

Jurnal Kesehatan Gigi

Analysis of Factors Causing Sensitive Teeth in the Community of Nibong Village, North Aceh District

Teuku Salfiyati¹, Cut Siri Muliati², Reza³, Cut Aja Nuraski³, Halimatussakdiah⁴

^{1,3,4}Poltekkes Kemenkes Aceh, Indonesia, ²Community Health Center, Lhokseumawe City, Indonesia

Corresponding Author: Teuku Salfiyati

Email: atjeh1983@gmail.com

ABSTRACT

Sensitive teeth are a general term to denote hypersensitive dentine, which is a painful sensation that occurs in the exposed dentin/root of the tooth due to external stimuli such as heat, cold, and acid, especially in areas where the periodontal lining is missing. Hypersensitive dentin is correlated with abrasion when brushing teeth, periodontal disease, erosion from food or acid, and possibly increased scaling and gum recession. The results of the examination of the community in Nibong Village, North Aceh District, in early 2025 showed that out of 84 samples, 36 people were found to have sensitive teeth. The purpose of this study was to determine the factors that cause tooth sensitivity in the community. This type of research is a case study by conducting descriptive analysis. This study shows 36 people; there are 9 people who have periodontal disease status who are still healthy, besides experiencing complaints of aching or sensitive teeth as many as 30 people, there are shallow pockets (80.6%), assessment based on the division of the square of only 12 healthy conditions, the rest 82 have periodontal disease. In the examination of gingival recession of 21 people (53.3%), some thinning of the tooth enamel layer, gingival recession of 21 people (58.3%), thinning enamel conditions, and as many as 24 people (66.7%) are at risk of gingival recession. It can be concluded that the main cause of tooth sensitivity in the community is the habit of applying excessive pressure when brushing.

Introduction

Public health development requires health efforts, health resources, and health management to improve the highest degree of public health based on the principles of welfare, equity, nondiscrimination, participation, and sustainability in the context of developing quality and productive human resources, reducing inequality, strengthening quality health services, increasing health resilience, ensuring a healthy life, and advancing the welfare of all citizens and the competitiveness of the nation for the achievement of national development goals[1][2]. Health problems and disorders in the community will reduce productivity and cause losses to the state so that health transformation is needed to achieve an increase in the degree of public health[3]. Public

health development is getting better and more open so as to create independence and encourage the development of the national health industry at the regional and global levels and encourage the improvement of safe, quality, and affordable health services for the community to improve the quality of life of the community; To increase health capacity and resilience, it is necessary to adjust various policies to strengthen the health system in an integrative and holistic manner in 1 (one) comprehensive law [4]. Based on the considerations as intended, it is necessary to form a Law on Health. The legal basis of this Law is Article 20, Article 21, Article 28H paragraph (1), and Article 34 paragraph (3) of the 1945 Constitution of the Republic of Indonesia[5]. This Law regulates health by setting limits on the terms used in its regulation. This Law contains general provisions, rights and obligations,

responsibilities of the central government and regional governments, health administration, health efforts, health service facilities, health human resources, health supplies, pharmaceutical and medical device security, health technology, health information systems, extraordinary events and outbreaks, health funding, coordination and synchronization of health system strengthening, community participation, guidance and supervision, investigation, criminal provisions, transitional provisions and provisions. [6]

Increased understanding in dental health education which is one of the efforts in improving the degree of better health education [7]. In realizing this effort, it is necessary to review various aspects, such as aspects of life in the environment and also aspects of increasing public [8]. Knowledge in comprehensive health education [9]. Oral health is an integral part of overall body health, because the condition of the teeth and mouth can affect general body health [10] [11]. On the other hand, teeth have an important role in the process of chewing, speaking, and maintaining facial shape. Given its vital function, maintaining oral health from an early age is important so that it requires a long time in the mouth for a long time [12].

