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Oral Health Considerations for Transgender Individuals: A Review of Current Evidence and Implications for Care

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ABSTRACT:
This review article explores the intersection of oral health, specifically gingival health, oral hygiene, tooth size, and morphology, within the context of orthodontic considerations in the transgender population. Given the unique challenges and experiences faced by transgender individuals, it is imperative to address how these factors influence oral health outcomes.

The review synthesizes current literature on gingival responses to hormonal therapies, the impact of orthodontic treatment on tooth morphology and alignment, and the significance of tailored oral hygiene practices. Additionally, it examines the implications of tooth size variations and morphological differences that may arise due to hormonal changes. By highlighting the need for inclusive dental care practices, this article aims to foster awareness among dental professionals and promote better oral health strategies tailored to the transgender community. Ultimately, the findings emphasize the importance of a multidisciplinary approach to orthodontics and oral health, ensuring that the specific needs of transgender individuals are met for optimal dental and psychological well-being.

KEYWORDS: Transgender, arch length, tooth size, oral hygiene, oral health

I. INTRODUCTION

Despite being a vital aspect of total wellbeing, oral health is sometimes disregarded in marginalised groups, such as transgender people. These individuals confront particular difficulties that may affect their oral health and dental care experiences.

Factors such as hormonal treatments, psychological stress, and social stigma may influence dental needs, behavior, and outcomes.

In particular, variations in tooth size and morphology can have significant implications for oral health, contributing to issues such as malocclusion, increased caries risk, and periodontal disease. Furthermore, the interplay between these anatomical factors and the broader context of transgender healthcare raises important questions about tailored dental practices.

This review aims to explore the intricate relationship between transgender identities and oral health, focusing on tooth size, morphology, and other relevant dental aspects. By synthesizing current literature, we seek to highlight the specific oral health challenges faced by transgender individuals, advocate for inclusive dental practices, and encourage further research in this vital area.

Understanding these dimensions is essential for providing equitable and effective dental care that respects and addresses the needs of the transgender community.

II. METHODOLOGY

The search approach employed in this review included terms from the controlled vocabulary with terms from the open text. Google Scholar, Embase, Cochrane Review, PubMed, PubMed Central, and PubMed were the primary electronic databases accessed for the studies. An exhaustive manual search was conducted through the list of references of all original research to find more pertinent publications.

We considered cross-sectional studies that evaluated the results in terms of transgender people's oral health. This evaluation includes English-language papers that were published between 2006 and 2024. Original research papers, in vivo studies, survey questionnaires, and publications addressing dental health of transgender people were among them.

Private correspondence, unpublished newspaper articles, case reports, case series, and narrative reviews were not taken into account. Papers that met the inclusion criteria and had full-text versions were considered for further analysis and data extraction.

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III. DEFINITION AND CLASSIFICATION OF THE TRANSGENDER POPULATION

Transgender refers to individuals whose gender identity or expression differs from the sex assigned to them at birth. It encompasses a wide range of identities and experiences, highlighting the complexity of gender as a spectrum rather than a fixed binary.

1. **Gender Identity**: This is an individual's internal understanding and personal sense of their gender. Gender identity may align with societal expectations of male or female, or it may exist outside of these categories, such as non-binary, genderqueer, or genderfluid identities. It can also include individuals who identify as both, neither, or somewhere along the gender spectrum.
2. **Gender Expression**: Gender expression refers to how an individual externally expresses their gender through behaviors, clothing, hairstyle, voice, and other forms of self-presentation. Gender expression may or may not align with societal expectations or norms associated with one's assigned sex at birth.
3. **Transgender**: This is an umbrella term for individuals whose gender identity differs from their assigned sex at birth. Transgender people may transition from their assigned gender to their identified gender, which can include trans men (individuals who transition from female to male), trans women (individuals who transition from male to female), and non-binary, genderqueer, or genderfluid individuals, among others.

CLASSIFICATION:

Transgender individuals can be classified based on various criteria:

1. Trans-Men and Trans-Women:

Trans-Men: Individuals assigned female at birth who identify and may transition to male.

