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The Dangers of Social Media and Young Dental Patients' Body Image

Abstract: New media poses new dangers for many younger dental patients and, in particular, to their body image. There is now a generation of younger dental patients that have grown up entirely in the digital era where social media is just part of their normal life. Most of the images they are exposed to have some benefits, but others can pose significant risks for them. For instance, images are readily available to them of the supposed 'ideal' dental or facial appearance and sometimes accompanied by some alleged 'quick fix' to achieve dental or facial improvement. There are potential dangers of being exposed persistently to such highly idealized images in that many adolescents perceive that their happiness is largely dependent on achieving these artificially enhanced versions of alleged dental or facial beauty. There are dangers in some impressionable young people seeking elective interventions to improve their appearance in various ways which can have longer term mental or physical health consequences. Dentists need to be aware of these important issues in order to help younger people avoid various dangers and to help to safeguard their longer term dental and emotional health.

This article aims to provide professionals in various fields with recommendations on advising young patients about some of the dangers of spurious claims about 'do-it-yourself' dentistry or facial aesthetics, as well as helping them avoid destructive or unstable treatments, especially those of the 'quick fix' variety. Caution is advised in relation to dentists and young patients not believing unproven claims for some treatments.

CPD/Clinical Relevance: It is important to challenge unrealistic aspirations of some adolescents about their appearance early on, in order to help to manage those expectations more sensibly and thereby avoid later disappointment, complaints or litigation.

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Many younger people now regard their smile as a fashion statement. To possess the currently fashionable very white, even smile, many young people have had, or aspire to have, some 'cosmetic' dentistry done to achieve their preferred dental

appearance.

The influences driving such desires are probably many and varied but may be partly related to new media in its various manifestations. Teenagers are bombarded with images in various media about supposed 'beauty' and how this can be achieved in different ways, including dentistry and various facial aesthetic procedures. Some of these images are carefully concealed, commercially driven advertorials for treatment promising instant gratification, but they often fail to draw adequate attention to the inherent dangers for someone's longer term facial or dental health.

Some questions that need to be addressed include:

- 'What are the likely effects of social media in increasing pressure on

adolescents to look beautiful and/or to have a fashionable smile?;

- 'How do these pressures affect their self-confidence and mental health?;

- 'Can failure to be 'liked' or not considered 'beautiful' lead to anxiety or depression, particularly in some vulnerable young patients?'

Interestingly, there is, as yet, little convincing research published which has evaluated the wider or longer term negative impacts of social media on younger people. The aim of this article is to consider how social media influences body image concerns, with particular reference to paediatric dentistry. It will assess how social media might well have negative consequences for some vulnerable individuals, as well as for the dental profession and for society at large.

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Figure 1. Catastrophic tooth surface loss caused by bulimia in a patient trying to control his body size. Note the 'enamel ring of confidence' around the periphery of these eroded teeth.

Social media statistics

Over the past couple of years, 'fourth-screen' technology (meaning a small portable video screen such as on a mobile phone) has changed the way young people communicate with each other. Photo and video-sharing applications such as Snapchat and Instagram exist almost entirely on mobile devices, most of which can fit easily in the palm of the hand and can be accessed at any time of the day or night.

Mobile-based social media has allowed many people to use and combine various services to build a comprehensive, digital identity. As of mid-2016, the most actively used social networking platforms, apart from text (SMS) messaging applications, are Facebook, Tumblr and Instagram.¹

Data from Greenwood *et al* showed that 83% of women and 75% of men use Facebook in the USA, while 38% of women and 26% of men use Instagram.¹

It appears that 88% of 18–29 year-olds use Facebook, whereas 59% of the same age group use Instagram. It seems that much younger audiences may have moved to private messaging apps.¹ These percentages slowly decrease in the higher age groups up to those aged 65 and over, where 62% use Facebook but only 8% use Instagram.¹

In the UK, a similar pattern can be seen, with the gap for Facebook users between the age ranges having reduced to 4% between those users aged 55+ and those aged 15–24 years.²

'Perfect Teeth'	'Perfect Lips'
How to get...	How to get...
Veneers	Lip augmentation
White	Lip shape/size
Braces	Lip colour

Table 1. Phrases and words linked to search terms 'Perfect Teeth' and 'Perfect Lips'.

