

The Correlation Between the Recurrent Aphthous Stomatitis Lesion and Quality of Life Among Productive-Age Patients

Liza Meutia Sari^{1*}, Sri Rezeki¹, Sarinah Rambe¹, Cut Fera Novita², Herwanda Herwanda², Safira Fasya³

¹Department of Oral Medicine, Faculty of Dentistry, Universitas Syiah Kuala, Darussalam, Banda Aceh, Indonesia

²Department of Dental Public Health, Faculty of Dentistry, Universitas Syiah Kuala, Darussalam, Banda Aceh, Indonesia

³Undergraduate Student, Faculty of Dentistry, Universitas Syiah Kuala, Darussalam, Banda Aceh, Indonesia

*Corresponding Author: lizameutiasari@usk.ac.id

ARTICLE INFO : Received, August 21, 2022; Revised, October 11, 2023; Accepted, November 2, 2023; Published, December 20, 2023
ORCHID : Sari LM ([0000-0001-5038-9913](https://orcid.org/0000-0001-5038-9913)); Rezeki S ([0000-0002-0109-0701](https://orcid.org/0000-0002-0109-0701)); Rambe S ([0009-0008-1816-8772](https://orcid.org/0009-0008-1816-8772)); Novita CF ([0000-0001-5219-6373](https://orcid.org/0000-0001-5219-6373)); Hewwanda ([0009-0002-6092-3731](https://orcid.org/0009-0002-6092-3731)); Safira Fasya ([0000-0001-5219-6373](https://orcid.org/0000-0001-5219-6373))
DOI : [10.24815/jds.v8i2.35017](https://doi.org/10.24815/jds.v8i2.35017)

ABSTRACT

Background: Recurrent Aphthous Stomatitis (RAS) is an ulcerative disease in oral mucosa. These lesions are usually located on the non-keratinized oral mucosa with the characteristics of recurrent ulcerated lesions and the presence of pain. Some people affected by RAS will have various impacts on speech, swallowing, and chewing functions. Patients with RAS usually experience pain, and this impact greatly affects their quality of life. **Objective:** This study examined the relationship between RAS and patients' quality of life. **Materials and Methods:** This study is a cross-sectional observational study. The method of taking the subjects was done using consecutive sampling with 32 subjects. Data collection was carried out with objective and subjective data. **Results:** A significant relationship exists between RAS and patient quality of life $p = 0.044$ (Fisher's Exact Test, $p < 0.05$). There is a significant correlation between RAS and patient quality of life Spearman's correlation test, significance $p < 0.05$ with a value of $p = 0.018$ with a strength level of a correlation coefficient of 0.415, which means that it has a moderate level and a direction of the correlation is positive. **Conclusion:** Aspects of social functioning limitation and bodily pain are most influenced by the emergence of RAS lesions. There is a positive correlation between RAS and patients' quality of life.

Keywords: Productive-age, quality of life, recurrent aphthous stomatitis

ABSTRAK

Latar Belakang: Kesehatan gigi dan mulut adalah kondisi sehat jaringan keras dan jaringan lunak serta komponen-komponen terkait rongga mulut yang memungkinkan setiap individu untuk makan, berbicara dan berinteraksi sosial. Rongga mulut yang tidak sehat dapat menyebabkan beberapa penyakit yang dapat mempengaruhi kesehatan dan kualitas hidup secara umum. Penyakit rongga mulut yang sering terjadi adalah karies, penyakit periodontal, dan xerostomia yang dapat menyebabkan terganggunya flora normal, menyebabkan infeksi menekan sistem imun yang dapat memperburuk penyakit sistemik lainnya. Kesadaran mahasiswa akan pentingnya kesehatan gigi dan mulut bertujuan untuk melakukan diagnosis dini sehingga praktisi dapat melakukan pengobatan yang memadai yang dapat mencegah penyakit. **Tujuan penelitian:** Tujuan penelitian ini adalah untuk mengetahui tingkat pengetahuan tentang hubungan kondisi rongga mulut dengan penyakit sistemik. **Bahan dan Metode:** Penelitian dilakukan dengan 140 mahasiswa kedokteran gigi dan kedokteran. Penelitian ini menggunakan survei analitik dengan desain cross sectional menggunakan kuesioner. Pengambilan sampel menggunakan metode simple random sampling dan dianalisis dengan uji Chi-Square. **Hasil:** Tingkat pengetahuan mahasiswa kedokteran gigi dengan pengetahuan baik sebesar 94,29%, pengetahuan cukup 5,71% dan tidak ada pengetahuan yang kurang. Untuk mahasiswa kedokteran, 77,14% memiliki pengetahuan baik, 18,57% memiliki pengetahuan cukup, dan 4,29% pengetahuan kurang. **Kesimpulan:** Tingkat pengetahuan tentang penyakit rongga mulut dengan penyakit sistemik pada mahasiswa berada pada kategori baik, meskipun sebagian responden memiliki pengetahuan cukup hingga kurang.

