

Association of Psychological Stress in Patients with Recurrent Aphthous Stomatitis: A Case-History-Based Study

Dr. Maheshwar Alane¹, Dr. Lata Kale², Dr. Smita Khandare³

¹PG Student OMR, Chatrapatti Sambhajinagar

²Professor (HOD) and PG Guide Oral Medicine and Radiology Department, CSMSS Dental College and Hospital Student OMR,

³PG Student OMR, Chatrapatti Sambhajinagar

Abstract: ***Background:** Recurrent Aphthous Stomatitis (RAS) is a common oral mucosal condition characterized by recurrent, painful ulcerations. Although its exact etiology remains unclear, psychological stress has been frequently implicated as a potential triggering or modifying factor. Most previous studies have relied on questionnaire-based stress assessment, which may introduce subjectivity. Aim: To evaluate the association between psychological stress and recurrent aphthous stomatitis using a detailed case-history-based approach. **Materials and Methods:** A case-control study was conducted involving 30 subjects, including 15 clinically diagnosed RAS patients and 15 healthy controls. Psychological stress was assessed through structured case history, focusing on presence, type, and temporal relation to ulcer episodes. Data were analyzed using statistical software, and the Chi-square test was applied to determine associations. A p-value of <0.05 was considered statistically significant. **Results:** Among the RAS group, 12 (80%) patients reported psychological stress, compared to 5 (33.3%) in the control group. A statistically significant association was observed between psychological stress and RAS ($\chi^2 = 6.65$, $p = 0.0098$). Academic stress was the most common type (33.3%), followed by occupational and personal stress (20% each). In 66.7% of cases, stress preceded ulcer onset. Although a higher prevalence of RAS was noted in younger individuals (15–25 years), the association was not statistically significant. **Conclusion:** The present study demonstrates a significant association between psychological stress and recurrent aphthous stomatitis based on case-history findings. Incorporating stress evaluation into routine clinical examination may aid in comprehensive patient management and improved therapeutic outcomes.*

Keywords: Recurrent aphthous stomatitis; Psychological stress; Oral ulcers; Case-history study; Chi-square test

1. Introduction

Recurrent aphthous stomatitis (RAS) is a common oral mucosal condition characterized by recurrent, painful ulcers that can significantly affect daily activities such as eating and speaking. Although its exact cause remains unclear, various factors including genetics, immunological imbalances, nutritional deficiencies, hormonal changes, and psychological stress have been suggested as potential contributors. Among these, psychological stress is thought to play a role in triggering or exacerbating RAS episodes by influencing immune and inflammatory responses. Most previous studies have assessed stress using questionnaires, which are subjective and may not fully reflect the patient's clinical experience.

This short study aims to evaluate the association between psychological stress and RAS solely based on detailed patient case history. By focusing on patient-reported stress events and correlating them with the occurrence of aphthous ulcers, this study seeks to provide a simple, cost-effective, and clinically applicable understanding of the role of psychological stress in RAS. Such an approach may help clinicians recognize stress as a potential contributing factor and adopt a more holistic approach in managing patients with recurrent aphthous stomatitis.

2. Materials and Methods

Study Design: - Observational case-control study.

Study Setting: - Department of Oral Medicine and Radiology

Study Population: The study population will consist of patients attending the Department of Oral Medicine and Radiology who present with clinically diagnosed recurrent aphthous stomatitis. The control group will include healthy individuals without a history of recurrent oral ulcers

Sampling Technique: Convenience sampling method

Patients presenting to the Department of Oral Medicine and Radiology with clinically diagnosed recurrent aphthous stomatitis who meet the inclusion and exclusion criteria will be recruited consecutively until the required sample size is achieved.

The control group will consist of healthy individuals without any history of recurrent oral ulcers, selected from patients attending the department for routine dental check-ups or minor non-ulcerative complaints.

Study Instruments:

The primary instrument for this study will be a pre-structured case history proforma designed to record patient information systematically.

Inclusion Criteria

- Patients aged 15–45 years
- Clinically diagnosed cases of minor recurrent aphthous stomatitis
- Healthy individuals without any history of recurrent oral ulcers (control group)

Exclusion Criteria:

- Patients with systemic diseases
- Patients on long-term medication
- Pregnant and lactating women

Method of Measurements

The assessment of psychological stress in the present study will be carried out solely through detailed patient case history. Information regarding psychological stress will be obtained by direct patient interview, focusing on the presence or absence of self-reported stress or stressful life events preceding the occurrence of recurrent aphthous stomatitis.

Recurrent aphthous stomatitis will be diagnosed clinically based on history of recurrent oral ulcers and characteristic clinical features such as site, size, and appearance of the lesions. Age of the patient and recurrence pattern of ulcers will also be recorded.

All findings will be documented using a pre-structured case history proforma, ensuring uniform data collection across all participants.

3. Statistical Analysis

The collected data will be entered into a Microsoft Excel spreadsheet and analyzed using appropriate statistical software. Descriptive statistics will be used to summarize demographic variables such as age and sex.