Social media and body image problems

Adolescence is a time of increased vulnerability in relation to anxiety, low self-esteem and depression.^{3,4} Studies have shown that adolescents who spend more time online and using social media sites tend to have increased levels of anxiety and depression.^{5,6} Concerns about their body image might be one related factor amongst others, such as poor sleep quality and low levels of physical activity.

Ferguson *et al* reported that, although social media did not appear to have direct effects on body image related outcomes, the negative aspects of social comparison were found to be more focused on peers, rather than being directly affected by television or social media exposure.⁷

One systematic review found that social networking sites are associated with increased body dissatisfaction and disordered eating across genders.⁸ One way of controlling body shape is with vomiting/bulimia. The consequence of young patients who are anxious to control their body shape and weight by bulimia can be devastating for teeth because hydrochloric acid from the stomach has a pH of 1 and teeth dissolve below a pH of 5.5 (Figure 1).

Bearing in mind that engagement in photo-based activities on Facebook is sometimes related to a desire to control body shape, further research should be undertaken into *image-based* social networking sites, such as Instagram or Snapchat.

It is recognized that it is difficult to limit exposure to social networking sites, but greater education

in the consequences of social media use *and abuse* might be effective in limiting the negative aspects of its usage.

Social media usage and dental viral trends

When used responsibly, new media in various forms can lead to exciting opportunities. In relation to dentistry, it has been suggested that social media could be a key tool for enhancing the effectiveness of good dental health messages.⁹

There appear to be benefits in regards to other aspects of healthcare, from virtual consultations to employing virtual reality approaches to treat anxiety and post-traumatic stress disorder, as well as other mental health conditions.

However, social media can also be dangerous and sometimes has disastrous personal and legal consequences. It is now so quick and easy for young people to access both good as well as dangerous content, that it can be difficult for parents/guardians to monitor the young person's real usage, owing to its availability being 24/7 in nature, and to control or to discuss everything that children or adolescents might see, or have seen.

At some point, whether consciously or subconsciously, many young people will compare themselves to someone they may see somewhere on social media – be that comparing physical appearance, financial status or sense of style. However, those comparisons can be deceiving, with filters and photo editing applications being used to achieve the desired 'perfect' image. For most adolescents that comparison will be benign and transient. However, for others it has the potential to be deeply upsetting and to provoke an unhealthy desire to pursue some speculative treatment to correct a perceived dental or facial problem,

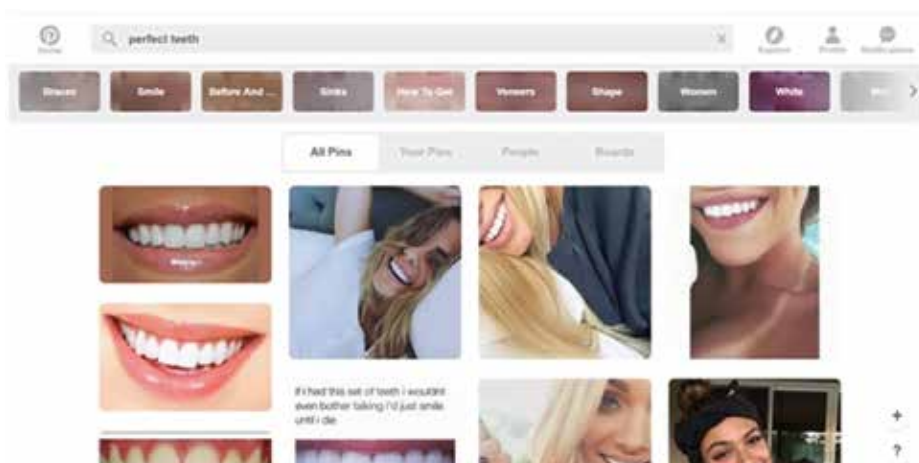


Figure 2. Results of Pinterest search for 'Perfect Teeth'.

