

ARTICLE INFO

Submitted: 06/05/2023

Accepted: 30/07/2024

Online: 23/12/2024

Advertising the Tooth: An Analysis of Content and Compliance of Malaysian Dental Clinics' Facebook and Instagram Posts

Nor Nadia Zakaria^a, Violette XinHui Ong^a, Wei Ying Peh^b, Alexander C L Holden^{c,d}, Yasmin Kamarudin^{a*}

^aDepartment of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, Universiti Malaya, 50603 Kuala Lumpur, Malaysia

^bGeneral Dental Practitioner, Chan Dental Clinic, 43300 Selangor, Malaysia

^cThe University of Sydney School of Dentistry, Surry Hills NSW 2010, Australia

^dSydney Dental Hospital and Oral Health Services, Sydney Local Health District, Surry Hills NSW 2010, Australia

*Corresponding author: yasminkamarudin@um.edu.my

To cite this article: Zakaria NN, Ong VX, Peh WY, Holden ACL, Kamarudin Y (2024). Advertising the tooth: An analysis of content and compliance of Malaysian dental clinics' Facebook and Instagram posts. *Arch Orofac Sci*, 19(2): 141–150. <https://doi.org/10.21315/aos2024.1902.OA04>

To link to this article: <https://doi.org/10.21315/aos2024.1902.OA04>

ABSTRACT

Social media has quickly become a popular method for dental clinics to advertise their services broadly and economically. Information disseminated to the public via social media must conform to guidelines set by local regulatory bodies. This study aimed to investigate the types of Facebook and Instagram posts produced by dental practices in Malaysia and their compliance with guidelines set by the Malaysian Dental Council (MDC). This was a cross-sectional analysis of Facebook and Instagram posts by private dental clinics in Malaysia. Data were extracted from posts uploaded over a six-month period between 1st October 2021 and 1st April 2022. Information available, frequency of posts and type of posts were recorded. Each post was then categorised as being compliant or non-compliant mapping to the MDC guidelines. Data was tabulated to generate descriptive statistics with frequency tables. In total, 243 accounts (11,780 posts) were analysed. The most common types of posts were advertisements. Although only 15% of posts were noncompliant, more than half of the investigated social media accounts had one or more noncompliant posts on their platform. Majority of dental clinics are posting advertisements or clinical photos but not all posts are compliant with MDC guidelines.

Keywords: *Commercialism; e-professionalism; marketing; private dentistry; social media*

INTRODUCTION

Advertising in dentistry is a contentious area in many parts of the world. Until the late

1970s, dental advertising was prohibited virtually worldwide as it was considered unethical and potentially damaging to the image of the profession and risked misleading

patients (Hörster, 2015). Advertising restrictions have followed a global trend of relaxation, with countries such as UK, Australia, Germany, Switzerland, and New Zealand all reducing regulatory restriction following the cessation of the advertising ban in the US in 1979 as the ban was deemed a restraint on commercial free speech by the US Supreme Court. Although consumers have responded positively towards commercial health advertising, they have also been shown to be misled and vulnerable to false advertising (Holden *et al.*, 2021). To maintain professional standards within the profession and to safeguard the public, various ethical and regulatory guidelines have been published by regulators of dentistry across the globe to ensure dental advertising is ethical and non-detrimental to the profession or patient.

In Malaysia, advertisements by dentists must adhere to both the Code of Professional Conduct (CPC) and the Guidelines and Provisions for Public Information (GPPI) set by the Malaysian Dental Council (MDC). MDC requires that dental practitioners “may only use, in relation to their practices, publicity or advertising material which is legal, decent and truthful, and has high regard for professional propriety” (MDC, 2008b). Failure to comply with the guidelines can lead to disciplinary action. The guidelines cover advertising principles in dentistry such as to provide clear and accurate information, to avoid endorsing specific dental products, and to maintain professional behaviour as to not bring the profession into dispute.

Although social media has been gaining popularity in dental practices, recent studies have shown that compliance to the advertising guidelines may be poor (Holden & Spallek, 2018; Donnell *et al.*, 2021). Although Malaysian dentists are using social media, it is unclear whether compliance to prescribed standards is problematic. As of 2022, unethical advertising was the third most common type of case investigated by MDC (MDC, 2022c). Hence this study aims to analyse social media pages of dental

practices in Malaysia to determine their compliance with local MDC guidelines on advertising, in reference to the Dental Act 1971.