Trans-Women: Individuals assigned male at birth who identify and may transition to female.

2. **Non-Binary and Gender Non-Conforming:**

Non-binary individuals do not exclusively identify as male or female. They may identify as both, neither, or fluctuate between genders.

Gender non-conforming individuals may express gender in ways that differ from societal norms associated with their assigned sex.

2. **Gender Dysphoria:**

Many transgender individuals experience gender dysphoria, a condition where there is significant discomfort or distress because their gender identity does not align with the sex they were assigned at birth. However, not all transgender people experience dysphoria, and not everyone chooses to pursue a medical transition.

4. Medical Transition vs. Social Transition:

Medical Transition: Involves hormone therapy, surgeries, or other medical interventions to align one's physical appearance with their gender identity.

Social Transition: Refers to changes in name, pronouns, clothing, and other aspects of social presentation without necessarily undergoing medical procedures.

5. **Intersectionality:**

The transgender community is diverse and intersects with other aspects of identity, such as race, ethnicity, sexual orientation, and socioeconomic status. These overlapping identities can impact the unique experiences and challenges transgender individuals face, particularly when accessing healthcare, including dental services.

Understanding the definitions and classifications within the transgender population is crucial for providing effective, culturally competent care, including addressing their unique oral health needs.

IV. FACTORS AFFECTING ORAL HYGIENE IN THE TRANSGENDER POPULATION

The oral hygiene of transgender individuals can be significantly influenced by a variety of factors mentioned below related to their unique experiences and challenges.

1. Psychosocial Factors

Mental Health: Because of social stigma, discrimination, and gender dysphoria, many transgender people have increased levels of anxiety, sadness, and stress.These mental health challenges can lead to neglect of personal care, including oral hygiene.

Social Stigma: Fear of discrimination in healthcare settings may prevent transgender individuals from seeking dental care or receiving adequate oral hygiene education.

2. Hormonal Treatments

Effects of Hormones:

Hormone replacement therapy (HRT) can alter saliva production, which plays a crucial role in oral health. Changes in saliva viscosity and pH can

increase the risk of dental caries and periodontal disease.

Gingival Health:

Estrogen and testosterone can affect gingival tissue. Some transgender individuals may experience changes in gum sensitivity or inflammation, making effective oral hygiene more challenging.

3. Access to Dental Care

Barriers to Access: Transgender individuals may face barriers such as lack of insurance coverage, financial constraints, and difficulty finding LGBTQ+-friendly dental providers. These barriers can result in less frequent dental visits and poor oral hygiene practices.

Lack of awareness can result in subpar treatment and a lack of individualised oral health advice for transgender patients since dental professionals may not have received appropriate training on the unique needs of these patients.

In 2018, a survey of primary care physicians revealed that although 85% of them were willing to treat transgender and gender nonconforming patients, 52% were not aware with the recommended health care for these individuals

4. Health Disparities

Higher Incidence of Oral Health Issues: Studies indicate that transgender individuals may experience higher rates of dental caries, periodontal disease, and other oral health problems compared to the general population. These disparities are often linked to the psychosocial factors mentioned above and inadequate access to care.

In 2019, a systematic research revealed that 27% of individuals who identify as transgender or gender nonconforming had experienced discrimination from healthcare providers. These patients confront many obstacles when seeking medical care[.2]

5. Oral Hygiene Practices

Personal Care Habits: Due to the aforementioned mental health challenges and societal pressures, transgender individuals might neglect regular oral hygiene practices such as brushing and flossing. This neglect can lead to exacerbated oral health issues.

Educational Gaps: There may be a lack of awareness regarding the importance of oral hygiene practices, particularly tailored to the effects of hormone replacement therapy and other treatments.

6. Cultural Competence in Care

Tailored Dental Education:

Culturally competent care that addresses the specific needs of transgender patients can enhance oral hygiene practices. Providing education on how hormonal changes can affect oral health is crucial.

