

Research Article

Exploring the Implications of Cultural Dental Mutilation on Periodontal Health: A Study on Mentawai Women's Traditional Teeth Sharpening

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Abstract.

Teeth sharpening is a part of the Mentawai tribe's rich cultural legacy and is done by women upon reaching adulthood in Indonesia. However, it has been linked to negative impacts on oral health, particularly in the periodontal tissues. This paper studied the periodontal tissues of Mentawai women who have undergone teeth sharpening, considering potential specific implications. Employing a descriptive approach, this cross-sectional study was conducted across four villages in Mentawai Island, Indonesia. Oral Hygiene Index-Simplified (OHIS) and the Gingival Index (GI) were used to assess the periodontal status of eight Mentawai women who had undergone teeth sharpening. The study revealed a notable absence of optimal periodontal tissue health among respondents with suboptimal oral hygiene practices (OHIS score 3.4) and considerable gingival inflammation (GI score 2.2). The presence of supragingival and infragingival calculus, alongside visible stains across the teeth of Mentawai women were due inadequate of oral health care behavior. In addition, the findings underscore the intricate interplay between cultural practices and gender-specific health outcomes. A deeper understanding of health behaviors, as influenced by culture, health beliefs, acculturation, and attitudes, is needed to formulate appropriate oral health promotion policies. A gender-informed perspective will encourage a broader dialogue about preserving cultural heritage as well as empowering the role of women in their family and community on oral health improvement. The implementation of this analysis would be developing the best strategy for modifying this custom in order to keep it while preserving oral health.

Keywords: Cultural dental mutilation; Periodontal health; Mentawaiians Women; Sharpening Teeth Tradition

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1. Introduction

Culture plays a significant role in human society by establishing norms of behavior and providing mechanisms that ensure the survival of individuals, both personally and socially. Culture is narrated, communicated, or passed down from one generation to the next in the form of patterns, knowledge, meaning, and behaviors within a social group. Culture is also a learned experience that is shared, transmitted, and represents a way of life (1).

One of the cultural practices that have occurred throughout history in various parts of the world is dental mutilation (2). Dental mutilation, also known as dental art, is a modification of teeth that alters the surface shape of teeth without any medical indication and has been practiced for thousands of years in the continents of America, East Asia, Southeast Asia, Oceania, and Africa. Dental mutilation holds anthropological and social significance, shedding light on human behavior in both the past and present. Various research studies and

investigations have explored this tradition from anthropological, social, and dental perspectives (3).

From an anthropological perspective, the data on various types of dental mutilation found worldwide explains cultural acculturation that indicates the migration routes of humans (4). In the field of anthropology, several studies have been conducted to describe the variations in dental mutilation associated with human migration in the past. For example, dental mutilation practices among the Ngabe tribe in Panama serve as evidence of cultural transfer from Africa (5). Dental filing among ancient Mesoamerican societies was performed as a ritual in honor of the sun god, while indigenous South American tribes in the Amazon rainforest sharpened their upper jaw incisors to resemble piranha teeth as a symbol of beauty (2).

In her research, Koesbardiati (2010) compared dental remains from adult skulls in Java, Bali, and Nusa Tenggara at paleoanthropological- archaeological sites with the permanent teeth of present-day individuals from Bali. His findings chronologically indicate that dental modifications serve as references for migrations in the past and the dominance of past cultures (6).

The practice of teeth cutting can be found in various regions of Indonesia. The teeth-cutting ceremony conducted by the Balinese

community is a Hindu-Balinese religious ritual performed when a child reaches adulthood. This ceremony is interpreted as a debt payment by parents to their child for

eliminating six bad qualities from the human self by filing down the six upper fang-shaped teeth. In Lombok, the Balinese refer to it as the “Mapendes” ceremony, while the Sasak people call it “Merosoh.” The Bima community refers to this ceremony as “Ndoso.” Similarly, among the descendants of the Javanese Mataraman community, teenage girls undergo the “Ngasah” or “Pangur untu” ceremony, which involves leveling the tips of their teeth (Kementerian Pendidikan dan Kebudayaan Republik Indonesia, 2018). The Mentawai tribe also has a tooth-filing tradition known as “sipiat sot” or “mapiat sot.” In their view, a Mentawai girl is believed to appear beautiful if she has pointed teeth. Aside from matters of beauty, this tradition is seen as a rite of passage for Mentawai girls toward inner peace (7).

