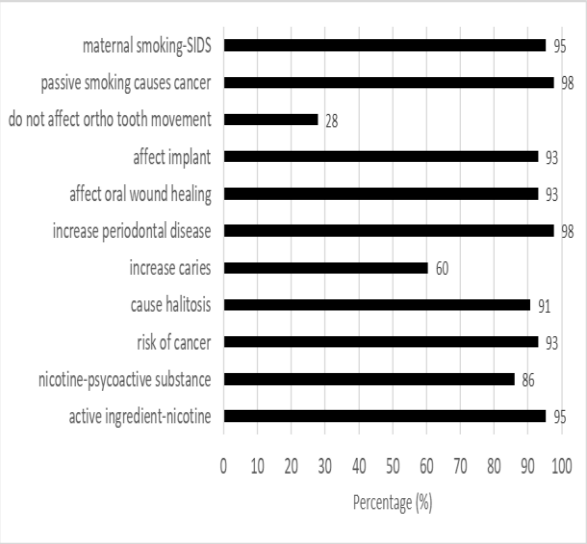

Figure 1 Orthodontists' Knowledge of Smoking and its Impact on Health

Regarding smoking cessation therapy, the respondents demonstrated a good understanding, with 86% (n=37) answering a minimum at least three questions correctly. Three variables achieved excellent knowledge scores, ranging from 88% to 98%, specifically: behavioural strategies, nicotine gum, and nicotine patches. The only exception was the statement "anti-depressants are prescribed for smoking cessation, "which had a knowledge score of 21% (Figure 2). No significant differences were observed in the knowledge of smoking cessation across different orthodontic practices ($p > 0.05$).

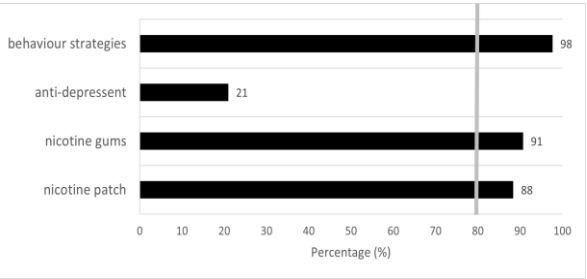

Figure 2 Orthodontists' knowledge of smoking cessation therapy; the vertical line denotes the cut-off point of a good level of knowledge

After combining all the answers from the two sections (effects of smoking and cessation therapy), 32 out of 43 respondents (74%) demonstrated a high level of knowledge, achieving at least 80% correct answers regarding the health impacts of smoking and methods of smoking cessation therapy.

Attitude, Barriers and Practices Towards Smoking Cessation Counselling

Figure 3 presents pie charts illustrating orthodontists' perspectives on engaging in smoking cessation counselling in their clinical practice. A majority of respondents expressed confidence in referring patients and believed in their clinical ability to detect smoking habits. However, only 65% of respondents expressed a willingness to take the responsibility for performing smoking cessation counselling, and 56% acknowledged the potential of such counselling to influence smoking habits. Additionally, more than half of the respondents (51%) were reluctant to offer counselling. Most respondents (70%) perceived that patients would not expect advice from them (Figure 3a).

When comparing attitudes across different orthodontic practices, significant differences were observed regarding passive smoking cessation interventions. These included attitudes towards "offering counselling" ($p=0.02$), "patient expect advice" ($p=0.03$) and "take responsibility" ($p=0.005$).

In the questions addressing obstacles to delivering smoking cessation counselling, the predominant challenges identified by respondents included time constraints (84%), limited access to educational materials (77%), and a perceived lack of training (74%). Conversely, "patient disinterest" (28%), "absence of reimbursement" (16%), and "patients leaving their dental clinics" were among the least frequently cited barriers to implementing smoking cessation therapy in orthodontics clinics (Figure 3b). No significant differences were observed in the reported barriers to smoking cessation counselling across different orthodontic practices ($p > 0.05$).

