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Original Research Article

An Examination of Orthodontic Awareness and Treatment Perceptions among Tribal in Relation to Malocclusion Prevalence

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Abstract:

Background: The study uncovers a notable disparity between orthodontic awareness and the perceived necessity for treatment. While a substantial proportion of individuals are informed about orthodontic options, a smaller percentage acknowledges the need for treatment despite the prevalent occurrence of malocclusion. Factors such as cultural attitudes towards dental aesthetics, personal priorities, and economic constraints may contribute to this disconnect. The findings highlight the importance of not only increasing awareness about orthodontics but also addressing the factors influencing the perception of treatment necessity. Educational programs and public health initiatives should focus on bridging this gap, with tailored interventions that address both informational and perceptual barriers. Addressing orthodontic care in tribal populations requires a multifaceted approach that improves awareness and adjusts perceptions of treatment necessity. By implementing targeted educational programs and overcoming cultural and economic barriers, it is possible to enhance the utilization of orthodontic services and improve overall dental health outcomes in these communities.

Aim: This study investigates the levels of orthodontic awareness, the perceived needs for treatment, and the prevalence of malocclusion among tribal populations. By correlating these aspects, the study aims to understand how awareness and perceived needs align with the actual prevalence of malocclusion in these communities.

Material and Method: This study employs a cross-sectional design to evaluate orthodontic awareness and perceived needs for treatment among distinct tribal populations carried out in the department of orthopedics. This study contains the total 200 tribal population. The occlusion of the students was assessed and classified into the categories of ideal occlusion and Angle's Class I, II & III malocclusions. Furthermore, with esthetic perceptions driven by a communal phenotype in these endogamous populations, it was expected to mainly come across borderline derangements of occlusion with a higher percentage of ideal occlusion and Angle's class I Malocclusion. In such a scenario and in the absence of periodontal disease or gross decay, it would require keen interest or a degree of poor self-esteem to solicit orthodontic treatment.

Results:A larger proportion of males have malocclusion compared to females. Among those with malocclusion, the majority fall into Angle's Class I, with a significant number also classified as Angle's Class II, particularly among males. Angle's Class III is relatively less common but still shows some gender disparity in prevalence. The Bimaxillary protrusion is the most prevalent condition among the population, affecting 68%. Midline diastema is the least prevalent, affecting only 10% of the

population. There is a higher prevalence of certain conditions such as bimaxillary protrusion and excessive overjet compared to others like midline diastema and excessive overbite.
Conclusion: The study provides valuable insights into the relationship between orthodontic awareness, perceived needs for treatment, and malocclusion prevalence among tribal populations. High awareness levels, combined with a lower perceived need for treatment and a significant prevalence of malocclusion, underscore the need for comprehensive public health strategies. These strategies should aim to increase perceived need, improve access to care, and consider cultural and economic factors. By integrating these approaches, it is possible to provide equitable orthodontic care and ensure that individuals in underserved and marginalized communities receive the treatment they need.
Keywords: Orthodontic Awareness, Perceived Treatment Needs, Malocclusion Prevalence, Tribal Populations, Angle's Classification, Public Health Strategies.

INTRODUCTION

Orthodontic care, which encompasses the diagnosis, prevention, and treatment of dental and facial irregularities, is a critical aspect of overall oral health. Malocclusion, a misalignment of the teeth and jaws, is a prevalent condition that can impact both aesthetic and functional aspects of dental health. The effective management of malocclusion often requires orthodontic treatment, yet the awareness of and perceived need for such treatment can vary significantly across different populations. In many indigenous and tribal communities, access to orthodontic care can be limited due to various factors, including socio-economic constraints, cultural beliefs, and geographic barriers. Understanding how these populations perceive their orthodontic needs and their level of awareness about orthodontic treatment is essential for addressing disparities in health care. [1]

Tribal populations often have unique cultural practices and beliefs that influence their approach to health care. This study recognizes the importance of cultural context in shaping orthodontic awareness and treatment needs. Understanding these cultural nuances can help in developing more effective public health strategies and interventions tailored to this populations.[2] Malocclusion can vary in prevalence and severity among different populations. Investigating how prevalent malocclusion is in these tribal groups provides a baseline for assessing orthodontic needs and planning appropriate interventions. Awareness of orthodontic treatment options and perceived needs for such treatment are crucial factors in determining whether individuals seek care.[3]By identifying the levels of orthodontic awareness and the perceived needs for treatment, the study aims to provide insights that can guide public health initiatives. Effective programs can be designed to increase awareness, improve access to care, and ultimately enhance health outcomes in this communities.[4]

Global studies estimate that malocclusion affects a significant portion of the population. For example, research indicates that approximately 50-70% of individuals in industrialized countries exhibit some form of malocclusion. The prevalence of malocclusion in tribal and indigenous populations may differ from that in the general population due to unique genetic, environmental, and cultural factors. Research in specific tribal groups can provide insights into how prevalence rates compare to those in non-tribal populations.[5] Malocclusion can lead to difficulties in chewing, biting, and speaking. Severe malocclusion may also contribute to temporo-mandibular joint disorders and other dental issues. Aesthetic

concerns are a common reason for seeking orthodontic treatment. Misaligned teeth can be harder to clean, increasing the risk of dental caries, gum disease, and other oral health problems.[6]