The condition experienced by someone causing tooth sensitivity is used to describe dentine hypersensitivity, which is the condition of dentin opening due to thinning of the enamel layer [13]. People who experience pain on the surface of the teeth can occur suddenly, giving a high soreness at the time of pressure or cold stimuli [14] [15]. This process can be in the form of touch, vapor, chemicals, temperature conditions and pain in sensitive teeth can be triggered by various factors, such as brushing your teeth too hard, the habit of consuming food or drinks at extreme temperatures, and often eating foods that are too sour or sweet [16]. Although this is a short-lived condition, it can cause difficulty when eating and potentially affect oral health if left untreated. Untreated dentin hypersensitivity can also interfere with comfort, oral function, and in the long run risks causing nutritional deficiencies in sufferers [17].

Based on data on sensitive dental tissue in 2024, there are 50% of our society in Indonesia as a whole experiencing the same excessive pain

when consuming cold or hot drinks that apply to sensitive teeth excessively [18]. From this condition, our society does not really understand the importance of maintaining dental health from an early age [19].

Findings from the health sector show that the prevalence of people experiencing tooth sensitivity reaches 20%, while 62.1% have cavities (caries), and 36.5% of them suffer from active caries that have not received treatment [20]. In addition, data from WHO reveals that 50% of people have dental health problems, even without realizing it. We need to understand this kind of education on dental health that will have an impact on daily life [21].

Data from the Meurah Mulia Community Health Center in Nibong Village, North Aceh District, showed that 43 participants who attended the counseling, 18 had symptoms of tooth sensitivity. People complained of tooth pain when consuming cold food or drinks, as well as when consuming sweet and sour foods. This data shows that almost 41% of counseling participants experience tooth sensitivity.

In the initial data collection activities in Nibong Village, Meurah Mulia District, North Aceh, data obtained as many as 36 people experienced complaints of sensitive teeth. Problem exploration on this occasion explored related to "Factors Causing Sensitive Teeth in the Community in Nibong Village, North Aceh District".

Methods

The method used in this study is descriptive analytical, namely analyzing all the initial factors causing sensitive teeth in the community. The aim is to describe the relationship between various risk factors, such as tooth brushing habits, consumption of acidic foods and drinks, and general oral health conditions, and the level of tooth sensitivity experienced by respondents.

Results and Discussion

The following is the data from the examination of periodontal tissue status in Nibong Village, Meurah Mulia District, North Aceh.

Table 1. Distribution of Respondents' Periodontal Status

Σ respond ents	F	Hea lth	F	Blo od	F	Calcu lus	F	Shall ow Poke t	F	Inn er Po ket	F	No Tee th	F
		0		1		2		3		4		x	
36	100 %	9	25 %	11	30,6 0%	29	80,6 0%	30	83,3 0%	13	36,1 0%	8	22,2 0%

From the table above obtained 36 people there are healthy teeth as many as 9 people (25%), bleeding teeth 11 people (30.6%), calculus 29 people (80.6%), shallow pockets 30 people (83.3%), deep pockets 13 people (36.1%) and no

teeth as many as 8 people (22.2%). Examination of the condition of tooth enamel in people who experience tooth sensitivity in Nibong Village, Meurah Muliah District, North Aceh.

Table 2 Distribution of Respondents' Tooth enamel Condition

No	Enamel Condition	F	%
1	Teeth_present	21	58,3 %
2	No Teeth	15	41,8%
	Total	36	100%

From the table above, the highest enamel condition was obtained with 21 teeth (58.3%) and no teeth as many as 15 people with (41.8%).

Data collection that experienced gingival recession in people who experienced sensitive teeth in Nibong Village, Meurah Muliah District, North Aceh.

Table 3. Distribution of Respondents with Gingival Recession

No	Gingival Recession	F	%
1	Gingiva presen	24	66,7 %
2	No Gingiva	12	33,3%
	Total	36	100 %

From the table above, 24 people (66%) had gingiva and 12 people (33.3%) did not have gingiva.