Kata Kunci : Usia produktif, kualitas hidup, stomatitis recurrent aphthous

1. Introduction

Recurrent aphthous stomatitis (RAS) is a widely occurring ulcerative disease of the oral mucosa, affecting approximately 20% of the general population.¹ These lesions are usually located in the non-keratinized oral mucosa with characteristics of recurrent ulcerated lesions and the presence of pain.² The epidemiological study in Brazil showed that adolescents who had been interviewed with high morbidity rates showed a high prevalence of RAS.³ Based on data from the Riset Kesehatan Dasar (RISKESDAS) in 2018, the prevalence of RAS in Indonesia was 8.0%.⁴

Recurrent Aphthous Stomatitis is a chronic, inflammatory, and ulcerative disease on the oral mucosa.⁵ To date, the etiology of RAS is still unknown but is considered multifactorial predisposition factors such as anemia, Vitamin B12, B6, folic acid deficiency, allergy, autoimmune response, genetic disorder, and stress.⁵ Some people affected by RAS will experience various impacts on speech, swallowing, and masticatory functions, especially in early symptoms. Patients with RAS usually experience pain, and this condition might significantly impact their quality of life.^{8,9} Noviana et al. found that 43.8% of RAS lesions affected the quality of life in Dental and Oral Hospital patients in Bandung, West Java, Indonesia.⁷

Quality of life is a part of health. It is recognized as an essential component in determining the level of development of the health environment.¹⁰ Quality of life related to oral health is necessary to determine whether there are effects of changes in a person's oral cavity. It measures the consequences of a disease that affects an individual's routine.¹¹ Quality of life in dentistry can be assessed using the Oral Health-Related Quality of Life (OHRQoL) concept.¹² This assessment can be measured by using the Short Form-36 Health Survey (SF-36) questionnaire that consists of 8 aspects of assessment in this questionnaire, namely: body pain, body physical activity function, general health, limitations due to physical problems, social interaction function, emotional limitations, quality of body vitality and mental health.^{10,13} This study will examine the effect of RAS lesion type on patients' quality of life.

2. Material and Methods

Our investigation evaluated the clinical characteristics of RAS and their impact on quality of life. This research has passed research ethics No 205/KE/FKG/2022 from the Faculty of Dentistry, Universitas Syiah Kuala. The informed consent from participants was obtained before starting the study.

2.1. Study Desain

The study was cross-sectional and observational and conducted from September to October 2022. The subjects are the patients attending the oral medicine clinic at the Oral and Dental Hospital, Faculty of Dentistry, Universitas Syiah Kuala, Banda Aceh, Indonesia. The inclusion criteria to participate in this study were: 1) Age 15-50 y.o, 2) have a history of RAS occurring at least twice a year, 3) presenting one active ulcer (<48 hours duration) measuring no more than 10 mm in diameter, and 4) ulcer at an accessible location. Exclusion criteria for the study included patients with systemic disease who were prescribed systemic antibiotics, nonsteroid anti-inflammatory drugs, immunomodulatory agents, or local medication within one month before the investigation. The determination of the number of subjects in this study was carried out using the consecutive sampling technique.

2.2. Data Collection

In the study, 32 patients were assessed for recurrent aphthiasis (RAS) by an experienced oral specialist, and personal data and ulcer history were filled out. They also completed the SF-36 Quality of Life (QoL) questionnaire. Their responses were scored and converted to a 0-100 scale to determine their quality of life, with scores above 50 indicating good quality of life. The initial assessment took place on the first day or baseline visit.