Safe Environment:

Creating an inclusive and supportive environment in dental practices encourages transgender individuals to engage more in their oral health, leading to better outcomes. In addition to emphasising community-engaged research practices that prioritise trans community concerns and center equity in sharing the benefits and burdens of research, Adams et al. called for improved training for researchers in academic, clinical, and community environments in methodologies appropriate for assessing the characteristics of small and marginalised populations.[3]

A. Gingival and Periodontal aspects:

Periodontal diseases are chronic and multifactorial, influenced by various factors, including local accumulation of plaque and calculus, anatomical features, iatrogenic factors like faulty restorations, and systemic conditions that can affect the progression and outcome of the disease.[7] Sarvannan N. et al. studied 137 transgender people and found that there was more gum bleeding in those between the ages of 21 and 30; maximum calculus was found in those between the ages of 31 and 40; and older age groups had periodontal pockets measuring 4-5 mm and 6 mm.[8]Sarvannan N et al. also reported similar results.[9]Torwane NA et al. reported a prevalence of 86.5% for periodontal diseases among the eunuch population studied, with the majority (92.8%) suffering from various forms of periodontal disease, as identified by the Community Periodontal Index.

Among eunuchs, the highest prevalence was observed for bleeding gums (17.4%), followed by shallow pockets (22.7%) and deep pockets (9.7%). Additionally, 21 eunuchs (10.1%) had attachment loss between 4-5 mm and 6-8 mm, while 13 eunuchs (6.3%) exhibited attachment loss of ≥12 mm. In a separate study, Peeran SW et al. found that although eunuchs had lower OHI-S scores (2.69, $p>0.05$), their calculus scores were significantly higher, with a score of 2.0. This discrepancy was attributed to their lifestyle, which promotes better oral hygiene and lower debris scores, but the lack of professional dental care, due

to social stigma, contributed to higher calculus accumulation.[12]
This particular subset of the population had poor periodontal health, according to Arjun and colleagues. [4]

B. Oral lesions & Cancer susceptibility

Transgender non-conforming individuals were found to be more likely to suffer from oral mucosal illnesses such nicotine stomatitis and oral leukoplakia, which may be related to their increased indulgence in high-risk behaviours and ignorance.[5]

According to Torwane NA et al., there was a significant prevalence of oral mucosal lesions (28.5%) among eunuchs, with OSMF (10%) being the most common. Leukoplakia and traumatic ulceration had corresponding prevalences of 7.7% and 5.8%. Moreover, one eunuch suffered from malignant tumour in the form of squamous cell carcinoma.[12]

According to a different study, transgender people and people who identify as gender non-conforming have increased rates of oral mucosal lesions, including leukoplakia, nicotine stomatitis, and malignant tumours.[6]

C. Tobacco & Alcohol associated Habits

Tobacco influences gingival and periodontal diseases through several mechanisms, such as promoting increased colonization of periodontal pathogens in shallow pockets and elevating the levels of these pathogens in deeper periodontal pockets.

In a 2006 survey, Sarvannan N et al. found that among the transgender community, the most common personal habits were alcohol (62.8%), gutkha chewing (35%), tobacco (29.9%), smoking (6.6%), and pan chewing (5.8%).[8]Sarvannan N et al. reported similar results in their investigation.[9] 181 (87.4%) eunuchs reported using tobacco frequently throughout the day, according to Hongal S et al. The occupation of eunuchs was associated with their higher tobacco smoking. People who were employed demonstrated a stronger correlation with the habit because they believed it to be a means of reviving their bodies after prolonged periods of physical labour.[10]

According to research by Akshaya K et al., 48% of transgender people knew that using tobacco products and smoking caused bad breath. They also had poor oral health behaviours, attitudes, and knowledge, as well as a high prevalence of tobacco-related activities.[16] Similarly, 93.3% of participants in the study by Samuel SR et al. used tobacco in some capacity.[17]

Recent study in tamilnadu by Sree t et al, the prevalence of the current use of any form of tobacco products among transgenders was 64.4%.[28]

