

# 'FAKE BRACES': A CONTENT ANALYSIS OF INSTAGRAM POSTS BY UNLICENSED PROVIDERS

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## **Abstract**

'Fake braces' is a term used to describe fixed orthodontic appliances that are fitted by unlicensed providers. This trend has raised public health concerns in certain countries with marketing typically undertaken on social media. We aimed to investigate the frequency and nature of Instagram posts by fake braces providers in Malaysia. Initial screening of Instagram accounts was performed using relevant hashtags (*#fakebraces*, *#cheapbraces*). Public Instagram accounts that fulfilled the inclusion criteria were assigned a code with posts evaluated over a one-month period. Data were coded and analysed using thematic analysis. Frequency distribution was calculated using Microsoft Excel. Thirty-eight Instagram accounts were analysed. There were 2,831 images/videos posted, receiving 7,165 likes with videos being viewed 21,918 times. The majority of posts were related to fake braces services (36.7%), followed by non-relevant posts (29.4%) and other services (14.5%). Services were provided mainly at home (44.7%) or offered both home and door-to-door services (23.7%). Although the posts on promotions were less frequent (5.4%), the displayed prices were low (RM150 to RM500), offering additional packages and discounts. Unlicensed providers have a variety of content to engage with social media audiences. Efforts should be made to increase public awareness, directing them towards reliable information about orthodontic services.

**Keywords:** Illegal Dentistry, Orthodontics, Social Media, Online Marketing

## **Introduction**

Illegal dentistry is a problem that is being faced across the globe and threatens the quality of dental care and safety of patients. In United Kingdom and Australia, tooth whitening has been offered by beauticians using illegally high concentrations of dangerous chemicals (1, 2). Do-It-Yourself home whitening kits have also been advertised and sold on online platforms such as eBay or Facebook (3). In some countries including Saudi Arabia (4), Brazil (5), Thailand, Philippines, Indonesia and Malaysia (6), fake braces have gained media attention and prompted public health concerns. Fake braces, or fashion braces is a term used to describe fixed orthodontic appliances that are fitted by unlicensed providers. Fake braces have gained traction for aesthetic and decorative purposes, while traditional orthodontics is focussed on therapeutic management of malocclusion (4).

Various measures have been taken to spread awareness of fake braces and curb illegal dentistry (7). This has led to a steady increase in official complaints reported by the public and victims of fake braces. Several cases have also successfully been brought to court, resulting in fines and indeed incarceration (7). However, there is a clear mismatch between the number of reported cases and cases that have successfully been prosecuted. For instance, only 12% of complaints of illegal dentistry in 2020 were successfully persecuted (7).

Social media marketing within healthcare is widespread because of the low cost, wide reach and ease of public access (8, 9). Instagram in particular, is more visual than other social networking sites such as Twitter and Facebook (10). Similar to other social media sites, Instagram allows free photo and video sharing, as well as liking and commenting as a medium of interaction. Instagram provides trendy features such as 'hashtags' (#)

for the convenience of indicating relevant photos or videos related to the products or services. By clicking on the hashtags, it allows Instagram users to view relevant posts, pictures or videos which have become a common trend among marketers. The hashtags can allow certain types of communities to emerge in relation to a particular issue or topic (8) including #fakebraces. In addition, Instagram has a feature of direct messaging that allows users to send messages privately to the receiver, as well as InstaStory that only stores photos or videos for 24 hours, which may be useful for certain types of services or businesses.

Unlicensed fake braces providers commonly use social media platforms to connect with potential target groups (6, 11). We therefore aimed to investigate the frequency and nature of Instagram posts by fake braces providers, and to analyse the content used by fake braces providers on Instagram.

### **Materials and methods**

The protocol of this study was approved by the Medical Research Ethics Committee Faculty of Dentistry with ethics reference number DFC01917/0086L. A content analysis method (4, 12-14) was used to analyse Instagram accounts of fake braces providers.