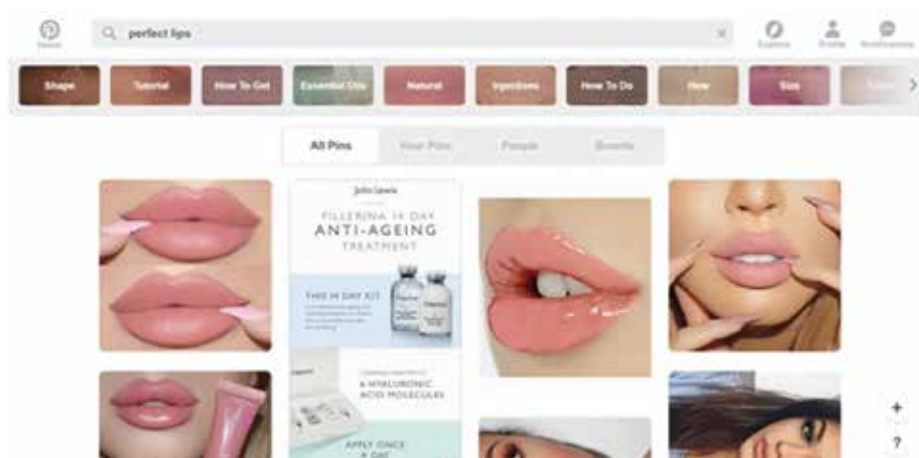


Figure 3. Results of Pinterest search for 'Perfect Lips'.

regardless of the feasibility, desirability, stability, or other consequences of these elective interventions for their longer term oral, physical or mental health.

Search terms used in relation to dental and facial appearance

If one enters the following terms into the Pinterest search engine, several phrases appear to be linked to them (Table 1).

It is clear from this simple search alone that the current perceived desires are most often for whiter teeth and fuller lips (Figures 2 and 3).

Facial augmentation

Strange ideas to achieve the

perfect smile have been posted online and 'gone viral' (ie been widely re-circulated and therefore seen by very many people) and these may well have significant oral health implications. For instance, in 2015 fans of the then 17-year-old Kylie Jenner, who had lip fillers placed, invented the Kylie Jenner Lip Challenge. That challenge involved placing a shot glass over the lips to create negative pressure by suctioning. This causes vessel engorgement, initiating an inflammatory reaction to achieve the end result of lip swelling. Although temporary, if done long enough and often enough, it could lead to longer term soft tissue damage – images and videos of which can be found online on platforms such as Twitter and YouTube. Thankfully, the popularity of this 'challenge' has reduced

but the trend for plumper lips remains.

Over the last 5 years, non-surgical cosmetic interventions have gradually become normalized. As treatment has become more readily available and acceptable, it remains important to remember the work of Napoleon, which showed that there was a high degree of recognisable mental illness in patients presenting for plastic surgery.¹⁰ About 25% were narcissistic but there were also significant numbers with obsessive/compulsive disorders, paranoia and other types of recognizable mental illness. One could envisage these facial augmentation treatments being undertaken in young patients with under-diagnosed mental health concerns, with significant longer term health and/or legal consequences.

Currently, there is legislation in place to attempt to regulate the provision of non-surgical facial aesthetic procedures and there have been steps taken to clamp down on interventions. The Department of Health's *Regulation of Cosmetic Interventions: Research Among Teenage Girls* (2013) found that media is consumed by teenage girls in a similar way to that of young adults. One of the conclusions reached was to control airtime allowed for cosmetic procedure advertisements, both on television and radio.¹¹

However, the internet is virtually unregulated and that is where a lot of young people can be exposed to uncontrolled and possibly dangerous misinformation which can easily lead them in to trouble.

The *Review of the Regulation on Cosmetic Interventions* (2013) recommended a register for those performing cosmetic interventions, classifying dermal fillers as prescription only medical advice, in order to try to ensure that any practitioners should be properly qualified. It proposed a ban on inducements to have treatment by, for example, special financial offers.¹² In 2016, the Royal College of Surgeons in England stated that only licensed doctors, registered dentists and nurses should provide cosmetic treatments.¹³

Orthodontics

There have been various trends on the internet related to straightening teeth including 'Do It Yourself (DIY) Braces'.