D. Caries susceptibility

The most significant indicator for evaluating oral and dental health conditions worldwide is the Decayed, Missing, and Filled Teeth (DMFT) index. The transgender population in a study by Sarvannan N et al. had mean decayed teeth, mean filled teeth, mean DMFT index of 1.93, 0.89, 0.12, and 2.95, respectively. This could be because the study population consumed more sweets (83.2%), practiced poor oral hygiene (86.1%), and saw the dentist more frequently (42.3%).[13] Muralidharan S et al. stated that the total score for decayed teeth was 1,262, the score for missing teeth was 72, the score for filled teeth was 38, and the total score for the DMFT was 1,372. Pain, discomfort, stress, irritation, and functional impairment were found to be strongly correlated with the DMFT score (decayed and missing component).[14] In their study, Marlecha RB et al. found that just seven patients (9.7%) had filled teeth, while twenty respondents (27.8%) had missing teeth and 53 subjects (73.6%) had dental caries. The decayed teeth had a mean and standard deviation of 1.89 and 1.773, the missing components of 0.83 and 2.664, and the filled components of 0.15 and 0.522.[15] The examined population's poor oral health maintenance, limited financial accessibility, and the government's lack of interest in community-based oral health promotion initiatives for this demographic were likely the causes of the same.

E. Tooth morphology & tooth size discrepancies aspects

Tooth size serves as a valuable diagnostic tool for treatment planning and outcome estimation across various fields of dentistry, including prosthodontics, conservative dentistry, orthodontics, and esthetic dentistry. In orthodontics, achieving the best esthetic and functional results requires a proper balance of the mesiodistal (MD) width of the maxillary and mandibular teeth.[18] Additionally, tooth size discrepancy (TSD) is a widely accepted diagnostic marker in orthodontics. Identifying tooth size and TSD is crucial before beginning any treatment.[19] The Bolton Index is the most commonly used and effective method for calculating and identifying TSD.[20,21]

In comparison to transgender males, transgender females maxillary and mandibular tooth widths were wider and shown significantly

more variability, according to a 2017 study by Islam et al. Regarding the Bolton anterior ratio and overall ratio, there were no discernible variations between TM and TF. BMI and the mandibular left first molar and maxillary left lateral incisor tooth's MD width significantly differ between the overweight and underweight groups.[22] On the other hand, the results are not consistent with the odontometric assessment in conventional gender categories, which shows that males in various ethnic groups had a larger MD width than females.[23-25]

F. Orthodontic considerations

Growth: The main factor affecting orthodontic therapy is growth. This is especially important for patients with Class III malocclusions and teenagers whose Class II skeletal and incisal relationships are being treated with functional appliances. The possible effects of puberty blockers on the start and course of the teenage growth spurt are a concern that orthodontists ought to be aware of. In these cases, orthodontists need to communicate directly with the paediatric endocrinologist treating the patient in order to elucidate the planned transition plan and its possible effects on the patient's adolescent growth spurt.

Facial features: When surgical planning, it's critical to take gender into account when determining how acceptable a face's shape and appearance are. Males typically have broader noses, flatter cheeks, and more prominent squarer chins, whereas females typically have rounder, softer faces with less noticeable foreheads (Altman, 2012).[26] According to Parker et al. (2019), males tend to carry a Class III skeletal pattern more successfully than a Class II skeletal pattern, which is typically more appropriate for females.[27] Patients who are transitioning and whose skeleton pattern is less consistent with their intended gender identity should keep this in mind.

Gingival display: An individual's new gender may have an impact on the anticipated ultimate amount of incisal show; relatively higher amount of gingival show when smiling is typically more attractive in females.

V. CONCLUSION

The oral hygiene of transgender individuals is significantly impacted by a combination of psychosocial, medical, and systemic factors. Addressing these issues requires a comprehensive approach that includes increasing awareness, improving access to culturally competent care, and providing targeted education on oral hygiene practices. By understanding the unique challenges faced by the transgender population, dental professionals can help mitigate health disparities and promote better oral health outcomes.

While specific studies on orthodontic tooth movement in transgender individuals are scarce, existing research suggests that hormonal treatments and psychosocial factors may significantly impact orthodontic care and outcomes. More targeted studies are needed to develop comprehensive guidelines for orthodontic treatment in this population.

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