Convenience and purposive sampling were used to search for relevant Instagram accounts. Initial screening was performed by searching for accounts using relevant hashtags that were identified during a pilot study (e.g., #fakebraces, #bracesmurah). To view the account profiles, the authors created a new Instagram account. Only public Instagram accounts were accessed as this did not require the user to become a 'follower' or establish an online connection with the study sample. This allowed authors to analyse information that was readily available to the general public, including prospective customers. Instagram account selection was based on the following inclusion criteria; local and active accounts (based on frequency of posts in the last one month) that were clearly offering installation/fitting of fake braces, and posts were either in Malay or English language. Private profiles or accounts were excluded, as only a limited amount of information was available without 'following' the account. Accounts that solely sold fake braces materials (i.e., wires, brackets etc) without installation or treatment, and sponsored advertisements were also excluded from the analysis.

Each active Instagram account fulfilling the inclusion criteria was assigned a code with data from associated posts and stories extracted for a one-month period over two-time frames: before (9<sup>th</sup> October to 8<sup>th</sup> November 2019) and during (1<sup>st</sup> June to 30<sup>th</sup> June 2020) the COVID-19 pandemic. A screenshot of each post was taken for analysis. Two investigators (MH, NAM) were involved in data extraction and transferred this to an Excel coding

spreadsheet. Investigators received training on the use of a coding scheme, and later independently coded 20 posts. Extraction was piloted on five accounts to ensure consistency and reliability of the information extracted. All the extracted information by the first two independent investigators was verified by a third investigator (NA) who was not involved in the initial data collection. Any disagreement concerning the extracted information was resolved through discussion. All data were analysed descriptively using Microsoft Excel. Three layers of coding were used for each post (13). Initially, the post was coded based on the type of post (e.g., video, image, text). Thereafter, the attributes of content in the post were coded. Finally, overall themes were coded (e.g., promotion, procedural, testimonial).

### **Results**

Out of 105 accounts identified from the initial screening, 38 accounts met the inclusion criteria and were analyzed (Table 1). The number of followers ranged from 115 to over 25,000. The oldest account, based on the date of the earliest post was from March 2017 (IG 12). Three accounts changed to a different name at the end of the study period. In total, there were 101,294 followers and 19,370 posts based on the 38 Instagram accounts included in this study. In total, the posts received 7,165 likes and the videos posted on these accounts were viewed 21,918 times. The comments section, however, were often disabled and there was little direct interaction with the providers publicly. The maximum number of likes was 1,399 and the most watched video had 6,026 views. Based on the type of posts, some providers preferred to use Insta-Story posts rather than direct feed posts for videos/photos on their main page. This was evident as a higher number of posts were obtained from Insta-Story (n = 1,933) compared to direct feed posts (n = 899).