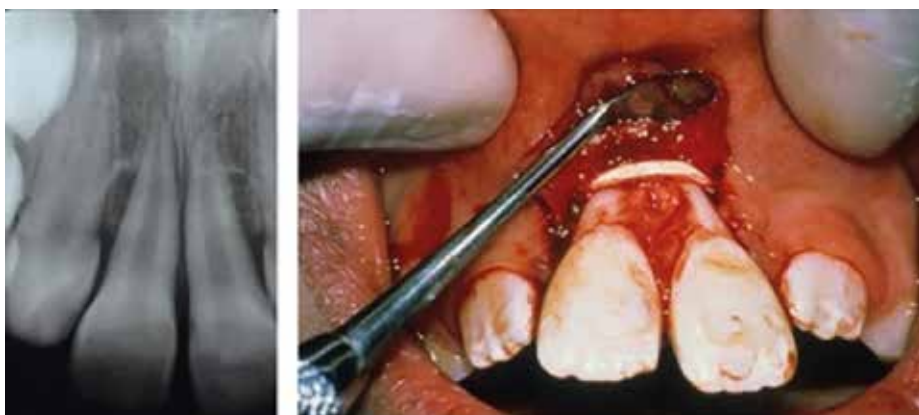


Figure 4. Periodontal disease caused by elastic bands.¹⁴



Figure 5. Intra-oral view of DIY aligners not fitting well on the mandibular arch.¹⁵

One 'DIY Braces' procedure was shown in 2012 using elastic bands with a tutorial on how to do this by a Youtuber (singerforeverlove) which appeared to have closed her large midline diastema over 44 days using an elastic band around her front two teeth. The risks which were not mentioned in that online supposed tutorial include instability of those teeth, mobility of the teeth, as well as periodontal disease (Figure 4).

Instead of elastic bands, patients may buy into newer entrants to the market including, direct-to-the-consumer DIY orthodontics, 'Straight Teeth Direct' and 'Your Smile Direct', which suggest omitting even consulting or seeing any registered dentist, let alone having a detailed assessment by a GDC accredited orthodontist. As this advertising increases on the internet, in particular, where do the responsibilities of the Advertising Standards Authority or Consumer Rights Act 2015, or the dental profession as a whole fit in with these worrying developments?

In one system, scarcely informed patients, or 'consumers', are encouraged to upload their photographs

and, if deemed suitable for that particular brand of alignment system, are then sent material to take their own impressions. These are returned and are subsequently scanned. A computer designs the aligners and consumers then receive clear aligner trays to undergo this computer-generated treatment plan (Figure 5). However, patient expectations of the outcomes of treatment do not appear to get analysed in any robust way before providing them with such treatment. There are no radiographs taken first of all, for the assessment of bone support, root length or periapical status, nor is any clinical examination carried out to assess them for gingival biotype or health over already prominent crooked teeth. Some of these internet sites offering such treatments may very well be off-shore and they may not be subject to consumer protection legislation or perhaps the regulations of the General Dental Council (GDC).

One can speculate about the question of duty of care and where this might lie in these cases. Young 'consumers' of such internet advertised services may not be warned adequately of later complications but there may well be some sort of disclaimer in the small print, which may or may not have been understood by the young person at that time. If something appears too good to be true, there is usually a good reason for it. The risks of elective orthodontics include complications such as gingival recession, root resorption and relapse.¹⁶ Risks seem to be higher with more complex cases and these may not always be identified initially by less experienced clinicians, let alone by young dental patients. In spite of spurious

claims for the retention being 'permanent', relapse can and does occur and, when this happens, this can produce understandable unhappiness in affected patients.^{16,17}

In 2013, the Philippines Dental Association gave notice to the general public not to use DIY dental products owing to the health hazards. The British Dental Association might wish to consider taking similar action too.

Dental bleaching

Kershaw *et al* found that artificially whitened teeth elicited preferable judgements about peoples' personal characteristics when they were compared to those with average coloured teeth.¹⁸ Night guard vital bleaching is safe when undertaken by trained dental professionals, but there are age and concentration restrictions under European Law as the bleaching products involved are currently covered by the EC Cosmetics Directive. The lack of availability to these safe and proven methods of bleaching for those under 18 can influence young people, who believe that their teeth are not white enough, to consider alternative routes to getting lighter coloured teeth. Kelleher explored the ethical, safety and legal issues in bleaching discoloured teeth in younger patients.¹⁹ The EC Cosmetics Directive regulations on bleaching in the UK restrict the concentration of bleaching products to under 6% hydrogen peroxide and then only in those over 18. As a result, some adolescents have taken to using other products, such as self-applied Whitestrips which are readily available on the internet.¹⁹