In the context of smoking cessation counselling within orthodontic practices, 98% of respondents reported consistently communicating risks associated with smoking to their patients, and 86% actively referred them when necessary. The majority routinely inquired about patients' smoking status (79%) and provided simple smoking cessation advice (70%). Additionally, over half of the respondents offered supplementary reading materials to support smoking cessation efforts (60%). However, only a minority (47%) were actively involved in the direct practice of providing smoking cessation counselling (Figure 3c). A significant difference was observed between the different orthodontic practices regarding the practice of "ask status" ($p=0.03$).

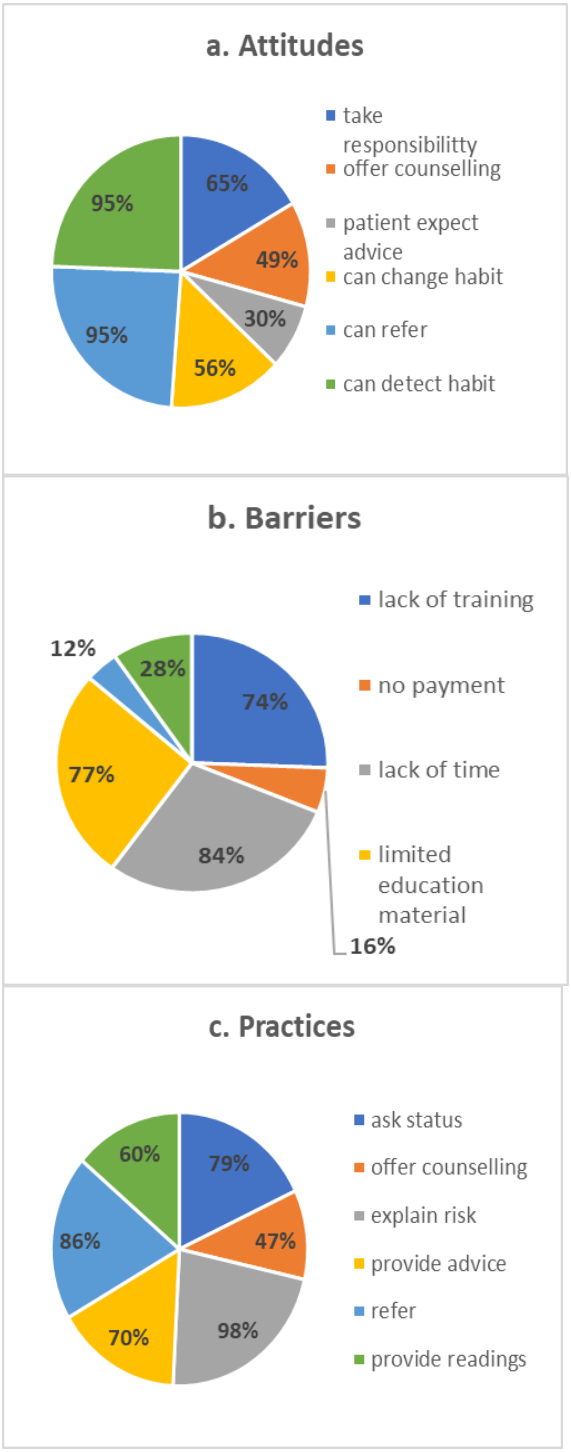

Figure 3 Orthodontists' perspectives towards smoking cessation counselling a) Attitudes; b) Barriers; and c) Practices

DISCUSSION

Smoking cessation practices within the dental profession have been widely studied, with numerous investigations focusing on the practices of general dentists [18,19,21] and periodontists. Despite the shared commitment to promoting oral health within the dental community, the specific role of orthodontists in influencing behavioural change and promoting smoking cessation remains unexplored.

Orthodontists hold a distinct position within the dental community, as they primarily treat adolescents and young adults, with treatment durations often spanning several years. Research indicates that individuals who start smoking at an early age are more likely to develop a lifelong addiction to tobacco products [3]. This highlights the importance of focusing smoking cessation programmes on younger people, intervening during period when they are more susceptible to developing long-term tobacco dependence. Consequently, orthodontists are uniquely positioned to play a significant role in early tobacco intervention programmes with their patients.