MATERIAL AND METHODS

This was a cross-sectional study involving social media posts of dental clinics in Malaysia over a six-month period between 1st October 2021 and 1st April 2022. The design of the study was based on the methodology described by Holden & Spallek (2018) and aimed to investigate the type of Facebook and Instagram posts of dental practices in Malaysia and their compliance with MDC guidelines. Ethical approval was granted by the Medical Ethics Committee, Faculty of Dentistry, Universiti Malaya (Ref. No.: DF CD2202/0012(L)).

For the purpose of this study, new Facebook and Instagram accounts were created to avoid any bias in search results due to the platform’s intrinsic algorithms. Convenience sampling of publicly available active Facebook and Instagram pages of private dental clinics in Malaysia were identified. Active social media pages were defined as pages where the last post was posted within six months from the start date of data collection (1st April 2022). Personal social media pages of dentists and social media pages of government/university institutions were excluded. Non-Malaysian clinics and social media pages not using the English or Malay language were also excluded. No “friending” or “following” of social media pages was carried out, to ensure only publicly available information was extracted for the study.

Two English keywords and their corresponding Malay translations were identified during a pilot study to search for relevant Facebook and Instagram pages. The keywords used were dental clinic, *klินิก pergigian*, dentist and *doktor gigi*. The top 50 pages identified using each keyword on both platforms were recorded. Only the top 50 pages were recorded per keyword as the pilot study revealed that beyond the top

50 searchers, majority of the results were repetitive or non-relevant. Once all the clinics were recorded, duplicate pages across keywords were deleted. The final remaining pages were used for this study. Information available on the clinic pages such as clinic's contact information, location and dentist's qualifications were recorded as available or not available.

Posts made between 1st October 2021 and 1st April 2022 were analysed. Each post was captured through screenshot and saved in Notion (Notion Labs, Inc., San Francisco, US) for categorisation and further analysis. Frequency of posts were categorised into five categories: more than one post per day, more than one post per week, more than one post per month or irregular. The type of posts was then recorded and catalogued into the following categories as seen in Table 1, with each post potentially falling into more than one category. The categories were developed and modified during the pilot study with the addition of "testimonials" as a category and refinement of the category descriptions.

The posts were further categorised as compliant or non-compliant with guidelines set by the MDC by using the assessment framework (Table 2) developed for this study. The framework was based on the framework developed by Holden & Spallek (2018) but was modified to reflect the CPC 2008 and the GPPI 2008 (MDC, 2008a; 2008b). It was piloted and refined based on feedback from an expert panel involving two academicians with research expertise in the field of social media conduct and one dentist with experience within MDC. Five main domains of misconduct were identified: 1) Draws undue attention to the practitioner; 2) Unsubstantiated claims; 3) Recommends/ endorses specific dental product; 4) Display of professional fees or tariffs outside of the clinic; and 5) Soliciting patients. Table 2 shows the five domains and a list of leading questions used to assist in coding the social media posts. Posts identified as being non-compliant had the possibility of falling under more than one domain.

Table 1 Type of Facebook and Instagram posts with descriptions

| Type of post | Description |
|---|--|
| Educational posts | Post designed to spread dental awareness e.g. oral hygiene management, various treatment options for gap closure etc. |
| Clinic operation (services) related posts | Posts pertaining to clinic operations such as closure of clinic due to public holiday, opening times, renovation of clinic etc. |
| Public announcements | Holiday wishes (considered as clinic operation related posts if mentions clinic closure), road closure around clinic location. |
| Posts of staff/clinic | Posts depicting photos of staff members/clinic, introduction of new staff, announcement of staff of the month, photos of new dental chair etc. |
| Advertisements | Promoting services/products e.g. whitening, braces etc. Needs to have a call for action e.g. contact for more information, call us now etc. |
| Clinical posts | Photos/videos of clinical procedures such as before or after photos of patients. Lab photos or stock photos not included. |
| Miscellaneous | Announcements of job openings, community service activities, comedy photos, photos of celebrity patients etc. |
| Testimonials | Patient testimonials. |

