



FREQUENCY AND IMPACT OF TRISMUS ON THE QUALITY OF LIFE AND HEALTH MEASURED THROUGH THE GTQ INDEX

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ABSTRACT

Background: Limited mouth opening (trismus) is a common clinical condition associated with various oral and maxillofacial disorders and has a substantial impact on daily functioning and quality of life. While objective clinical measurements are routinely used to assess trismus, patient-reported outcome measures are essential to understand its functional and psychosocial burden.

Objective: To determine the frequency of limited mouth opening and evaluate its impact on quality of life and health using the Gothenburg Trismus Questionnaire (GTQ).

Methods: A cross-sectional study was conducted among 120 patients attending an outpatient department over a six-month period. Maximum interincisal opening was measured, and participants with mouth opening ≤ 35 mm were classified as having limited mouth opening. The GTQ was administered to all participants to assess jaw-related problems, eating limitations, muscular tension and pain, and overall quality-of-life impact. Descriptive statistics were used for data analysis.

Results: Limited mouth opening was observed in 38.3% of participants. Individuals with restricted mouth opening demonstrated substantially higher GTQ scores across all domains compared to those with normal mouth opening. The most affected domain was eating limitations, followed by overall quality-of-life impact, jaw-related problems, and muscular tension and pain, indicating significant functional impairment and reduced well-being among affected participants.

Conclusion: Limited mouth opening is a prevalent condition that significantly compromises quality of life and health. The Gothenburg Trismus Questionnaire effectively captures the patient-perceived impact of trismus and complements objective clinical measurements. Early identification and comprehensive management strategies are essential to reduce the functional and psychosocial burden associated with this condition.

Key Words: Trismus, Quality of life, Gothenburg Trismus Questionnaire, Patient-reported outcomes, Oral function

INTRODUCTION

Limited mouth opening, commonly referred to as trismus, is a clinical condition characterized by a reduced ability to open the mouth, typically defined as a maximum interincisal opening of 35 mm or less.¹ Trismus is a frequent complication associated with head and neck cancer treatment, temporomandibular disorders, oral submucous fibrosis, trauma, and inflammatory conditions of the masticatory system. Regardless of etiology, limited mouth opening has a profound effect on oral function, general health, and overall quality of life.² Functionally, trismus interferes with essential daily activities such as chewing, speaking, yawning, and maintaining oral hygiene. Patients often report difficulty consuming solid foods, leading to altered dietary habits and potential nutritional deficiencies.³ Impaired oral hygiene due to restricted access to the oral cavity further increases the risk of dental caries and periodontal disease. In addition to these physical limitations, trismus frequently results in psychosocial distress, including embarrassment during social interactions, anxiety, and reduced participation in daily activities.⁴

Traditionally, the assessment of limited mouth opening has relied on objective clinical measurements such as maximum interincisal opening. While these measurements are essential for diagnosis and monitoring, they fail to fully capture the subjective burden of the condition from the patient's perspective.⁵ In recent years, there has been increasing emphasis on patient-reported outcome measures to better understand how clinical impairments translate into functional and psychosocial challenges. The Gothenburg Trismus Questionnaire (GTQ) is a validated, disease-specific instrument designed to assess trismus-related symptoms and their impact on quality of life.⁶ The GTQ consists of multiple domains, including jaw-related problems, eating limitations, muscular tension and pain, and overall trismus-related quality-of-life impact. Higher GTQ scores indicate greater symptom severity and poorer quality of life. The questionnaire has been widely used in both clinical and research settings due to its sensitivity and reliability.⁷ Although several studies have documented the prevalence of trismus in oncology populations, limited data are available regarding its frequency and impact on quality of life in broader clinical settings using standardized tools such as the GTQ. Quantifying both the frequency of limited mouth opening and its perceived impact is essential for early identification, targeted intervention, and effective rehabilitation planning.

Therefore, the present study aimed to assess the frequency of limited mouth opening and evaluate its impact on quality of life and health using the Gothenburg Trismus Questionnaire. By combining objective measurements with patient-reported outcomes, this study seeks to provide a comprehensive understanding of the burden of trismus.

METHODOLOGY

This cross-sectional study was conducted among patients attending the outpatient department over a six-month period. A total of 120 participants were recruited using convenience sampling. Patients aged 18 years and above who provided informed consent were included. Individuals with acute oral infections, recent maxillofacial surgery, or systemic neuromuscular disorders affecting jaw mobility were excluded.