The process of causing tooth sensitivity is based on habits and causes

Table 4. Frequency distribution of habits that cause tooth sensitivity

No	Causes	Criteria				Total	
		Yes F	%	No F	%	F	%
1	Using a rasak toothbrush	18	50%	18	50%	36	100%
2	Excessive pressure	35	97%	1	3%	36	100%
3	Cleaning teeth with hard tools	3	8%	33	92%	36	100%
4	Using harmful toothpaste	6	17%	30	83%	36	100%
5	Using chemical mouthwash	11	31%	25	69%	36	100%
6	Bruxsim (habit of grinding your teeth)	1	3%	35	97%	36	100%
7	Chewing hard objects	21	58%	15	42%	36	100%
8	Eating sour foods	22	61%	14	39%	36	100%

From the table above, it is obtained that the highest data is pressure as many as 35 people (97%) experience excessive pressure and while in the

category of not as many as 35 people (97%) who habitually brush their teeth.

Conclusion

The main cause of tooth sensitivity in the community of Nibong Village, Meurah Mulia Subdistrict, North Aceh Regency is the habit of applying excessive pressure when brushing teeth, which was done by 35 people (97.2%). Most people have unhealthy periodontal status. Of the 36 respondents who experienced tooth sensitivity, only 9 respondents had healthy periodontal status. In addition, 18 people (50%) experienced tooth sensitivity due to thinning of tooth enamel, while 24 people (66.7%) also experienced gingival recession

Acknowledgements

Thank you to the Geuchik of Nibong Village, Meurah Mulia Subdistrict, North Aceh, who has helped a lot until the completion of this research. Also, to the people who have taken the time to be willing to be Respondents we thank you for everything

References

- [1] J. Azétsop and M. Ochieng, "The right to health, health systems development and public health policy challenges in Chad," *Philos. Ethics, Humanit. Med.*, vol. 10, no. 1, pp. 1–14, 2015, doi: 10.1186/s13010-015-0023-z.
- [2] C. A. Nuraskin, T. Salfiyadi, E. S. Rahayu, and A. Mardiah, "Promotif dan Preventif Dalam Upaya Pencegahan Karies Gigi Pada Murid SD Negeri i Kayee Lheu Kabupaten Aceh Besar Promotive and Preventive in Efforts to Prevent Dental Caries in Students of SD Negeri i Kayee Lheu , Aceh Besar District," *JEUMPA J. Pengabd. Kpd. Masy.*, vol. 2, no. 1, pp. 16–22, 2023, doi: <https://doi.org/10.30867/jeumpa.v2i1.199>.
- [3] T. R. Frieden, "A framework for public health action: The health impact pyramid," *Am. J. Public Health*, vol. 100, no. 4, pp. 590–595, 2010, doi: 10.2105/AJPH.2009.185652.
- [4] Subkhi Mahmasani, "View metadata, citation and similar papers at core.ac.uk," pp. 274–282, 2020.
- [5] N. Ray, Z. U. Bany, and S. Rezeki, "Gambaran Pengetahuan Pasien Mengenai Gigi Sensitif Di Puskesmas Baitussalam Aceh Besar," *J. Caninus Dent.*, vol. 2, no. 4, pp. 162–168, 2017.
- [6] Presiden RI, "Undang-Undang Republik Indonesia Nomor 17 Tahun 2023 Tentang Kesehatan," *Undang-Undang*, no. 187315, pp. 1–300, 2023.
- [7] A. Andriani and E. Zahara, "Hubungan Tekanan Menyikat Gigi Dengan Terjadinya Gigi Sensitif Pada Masyarakat Desa Kandang Kecamatan Darul Imarah Kabupaten Aceh Besar Tahun 2018," *J. Bahana Kesehat. Masy. (Bahana J. Public Heal.*, vol. 3, no. 2, pp. 67–70, 2019, doi: 10.35910/jbkm.v3i2.188.
- [8] F. Anggraini, N. Hikmah, and H. Wahyono, "Implementasi Sistem Pakar Untuk Mendiagnosa Penyakit Gigi Menggunakan Metode Teorema Bayes," vol. 25, no. 2, pp. 19–27, 2022.
- [9] A. I. Anwar, "Departemen Ilmu Kesehatan Gigi Masyarakat," *Buku Kedokt.*, pp. 8–11, 2020.
- [10] P. R. Re, T. Purnama, S. N. Tauchid, and N. Prihatiningsih, "Knowledge of Oral and Dental Health Impacts the Oral Hygiene Index Simplified (OHI-S) of Primary School Children," *Indian J. Forensic Med. Toxicol.*, vol. 15, no. 4, pp. 2179–2183, 2021, doi: 10.37506/ijfmt.v15i4.17030.
- [11] T. Salfiyadi *et al.*, "Parental Behavior on the Growth Period of Deciduous Teeth and Permanent Teeth in Children in Central Aceh," *J. Kesehat. Gigi*, vol. 9, no. 2, pp. 115–121, 2022, doi: 10.31983/jkg.v9i2.8973.
- [12] H. Harsha Kumar *et al.*, "Health-related quality of life among osteoarthritis patients attending primary care clinics of Mangalore city," *Int. J. Med. Public Heal.*, vol. 5, no. 1, p. 55, 2015, doi: 10.4103/2230-8598.151260.
- [13] Z. Hochberg *et al.*, "Child health, developmental plasticity, and epigenetic programming," *Endocr. Rev.*, vol. 32, no. 2, pp. 159–224, 2011, doi: 10.1210/er.2009-0039.
- [14] T. Salfiyadi, A. Mardiah, T. I. Faisal, J. Kesehatan, G. Poltekkes, and K. Aceh, "Peran Perawat Gigi di Puskesmas Dalam Mendukung Transformasi Kesehatan The Role of Dental Nurses in Community Health Centers in Supporting Health," *JEUMPA J. Pengabd. Kpd. Masy.*, vol. 2, no. 1, pp. 64–70, 2023, doi: <https://doi.org/10.30867/jeumpa.v2i1.199>.
- [15] D. M. Kes, "Synergy of Health Services to the Interaction of Healthy Life Behavior of Rural Communities in South Sulawesi," *Int. J. Soc. Sci. Stud.*, vol. 7, no. 4, p. 93, 2019, doi: 10.11114/ijsss.v7i4.4354.
- [16] A. Herawati *et al.*, "Edukasi Kesehatan Gigi dan Mulut melalui Media Pembelajaran Berbasis Interaktif pada Siswa SDN Mekarjaya