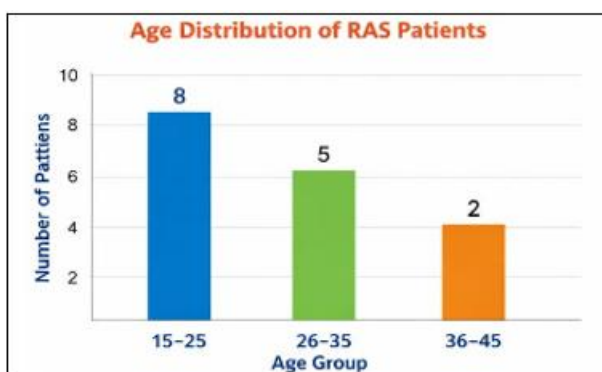
The association between psychological stress (based on case history) and recurrent aphthous stomatitis will be evaluated using the Chi-square test. The association between age groups and the occurrence of recurrent aphthous stomatitis will also be analyzed using the Chi-square test. A p-value less than 0.05 will be considered statistically significant.

4. Results

A total of 30 subjects were included in the present study, comprising 15 clinically diagnosed cases of recurrent aphthous stomatitis and 15 healthy controls.

Distribution of Age

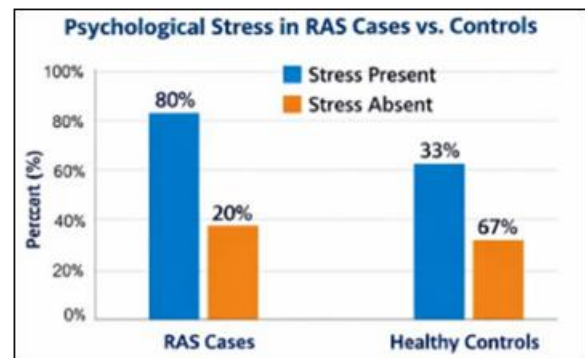
The majority of RAS patients (53.3%) belonged to the 15–25 years age group, followed by 26–35 years (33.3%) and 36–45 years (13.3%). However, the association between age group and occurrence of RAS was not statistically significant (Chi-square = 2.18, $p > 0.05$) Table 1.

**Gender Distribution**

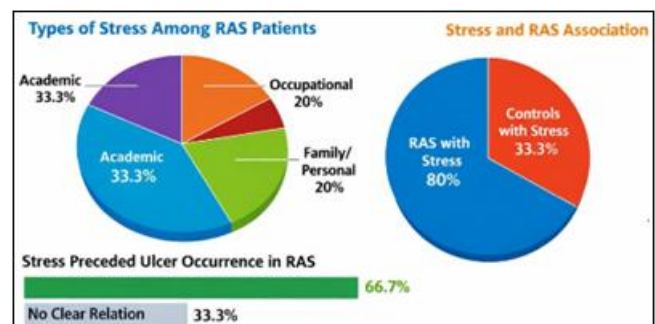
RAS cases showed almost equal gender distribution, with 8 females (53.3%) and 7 males (46.7%). No statistically significant association was observed between gender and RAS occurrence.

Association Between Psychological Stress and RAS

Out of 15 RAS patients, 12 (80%) reported psychological stress prior to ulcer onset, whereas only 5 (33.3%) controls reported stress. The Chi-square test revealed a statistically significant association between psychological stress and recurrent aphthous stomatitis ($\chi^2 = 6.65$, $p = 0.0098$) TABLE 2.

**Nature of Stress**

Among RAS patients reporting stress, academic stress was the most common type (33.3%), followed by occupational and family/personal stress (20% each). Financial stress accounted for 6.7% TABLE 3

**Temporal Relationship**

In 66.7% of cases, stress preceded the onset of ulcer episodes, indicating a possible triggering role of psychological stress

5. Discussion

The present study demonstrated a statistically significant association between psychological stress and recurrent aphthous stomatitis based on case-history findings.

This finding is consistent with Scully and Porter (1997), who described stress as an important precipitating factor influencing RAS recurrence. Humphris and Field (1999) suggested that emotional stress modulates immune function, thereby predisposing individuals to oral mucosal lesions.

Pedersen (2002) reported that stressful life events frequently preceded ulcer development, which aligns with the present

study where 66.7% of patients reported stress prior to ulcer occurrence.

Similarly, Gallo et al. (2009) found significantly higher stress levels among RAS patients compared to controls. The current study, although based solely on clinical history rather than questionnaires, demonstrated comparable findings, supporting the reliability of history-based assessment.

Akintoye and Greenberg (2011) and Natah et al. (2014) emphasized psychological stress as a commonly reported associated factor. The present study reinforces this concept through a simplified and cost-effective evaluation approach.

Although younger age groups showed higher frequency of RAS in this study, the association was not statistically significant, which is in agreement with some epidemiological studies suggesting higher prevalence in young adults but without strong statistical correlation.

The neuro-immunological mechanisms proposed by Chiappelli et al. (2007) may explain the observed association, where stress-induced cytokine alterations influence mucosal immunity.

Thus, the findings of the present study are in accordance with previously published literature and highlight the importance of incorporating stress evaluation during routine case history recording.

6. Conclusion

The study confirms a significant association between psychological stress and recurrent aphthous stomatitis based purely on detailed case history. Recognition of stress as a modifying factor can help clinicians adopt a holistic management approach including stress counseling and behavioral guidance.

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