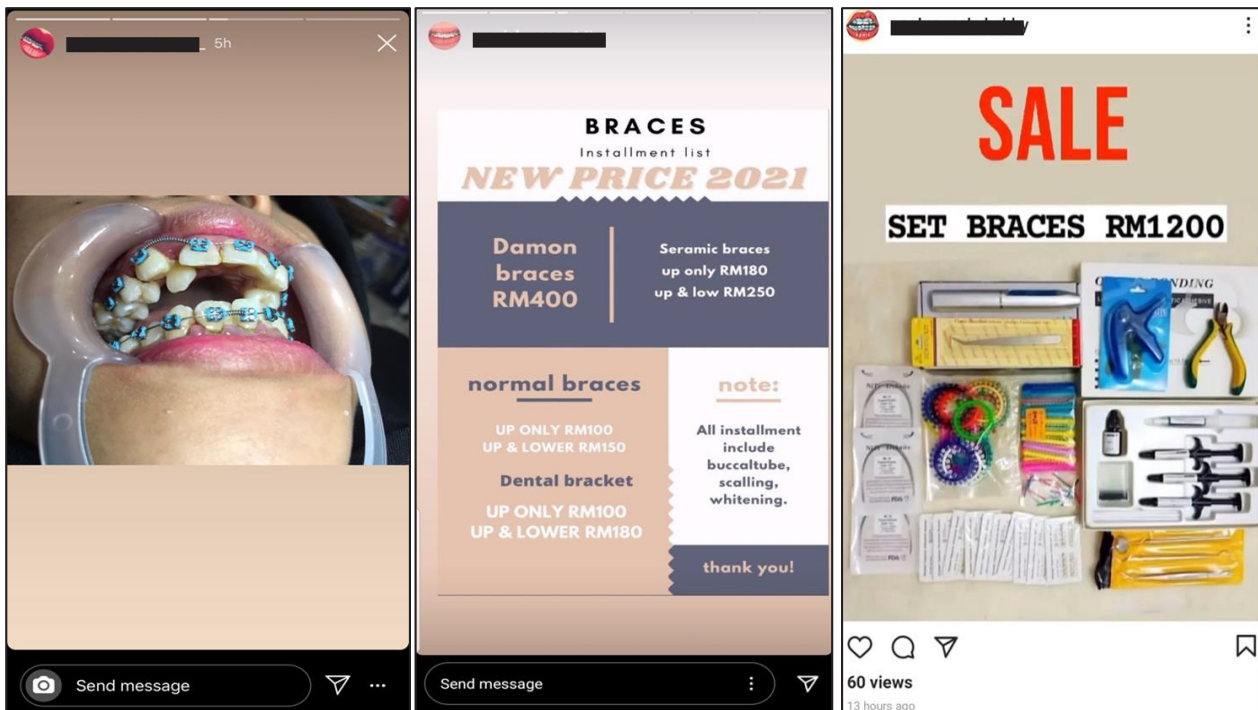
The frequency of total posts over a one-month period were divided into eight themes (Table 2). The providers mostly shared posts related to their fake-braces related services (36.7%) such as location of the service, next available appointment slot, and service availability. In addition, they also shared other posts not relevant to their services such as their own personal photos, daily life activities, random images and videos. The other commonly shared posts were related to other services provided by them, either dental (i.e., whitening or veneers) or non-dental related such as beauty products, Vitamin drips, piercing and eyelash extension. Advice to users on toothbrushing, maintenance of braces, case selection and promotion of their services was also prevalent. A small number of customer testimonials (1.3%) and photos or videos related to treatment or dental procedures (2.2%) were also presented (Figure 1).