Other forms of DIY tooth whitening methods have gone viral, including using concoctions made of baking soda and fresh lemon juice. Lemon is well known to be very erosive and is dangerous for the structure of enamel. Interestingly, Colgate recommends a DIY tooth whitening regimen with either hydrogen peroxide and baking soda (which is rather akin to micro-abrasion) or using apple cider vinegar and baking soda (essentially accelerated acid erosion).²⁰ Despite the casual warnings in the small print about the breakdown of enamel with prolonged use, when a usually reputable toothpaste manufacturer recommends these unscientific methods, it is easy to see



Figure 6. (a) A patient presented with relapse of orthodontic treatment even when undertaken over a course of 3 years. **(b)** The spacing was camouflaged using composite bonding.

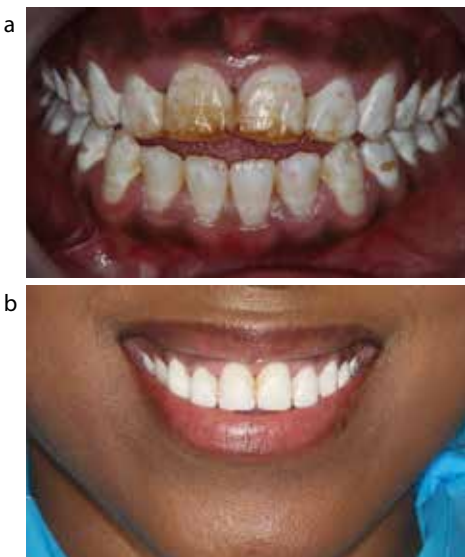


Figure 7. (a) This young patient had been refused dental bleaching for her fluorosis as she was below the age of 18 years. **(b)** This is the same patient following prolonged night guard vital bleaching with 10% carbamide peroxide and non-destructive direct composite bonding to close her anterior open bite.

why patients would then not wish to see a dentist for a proven, safer, more effective, but more expensive approach using an ADA approved technique with 10% carbamide peroxide within customized mouthguards.¹⁹

Another problem with DIY tooth whitening is that there are dangers in young patients attempting to self-diagnose the causes of their possibly discoloured teeth. There are, of course, several causes for discoloured teeth, including caries which, if not treated appropriately, can continue to progress to pulpal death with all the known unfortunate consequences for patients.

The bleaching product is not the only issue. In a recent article by Omran, the dangers of DIY tooth whitening were highlighted when a 14-year-old female patient needed to have her DIY whitening tray removed under general anaesthetic as it remained *in situ* once she had placed the 'boil and bite' thermoplastic material over her fixed appliances to create her own whitening tray.²¹

The EC Cosmetics Directive legislation does not appear to be universally accepted outside of the dental profession, with beauticians being seen regularly in shopping malls and advertising various 'whitening' products in their beauty parlours, with most of these promising rapid results. Most young patients remain unaware that these salons are providing ineffective and illegal treatments but, owing to the advertising on the internet, some are attracted by the idea of a 'quick fix' at a low cost. There is no scientific basis for this illegal activity, much of which involves using unproven or unregulated products of varying concentrations. Gingival burns can occur due to the high concentration of the hydrogen peroxide used to get short-term superficial colour changes, which usually relapse once the oxygen comes back out of the teeth after a few days.

The relationship between the dentist and the patient or 'consumer'

Young patients may consult registered healthcare professionals for cosmetic dental treatment, possibly with the hope of safer and effective treatment. Some dentists advertise their 'cosmetic' skills with terms such as 'the perfect smile', or advertise their perhaps self-nominated awards on the internet with terms such as 'Best Cosmetic Dentist'. They might imply to the public that the recipient has had GDC approved specialist training or possesses, by virtue of that award, great expertise

in 'cosmetic dentistry'. Those marketing messages can then be heavily promoted on new media by search engine optimization. This blurring between the commercial self-interest of some dentists and responsible oral healthcare can, in theory at least, pose a risk to the longer term health of some younger patients, but also to the long-term reputation of the dental profession.