Table 2 Assessment framework showing five domains of misconduct followed by leading questions to facilitate coding

| Domain | Leading questions |
|---|--|
| Draws undue attention to the practitioner | Does the advertisement depict the staff/practitioner in a manner where his/her character display may bring the profession into dispute? e.g. behaviour that is more than necessary or acceptable. |
| Unsubstantiated claims | Does the advertisement make claims that are not substantiated by evidence? e.g. painless, or faster treatment, better than conventional braces? |
| Recommends/endorse specific dental product | Does the advertisement recommend specific products? e.g. Damon brackets, Colgate toothpaste, Invisalign |
| Display of professional fees or tariffs outside of the clinic | Does the advertisement display cost of treatment? e.g. RM200 for tooth whitening. |
| Soliciting patients | Does the advertisement claim of superiority over other practitioners or practices? e.g. no long waiting list like government clinic. Does the advertisements show flamboyant or grandiose description of services? e.g. best clinic, biggest clinic, luxurious experience. Does the advertisement offer promotions or discounts for services? e.g. Christmas special, free consultation, RM5XXX. Does it display limited time offers? e.g. only during Christmas month. |

Data collection and coding was carried out independently by two researchers (OVX and PWY), who were designated to one social media platform each and had gone through training during the pilot stage where they were calibrated based on posts that had been pre-categorised by the expert panel. Reliability was assessed using Cohen's kappa for qualitative (categorical) items using SPSS (IBM SPSS Statistics for Windows, version 25.0. Armonk, NY: IBM Corp). The Interrater reliability for Facebook was 0.524 (moderate) and 1.0 (excellent) for Instagram. Intrarater reliability for Facebook was 1.0 (excellent) and 1.0 (excellent) for Instagram. During data collection, any ambiguous posts were categorised as "unclear." These posts were then addressed by the expert panel and re-categorised after reaching a consensus.

Statistical Analysis

Once data had been extracted and tabulated in a spreadsheet (Google Sheets), the research team further analysed it using descriptive statistics in the form of frequency distribution. The variables used for descriptive analysis for each platform

included available clinical information, clinician qualifications, types of posts, and post compliance. Frequencies were displayed as percentages of occurrence.

RESULTS

Social media presence of dental clinics in Malaysia was higher on Facebook compared to Instagram. After excluding the non-active pages and duplicate pages across keywords, 148 (Facebook) and 95 (Instagram) were included for analysis. Most Facebook and Instagram pages analysed provided clinic contact information in the form of location, phone number and email (Table 3). Very few clinics provided any information regarding the clinician's qualifications. Frequency of posts were mainly irregular (Facebook 39%, Instagram 62%) or monthly (Facebook 33%, Instagram 22%), with very few clinics posting daily (Facebook 5%, Instagram 1%).

A total of 7,804 Facebook posts and 3,976 Instagram posts were analysed. Eleven posts were listed as unclear during data collection but were later re-categorised after expert panel discussion. Fig. 1 shows the type of posts posted over the six-month

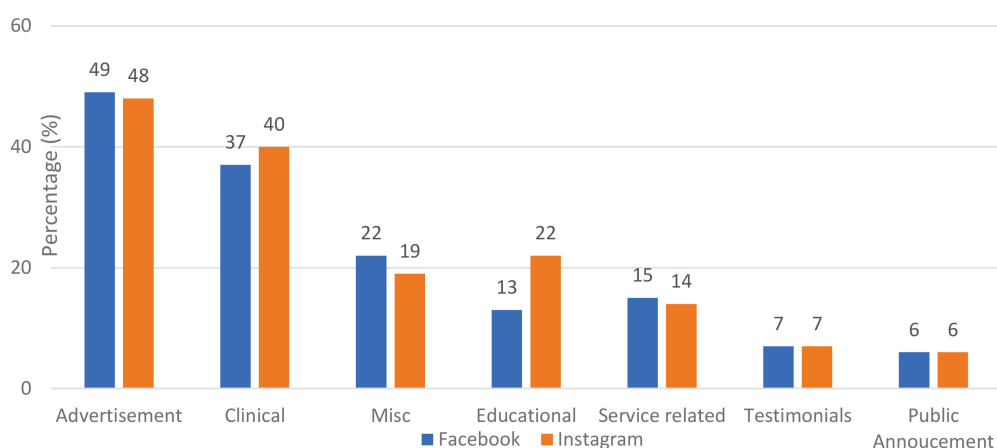
study period. Almost half of the posts were advertisements, promoting products and services (Facebook 49%, Instagram 48%) such as tooth whitening, dental check-ups, or clear aligners. The second most common type of post was clinical posts showing pictures or videos of clinical procedures (Facebook 37%, Instagram 40%). This was followed by educational posts (22%) on Instagram and miscellaneous posts (22%) such as pictures of charity work or staff functions on Facebook.