Maximum interincisal opening was measured using a calibrated ruler. Participants with a mouth opening of ≤ 35 mm were classified as having limited mouth opening. The Gothenburg Trismus Questionnaire was administered to all participants. Data were entered and analyzed using statistical software. Descriptive statistics were used to summarize demographic variables, mouth opening status, and GTQ scores.

RESULTS

More than one-third of the study population exhibited limited mouth opening, with significantly higher GTQ scores compared to participants with normal mouth opening (Table 1). Participants with limited mouth opening demonstrated markedly higher GTQ scores across all domains (Table 2).

Table 1: Frequency of Limited Mouth Opening Among Study Participants (n = 120)

Mouth Opening Status	Frequency (n)	Percentage (%)
Limited mouth opening (≤ 35 mm)	46	38.3
Normal mouth opening (> 35 mm)	74	61.7
Total	120	100

Table 2: Mean GTQ Domain Scores According to Mouth Opening Status

GTQ Domain	Limited Mouth Opening (Mean $\pm$ SD)	Normal Mouth Opening (Mean $\pm$ SD)
Jaw-related problems	63.4 $\pm$ 12.6	28.7 $\pm$ 9.8
Eating limitations	71.2 $\pm$ 14.1	32.5 $\pm$ 10.4
Muscular tension and pain	58.9 $\pm$ 11.3	26.9 $\pm$ 8.7
Overall QoL impact	66.7 $\pm$ 13.8	29.4 $\pm$ 9.6

DISCUSSION

The present study demonstrates that limited mouth opening is a prevalent condition, affecting 38.3% of the study population, and is associated with a substantial negative impact on quality of life and health as measured by the Gothenburg Trismus Questionnaire. Participants with restricted mouth opening showed significantly higher GTQ scores across all domains compared to those with normal mouth opening, indicating marked functional and psychosocial impairment.

The frequency of limited mouth opening observed in this study is consistent with findings reported in earlier investigations, particularly among populations exposed to risk factors such as head and neck cancer treatment and chronic masticatory disorders.^{8,9} Previous studies have documented trismus prevalence ranging from approximately 30% to 40% within six to twelve months following radiotherapy, with a considerable proportion of patients experiencing persistent symptoms even years after treatment.⁸⁻¹¹ The prevalence reported in the present study falls within this range, suggesting that limited mouth opening remains a common and clinically relevant problem beyond specialized oncology settings.

Eating limitations emerged as the most severely affected domain, with a mean GTQ score of 71.2 $\pm$ 14.1 among participants with limited mouth opening. Similar findings have been reported in earlier studies using the GTQ, where eating-related difficulties consistently scored highest among all domains. These studies emphasized that reduced mouth opening interferes with mastication and swallowing, often resulting in dietary modification, avoidance of hard foods, and compromised nutritional intake.¹² The comparable severity of eating-related impairment in the present study reinforces the critical role of trismus in negatively influencing nutritional status and general health.¹³ Jaw-related problems and muscular tension were also prominent in this study, with mean scores of 63.4 $\pm$ 12.6 and 58.9 $\pm$ 11.3, respectively. Previous research has similarly reported elevated levels of jaw stiffness, pain, and muscular fatigue among individuals with limited mouth opening. These symptoms have been attributed to fibrosis of masticatory muscles, joint dysfunction, and reduced mobility resulting from prolonged disuse. The consistency between the present findings and earlier studies highlights the persistent and multifactorial nature of trismus-related discomfort.^{14,15}

The overall quality-of-life impact score was substantially higher in participants with limited mouth opening (66.7 $\pm$ 13.8) compared to those with normal mouth opening (29.4 $\pm$ 9.6). Earlier studies using both GTQ and generic health-related quality-of-life instruments have reported similar trends, with significantly poorer social functioning, emotional well-being, and daily activity performance among patients with trismus. These findings underscore that the consequences of limited mouth opening extend beyond physical disability to include psychosocial and emotional distress.¹⁶

CONCLUSION

In conclusion, the study confirms that limited mouth opening is a common condition with significant adverse effects on quality of life and health. The similarity between the present findings and those reported in previous studies highlights the need for early identification, preventive strategies, and multidisciplinary management to minimize the long-term functional and psychosocial consequences of trismus.

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