2.3. Statistical Analyses

Information on the quality of life and the demographic details of individuals with Recurrent Aphthous Stomatitis (RAS) was analyzed descriptively. The association between RAS lesion types and quality of life was examined using Fisher's Exact Test. Furthermore, the Spearman's Rank correlation test determined the relationship between variables. A significance level was established

at $p < 0.05$. Data entry and processing were done using the Statistical Product and Service Solution (SPSS) program, version 25.0.

3. Result and Discussion

Thirty-two patients with RAS were consecutively enrolled in the study. Of the 32 patients, most were female (**Table 1**), and a minor type of lesion, RAS, was the most common lesion. This study shows that women are more dominant in experiencing RAS than men. This study's results align with the research of Noviana et al., which states that, on average, most RAS patients are women.⁷ The incidence of RAS that is more common in women in some literature is associated with hormonal factors related to the menstrual cycle that occurs during the luteal phase or tends to arise every premenstrual period and during menstruation.¹⁵⁻¹⁷ Hormones related to the menstrual cycle are the hormones estrogen and progesterone. These hormones are thought to have a role in the occurrence of RAS, and in the luteal phase of the menstrual cycle, there is a decrease in progesterone levels.¹⁸ Low progesterone levels can stimulate prostaglandins, which are mediators of inflammation, so that inflammation occurs more quickly. Low estrogen levels can cause epithelial thinning and decreased keratinization of the oral mucosa. Such hormonal conditions can cause irritation or infection of the oral mucosal epithelium, ultimately leading to RAS.^{18,19}

Table 1. The general characteristics of the patients (n=32)

Variables		Value (%)
Sex	Male	15.6
	Female	84.4
Age (years) (mean±SD)	11-20	19.5±2.32 (6.25)
	21-30	22.12±6.21 (90.63)
	31-40	0
	41-50	45.5±2.17 (3.12)
RAS lesion type	Minor	90.6
	Major	9.4
	Herpetiform	0

The characteristics of respondents based on age in this study showed that most RAS lesions occurred in the age range of 21-30 years. The results are by the research of Rajmane et al., which states that RAS is the most common in the second and third decades of life, RAS will appear more often before the age of 30 years, and there will be a decrease in the incidence of RAS after the third decade.²¹ It is suspected that the age of the third decade (21-30 years) is included in the productive age group. At a productive age, individuals will usually have a lot of pressure or burden of thought related to tasks or other prioritized things, so it can cause various impacts such as stress, irregular eating patterns, and hormonal changes that can lead to the onset of RAS.²² While the incidence of RAS can decrease with age, this can occur because older people no longer have pressure or a heavy burden of thought related to their work.²³

Most respondents in this study experienced more types of RAS Minor than significant, and no herpetiform was found. This study's results align with research conducted by Queiroz et al. and Shirzaei et al., which states that it is most common to find patients who experience RAS Minor around 70-85% in a specific population.^{24,25} Major RAS is rare, with a general prevalence of Major RAS of 7-20% per case, and herpetiform RAS is less common.²⁴

The quality of life of RAS patients was measured based on the SF-36 questionnaire. The results of this study indicate that most RAS patients have a good quality of life (62.5%). Still, RAS affects several aspects of quality of life, including two aspects that reduce or negatively impact the quality of life in RAS patients. The aspects are social interaction function and bodily pain (**Table 2**). Meanwhile, the severity of RAS lesions did not affect most aspects of quality of life. The patients did not have limitations in physical activity or general mental health problems even though they were suffering from RAS.

The disruption of social interaction in the presence of RAS is one aspect with a high value. The pain caused by RAS lesions significantly affects social interactions with people around them, such as difficulty doing work and feeling disturbed when interacting with others. Sakly et al.