The practice of dental mutilation can be distinguished between tooth flattening (filing teeth) and tooth sharpening (filing teeth to a point). Both of these dental mutilation procedures are considered maladaptive actions. These practices are carried out using tools that do not meet health standards and without prior anesthesia, which poses serious risks such as pain, infection, harm to tooth vitality, disruption of the temporomandibular joint, and other oral health-related consequences (2).

The tradition of tooth sharpening has significant implications for oral health. Oral health is an integral and inseparable part of overall body health because the mouth serves as a window to one’s overall health. Oral health is also an indicator of quality of life due to its role in physical and social functions. Research on tooth sharpening traditions among Mentawai women is still limited, including studies conducted by

(8) on Siberut Island. This research explains the relationship between anterior tooth sharpening tradition and the occurrence of posterior tooth wear in Mentawai men and women who engage in tooth sharpening (9) (10)(8)(11). Many indicators of oral health have not been extensively studied in Mentawai women who undergo tooth sharpening. Therefore, the author and the research team are interested in studying the oral health conditions of Mentawai women who practice tooth sharpening, particularly focusing on the status of periodontal tissue health and oral cleanliness.

2. Research Method

This was a descriptive study with a cross-sectional approach aimed at providing an overview of the oral health of Mentawai women who have undergone tooth sharpening. The study employed a random sampling method with a purposive sampling technique. The samples included Mentawai women aged 15 years and older who were willing to undergo examination. This research obtained ethical clearance, and

before conducting any examinations on the samples, informed consent was obtained, either from the individuals themselves or their families.

The assessment of oral health in this study was conducted using the Oral Hygiene Index-Simplified (OHI-S) to evaluate oral cleanliness and the Gingival Index (GI) to assess the status of periodontal tissue health, particularly gingival health. GI was chosen because it assesses qualitative changes in gum tissue, while quantitative changes in periodontal tissue, such as pocket depth and degree of alveolar bone loss, were not examined. This decision was made to avoid discomfort for the study participants, as performing these assessments could be uncomfortable, and obtaining their willingness for examination was not a straightforward process.

The assessment of oral cavity cleanliness is based on the presence or absence of organic deposits, such as dental plaque and calculus. The description of oral cavity cleanliness is measured using the Oral Hygiene Index-Simplified (OHI-S), which combines assessments from the Debris Index-Simplified (DI-S) and Calculus Index-Simplified (CI-S) on a select set of index teeth.

In addition to assessing the periodontal tissue health status, free interviews were also conducted to explore the extent of knowledge and the perspectives of Mentawai women regarding the tooth-sharpening

tradition, as well as the reasons behind their practice of tooth sharpening. Their knowledge, attitudes, and actions related to oral health were also investigated to assess their behaviors and roles in maintaining their family's oral health. The data collected were processed using Microsoft Excel and presented in tabular form.

3. Result

This research explores the implications of the tooth-sharpening tradition on the periodontal tissue health of Mentawai women who practice this tradition, followed by a cultural and gender perspective analysis. In this study, a total of 8 Mentawai women who engage in tooth-sharpening practices were identified. Their ages ranged from 38 to 75 years, and they resided in four villages in the South Siberut District, namely Madobag, Matotonan, Buttui, and Muntei, which are remote Mentawai villages accessed using traditional Mentawai boats called "pompong." Primary data on oral cavity cleanliness assessed using the Oral Hygiene Index-Simplified (OHI-S) (Table 1) and the status of periodontal tissue health, especially gingival health, assessed using the Gingival Index (Table 2) were collected.

TABLE 1: Oral Hygiene Indeks-Simple of Mentawai women with tooth sharpening.

Age (years old)	OHI-S	Category	Mean
62	8,5	Poor	
38	4,6	Poor	
70	3,5	Poor	
60	7	Poor	5,01
60	6,5	Poor	
70	4,5	Poor	
65	4	Poor	
75	1,5	Poor	

TABLE 2: Gingival Indeks of Mentawai women with tooth sharpening.