**Table 1:** The distribution of fake braces Instagram account and users' reaction to Instagram posts

| Account code | No. of followers | No. of posts | Insta-Story | Video/Photo | Insta-Highlight | No. of likes | No. of views | Comments |
|--------------|------------------|--------------|-------------|-------------|-----------------|--------------|--------------|----------|
| IG1          | 25.1K            | 1775         | 448         | 19          | 105             | 249          | 3555         | na       |
| IG2          | 6665             | 435          | 92          | 13          | 10              | 303          | 2568         | 1        |
| IG3          | 1507             | 52           | 2           | 1           | 5               | 14           | na           | na       |
| IG4          | 4415             | 379          | 327         | 25          | 11              | 37           | 62           | 2        |
| IG5          | 1870             | 285          | 72          | 9           | 18              | 47           | 1312         | na       |
| IG6          | 984              | 219          | 30          | 13          | 3               | 26           | 266          | na       |
| IG7          | 1596             | 607          | 27          | 7           | 11              | 53           | na           | na       |
| IG8          | 1541             | 952          | 0           | 0           | 11              | na           | na           | na       |
| IG9          | 1247             | 815          | 3           | 37          | 2               | 32           | na           | na       |
| IG10         | 2264             | 82           | 15          | 2           | 4               | 24           | 78           | na       |
| IG11         | 5300             | 216          | 43          | 0           | 4               | na           | na           | na       |
| IG12         | 2067             | 1842         | 65          | 15          | 12              | 99           | 1430         | na       |
| IG13         | 2541             | 316          | 47          | 25          | 5               | 571          | na           | na       |
| IG14         | 1320             | 172          | 78          | 8           | 7               | 57           | na           | na       |
| IG15         | 1677             | 798          | 75          | 372         | 40              | 1168         | 4224         | na       |
| IG16         | 2197             | 213          | 22          | 9           | 4               | 52           | 247          | na       |
| IG17         | 2650             | 617          | 0           | 0           | 0               | na           | na           | na       |
| IG18         | 7087             | 220          | 0           | 0           | 0               | na           | na           | na       |
| IG19         | 1319             | 188          | 1           | 1           | 31              | 6            | na           | na       |
| IG20         | 2157             | 409          | 0           | 0           | 0               | 0            | na           | na       |
| IG21         | 2833             | 110          | 0           | 20          | 0               | 44           | na           | na       |
| IG22         | 1469             | 77           | 79          | 0           | 2               | 10           | 140          | na       |
| IG23         | 9688             | 1115         | 156         | 51          | 26              | 820          | 6026         | na       |
| IG24         | 20.5K            | 3144         | 259         | 40          | 69              | 1399         | 1271         | 14       |
| IG25         | 2797             | 805          | 0           | 29          | 1               | 759          | na           | 6        |
| IG26         | 4115             | 943          | 20          | 0           | 14              | na           | na           | na       |
| IG27         | 3143             | 281          | 2           | 1           | 4               | 1            | na           | na       |
| IG28         | 1679             | 402          | 0           | 0           | 0               | na           | na           | na       |
| IG29         | 376              | 315          | 6           | 20          | 8               | 229          | na           | 2        |
| IG30         | 2212             | 165          | 11          | 23          | 10              | 331          | na           | 1        |
| IG31         | 505              | 194          | 0           | 6           | 4               | 25           | na           | na       |
| IG32         | 2190             | 415          | 6           | 25          | 9               | 53           | 343          | na       |
| IG33         | 5009             | 184          | 5           | 5           | 5               | 55           | na           | 2        |
| IG34         | 6123             | 256          | 16          | 9           | 10              | 188          | na           | na       |
| IG35         | 4050             | 123          | 14          | 11          | 4               | 55           | na           | na       |
| IG36         | 115              | 301          | 7           | 43          | 20              | 63           | 396          | 1        |
| IG37         | 4340             | 246          | 1           | 28          | 1               | 185          | na           | na       |
| IG38         | 246              | 111          | 4           | 32          | 1               | 210          | na           | na       |
| TOTAL        | 101, 294         | 19, 370      | 1933        | 899         | 471             | 7165         | 21, 918      | 29       |

**Table 2:** Frequency distribution of type of Instagram posts in a month

| Type of post   | Total post/month (n) | %    |
|--|----------------------|------|
| Fake braces service-related post (i.e., location, date for service, operation time)    | 1038                 | 36.7 |
| Not relevant (i.e., personal life)   | 833                  | 29.4 |
| Other services provided (e.g., whitening, veneers, scaling, beauty products, piercing) | 151                  | 14.5 |
| Information/advice to users  | 340                  | 12.0 |
| Pre and post photo braces procedural   | 217                  | 7.7  |
| Promotion  | 153                  | 5.4  |
| Treatment/dental procedural  | 61                   | 2.2  |
| Patient testimonial  | 38                   | 1.3  |
| TOTAL  | 2831                 | 100% |



**Figure 1:** Example of posts related to fake brace placement and promotional packages by the unlicensed providers.

Based on the data extracted from the Instagram accounts, the price varied according to the types of services and type of bracket (Table 3). Placement of single-arch braces ranged from RM50 to RM180, with two-arch braces priced at RM150 to RM500. Users were given the options to opt for “high quality packages” such as Damon and Ceramic brackets. They also offered added value packages such as (fake braces + whitening) or (fake braces + scaling ranging) from RM400 up to RM850. Some also provided braces removal and maintenance costing from RM40 to RM70 per visit. Other orthodontic materials such as molar bands, power chain, buccal tubes, and individual brackets were sold individually for potential customers.