In 2014, the Malcolm Pendlebury lecture to the Faculty of General Dental Practice (UK) stated that the dental profession should now consider people as 'customers, not clients, or indeed, patients' and, by implication, provide them with whatever they requested.²² This has serious implications in terms of providing whatever the adolescent customer might request, regardless of the unpredictable biologic or other consequences for young people in the longer term. Many experienced practitioners and indemnifying organizations, who have had to deal with the untoward consequences of aggressive ceramic veneers and crowns done in young people, as well as unstable orthodontics, would challenge this view.

According to one market research company (Mintel), 25% of the British population have received some form of cosmetic dentistry, with night guard vital dental bleaching being one of the most popular treatments, which is the least invasive for young patients who want lighter coloured teeth.¹⁹

Ceramic veneers were also recorded as being popular treatments in these surveys. There has been a move to digital smile design and also to the use of CAD CAM to try to satisfy 'customer demand'. Of course consumers have some rights, but one might ask if it is genuine healthcare to provide multiple ultra-white porcelain veneers just to change the colour of teeth in someone who is under 18 just because they demand it, and they are forbidden by EC and UK law from having the much safer and scientifically proven dental bleaching? Would doing multiple destructive ceramic veneers fail a 'Daughter Test'²³ which states that '*knowing what I know about dentistry and its consequences in the long term would I do this treatment on my own daughter?*' Would I really leave my own child with very discoloured teeth until the child is 18? The dental profession should be allowed and encouraged to look after the

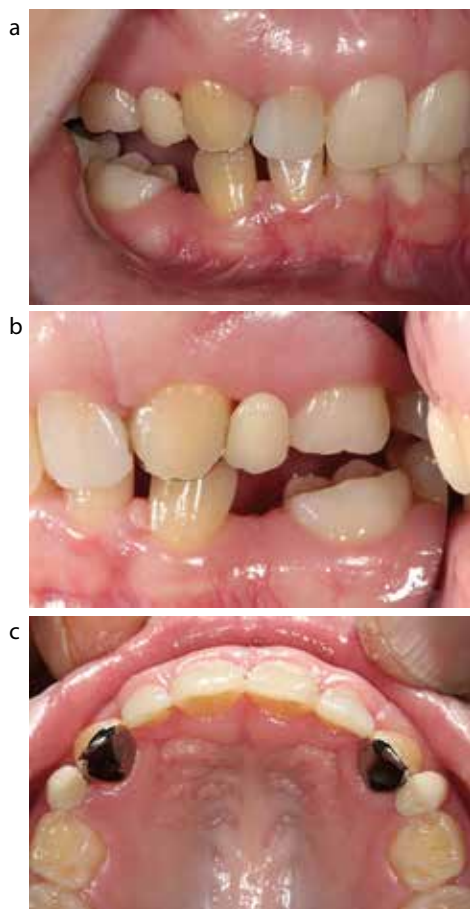


Figure 8. (a) Right lateral view; (b) left lateral views; and (c) occlusal view.

best long-term dental health interests of young patients using scientifically proven products that do not damage young teeth.

Dental professionals should not be encouraged to provide electively destructive 'cosmetic' treatment merely to satisfy some new media-informed 'consumer', which may open the dental professional up to serious litigation.

Some orthodontic companies have taken advantage of the apparently increasing narcissism in young people, possibly fuelled by pictures on the internet of very white and even teeth and who therefore want to have a quick solution for mildly crooked teeth. This has resulted in the evolution and aggressive promotion of various types of short-term orthodontics with these tooth movements being done mainly by

non-specialists. This is sometimes referred to as 'anterior alignment orthodontics' as opposed to 'short-term orthodontics'. A quick internet search revealed attractive sounding names such as 'Six Month Smiles', 'Quick Straight Teeth' and 'Fastbraces'. All of these terms emphasize time and/or speed of delivery but many do not draw enough attention to the careful case selection requirements or long-term consequences, such as indefinite retention being required in many cases.

The general public appears to be keen to explore these seductively sounding options rather than having comprehensive longer-term fixed appliances. However, the abilities and experience of dental professionals vary greatly, and the ability to recognize simpler, apparently straightforward cases, which can indeed be delivered predictably over a short period of time, requires relevant orthodontic knowledge, analytic skills, training and experience. There may well be a large group of young patients currently having 'short term orthodontics' which will have longer term consequences of relapse and/or root resorption (Figure 6).

