

Discoloured Anterior Teeth: Knowledge, Attitudes, Behaviour and Desired Needs for Patients.

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Summary

Introduction: Tooth discolouration is known to be any change of colour or translucency of teeth. Mild white opacities, dark or blackish staining and severe tooth destruction are commonly noticeable. Tooth discolouration is aesthetically displeasing and poses psychological challenges to sufferers since it detracts from the sparkle of their smile. It may cause significant cosmetic problems. Success in management is largely dependent in part, on the knowledge, attitude and behaviour (KAB) of people towards it.

Objectives: To identify the level of KAB and desired dental treatment need for patients with discoloured anterior teeth who attended Medunsa Oral Health Centre.

Case Report: The purpose of this case report is to describe factors related to patient's perceptions, clinical observations and desired dental treatment. The report presents cases of young adults with varying ages who had discoloured anterior teeth. This case report is presented, based on patient's KAB and their desired dental treatment.

Conclusion: Participants were aware of their tooth discolouration and their desire was to have "Beautiful white teeth". It is imperative when managing patients with discoloured anterior teeth to be cognisant of their social needs, aesthetic and cosmetic smile. Feelings of embarrassment, low self-esteem and low self-image will be relieved as a result that would elicit a positive outlook.

Abbreviations: KAB: knowledge, attitude and behaviour; MOHC: Medunsa Oral Health Centre

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Introduction

Tooth discolouration is endemic to many parts of the world, including South Africa. Global prevalence of tooth discolouration, in particular, dental fluorosis is approximately 32% but for any other causative factors, such as: dental caries, dental trauma and tetracycline

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stains are unaccounted for in literature. [1] Tooth discolouration is the staining of teeth that occurs when the enamel and dentine become discoloured. It is also known to be any change of colour or translucency of teeth which may be multifactorial. The causes for tooth discolouration are classified according to the location of stains, namely: extrinsic, intrinsic and a combination of both. [2,3]

Extrinsic discolouration is positioned outside the tooth surface or in the acquired pellicle of the tooth. [1] Extrinsic or exogenous discolouration occurs when compounds from substances such as tea, tobacco, herbs, red wine, coffee, coke are incorporated into the acquired pellicle on the surface of the tooth. [3,4] Intrinsic discolouration on the other hand occurs following a change in the structural composition or thickness of dental hard tissues. Intrinsic otherwise known as endogenous discoloration is caused by incorporation of chromatogenic material into the dentine and enamel during odontogenesis or after eruption of teeth. [5] It can be caused locally or systemically by high levels of fluoride, dental caries, tetracycline, certain other drugs, inherited developmental disorders such as amelogenesis imperfect, and trauma to developing teeth. [4] Below are clinical pictures of some patients who presented with discoloured anterior and posterior teeth at Medunsa Oral Health Centre (Figure 1).



Figure 1

Dental fluorosis is the most frequently reported cause for tooth discolouration at Medunsa Oral Health Centre (MOHC). It is caused by excessive fluoride ingestion during the formative stages of the dentition. [6] Excessive fluoride ingestion is strongly associated with increase in prevalence of dental fluorosis in South Africa. [7] According to the World Health Organization (WHO), the maximum acceptable concentration of fluoride is 1.5 mg/l [7] and South Africa's acceptable limit is 0.75 mg/l. [8] the presence of fluoride in drinking water within permissible limits is beneficial in the calcification of dental enamel. When fluoride in drinking water exceeds 1.5 ppm, dental fluorosis becomes highly prevalent. [7] In India, the increase in prevalence of dental fluorosis was corresponding with the increase in water fluoride content from 0.8 ppm to 4.1 ppm. [9] Contrary to other countries like Australia and Ethiopia, dental fluorosis tends to be mild or very mild and it may not require therapeutic interventions. [10]

Ibiyeni (2011) described altered or spoiled tooth colour do affect the appearance of the dentition and it is a great concern to a large number of individuals who seek dental care at oral health institutions. [5] Tooth discolouration can also cause significant cosmetic problems, especially when it affects the anterior teeth, which are usually visible when a person smiles or talks. [5,7]

Teeth form an important part of the body because they aid in chewing, speech and a person's smile. Patients do seek oral health services for both cosmetic and health reasons and in so doing; often express their health needs in relation to their oral problems. The study was prompted by the fact that there is a major aesthetic concern and low self-image of patients' facial appearance at MOHC.