**Table 3:** Price range according to service/material provided by illegal providers on Instagram

| Material/ service provided  | Price range (RM) |
|---|------------------|
| Upper arch braces installation  | 50 to 180        |
| Lower arch braces installation  | 80 to 150        |
| Complete package fake braces installation (Upper and lower arches)                            | 150 to 500       |
| Complete fake braces installation with added value package (i.e., whitening package, scaling) | 400 to 850       |

**Table 3:** Price range according to service/material provided by illegal providers on Instagram (continued)

| Material/ service provided                     | Price range (RM) |
|--|------------------|
| Braces/bracket removal and maintenance service | 40 to 70         |
| Molar band                                     | 45               |
| Damon brackets                                 | 300 to 550       |
| Ceramic brackets                               | 200 to 350       |
| Molar band                                     | 45               |
| Buccal tube                                    | 20 to 50         |
| Power chain                                    | 40 to 60         |
| O-rings/elastomeric modules                    | 25 to 55         |
| Clip braces                                    | 20 to 40         |
| Individual bracket                             | 10 to 15         |

The location of services covered by these illegal providers were scattered across Malaysia but mainly concentrated in the capital city of Kuala Lumpur and Selangor. Most provided braces via home services (Table 4). About 23.7% provided both home and door-to-door services. Of those with combined services, one provider also offered "in-car services". A small proportion did not disclose information on the whereabouts of the services. Apart from fake braces, these illegal providers also offered other dental services such as tooth whitening (39.5%), veneers (21.1%), diamond teeth accessories (15.8%), scaling (14.3%) and dental restorations (5.3%). Although fake braces fitting was offered, only 13.2% offered removal of appliances.

**Table 4:** Types of service and location of coverage by the illegal providers

| Services and location                  | n  | %    |
|--|----|------|
| <b>Service type</b>                    |    |      |
| Home service only                      | 17 | 44.7 |
| Door to door only                      | 6  | 15.8 |
| Home + Door to door service            | 9  | 23.7 |
| No specific information disclosed      | 6  | 15.8 |
| <b>Other dental services*</b>          |    |      |
| Tooth whitening                        | 15 | 39.5 |
| Scaling                                | 5  | 14.3 |
| Diamond tooth                          | 6  | 15.8 |
| Veneer                                 | 8  | 21.1 |
| Dental restoration                     | 2  | 5.3  |
| Braces removal (debond)                | 5  | 13.2 |
| Selling braces and tooth whitening kit | 2  | 5.3  |

\*Percentage does not equal to 100 percent due to multiple services offered by the same providers

Another notable finding was that the majority of the posts came with a disclaimer, with the provider admitting to not being a qualified dentist. For instance, one such post claimed:

*"We operate from home, we are not dentists and are not from a clinic. Are there any side effects? Is it safe? So far, our customers have been okay, with no problems. It depends on the customers. If you are paranoid, then it is not safe for you. Of course, you will start imagining all sorts of stuff. But whatever it is, it depends on the customer. If you want to wear it, you can. If you don't want to, then you do not need to. Thank you for reading."*