Nicotine is the primary psychoactive substance in cigarettes and is highly addictive [30]. Given the widespread prevalence of tobacco addiction globally [4], this survey found that a considerable proportion of orthodontists showed good knowledge of nicotine as the active component and its classification as a psychoactive substance. Our findings also showed that orthodontists had a high level of knowledge in recognising the health issues linked to smoking and the principles of smoking cessation therapy.

Smoking has significant implications for both dental and overall health. Engaging in smoking habits, or even being exposed to a second-hand smoke, has been associated with an increased risk of developing various cancers [10,31]. Our findings indicate that respondents demonstrated a sufficient understanding of the health implications of smoking, particularly concerning cancerous lesions. Similarly, a survey conducted in Indonesia found that the majority of dentists recognised tobacco as a risk factor for oral cancer [32]. Thus, playing an active role in advocating for smoking cessation can mitigate these serious health risks.

Orthodontic treatment involves the movement of teeth within the bone to treat malocclusion. Interestingly, our findings showed that most of the respondents believed smoking interferes with orthodontic tooth movement (OTM). However, the existing literature contradictory findings. An animal study by [33], reported that smoking does not affect OTM. Conversely, a review of five studies by [22] found that teeth move faster in the presence of nicotine. This contrasts with the findings of an animal study by [23], which observed that OTM was faster after the removal of nicotine.

Another conflicting opinion among respondents was noted regarding the link between smoking and the development of caries. More than half of the respondents recognised that smoking contributes to carious lesions. The multifactorial nature of caries development may complicate these findings. While recent studies suggest that smokers have an elevated risk of caries [34,35,36], conflicting evidence exists in older literature [37,38].

Various methods are employed to curb the smoking habits. Smoking cessation interventions typically begin with brief clinical counselling using the 5A method: Ask, Advise, Assess, Assist, Arrange. During the "Assist" stage, healthcare providers can recommend approved pharmacotherapies [5]. In this study, most respondents demonstrated a good level of knowledgeable regarding smoking cessation therapy.

However, most of respondents were less knowledgeable about the use of antidepressant drugs as part of the pharmacological approach to smoking cessation. This gap in knowledge is likely due to the fact that orthodontists, in their standard practice, do not prescribe psychiatric-related medication and are not licenced to do so. This finding highlights a practical limitation within the profession when it comes to implementing therapeutic interventions related to smoking cessation.

Low knowledge of pharmacological methods for smoking cessation interventions has also been observed in other studies. A study conducted in India reported that dental professionals had an average level of knowledge about smoking cessation therapy, however, less than 50% respondents were aware of the pharmacological methods for smoking cessation [39]. Similarly, [27] noted that their respondents exhibited poor knowledge of both pharmacological and non-pharmacological approaches to smoking cessation therapy. Furthermore, a review assessing the knowledge of tobacco cessation interventions among dental professionals found that the awareness of pharmacotherapy for smoking cessation was below 75% [20].

This study also investigated orthodontists' perspectives on smoking cessation counselling. Many respondents confidently believed in their ability to detect smoking habits through clinical examination and expressed a willingness to propose referrals for smoking cessation therapy. However, not all respondents were inclined to take responsibility for actively addressing patient's smoking habits through counselling. Similar findings have been reported in other studies, where dental professionals exhibited positive attitudes toward advising patients to quit smoking but showed reluctance to engage in active tobacco cessation counselling [20,40].

Additionally, the respondents believed that patients do not expect smoking advice from their orthodontist. Interestingly, this belief contrasts with findings from [29], who reported that patients expressed a desire to be questioned about their tobacco use and expected support from their dentist regarding smoking cessation. Similarly, a survey of Malaysian dental patients found that most expected their dentist to inquire about their smoking status and provide smoking cessation counselling [41]. This discrepancy highlights the need to further explore and understand patient's expectations and preferences regarding smoking cessation counselling in orthodontics clinical setting.

The reluctance of orthodontists to engage in smoking cessation counselling is highlighted by the barriers identified in this study. Lack of time was rated as the biggest barrier, consistent with findings from similar studies [18,20,21,29,43]. Additional barriers, such as insufficient training [29] and limited access to educational materials, further hinder dental professionals from performing smoking cessation therapy [18,19]. Many healthcare professionals have reported receiving no formal training in smoking cessation [42], which limited the ability of orthodontists to address this addiction effectively.