There are hardly any case reports in the dental literature where patient views and desires are documented. Most of the available literature has focused more on therapeutic management of discoloured anterior teeth as opposed to patients desired needs. Restoration of patient's aesthetic, cosmetic smile is the most important area of consideration and a further focus on their view points and social needs. Taking into account patients view points and addressing their desired oral health needs is the most challenging aspect in dentistry. The

significance of the study is to assist oral health professionals to better understand the subjective wellbeing of patients with discoloured anterior teeth so as to plan and manage appropriately.

Case Presentation

Case 1

A 22 year old male was screened at MOHC for routine dental care. He wanted the blackish noticeable stains on his anterior teeth to be removed (pre-operative Figure 2). He stated that he was unhappy, uncomfortable, and embarrassed by his discoloured anterior teeth. He reported that he was not free to smile.



Figure 2

He further stated that “It hurts me so bad as I was even teased by little kids”. His wishes were to have white teeth that will enable him to smile after he has received treatment. On reviewing his dental history it was observed that he had no previous dental visits. He had tertiary education, was unemployed and interested in the following treatment options: tooth whitening, tooth coloured fillings, no false teeth and not sure about dental crowns. He had no prior knowledge about dental implants. He clearly stated that he was not interested in treatment that involved removal of teeth with no replacement.

A review about his demographic history was that he was residing in a semi-urban environment. He was motivated and encouraged by a friend to seek dental treatment. Treatment plan was done by dental students under supervision of qualified dental clinicians. A treatment plan that would fulfil the patients request was explained and presented to him. Patient gave consent to his treatment plan. Clinical procedures that were undertaken were oral hygiene instructions, scaling and polishing and fluoride treatment. A careful selection of proper shade, resin based restorative material that would match his skin complexion and teeth was done for the patient. Invasive direct composite restorations of maxillary anterior teeth were provided for the patient (post-operative Figure 2). The patient’s postoperative feedback was that, “I feel good, I can smile, I can laugh and my family says I look good now”.

Case 2

A 25 year old male was examined by dental students at MOHC for routine dental care. His main complaint was that his front teeth were not beautiful, experienced discomfort and bleeding gums. He stated that he dislikes the brownish colour of his back and front teeth (pre-operative Figure 3) and people were always shocked and surprised by the colour of his teeth. He also said that people would talk and gossip about his teeth. He further explained by stating “I feel sad especially when I had my class speech, I was hurled with negative comments, dissed about the colour of my teeth instead of being applauded of my school work”. Subsequent to these negative interactions “I cannot smile and laugh with my friends”. He wanted and expected a big beautiful smile especially when he goes home.

In his dental history it was observed that he had no previous dental check-up and no previous dental treatments. Patient had tertiary education, was unemployed and residing in a semi-urban area. He was interested in the following types of treatment: tooth coloured restorations, unsure about dental crowns and said no to false teeth and extractions without replacements.

Patient was presented with treatment plan that would fulfil his requirements of which he consented. Undergraduate dental students carried out the treatment plan and were supervised by qualified clinicians at the department of operative dentistry. His treatment plan included the following procedures: oral hygiene instruction, scaling and polishing, fluoride treatment, root planing and invasive direct veneers. Careful selection of proper shade that matches his skin complexion and teeth was highly considered prior to any of the invasive procedures. Invasive direct composite restorations of anterior maxillary and mandibular teeth were provided for the patient (post-operative Figure 3). Patient's postoperative feedback was that, "I feel very happy and very thankful of my dental treatment. I can talk to people, I am able to have eye contact and I do not shy away from people anymore."