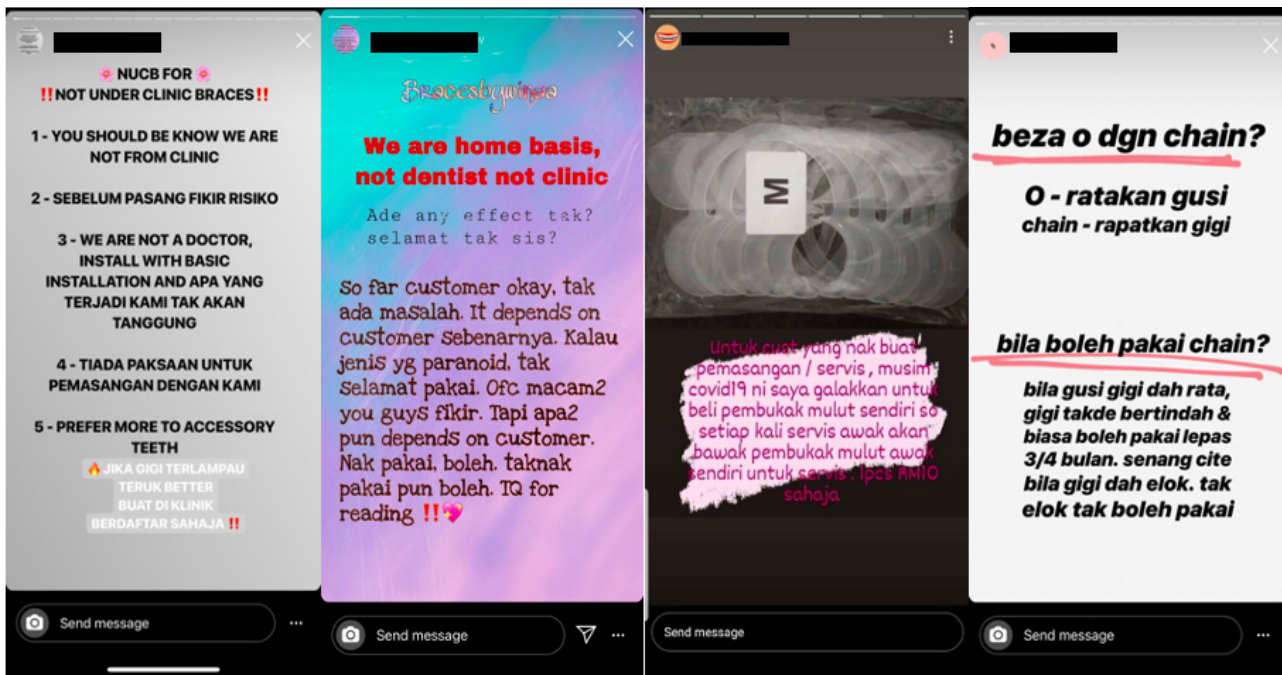
This distinction was used to differentiate their services and underpin the lower prices. Any complications were often blamed on the patient as opposed to any wrong doings by the provider. Example of posts are shown in Figure 2. A small number of posts concerning oral health education were identified. Much of this was inaccurate, while some had images that were shared from other dental websites. During the COVID-19 pandemic period, fake braces activities appeared to be operational despite the mandatory movement control order. Some providers also posted additional safety measures by suggesting customers to buy their own check retractors to mitigate risk. Moreover, posts related to revenue generation such as offering commission to customers who brought in other customers emerged. For example, one post stated:

*"Open slot for dropship service, easy job. You need to bring in customers for braces installation/ services. Payment details can be obtained via WhatsApp (click link in bio). Profit margin between RM6 to RM21 per customer. WhatsApp me now" [love emoji].*

## Discussion

Based on this cross-sectional study, fake braces continue to be actively promoted on Instagram despite crackdowns by local dental enforcement officers. Other illegal dental treatment such as veneers and tooth whitening are also being promoted on social media. A study by Rani et al revealed that orthodontic treatment is the most common, with 176 active accounts selling and providing fake braces on Instagram and Facebook, with approximately 249,000 and 17,309 followers respectively (11).

It is not surprising that social media is being used as a marketing platform for fake braces. With more than 86% of the population being active social media users, online marketing is increasingly established and related regulation is known to be limited (15). Studies have shown that the public often use social media, especially Facebook and Instagram to search for health-related information and services (16, 17). It is therefore likely that the public may purposely seek out fake braces services or unknowingly stumble upon these services while browsing through social



**Figure 2:** Example of posts (in mixed languages) showing customer manipulation and oral hygiene advice by the unlicensed providers.

media. It is not uncommon for social media platforms such as Instagram to use algorithms to tailor posts on the user's feed. Constant exposure of similar images may have the potential to condition consumers to have heightened interest towards the product. Similarly, viewers may be influenced by family and friends or other social media users who like or follow particular social media accounts.