A minority of respondents expressed concerns about patients potentially leaving their practice, jeopardising the dentist-patient relationship. This concern, noted in other studies [21,43] contrasts with findings from a qualitative study, where patients who had received smoking cessation advice from dentists found it unexpected but significantly more impactful than advice from medical professionals [44]. The effectiveness of dentists' advice is attributed to the visual evidence of smoking-related oral issues, which contrasts with medical professionals' focus on less visible internal damage, such as lung health. These barriers highlight the unique barriers orthodontists must navigate to integrate smoking cessation counselling into their practices.

Dental clinics provide an effective venue for delivering tobacco cessation interventions. Our findings indicate that most respondents passively in

smoking cessation efforts, such as inquiring about smoking status, providing simple advice, and making referrals. However, active interventions, such as direct counselling, were only performed by a minority. These findings align with other studies, where most of the dental professionals asked about patients' smoking status but provided limited assistance in smoking cessation [40,19]. Orthodontists, like other professionals, have the potential to play a vital role in addressing tobacco use, particularly in young patients.

Due to the limited sample size due to time constraints, further research is needed to enhance orthodontists' active involvement in smoking cessation. Possible strategies include implementing dedicated training programmes, providing additional educational resources, and fostering collaborative initiatives with other healthcare professionals involved in smoking cessation. Addressing these barriers can help orthodontists contribute more effectively to supporting young patients on their journey towards a smoke-free life.

CONCLUSION

From this pilot study, it is evident that orthodontists are well-informed about the negative health impacts of smoking and methods of smoking cessation therapy. Their positive attitudes toward passive interventions, such as inquiring about and identifying smoking status and making referrals, reflect their willingness to assist and educate patients. However, active interventions were limited, primarily due to barriers such as time constraints, inadequate educational resources, and insufficient training.

DECLARATION OF INTEREST

Authors declare no conflict of interest.

REFERENCES

1. Institute for Public Health (IPH). National Health and Morbidity Survey (NHMS) 2017: Adolescent Health and Nutrition Survey [internet]. Malaysia; 2017. Available from: https://iku.moh.gov.my/images/IKU/Document/REPORT/NHMS2017/NHMS2017Infographic.pdf format.
2. Lim KH, Sumarni MG, Kee CC, Christopher VM, Noruiza Hana M, Lim KK, et al. Prevalence and factors associated with smoking among form four students in Petaling District, Selangor, Malaysia. Trop Biomed. 2010;27(3):394-403.
3. Kalan ME, Bahelah R, Bursac Z, Taleb ZB, DiFranza JR, Tleis M, et al. Predictors of nicotine dependence among adolescent waterpipe and cigarette smokers: A 6-year longitudinal analysis. Drug and Alcohol Dependence. 2020;217:108346.
4. World Health Organization. WHO global report on trends in prevalence of tobacco use 2000-2025. [internet] World Health Organization; 2019. Available from: https://iris.who.int/bitstream/handle/10665/330221/9789240000032-eng.pdf?sequence=1 format.
5. Ministry of Health Malaysia. Clinical Practice Guidelines on Treatment of Tobacco Use Disorder. [internet]. Tobacco Control Unit & FCTC Secretariat Non-Communicable Disease Section Disease Control Division, Ministry of Health Malaysia. 2016. Available from: https://www.moh.gov.my/moh/resources/Penerbitan/CPG/Respiratory/CPG_TobacoDisorder.pdf format.
6. Kumar SKS, Zain RB. Aetiology and Risk factors for Oral Cancer – A Brief Overview. Annal of Dentistry University Malaya 2004; 11: 41–50.
7. Lai S, Lai H, Page JB, McCoy CB. The association between cigarette smoking and drug abuse in the United States. Journal of Addictive Diseases. 2000;19(4):11-24.
8. Carr AB, Ebbert J. Interventions for tobacco cessation in the dental setting. Cochrane Database of Systematic Reviews, 2012;(6).
9. Ahmad MN, Zulkiffli S, Kallarakkal TG. Prevalence of oral potentially malignant disorders and awareness on oral cancer among dental patients. Annals of Dentistry University of Malaya. 2016;23(1):38-47.
10. Sadri G, Mahjub H. Tobacco smoking and oral cancer: a meta-analysis. Journal of Research in Health Sciences. 2023;7(1):18-23.
11. Jiang Y, Zhou X, Cheng L, Li M. The impact of smoking on subgingival microflora: from periodontal health to disease. Frontiers in Microbiology. 2020;11:66.
12. Sadikin AS, Mansor H, Saub R, Vaithlingam RD. Awareness and Knowledge of Smoking and Periodontitis Among Dental Patients. Annals of Dentistry University of Malaya. 2015;22(2): 15-22.