Tribal populations often face unique challenges related to orthodontic care due to geographic isolation, limited access to healthcare resources, and specific cultural beliefs. The level of education and access to reliable information sources, such as healthcare providers, educational materials, and media, influence orthodontic awareness. Limited access to dental professionals and orthodontic services can hinder awareness, as individuals may not receive information or education about orthodontic care.[7,8] Cultural attitudes and beliefs about dental health and orthodontic treatment can affect how information is received and valued. Limited financial resources can be a significant barrier to seeking orthodontic treatment.[9] The cost of braces, aligners, and follow-up visits may be prohibitive for individuals in lower-income communities. Cultural attitudes towards orthodontic care and modern medical practices can affect how treatment is perceived and accepted. Traditional beliefs and practices may influence individuals' willingness to seek or follow through with orthodontic treatment.[10] Low levels of awareness about orthodontic issues and available treatments can result in unaddressed dental problems. Educational outreach and community engagement are crucial for improving awareness.[11,12]

This analysis aims to explore orthodontic awareness and the perceived needs for treatment among distinct tribal populations.[13] By examining these factors in relation to the prevalence of malocclusion the study seeks to identify gaps in knowledge and treatment perceptions that may influence health outcomes in these communities.[14,15]

Material and Methods

This study employs a cross-sectional design to evaluate orthodontic awareness and perceived needs for treatment among distinct tribal populations carried out in the department of orthopedics. The sample chosen for this study formed epidemiological survey. This study contains the total 200 tribal population. The occlusion of the students was assessed and classified into the categories of ideal occlusion and Angle's Class I, II & III malocclusions. Other parameters noted were overjet, overbite, crowding, spacing, and midline diastema.

Inclusion Criteria:

- ✓ Study object by default comprising a random sample of tribal individuals in the region
- ✓ Study object in the age group of 20 to 35 years with no history of prior orthodontic treatment
- ✓ Secondary dentition present with no remaining deciduous teeth
- ✓ Presence of intact first permanent molars.

Exclusion Criteria

Rampant caries
Missing teeth
Mutilated malocclusion
Craniofacial anomalies
Teeth with developmental abnormalities
Children with clefts and systemic diseases were also not included

Orthodontic Awareness Assessment:

Survey Instrument:

- Develop a structured questionnaire to assess orthodontic awareness. The questionnaire should include sections on:
- General knowledge about orthodontics (e.g., types of treatments, benefits of orthodontic care)
- Awareness of malocclusion and its implications
- Sources of information about orthodontics (e.g., healthcare providers, media)
- Attitudes towards orthodontic treatment

Administration:

- Administer the questionnaire through face-to-face interviews or self-administered forms, depending on literacy levels and preferences of the participants. Ensure that

the questionnaire is translated into local languages if necessary and culturally appropriate.

Survey Instrument:

Include questions in the questionnaire to assess perceived needs for orthodontic treatment. This may involve:

- Self-reported dental problems or discomfort
- Perceived impact of malocclusion on daily life and appearance
- Attitudes towards seeking orthodontic care
- Financial and logistical considerations

Focus Groups and Interviews:

- Conduct focus group discussions and in-depth interviews with selected participants to gain qualitative insights into their perceptions and attitudes towards orthodontic treatment. This provides a deeper understanding of the reasons behind their perceived needs.

Clinical Examination:

- **Protocol:** Use a standardized orthodontic examination protocol to assess malocclusion. This may include measuring dental alignment, bite relationships, and identifying specific types of malocclusion.
- **Diagnostic Criteria:** Apply criteria from established classification systems (e.g., Angle's classification) to categorize the types and severity of malocclusion.

Furthermore, with esthetic perceptions driven by a communal phenotype in these endogamous populations, it was expected to mainly come across borderline derangements of occlusion with a higher percentage of ideal occlusion and Angle's class I Malocclusion. In such a scenario and in the absence of periodontal disease or gross decay, it would require keen interest or a degree of poor self-esteem to solicit orthodontic treatment.

Statistical Analysis:

Analyze survey data using statistical software to calculate descriptive statistics (e.g., means, frequencies) and assess relationships between orthodontic awareness, perceived needs, and malocclusion prevalence. The Employ inferential statistics to explore associations and differences of the tribal populations.

Result: -

Statistical results from Pearson's chi-square test indicated no significant association between the prevalence of malocclusion and gender in the tribal population. During the assessment, questions were asked to evaluate orthodontic awareness, self-perceived dental aesthetics, and perceived need for treatment. Although 60% of participants were aware of orthodontic treatment, only 40% perceived a need for it. This discrepancy may be attributed to the regular orthodontic awareness camps conducted in the tribal regions, which have informed the population about orthodontic treatment options.