The Instagram accounts investigated in this study show that fake braces providers are very bold as they openly promote their services online through a number of hashtags such as *#bracesmurah* and *#fakebraces*. Post content varied but mainly focused on services provided. Their content mimicked business marketing strategies that are often seen on social media such as the offer of promotions, text manipulation and the use of attractive images/videos. One such strategy, which was not captured in our study is the use of celebrity endorsements. Recently according to a local newspaper, a celebrity was under fire for endorsing fake veneers on her social media account, causing negative media attention (18). Based on our study, fake braces providers commonly share a glimpse into their personal lives by sharing images and videos of their daily activities. This marketing strategy is akin to social media influencers. It has been proposed that social presence and para-social interactions are key predictors of successful influencer marketing as social presence can help to build trust with the audience-as posts are perceived as more sincere (19).

Ironically, the popularity of fake braces may partially emanate from the popularity of conventional orthodontics. An intention to seek orthodontic treatment regardless of perceived need is now common (20). This may relate to repeated exposure to heavily filtered images showing

the ideal body or smile on social media (21). The types of images seen on social media has been shown to impact on smile satisfaction, regardless of time spent browsing through the images (21). Consequently, the juxtaposition of fake braces with images of conventional orthodontic treatment on social media may lead to both added exposure and more targeted marketing of face braces to susceptible interested parties.

Lower family income and low perceived susceptibility to risks have been shown to be risk factors to succumbing to fake braces (4). The cost of services was a fraction of costs quoted by legal practitioners with further reductions offered with promotions and value-added purchases. Cheap orthodontic materials are widely available on e-commerce platforms, with products almost universally not registered with local regulatory bodies (22). Various complications such as caries, gum disease, allergic reactions, unwanted tooth movements and even death, have been linked to fake braces (6).

Promotional posts typically depicted brightly coloured elastomeric ligatures and power chains, with some ligatures shaped as flowers to further increase their appeal to the fashion-conscious customer. Some of the posts, however, were misleading and proved to manipulate potential customers. For instance, lack of dental qualification was not seen as a negative factor but instead was used by the providers to justify lower prices. Educational posts regarding braces treatment and care were identified. These have been shown to positively influence potential patients as the fake braces provider is perceived as caring and concerned (23). Interestingly, only 20% of dentists in Malaysia use social media for marketing purposes (24). This

reticence is related to the restrictions on advertising placed on dental professionals under the Code of Professional Conduct (25). Hence, a sufficient amount of reliable dental health-related information to counterbalance the information produced by unregulated sources may not be present.

Despite the increased awareness of fake braces, there seems to be misinformation regarding the impact of fake braces on oral health. The majority of Saudi Arabians for example, perceived themselves to be at low risk of developing complications or accelerated dental disease with fake braces (4). Similarly, in a previous Malaysian study, only 35% were aware of the potential hazards of fake braces (26).-

In terms of limitations, the content analysis was restricted to Instagram. The small sample size was restricted to one month of Instagram activities in Malaysia and may not be representative of international experience. Similar studies can be replicated elsewhere using country-specific popular hashtags. Further research may be carried out over a longer period of time to capture a broader range of content.

### Conclusions

Unlicensed providers have a variety of visual and written content to engage with social media audiences. Their social media content mainly focuses on fake braces service information, their personal life, other dental/beauty product services and advice to users. Content related to patient testimonials were the least posted on their social media accounts. Types of services offered varied from home service to door-to-door service, with cheap prices coupled with attractive packages. Efforts should be made to increase public awareness of the limitations and risks of fake braces, directing vulnerable individuals to reliable information about orthodontic services.

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### Competing interests

The authors declare that they have no competing interests.

### Ethical Clearance

We obtained approval from the Medical Research Ethics Committee, Faculty of Dentistry, Universiti Malaya (DFC01917/0086L) for the conduct of this study.

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