Age (years old)	Gingival Index	Category	Mean
62	3	Severe inflamation	
38	3	Severe inflamation	
70	2,25	Severe inflamation	
60	3	Severe inflamation	2.75
60	3	Severe inflamation	
70	2,5	Severe inflamation	
65	2,5	Severe inflamation	
75	2,75	Severe inflamation	

Tabel 1 and 2 revealed a notable absence of optimal periodontal tissue health among the sample population. The women exhibited suboptimal oral hygiene practices, reflected in an average OHIS index score of 3.4, and considerable gingival inflammation, as indicated by an average gingival index score of 2.2. Intra-oral examinations further unveiled the presence of both supragingival and infragingival calculus, alongside visible stains across the oral region.

From the results of free interviews with the samples, stakeholders, sikerei (Mentawai traditional shamans), and Mentawai women who do not practice tooth sharpening, various reasons for the continuation of this tradition and their perspectives on its implementation were identified. The primary motivation for Mentawai women to engage in tooth sharpening is their desire to appear beautiful and attractive to the opposite sex, particularly their husbands. Tooth sharpening is seen as a means to enhance physical allure and charm among Mentawai women. Additionally, it is considered a symbol that a



Figure 1: The gingival condition of Mentawai women who are tooth scraped with attrition of posterior teeth.



Figure 2: Oral hygiene of Mentawai women who have undergone teeth sharpening with calculus and staining in almost all region.

woman has entered adulthood and is ready for marriage. Therefore, this tradition is often associated with marriage and social status.

Furthermore, tooth sharpening is also regarded as a symbol of social status within Mentawai society. Most practitioners of this tradition are the wives of Rimata Uma, who holds the position of tribal chief within Mentawai communities, and the wives of Sikerei,

who are traditional Mentawai shamans. This underscores the significant role of tooth sharpening in the social and cultural hierarchy of Mentawai society.

These perspectives and motivations reflect the complexity of the tooth-sharpening tradition within the cultural and gender context of Mentawai, influencing why Mentawai women choose to adhere to this practice.

Interviews were also conducted with younger Mentawai women (young adults to middle-aged) who do not practice tooth sharpening. They perceive this tradition as not obligatory in their religion, and thus, they feel no obligation to undergo it. Additionally, information about the pain associated with the tooth-sharpening process has deterred them from participating in it. Most teenage and young adult Mentawai women admitted that they were not aware of this tradition.

4. Discussion and Analysis

Intentional dental modification is a global phenomenon, yet it demonstrates culturally specific practices that are often unique to a continent or region. These types of modifications are also described in the literature as scarification or dental mutilation. In Indonesia, the culture of dental mutilation is found in various regions with different patterns. The Mapendes tooth-cutting ceremony is a Hindu-Balinese religious ritual carried out by flattening the incisors and upper canine teeth of a child who has reached adulthood. For religio-cultural reasons, this tradition is still continued by the Balinese community, although in some areas, it has ceased due to health concerns and changing societal trends (6).

The Mentawai people are indigenous inhabitants of the four islands within the Mentawai Islands Regency, namely Sipora Island, Siberut Island, North Pagai Island, and South Pagai Island. This ethnic group possesses a rich and diverse cultural heritage passed down through generations, including the art of body tattooing (known as “titi”) and the tooth-sharpening tradition. Traditionally, both Mentawai men and women engage in the tooth-sharpening practice as they reach adulthood. The tooth-sharpening tradition is believed to eliminate six undesirable qualities within the human body.

For Mentawai men, having pointed teeth and tattoos is a symbol of the Mentawai tribe’s strength, courage, and prosperity. Meanwhile, for Mentawai women, the act of filing and sharpening their teeth signifies maturity and beauty, which is highly valued by their husbands (12).

Research conducted by Koenarti (2013) reported that among 179 examined samples, 57 Mentawai men and 39 Mentawai women practiced tooth sharpening (8).

As time has passed, Mentawai men have abandoned this tradition, while women continue to practice it as a form of compliance and a desire to appear beautiful to their husbands, even though Mentawai society's belief system (Arat Sabulungan) does not mandate it (13). This situation is influenced by the fact that the Mentawai people adhere to a patriarchal system. Mentawai women bear heavy responsibilities, including domestic activities such as cooking and childcare, and they are also expected to engage in activities traditionally associated with men, such as fishing in the rivers. They are required to complete their tasks efficiently, even during rituals, including the tooth-sharpening ritual, despite the intense pain it may cause and its impact on dental and oral health(12).