Figure 3

Discussion

A significant number of patients visiting MOHC present with aesthetically displeasing brown stains which were caused by intrinsic tooth discoloration. The aetiology of dental fluorosis is deduced from patient's history, source of drinking water and high levels of fluoride intake. The appearance of anterior teeth in the two cases above was due to dental caries and dental fluorosis. The diagnosis of dental fluorosis varied from mild, moderate to severe fluorosis, according to Deans Fluorosis Index. [11] In some cases, both anterior and posterior teeth were equally affected. Maxillary anterior teeth are in the aesthetic zone, therefore they show the most significant staining, that may vary from brown to dark brown streaks in the middle third of facial surfaces. [12] In some cases, pitting and mottling can be seen on the entire tooth surface. [12] According to data from relevant literature, tooth discoloration can cause significant cosmetic problems, especially when it affects anterior teeth which are usually visible when a person smiles or talks. The cosmetic defects due to discoloration of anterior teeth may affect the quality of life of many people. [13] Robinson (2008) reported that the physical appearance of teeth plays an important role in human social interaction. [14] He described the smile and the colour of one's teeth as an important feature in determining the attractiveness of the face. [14] Therefore, any form of unsightly tooth stains may cause profound embarrassment to individuals and can also stop people from smiling. [14]

Watts and Addy (2001) stated that anterior tooth discoloration is one of the most important and frequent reasons for seeking dental treatment. [15] Joiner (2004) further noted that patients demand not only a healthy mouth but also what they consider as a perfect smile. [16] A smile does have an impact on individual beauty-consciousness, but when it is diminished by dental diseases, it will often result in loss of physical health. [17] Other authors stated that the visibility and presence of unsightly discoloured anterior teeth depend on the general arrangement of the dentition, the position, the colour and amount of visible gingivae. [18,19] Ibiyeni and Taiwo (2011) also identified that discoloration (non-aesthetic) of anterior teeth produces psychological distress to patients. [5] Feelings of embarrassment can often lead individuals to limit or avoid social contacts. Patient's self-esteem, self-image, self-confidence and attractiveness of their face may be affected. [17]

Other aspects of social life on individuals are such that an attractive, beautiful smile is perceived to be that of popular, sociable, extraverted, good looking and happy individuals. [20] A previous study by Ingber in 2006 indicated that attractive white teeth can be

positively associated with ratings of social competence, psychological adjustment and relationship status. [17] Generally, people desire pearly white teeth. Thus, tooth colour is one of the most important factors that determine satisfaction with dental appearance. [17]

It is not unreasonable to postulate that advertising and the media further emphasize the effects of a perfect smile to be that of a prestigious and fashionable individual. [21] There is also increasing evidence in the Western societies about the value placed on dental aesthetics. [19] An orally attractive individual's face with a beautiful smile might judge their own appearance as good social standards which might elicit positive mood. [22] Individuals who perceive themselves as less attractive due to unsightly discoloured anterior teeth, might judge their own appearance as being ugly and in turn, might elicit negative feelings in themselves. [22]

There will be an ever growing demand for aesthetic dental treatment. As a result perceptions of tooth appearance in modern society can influence changes in patient's subjective needs. [23] Klages and Zentner (2007) noted that high quality standards in oral health service delivery has been found to increase patient's quality of life, ability to smile, to chew and even to improve their psychological status. [22] Other authors stated that some patients mentioned an order of what they would prefer in management of their discoloured anterior teeth as follows:

1. Aesthetic restorations that match their smile and facial complexion
2. Root canal treatments for badly decayed anterior teeth,
3. Prosthetic restorations,
4. Tooth whitening,
5. Dental extraction. [19,21]

Under normal circumstances all these treatment options depend on socio-demographic and socio-economic factors, the availability of time, distance to treatment centres and the balancing of family responsibilities. A study by Samorodnitzky in 2007 also noted that most patients find the presence of six anterior teeth indispensable and can accept edentulous spaces only in the posterior region. [23] Aesthetics and appearance of anterior teeth could also be related to individual preferences, cultures, and socio-demographic factors. [19] It might also relate to the type of dental treatment that patients can afford. [19]

Conclusion

Participants were aware of their tooth discolouration and their desire is to have "Beautiful white teeth". It is imperative when managing patients with discoloured anterior teeth to be cognisant of their social needs, aesthetic and cosmetic smile. It is also important to consider their emotional being and to manage that accordingly. A holistic management of patients includes all other aspects of their well-being such as social, psychological, physical, economic and emotional. Feelings of embarrassment, low self-esteem and low self-image will be relieved as a result that would elicit a positive outlook.

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