They demonstrated that individuals affected by RAS will experience various impacts on speech, chewing, swallowing, and other daily activities.²⁶ The patients will feel a very significant impact on this aspect in carrying out their activities. The bodily pain aspect in this study also had the second highest adverse impact felt by patients after the social interaction function aspect. This study is in line with research conducted by Farhang et al., which states that RAS lesions cause quite pain felt by the patients.²⁷

Table 2. Quality of life aspects assessment in patients (n=32)

Quality of Life		Good n (%)	Bad n (%)
1.	Bodily pain	15 (46.9)	17 (53.1)
2.	Limitations in physical activities because of health problems	29 (90.6)	3 (9.4)
3.	General health perceptions	25 (78.1)	7 (21.9)
4.	Limitations in usual role activities because of physical health problems	17 (53.1)	15 (46.9)
5.	Limitations in social activities because of physical or emotional problems	8 (25.0)	24 (75.0)
6.	Limitations in usual role activities because of emotional problems	23 (71.9)	9 (28.1)
7.	Vitality (energy and fatigue)	19 (59.4)	13 (40.6)
8.	General mental health (psychological distress and well-being)	27 (84.4)	5 (15.6)
Total		20 (62.5)	12 (37.5)

The RAS lesions could cause the limitation of regular activities so that the patients become unfocused and unable to complete tasks on time. It is also one of the adverse effects the patients quite widely feel. Farhang et al. reported that a problem in the oral cavity can cause pain and discomfort, so individuals affected by RAS will have an effect or limitation on their activities.²⁷ Impaired body vitality, such as lack of appetite, weakness, fatigue, and loss of energy, are also aspects that are disturbed due to RAS. Ulceration is a relatively mild, non-life-threatening, and non-contagious disease that does not cause patients to feel distress, anxiety, or worry in carrying out their daily activities. These oral ulceration lesions also do not interfere with general and mental health. However, this study is not in line with previous studies that reported that RAS lesions can cause mental disorders such as anxiety.²⁸

In this study, minor lesions predominated, which allowed most patients to handle the pain associated with the lesions. Additionally, some individuals could adjust to their situations due to the recurrence of their ulcers.²⁹ These lesions also do not significantly affect basic activities such as walking, exercising, and cleaning the house. Minor RAS lesions do not significantly impair the body's physical activity function. Most patients in this study who experienced minor RAS had a good quality of life compared to patients who experienced significant types. This study's results align with Rodríguez-Archilla et al., who stated that major lesions can cause more incredible pain than minor.³⁰ In addition, it takes more than two weeks to heal and often leaves cicatrix tissue, so significant lesions have prodromal symptoms that are more prominent than minor ones. Usually patients with major lesions will often experience fever, malaise, and dysphagia, which causes a person to be disturbed in their daily activities.³¹ patients experience mild to moderate pain in minor RAS, but the lesion can heal within 14 days without leaving cicatrix tissue.^{32,33}

Table 3. The effect and correlation of RAS lesion type to quality of life (n=32)

RAS lesion type	Quality of life		Fisher's Test	correlation
	Good n (%)	Bad n (%)		
Minor	20 (68.96)	9 (31.04)	0.044	0.018
Major	0	3(100)		

* Spearman's Rank correlation test

The effect of RAS lesion type on patients' quality of life was analyzed, showing a significant relationship between the two variables in this study (**Table 3**). Most patients with minor-type lesions have a good quality of life, while with major lesions, all patients showed a lousy quality of life. The RAS lesion type has a moderate correlation with the patient's quality of life. The correlation has a positive direction, meaning that the bigger RAS lesions arise on the oral mucosa, the more RAS will affect the quality of life.

4. Conclusion

Major-type RAS lesions adversely affect patients' quality of life, but minor lesions do not. Social interaction function and bodily pain were the aspects most affected by the onset of RAS. Recurrent aphthous stomatitis lesions positively correlate to changes in quality of life.

5. Acknowledgments

The authors thank PNPB fund Syiah Kuala University No 109/UN11.2.1/PT.01.03/PNPB/2023 for financial support.