The role of ethical healthcare professionals

Ethical healthcare professionals need to be able firstly to ascertain whether patients presenting for aesthetic facial or dental care have obvious reasons for their particular concerns. Having listened carefully to their concerns, it would then be appropriate to discuss the various risks and benefits of different treatments, and to advise them that, although articles and images are available on websites, in teenage magazines and in non-peer reviewed journals, that many are not to be recommended as being appropriate in their particular case. The *Montgomery vs. Lanarkshire Health Board* decision involved the UK Supreme Court to uphold patient autonomy in relation to consent and the necessity for healthcare professionals to disclose the material risks of different treatments.²⁴ An honest and full discussion of possible problems and the alternatives is necessary and desirable before any irreversible elective dental treatment is undertaken. This remains

the case even if the patient offers serious financial inducement for undertaking some elective treatment which is likely, in the longer term, to lead to possible adverse outcomes. Failure to disclose appropriate balancing information in advance is likely to invalidate the patient's consent for such elective procedures. Claiming ignorance of such adverse risks is not likely to be easy to defend in cases of complaint or litigation.

A study by Scott and Newton found that requests for aesthetic dental treatment and the availability of such treatment options are increasing as the expectations of smile appearance change. They noted that this has produced increasing concern about body dysmorphic disorder in which patients appear to be overly concerned about perceived minor or non-existent problems in their appearance.²⁵

Patients with body dysmorphic disorder, or patients with eating disorders, potentially influenced by new social media, may present in dental practices. A dentist may be the first healthcare provider to notice these conditions and possibly be asked to intervene. If this problem is suspected early on, then it is often advisable to refer these patients, if appropriate, to specialist services.

However, at times it may well be appropriate for pragmatic non-destructive treatment to be undertaken, such as in the case of bulimic patients, or those addicted to sipping multiple erosive drinks, such as restoring significantly shortened eroded teeth with direct protective resin composite because, if treatment is unnecessarily delayed, these powerful acids can produce irreversible significant tooth surface loss of the upper anterior teeth in vulnerable adolescents (Figure 1).

Another example would be young patients with fluorosis requiring dental bleaching (Figure 7), or young patients with hypodontia who may be advised to bleach their canines to camouflage the restorative prosthesis better (Figure 8). In these such cases, it would be deemed clinically appropriate to provide dental bleaching, despite the patient being under the age of 18.

This patient was treated at another hospital for her hypodontia for over 4 years but, as she was under the age of 18 years, she was not provided

with selective dental bleaching of her canines prior to making the bridges. This resulted in multiple colour contrasts and the disappointing end result after such prolonged treatment.

Overall, patient education remains the key.⁸ If young patients request some 'cosmetic' improvement to have a 'Perfect Smile', or make enquiries about changing some aspect of their dental appearance, then gentle exploration with them of their issues and explanation of what is probably the most sensible management for them is an appropriate response. The balancing message to get across is that speculative, destructive, or unstable dental treatment will not be of long-term benefit to these vulnerable young patients.

Conclusions

Social media provides unsupervised access to images of current trends in beauty and fashion. These images may lead patients to seek speculative treatments on social media which can have longer term negative consequences for their dental health and appearance.

There are commercially driven advertisements for dubious treatments promoted on the internet which are not based on sound scientific evidence or legal, therefore not safeguarding young patients' long term wellbeing.

Tech-savvy, often younger dentists need to be more active in challenging many of these spurious claims on the internet in order to protect vulnerable young people from being harmed by irreversibly damaging procedures. One should put patients' interests first and take the time to explain honestly the balancing risks and benefits of all the realistic treatment options available.

As a healthcare professional, one ought not to carry out electively destructive 'cosmetic' treatment if it is against one's clinical judgement, even if there are commercial or fashion pressures being exerted by practice owners or by patients to do so.

Never over-promise and then under-deliver. It seems sensible to be modest in one's promises about the

likely appearance or stability outcomes of any proposed 'cosmetic' treatment. Avoid using dangerous words like 'perfect' or 'permanent', which are absolute terms. A cautious approach is more likely to result in a satisfied patient, particularly if the treatment outcomes eventually turn out to exceed the young patient's now much more realistic expectations.