Based on the assessment framework used in this study, 81 Facebook pages (55%) and 61 Instagram pages (64%) had one or

more posts that were non-compliant with MDC guidelines over the six-month study period (Table 4). Out of 11,780 posts across platforms, approximately 15% were non-compliant, mainly due to elements of soliciting patients (Facebook and Instagram 75%) by offering discounts, limited time offers or using grandiose description of services. Facebook posts were more likely to display tariffs (Facebook 23%, Instagram 15%) whereas Instagram posts were more likely to recommend specific products especially Invisalign and Damon brackets (Facebook 5%, Instagram 27%). No posts were deemed to draw undue attention.

Table 3 Information available on Instagram and Facebook pages of dental clinics and frequency of posts

| Social media platform | Social media pages | Information available | | | | Frequency of posts | | | |
|-----------------------|--------------------|-----------------------|---------------|--------------|-----------------------|------------------------------------|------------|------------|------------|
| | | Clinic address | Clinic number | Clinic email | Dentist qualification | Active (last post within 6 months) | | | |
| | | | | | | >1/day | >1/week | >1/month | Irregular |
| Facebook n (%) | 148 | 138 (93) | 146 (99) | 131 (88) | 7 (5) | 7 (5) | 27 (18) | 49 (33) | 58 (39) |
| Instagram n (%) | 95 | 77 (81) | 91 (96) | 77 (71) | 2 (2) | 1 (1) | 14 (15) | 21 (22) | 59 (62) |



Note: Posts can fall under multiple categories (hence numbers might not tally with total number of posts).

Fig. 1 Types of posts on dental clinic social media pages over a six-month period.

Table 4 Compliance of dental clinic social media posts and domains for non-compliance over a six-month period

| Platform | Pages | Posts | Compliant posts | Non-compliant posts | Domains (for non-compliant posts only) | | | | |
|--------------------|-------|-------|-----------------|---------------------|--|------------------------|-----------------------------|---|---------------------|
| | | | | | Draws undue attention | Unsubstantiated claims | Recommends specific product | Display of professional fees or tariffs | Soliciting patients |
| Facebook n (%) | 148 | 7,804 | 6,619 (85) | 1,185 (15) | 0 (0) | 130 (11) | 57 (5) | 276 (23) | 883 (75) |
| Instagram n (%) | 95 | 3,976 | 3,348 (84) | 628 (16) | 0 (0) | 53 (8) | 172 (27) | 92 (15) | 468 (75) |
| Total n (%) | 243 | 1,178 | 9,967 (85) | 1,813 (15) | 0 (0) | 183 (10) | 229 (13) | 368 (20) | 1,351 (75) |

DISCUSSION

Our study identified 243 active social media accounts and a total of 11,780 posts over the six-month study period, which shows that dentists are using social media platforms for marketing their private dental clinics in Malaysia, with Facebook being slightly more popular than Instagram. As of June 2023, a total of 3,697 private dental clinics were registered in Malaysia which indicates only a small portion of dental practices are using these platforms (MOH, 2023). Nevertheless, its use is expected to rise in the future. A survey by Affendi *et al.* (2020) showed that while only 20% of dentists in Malaysia were using social media for marketing their dental practice, almost 95% of the respondents agreed that its use would increase in the future, with 40% contemplating to implement it within their practice. Other countries such as US and Saudi Arabia have showed slightly higher use of social media marketing among dentists, with just under half of dentists claiming to use social media, especially Facebook for marketing their dental practice (Henry *et al.*, 2012; Bahabri & Zaidan, 2021). Some reasons that have been cited for not implementing social media marketing include time constraints, security concerns, patient confidentiality, and risks of breaching online professionalism (Affendi *et al.*, 2020).