6. References

1. Sridhar T, Elumalai M, Karthika B. Recurrent Aphthous Stomatitis: A Review. *Biomed & Pharmacol J*. 2013;6(1):17–22.
2. Chiang CP, Yu-Fong Chang J, Wang YP, Wu YH, Wu YC, Sun A. Recurrent aphthous stomatitis – Etiology, serum autoantibodies, anemia, hematinic deficiencies, and management. *Journal of the Formosan Medical Association*. 2019;(1):1279–1289.
3. Marins de Souza PR, Duquia RP, Breunig JA, Almeida HL Jr. Recurrent aphthous stomatitis in 18-year-old adolescents - Prevalence and associated factors: a population-based study. *A Bras Dermatol*. 2017;92(5):626–629.
4. Kementerian Kesehatan RI. Laporan Hasil Riset Kesehatan DaRAS (Riskesdas) Indonesia.2018: p.184.
5. Ślebioda Z, Szponar E, Kowalska A. Etiopathogenesis of Recurrent Aphthous Stomatitis and the Role of Immunologic Aspects: Literature Review. *Arch Immunol Ther Exp*. 2014;62(3):205–215.
6. Arun Kumar M, Ananthakrishnan V, Goturu J. Etiology and Pathophysiology of Recurrent Aphthous Stomatitis: A Review. *Int J Cur Res Rev*. 2014;6 (10):16–22.
7. Noviana L, Kintawati S, Susilawati S. Kualitas hidup pasien dengan inflamasi mukosa mulut stomatitis aftosa rekuren. *J Ked Gi Unpad*. 2018;30(1):58–63.
8. Cardoso JA, Dos Santos Junior AA, Nunes MLT, Figueiredo MAZ De, Cherubini K, Salum FG. Salivary Alpha-Amylase Enzyme, Psychological Disorders, and Life Quality in Patients with Recurrent Aphthous Stomatitis. *Hindawi International Journal of Dentistry*. 2017;1:1–6.
9. Al-Omiri MK, Karasneh J, Alhijawi MM, Zwiri AMA, Scully C, Lynch E. Recurrent aphthous stomatitis (RAS): A preliminary within-subject study of quality of life, oral health impacts and personality profiles. *J Oral Pathol Med*. 2015;44:278–283.
10. Romero M, Vivas-Consuelo D, Alvis-Guzman N. Is Health-Related Quality of Life (HRQoL) a valid indicator for health systems evaluation? *Springerplus*. 2013;2(1):1–7.
11. Spangenberg JC, Cardoso JA, Slob EMGB, López-López J. Quality of life-related to oral health and its impact in adults. *J Stomatol Oral Maxillofac Surg*. 2019;120(3):1–6.
12. Bennadi D, Reddy C. Oral health-related quality of life. *J Int Soc Prevent Community Dent*. 2013;3(1):1–6.
13. Theofilou P. Quality of Life: Definition and measurement. *Europe's Journal of Psychology*. 2013;9(1):150–162.
14. Liu L-J, Xiao W, He Q-B, Jiang W-W. Generic and oral quality of life is affected by oral mucosal diseases. *BMC Oral Health*. 2012;12(2):10–15.
15. Maheswaran T, Yamunadevi A, Ilayaraja V, Dineshshankar J, Yoithaprabhunath T, Ganapathy N. Correlation between the menstrual cycle and the onset of recurrent aphthous stomatitis. *J Indian Acad Dent Spec Res*. 2015;2(1):25–26.
16. Sánchez J, Conejero C, Conejero R. Recurrent Aphthous Stomatitis. *Actas Dermosifiliogr*. 2020;6(1):471–480.
17. Sharma D, Garg R. A Comprehensive Review on Aphthous Stomatitis, its Types, Management and Treatment Available. *J Dev Drugs*. 2018;7(2):1–8.
18. Utami S, Rahardjo TWB, Baziad A, Alwadriss TT, Auerkari EI. Effect of blood estrogen and progesterone on the severity of minor RAS. *J Phys Conf Ser*. 2018;1(1):1–4.
19. Sumintarti, Marlina E. Hubungan antara level estradiol dan progesterone dengan stomatitis aftosa rekuren. *J Dentomaxillofacial Sci*. 2012;11(3):137.
20. Obradović RR, Igić M, Mitić A, Pejčić A, Todorović K, Popović Z. Smoking and recurrent aphthous stomatitis. *Stoma Edu J*. 2019;6(4):237–240.