The patriarchal structure of Mentawai society in the past led Mentawai women to obediently undergo tooth sharpening while allowing Mentawai men the freedom to abandon it (14). This is supported by the absence of men with sharpened teeth, whereas women who practice tooth sharpening can still be found in this research, albeit in very small numbers.

An interesting fact revealed by this research is that very few young adult women (aged 25-35) are willing to engage in this practice. They cite reasons such as it being irrelevant in modern times and the considerable pain associated with the process. In fact, a significant number of teenagers are not even aware of this tradition because their mothers or female relatives do not practice it (12). This reflects a shift in attitudes and awareness among the younger generation, as they perceive tooth sharpening as outdated and painful, and it is gradually fading away in the face of modernization (13).

As stated by Mateus Lajo, a native of Madobag who serves as the Sub-District Head of Southwest Siberut, there has been a cultural shift in Mentawai due to the influence of external cultures. As a result, traditions like tooth sharpening, hair lengthening, and earlobe stretching have become increasingly rare. Even finding young generations willing to be recognized as Sikerei (traditional Mentawai shamans) has become quite uncommon. This is regrettable because these traditions represent the local wisdom of the Mentawai community (13).

The issue of the near extinction of the tooth-sharpening tradition is a complex one. Ideally, as part of the nation's cultural heritage that should be preserved, the tooth-sharpening tradition, which is a defining characteristic and hallmark of Mentawai women, should be passed down to future generations. On the other hand, the oral health of Mentawai women is also of utmost importance. They should have equal rights to access opportunities to improve their oral health, as it serves as a gateway to overall health.

In line with their roles in the domestic sphere, they should also play a role in educating their children about proper oral health practices.

To address this issue, there is a need for a rethinking of how to integrate perspectives on dental, social, and gender health, especially for Mentawai women. This would ensure the preservation of cultural traditions while also prioritizing the oral health and well-being of Mentawai women and their families.

Various stakeholders need to come together and collaborate to address this issue, including local government authorities, healthcare professionals, community leaders, and the Mentawai community itself. Local government authorities can formulate policies regarding the

preservation of the modified tooth-sharpening cultural practice. The modification of tooth-sharpening practices should be carried out while considering the principles of oral health, such as avoiding excessive removal of tooth structure, limiting the procedure to enamel tissue only. Additionally, preventive measures against infection and fluoride application should be included to establish secondary dentin protection.

Public health centers (Puskesmas), as the frontline healthcare units, should be capable of approaching Sikerei individuals specifically and educating them about modified tooth sharpening to prevent the negative impacts of conventional tooth sharpening. This education should also extend to Mentawai women, especially those who have reached adulthood, as they are the ones who decide whether to continue this tradition or not. Education on how to maintain oral cavity health should also be imparted to them, as they will serve as role models who can teach their children and families about oral health practices. This collaborative effort involving various stakeholders is crucial to both preserve the cultural heritage and promote oral health among the Mentawai community.

School teachers can play a crucial role in introducing students to the concept that tooth sharpening is a local wisdom of the Mentawai community and a part of Mentawai identity, even though it has

implications for oral health. Mass media, whether in print or online

formats, can significantly aid in promoting this tradition and advocating for oral health behaviors. This aligns with the perspective of Shameema et al., which emphasizes the need to raise awareness about the harmful effects of cultural practices while simultaneously promoting health initiatives. It is essential to strike a balance between cultural preservation and oral health promotion within the Mentawai community.

5. Conclusion

The cultural practice of tooth sharpening among Mentawai women has implications for oral health, particularly periodontal tissues, in addition to the influence of oral hygiene habits. The oral health status of Mentawai women who practice this tradition is intertwined with their societal status and roles within the Mentawai community. A deep understanding of health behaviors influenced by culture, beliefs, and attitudes is needed to promote health policies, especially oral health.

The gender perspective in this research is expected to stimulate a broader dialogue about cultural preservation while still prioritizing the well-being of women within the Mentawai community. It underscores the importance of considering gender-specific factors when addressing health promotion initiatives and preserving cultural heritage.

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Declaration of Conflict Interest

There is no conflict of interest regarding the publication of this article.

Biography

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