Table 1: Shows the other findings of malocclusion.

Condition	Present %	Absent %
Midline Diastema	10	90
Crowding	20	80
Excessive Overjet	22	78
Excessive Overbite	16	84
Bimaxillary Protrusion	68	32

10% of the population has midline diastema, which is a gap between the upper front teeth. 90% of the population does not have midline. 20% of the population experiences dental crowding, where there is insufficient space in the dental arch, leading to overlapping of teethdiastema. 22% of the population has excessive overjet, where the upper front teeth protrude significantly beyond the lower front teeth. 16% of the population has an excessive

overbite, where the upper front teeth significantly overlap the lower front teeth. 68% of the population has bimaxillary protrusion, a condition where both the upper and lower front teeth are protruded beyond their normal alignment.

Table 2: Shows the prevalence of malocclusion

Revenue division= 200				
Gender	**Males (50%) 100**	**Male**	**Females (50%) 100**	**Female**
Ideal occlusion (20%) 20	10	50%	10	50%
Malocclusion (80%) 80	50	62.5%	30	37.5%
Malocclusion Distribution				
Category	Male	% of Total Male	Female	% of Total Female
Angle's Class I (66%) 66	(50%) 33	25/50 50%	(50%) 33	18/30 66.0%
Angle's Class II (25%) 25	(72%) 18	15/50 30%	(28%) 7	9/30 30.%
Angle's Class III (9%) 9	(55.5%) 5	10/50 20 %	(44.4%) 4	3/30 10%

Both males and females have equal proportions of ideal occlusion (50% each). Males are more likely to have malocclusion (62.5%) compared to females (37.5%). Angle's Class I: The most common type of malocclusion in both genders, with a higher percentage in males (66%) compared to females (66%). Angle's Class II: More prevalent among males (25%) than females (7%). Males with this classification have a higher percentage of malocclusion compared to females. Angle's Class III: Less common overall, but males have a higher prevalence (9%) compared to females (4%).

Discussion

The study found that 60% of participants were aware of orthodontic treatments. This indicates a relatively high level of awareness, which can be attributed to the regular orthodontic awareness camps conducted in the tribal regions. Awareness is often influenced by the availability of educational resources, outreach programs, and healthcare providers. The presence of regular camps likely plays a significant role in disseminating information about orthodontic care. The high level of awareness suggests that the orthodontic camps have been effective in educating the tribal populations about the importance of orthodontic care and available treatments. This is a positive indicator of the outreach programs' success in increasing knowledge and potentially encouraging early intervention.[16]Despite the high awareness, a discrepancy exists between awareness and perceived need for treatment. This indicates that while people are informed, they might not fully grasp the benefits of treatment or may not prioritize it.[17]

Only 40% of participants perceived a need for orthodontic treatment, despite 60% being aware of orthodontic options. This suggests that awareness alone does not necessarily translate into perceived necessity or action. The perceived need for treatment may be influenced by personal experiences, aesthetic concerns, functional issues, and financial considerations. The discrepancy between high awareness and lower perceived need highlights the need for addressing factors that influence treatment

perceptions. It suggests that simply informing people about orthodontics is not enough; educational efforts should also focus on changing attitudes towards treatment necessity and benefits. Cultural beliefs about dental aesthetics and functional concerns may affect how individuals perceive their need for orthodontic care. Additionally, economic constraints can limit the perceived feasibility of treatment. Understanding these factors is crucial for tailoring interventions.[18,19]

The high prevalence of malocclusion highlights a significant public health issue within these tribal populations. The variation in malocclusion types can guide the prioritization of orthodontic services and resources. The lack of significant gender differences in malocclusion prevalence suggests that orthodontic issues affect both males and females similarly. This reinforces the need for gender-neutral public health strategies and interventions. Understanding the prevalence and distribution of malocclusion can inform public health planning and resource allocation.[20] It is essential to address the most common types of malocclusion and target interventions accordingly. Despite high awareness levels, enhancing the focus of educational programs to emphasize the importance of treating malocclusion and addressing aesthetic and functional concerns can bridge the gap between awareness and perceived need. Improving access to orthodontic care is crucial. This includes addressing geographic, economic, and cultural barriers to ensure that individuals who perceive a need for treatment can access appropriate care.[21] Orthodontic interventions should be culturally sensitive and consider local beliefs and practices. Tailoring communication and treatment approaches to fit cultural contexts can enhance acceptance and effectiveness.[22]

Conclusion:

The study provides valuable insights into the relationship between orthodontic awareness, perceived needs for treatment, and malocclusion prevalence among tribal populations. High awareness levels, combined with a lower perceived need for treatment and a significant prevalence of malocclusion, underscore the need for comprehensive public health strategies. These strategies should aim to increase perceived need, improve access to care, and consider cultural and economic factors. By integrating these approaches, it is possible to provide equitable orthodontic care and ensure that individuals in underserved and marginalized communities receive the treatment they need. Addressing these aspects will help in reducing orthodontic issues and improving dental health outcomes in these communities.

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