21. Rajmane Y, Ashwinirani S, Suragimath G, Nayak A, Rajmane V, Lohana M. Prevalence of recurrent aphthous stomatitis in the western population of Maharashtra, India. *J Oral Res Rev.* 2017;9(1):25–28.
22. Sulistiani A, Hernawati S, P MA. Prevalensi dan Distribusi Penderita Stomatitis Aftosa Rekuren (RAS) di Klinik Penyakit Mulut RSGM FKG Universitas Jember pada Tahun 2014. *e-Jurnal Pustaka Kesehatan.* 2017;5(1):169–176.
23. Giannetti L, Murri Dello Diago A, Lo Muzio L. Recurrent aphthous stomatitis. *Minerva Stomatol.* 2018;67(3):125–128.
24. Queiroz SIML, Silva MVA, Medeiros AMC, Oliveira PT, Gurgel BCV, Silveira EJD. Recurrent aphthous ulceration: an epidemiological study of etiological factors, treatment, and differential diagnosis. *A Bras Dermatol.* 2018;93(3):341–346.
25. Shirzaei M, RASabadani J. Recurrent Aphthous Stomatitis and Related Factors Among 12-17-Year-Old Students in Zahedan, Iran. *J Res Dent Maxillofac Sci.* 2020;5(1):34–39.
26. Sakly A, De Wever B, Jutla B, Satia M, Bogaert JP. The safety and efficacy of AphtoFix® mouth ulcer cream in the management of recurrent aphthous stomatitis. *BMC Oral Health.* 2016;16(1):1–7.
27. Farhang M, Navabi N, Kakoie S, Hashemipour MA. Evaluating the life quality of patients with diseases of oral mucosa referred to Kerman Dental School, Kerman, Iran, in 2014-2015. *Oral Health Oral Epidemiol.* 2017;6(3):151–158.
28. Dhopte A, Naidu G, Singh-Makkad R, Nagi R, Bagde H, Jain S. Psychometric analysis of stress, anxiety, and depression in patients with recurrent aphthous Stomatitis-A cross-sectional survey- based study. *J Clin Exp Dent.* 2018;10(11):e1109–e1114.
29. Vaishnavi V. Management of recurrent aphthous stomatitis - A review. *Res J Pharm Technol.* 2014;7(10):1193–1195.
30. Rodríguez-Archilla A, Raissouni T. Clinical study of 200 patients with recurrent aphthous stomatitis. *Gac Med Mex.* 2018;154(2):122–128.
31. Vivek V, Bindu J Nair. Recurrent Aphthous Stomatitis: Current Concepts in Diagnosis and Management. *J Indian Acad Oral Med Radiol.* 2011;23(3):232–236.
32. Sankari SL, Masthan KMK, Babu NA, Priyadharsini C. Recurrent aphthous stomatitis: A review. *Biomed & Pharmacol J.* 2013;6(1):33–39.
33. Ruiz Beguerie J, Sabas M. Recurrent aphthous stomatitis An Update on Etiopathogenia and Treatment. *J Dermatol Nurses Assoc.* 2015;7(1):8–12

Authors Contributions

Contribution	Sari LM	Rezeki S	Rambe S	Novita CF	Herwanda	Fasya S
Concepts or ideas	√	√	√	√	√	√
Design	√	√	√	√	√	√
Definition of intellectual content	√					
Literature search		√	√	√		√
Experimental studies	√					
Data acquisition		√			√	√
Data analysis	√	√			√	√
Statistical analysis	√		√	√	√	√
Manuscript preparation	√		√	√	√	√
Manuscript editing	√	√			√	√
Manuscript review	√	√			√	√



JDS (Journal of Syiah Kuala Dentistry Society) is an Open Access Journal licensed under a Creative Commons Attribution-ShareAlike 4.0 International License. This license authorizes the utilization, replication, modification, distribution, and reproduction of the article in any medium or format, provided that due credit is given to the original author (s) and the source, a link to the Creative Commons license is provided, and any alterations made to the article are duly indicated.

Citation Format: Sari LM, Rezeki S, Rambe S, Novita CF, Herwanda, Fasya S. The Correlation Between The Recurrent Aphthous Stomatitis Lesion and Quality of Life Among Productive-Age Patients. J Syiah Kuala Dent Soc. 2023; 8(2): 131-137

Publisher's Note: The authors of this article assert that all claims made herein are exclusively their own and may not necessarily reflect the views of their respective affiliated institutions or those of the publisher, editors, and reviewers. The publisher does not provide any guarantee or endorsement for any product subject to evaluation in this article or any claim made by its manufacturer.