13. Apatzidou DA. The role of cigarette smoking in periodontal disease and treatment outcomes of dental implant therapy. Periodontology 2000. 2022;90(1):45-61.
14. Rismanchian M, Givehchian P, Salmani S, Shaker F. Comparison of Hard and Soft Tissues Around Dental Implants in Smokers and Non-smokers. Dental Hypotheses. 2020;11(3):86-90.
15. Zhao X, Zanetti F, Wang L, Pan J, Majeed S, Malmstrom H, et al. Effects of different discoloration challenges and whitening treatments on dental hard tissues and composite resin restorations. Journal of dentistry. 2019;89:103182.
16. Kauss AR, Antunes M, Zanetti F, Hankins M, Hoeng J, Heremans A, et al. Influence of tobacco smoking on the development of halitosis. Toxicology Reports. 2022;9:316-322.
17. Berube L, Duffy VB, Hayes JE, Hoffman HJ, Rawal S. Associations between chronic cigarette smoking and taste function: results from the 2013–2014 national health and nutrition examination survey. Physiology & Behaviour. 2021;240:113554.
18. Alblowi JA, Mohamed H. Perception of tobacco counselling and cessation among dental practitioners. Journal of Smoking Cessation. 2021;2021:6692525.
19. Aljubran H, Alkoudemi M, Althunayan M, Aljeraisy A, Asiri A, Nazir M. Tobacco use and cessation counselling among dental professionals in Saudi Arabia. International Journal of Environmental Research and Public Health. 2022;19(23):16306.
20. Priya H, Deb Barma M, Purohit BM, Agarwal D, Bhadauria US, Tewari N, et al. Global Status of Knowledge, Attitude and Practice on Tobacco Cessation Interventions Among Dental Professionals: A Systematic Review. Tobacco Use Insights. 2022;15:1179173X221137218.
21. Vaithilingam RD, Noor NMM, Mustafa R, Taiyeb ATB. Practices and beliefs among Malaysian dentists and periodontists towards smoking cessation intervention. Sains Malaysiana. 2012;41(7):931-937.
22. Jyothish S, Athanasiou AE, Makrygiannakis MA, Kaklamanos EG. Effect of nicotine exposure on the rate of orthodontic tooth movement: A meta-analysis based on animal studies. PLOS One. 2021;17;16(2):e0247011.
23. Matoba H, Nishiura A, Honda Y, Fujiwara SI, Matsumoto N. Smoking cessation rescues tooth movement delays caused by tobacco smoke components. Orthodontic Waves. 2021;80(1):17-22.
24. Michelogiannakis D, Rossouw PE, Al-Shammery D, Akram Z, Khan J, Romanos GE, et al. Influence of nicotine on orthodontic tooth movement: A systematic review of experimental studies in rats. Archives of Oral Biology. 2018;1;93:66-73.
25. Clareboets S, Sivarajasingam V, Chestnutt IG. Smoking cessation advice: knowledge, attitude and practice among clinical dental students. British Dental Journal. 2010;208(4):173-177.
26. Ibrahim H, Norkhafizah S. Attitudes and practices in smoking cessation counselling among dentists in Kelantan. Archives of Orofacial Sciences. 2008;3(1):11-16.
27. Saddichha S, Rekha DP, Patil BK, Murthy P, Benegal V, Isaac MK. Knowledge, attitude and practices of Indian dental surgeons towards tobacco control: Advances towards prevention. Asian Pacific Journal of Cancer Prevention. 2010;11(4):939-942.
28. Alzahrani MM, Alghamdi AA, Alghamdi SA, Alotaibi RK. Knowledge and attitude of dentists towards obstructive sleep apnoea. International Dental Journal. 2022;72(3):315-321.
29. Mishu MP, Elsey H, Choudhury AR, Dastagir S, Khan S, Tahsin T, et al. Co-producing an intervention for tobacco cessation and improvement of oral health among diabetic patients in Bangladesh. BMC Oral Health. 2021;21(1):1-2.
30. Sansone L, Milani F, Fabrizi R, Belli M, Cristina M, Zagà V, et al. Nicotine: from discovery to biological effects. International Journal of Molecular Sciences. 2023;24(19):14570.
31. Malevolti MC, Maci C, Lugo A, Possenti I, Gallus S, Gorini G, et al. Second-hand smoke exposure and cervical cancer: A systematic review and meta-analysis. Journal of Cancer Research and Clinical Oncology. 2023;149(15):14353-63.
32. Wimardhani YS, Warnakulasuriya S, Wardhany II, Syahzaman S, Agustina Y, Maharani DA. Knowledge and practice regarding oral cancer: A study among dentists in Jakarta, Indonesia. International Dental Journal. 2021;71(4):309-315.
33. Lee SH, Cha JY, Choi SH, Kim BI, Cha JK, Hwang CJ. Effect of nicotine on orthodontic tooth movement and bone remodelling in rats. Korean Journal of Orthodontics. 2021;25;51(4):282-92.
34. Nayani AA, Iqbal R, Azam SI, Khan FR, Khan AH, Janjua N, et al. Association between environmental tobacco smoke and dental caries amongst 5-14 years old children in Karachi, Pakistan. Journal of Pakistan Medical Association. 2018;68(2):203.