Dentists are posting a variety of content on their social media such as advertisements, public announcements, service-related

information, and patient testimonials. All forms of content posted on social media accounts, however, are a form of marketing and have the potential to lead patients to the clinic's social media page, which has been shown to translate into increased number of new patients (Nelson *et al.*, 2015). The type of content posted has shown to influence the patient's perception of the quality of dental care to be expected. Before and after photos, images of the clinician teaching, and posts displaying clinic facilities and technology were shown to have a significant impact on the patients' perception of credibility and willingness to become a patient (Meira *et al.*, 2021). Hence to fully utilise social media as a successful marketing tool, care must be taken when deciding on content to be shared. Bahabri & Zaidan (2021) found most dentists in Saudi Arabia were posting before and after photos of their patients without consent as they believed the photos did not have any identifiable features. Obtaining consent, however, still does not guarantee the safety and privacy of patients especially considering the amount of personal information that is publicly shared online as one study found that 16.6% of medical blogs had sufficient information in them to make patients or their clinicians identifiable, thus putting their privacy and safety at risk (Lagu *et al.*, 2008). Furthermore, anything posted on social media can easily be copied and shared by other end users, making efforts to remove online material almost impossible once posted.

The five domains of non-compliance that were investigated in this study were drawing undue attention to the practitioner, making unsubstantiated claims, recommending specific products, displaying professional fees or tariffs outside the clinic premise, and soliciting patients. Despite only 16 cases of unethical advertising being reported to the MDC between 1997 and 2017, our study shows that many dentists are failing to comply with local guidelines (MDC, 2022c). Our research, like the work of others before, demonstrates that dentists' social media postings do not show strong alignment and compliance to professional regulator's guidance (Holden & Spallek, 2018; Donnell *et al.*, 2021). Although only 15% of overall posts in this study were non-compliant, more than half of the investigated social media accounts had one or more non-compliant posts on their platform. Regulatory bodies may be aware of incidences of unprofessional online behaviour but there is a lack of social media usage surveillance as it is labour intensive, requiring significant resources (Staud & Kearney, 2019). The dramatic surge in dental advertising in the past decade may have left many dental professionals finding themselves ill-equipped in handling this relatively new and continuously evolving trend, especially on social media. Promotional packages, cheap discounts, and complimentary gifts with limited time offers are being used to entice patients to seek treatment. Such posts, however, are considered as soliciting patients and is the most common cause for non-compliance in this study. Free consultations were also frequently offered but according to the GPPI Clause 3.3 and 3.5, free consultations can only be carried out by registered groups and organisations as part of an oral health programme (MDC, 2008b). Displaying tariffs on social media was the second highest offence recorded in this study and was often coupled with elements of solicitation. For example, "Braces for as low as RM3,999 with free consultation" or "Get your tooth whitened in time for Valentine's Day for as low as RM300". Since the conduct of this study, the new Dental Act 2018 was

implemented in Malaysia in January 2022, replacing the previous Dental Act 1971. With this, the CPC and the GPPI was updated and implemented in July 2022, which was after the completion of this study's data collection period (MDC, 2022a; 2022b). The updated guidelines now allow dental professionals to display tariffs on social media platforms, allowing patients to view and compare treatment to aid in their decision-making.