- 11 Kota Depok Tahun 2022,” *J. Pengabd. Masy.*, vol. 01, no. 04, pp. 111–118, 2022.
- [17] E. Nurseptiana and U. Lestari, “Edukasi Kesehatan Gigi Dan Mulut Serta Perilaku Menggosok Gigi Anak Usia Sekolah 2023,” *J. Pengabd. Masy.*, vol. 5, no. 1, pp. 151–154, 2023.
- [18] Y. Pili, P. A. S. Utami, and N. L. P. E. Yanti, “Faktor – Faktor Yang Berhubungan Dengan Kebersihan Gigi Dan Mulut Pada Lansia,” *J. Ners Widya Husada*, vol. 5, no. 3, pp. 95–104, 2018.
- [19] E. Zahara, “The Relationship Of Mother ’ S Knowledge With The Event Of The Persistence Of Child In Class Ii And Iii At Sdn 12 Kota Banda,” *Dent. Heal. J. Aceh*, vol. 1, no. 1, 2022.
- [20] A. Abrial, J. Kristianto, Y. Maryani, N. Setiawaty, and R. Sofian, “Smart Dental Box Sebagai Media Penyuluhan Untuk Peningkatan Pengetahuan Dan Perilaku Kesehatan Gigi Mulut,” *Qual. J. Kesehat.*, vol. 14, no. 1, pp. 38–45, 2020, doi: 10.36082/qjk.v14i1.92.
- [21] D. Pratiwi *et al.*, “Penyuluhan Peningkatan Kesadaran Dini Dalam Menjaga Kesehatan Gigi Dan Mulut Pada Masyarakat Tegal Alur, Jakarta,” *J. Abdi Masy. Indones.*, vol. 2, no. 2, pp. 120–128, 2020, doi: 10.25105/jamin.v2i2.7179.