35. Andayasari L, Mubasyiroh R, Nurlinawati I, Sufiawati I. Association between tobacco smoking and dental caries in the Indonesian population: results of a national study in 2018. Journal of Preventive Medicine and Public Health. 2023;56(4):357.
36. Petersson GH, Twetman S. Tobacco use and caries increment in young adults: a prospective observational study. BMC research notes. 2019;12:1-5.
37. Hugoson A, Hellqvist L, Rolandsson M, Birkhed D. Dental caries in relation to smoking and the use of Swedish snus: epidemiological studies covering 20 years (1983–2003). Acta Odontologica Scandinavica. 2012;70(4):289-296.
38. Vellappally S, Fiala Z, Šmejkalová J, Jacob V, Shriharsha P, Fiala Z, et al. Influence of tobacco use in dental caries development. Central European Journal of Public Health. 2007;15(3):116-121.
39. Madhu PP, Kumar PN, Prashant GM, Sushanth VH, Imranulla M, Nair AR. Knowledge, attitude and practice regarding tobacco cessation methods among the dental professionals: A cross-sectional study. J Oral Health Comm Dent. 2019;13:21-26.
40. Chaffee BW, Urata J, Couch ET, Silverstein S. Dental professionals' engagement in tobacco, electronic cigarette, and cannabis patient counselling. JDR Clinical & Translational Research. 2020;5(2):133-45.
41. Yahya NA, Saub R, Md Nor M, Yusoff N. Dental patient knowledge about the effects of smoking and attitudes about the role of dentists in smoking cessation. Southeast Asian Journal of Tropical Medicine and Public Health. 2017;48(2):473-84.
42. Abdulateef DS, Ali A J, Abdulateef, DS, Mohesh MG. Smoking knowledge, attitude and practices among health care professionals from Sulaymaniyah City/Iraq. Tobacco Use Insights. 2016;9:1-6.
43. Chan HL, Chan AK, Chu CH, Tsang YC. Smoking cessation in dental setting: a narrative review on dental professionals' attitude, preparedness, practices and barriers. Frontiers in Oral Health. 2023;4:1266467.
44. Holliday R, McColl E, Bauld L, Preshaw PM, Sniehotta FF, McDonald S. Perceived influences on smoking behaviour and perceptions of dentist-delivered smoking cessation advice: A qualitative interview study. Community dentistry and oral epidemiology. 2020;48(5):433-9.

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