Dental professionals should remain neutral and avoid promoting or recommending specific products, as per MDC guidelines to ensure an open market and fair trade. The most common products recommended in this study were Damon brackets and Invisalign aligners. It is possible that these products have both become synonymous with self-ligating orthodontic brackets and clear aligners respectively, due to their pioneering presence within the market. But this puts other brands at a disadvantage. Roughly 10% of non-compliant posts used unsubstantiated claims to promote their services and products. For example, "Damon braces are faster than conventional braces" or "We offer painless treatment". Such statements are considered misleading and may lead patients into having unrealistic expectations. A study on dental practice Facebook pages in Australia reported the frequent use of before and after photographs of cosmetic dental treatments, which was similar to the present study (Holden & Spallek, 2018). It was argued that the photos were often not accompanied by any balanced information surrounding the efficacy, longevity or biological cost of such procedures, and this too could lead to unrealistic expectations by the patient, which is prohibited under Australian National Law. It is important for dental professionals to practice evidence-based dentistry, keeping up to date with the latest research and avoid being misled by unsubstantiated claims by suppliers. Evidence should be presented to patients in a clear manner, avoiding use of jargon or exaggerated claims. Nowadays there is a plethora of

unmonitored dental information on social media, thus the need for a dependable source of information is more important than ever. Dental professionals should be a reliable source of reference for the public and not add to the confusion. A recent study showed that majority of dental students also feel that guiding patients online is a new responsibility for dental professionals in the digital age. More emphasis should be placed on e-professionalism in the dental curricula in tandem with the increased use of social media (Mani *et al.*, 2023).

The dental profession enjoys a special position of trust and respect within society. To maintain this image, dental professionals must maintain a level of professionalism in their everyday conduct. During the six months period of this study, no posts were deemed to draw undue attention to the practitioner or display staff behaviour that may bring the profession into dispute. However, the panel agreed that this domain was subjective, and the panel were not always in agreement. Many videos were deemed compliant but were pushing the boundaries of professionalism. For instance, clinical personnel and dentists were observed engaging in dance routines or brief comedic performances within the clinical environment. Instagram had more of these posts as many clinics posted reels or short videos showcasing whimsical or humorous displays within their premise, following TikTok trends. The act of self-branding has gained popularity over the last decade with health professionals jumping onto the bandwagon of becoming content creators and influencers. Apart from informativeness and credibility, entertainment value has shown to have a positive influence on the consumer's perceived value of social media advertising and increases their online purchase intention (Van-Tien Dao *et al.*, 2014). Recent literature has highlighted the importance of introducing the concept of e-professionalism among dental students to better equip them on appropriate online behaviour upon graduating, and the need for specific national guidelines on social media

conduct by dental professionals (Neville & Waylen, 2015).

Limitations

One of the limitations of this study is that the framework for non-compliance was developed for the use of this study. Although some posts were categorised as non-compliant it does not reflect the decision of MDC as a preliminary investigation would need to be conducted prior to reaching to the conclusion of non-compliance. Although attempts were made to search for all dental clinics within Malaysia using various hashtags, many clinics could still have been missed if using non-conventional names. It is also important to acknowledge that this study is an assessment of current regulatory compliance. Marketing, especially social media marketing is rapidly evolving, and the regulatory framework dictating use of marketing in dentistry and healthcare more broadly may not always reflect contemporary social attitudes. Therefore, while an organisation or professional marketing activity might be deemed to be non-compliant, this does not necessarily reflect that a business or professional is acting unethically.

CONCLUSION

Social media presence of dental clinics in Malaysia is higher on Facebook compared to Instagram. Majority of dental clinics are posting advertisements but not all posts are compliant with guidelines set by the Malaysian Dental Council. Although only 15% of overall posts in this study were non-compliant, more than half of the investigated social media accounts had one or more non-compliant posts on their platform. Lapses of compliance with advertising regulations for dental practitioners lead to significant work for regulatory organisations, however, the implications of these lapses on public choice in healthcare decisions and their safety when consuming dental services is not well understood. Results from this study

highlights the need to strengthen awareness and understanding among dentists in Malaysia regarding the boundaries of online advertising on social media.