References

- Greenwood S, Perrin A, Duggan M. *Social Media Update 2016*. Pew Research Center: Internet & Technology, 2016. Available at: <http://www.pewinternet.org/2016/11/11/social-media-update-2016/> (Accessed 11 February 2017).
- Clicky Media™. *UK Social media stats | 2013 vs 2018*. Clicky™. Available at: <https://www.clicky.co.uk/2016/07/social-media-stats-2013-vs-2016/> (Accessed 11 February 2017).
- McLaughlin K, King K. Developmental trajectories of anxiety and depression in early adolescence. *J Abnorm Child Psychol* 2015; **43**: 311–323.
- Orth U, Maes J, Schmitt M. Self-esteem development across the life span: longitudinal study with a large sample from Germany. *Devel Psychol* 2015; **51**: 248–259.
- Banjanin N, Banjanin N, Dimitrijevic L, Pantic I. Relationship between internet use and depression: focus on physiological mood oscillations, social networking and online addictive behaviour. *Comput Human Behav* 2015; **43**: 308–312.
- Pantic I, Damjanovic A, Todorovic J *et al*. Association between online social networking and depression in high school students: behavioural physiology viewpoint. *Psychiatr Danub* 2012; **24**: 90–93.
- Ferguson C, Munoz M, Garza A, Galindo M. Concurrent and prospective analyses of peer, television and social media influences on body dissatisfaction, eating disorder symptoms and life satisfaction in adolescent girls. *J Youth Adolesc* 2014; **43**: 1–14.
- Holland G, Tiggemann M. A systematic review of the impact of the use of social networking sites on body image and disordered eating outcomes. *Body Image* 2016; **17**: 100–110.
- Bhola S, Hellyer P. The risks and benefits of social media in dental foundation training. *Br Dent J* 2016; **221**: 609–613.
- Napoleon A. The presentation of personalities in plastic surgery. *Ann Plast Surg* 1993; **31**: 193–208.
- Creative Research. *Regulation of Cosmetic Interventions: Research among Teenage Girls*. London: Department of Health, 2013.
- Keogh B, Halpin T, Leonard R *et al*. *Review of the Regulation on Cosmetic Interventions*, London: Department of Health, 2013.
- Royal College of Surgeons. *Professional Standards for Cosmetic Surgery*. The Royal College of Surgeons, 2016.
- Marino VA, Fry HR, Behrents RG. Severe localised destruction of the periodontium secondary to subgingival displacement of an elastic band report of a case. *J Periodontol* 1988; **59**: 472–477.
- Behrents RG. Do-it-yourself impressions and clear retainers: a fairy tale. *Am J Orthod Dentofacial Orthop* 2016; **150**: 205–207.
- Alani A, Kelleher M. Restorative complications of orthodontic treatment. *Br Dent J* 2016; **221**: 389–400.
- Dental Protection. Capability: the dangers of short courses. *Annual Review* 2014; **23**.
- Kershaw S, Newton J, Williams D. The influence of tooth colour on the perceptions of personal characteristics among female dental patients: comparisons of unmodified, decayed and 'whitened' teeth. *Br Dent J* 2008; **E9**: 1–7.
- Kelleher M. The law is an ass: ethical and legal issues surrounding the bleaching of young patients' discoloured teeth. *Faculty Dent J* 2014; **5**: 56–67.
- Mool T. *How to Make Your Own Teeth Whitening Paste*. 2015. Colgate.com. Available at: <http://www.colgate.com/en-us/oc/oral-health/cosmetic-dentistry/teeth-whitening/article/how-to-make-your-own-teeth-whitening-paste-0315> (Accessed 11 February 2017).
- Omran A. DIY whitening. *Br Dent J* 2017; **223**: 239.
- Moyes W. *Pendlebury Lecture*. London: Royal College of Surgeons of England/General Dental Council, 2014.
- Kelleher MG. The 'daughter test' in aesthetic ('esthetic') or cosmetic dentistry. *Dent Update* 2010; **37**: 5–11.
- Farrell A, Brazier M. Not so new directions in the law of consent? Examining Montgomery v Lanarkshire Health Board. *J Med Ethics* 2016; **42**: 85–88.
- Scott S, Newton T. Body dysmorphic disorder and aesthetic dentistry. *Dent Update* 2011; **38**: 112–118.