REFERENCES

- Affendi NHK, Hamid NFA, Razak MSA, Nudin III (2020). The pattern of social media marketing by dentist in Malaysia. *Malays Dent J*, **1**: 24–42.
- Bahabri RH, Zaidan AB (2021). The impact of social media on dental practice promotion and professionalism amongst general dental practitioners and specialists in KSA. *J Taibah Univ Med Sc*, **16**(3): 456–460. <https://doi.org/10.1016/j.jtumed.2020.12.017>
- Dental Act 1971. Laws of Malaysia. Attorney General's Chambers of Malaysia. Federal Gazette.
- Dental Act 2018. Laws of Malaysia. Attorney General's Chambers of Malaysia. Federal Gazette.
- Donnell CC, Woolley JJ, Worthington SW (2021). Advertising and facial aesthetics in primary care: How compliant are practice websites and social media with published guidance? *Br Dent J*, [Advance online publication]. <https://doi.org/10.1038/s41415-021-2718-4>
- Henry RK, Molnar A, Henry JC (2012). A survey of US dental practices' use of social media. *J Contemp Dent Pract*, **13**(2): 137–141. <https://doi.org/10.5005/jp-journals-10024-1109>
- Holden ACL, Nanayakkara S, Skinner J, Spallek H, Sohn W (2021). What do Australian health consumers believe about commercial advertisements and testimonials? A survey on health service advertising. *BMC Public Health*, **21**(1): 74. <https://doi.org/10.1186/s12889-020-10078-9>
- Holden ACL, Spallek H (2018). How compliant are dental practice Facebook pages with Australian health care advertising regulations? A netnographic review. *Aust Dent J*, **63**(1): 109–117. <https://doi.org/10.1111/adj.12571>
- Hörster S (2015). What do we know from consumers about dental advertising? A scoping study. *Int J Healthc Manag*, **8**(4): 217–231. <https://doi.org/10.1179/2047971915Y.0000000008>
- Lagu T, Kaufman EJ, Asch DA, Armstrong K (2008). Content of weblogs written by health professionals. *J Gen Intern Med*, **23**(10): 1642–1646. <https://doi.org/10.1007/s11606-008-0726-6>
- MDC (Malaysian Dental Council) (2008a). *Code of Professional Conduct*. Cyberjaya: Malaysian Dental Council.
- MDC (Malaysian Dental Council) (2008b). *Guidelines and Provisions for Public Information*. Cyberjaya: Malaysian Dental Council.
- MDC (Malaysian Dental Council) (2022a). *Code of Professional Conduct*. Cyberjaya: Malaysian Dental Council.
- MDC (Malaysian Dental Council) (2022b). *Guidelines and Provisions for Public Information*. Cyberjaya: Malaysian Dental Council.
- MDC (Malaysian Dental Council) (2022c). *MDC annual statistic*. Retrieved 2 April 2022, from <https://hq.moh.gov.my/ohp/mdc/statistic/mdc-annual-statistic.html>
- Mani SA, Uma E, John J, Nieminen P (2023). Perceptions of professional social media interaction with patients and faculty members – A comparative study among dental students from Malaysia and Finland. *BMC Med Educ*, **23**: 384. <https://doi.org/10.1186/s12909-023-04359-1>

- Meira TM, Prestes J, Gasparello GG, Antelo OM, Pithon MM, Tanaka OM (2021). The effects of images posted to social media by orthodontists on public perception of professional credibility and willingness to become a client. *Prog Orthod*, **22**(1): 7. <https://doi.org/10.1186/s40510-021-00353-9>
- MOH (Ministry of Health Malaysia) (2023). *Senarai klinik pergigian swasta*. Retrieved 16 August 2023, from <https://hq.moh.gov.my/medicalprac/statistik/>
- Nelson KL, Shroff B, Best AM, Lindauer SJ (2015). Orthodontic marketing through social media networks: The patient and practitioner's perspective. *Angle Orthod*, **85**(6): 1035–1041. <https://doi.org/10.2319/110714-797.1>
- Neville P, Waylen A (2015). Social media and dentistry: Some reflections on e-professionalism. *Br Dent J*, **218**(8): 475–478. <https://doi.org/10.1038/sj.bdj.2015.294>
- Staud SN, Kearney RC (2019). Social media use behaviors and state dental licensing boards. *J Dent Hyg*, **93**(3): 37–43.
- Van-Tien Dao W, Nhat Hanh Le A, Ming-Sung Cheng J, Chao Chen D (2014). Social media advertising value: The case of transitional economies in Southeast Asia. *Int J Advert*, **33**(2): 271–294. <https://doi.org/10.2501/IJA-33-2-271-294>