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Incidence of Tongue Disorders Among Middle School Students

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ABSTRACT
The tongue is essential for a wide variety of bodily processes, including tasting, swallowing, talking, and keeping teeth healthy. Therefore, tongue abnormalities can have serious consequences for an individual's well-being. The purpose of this research was to determine how prevalent common tongue malformations were among school-aged children in Ramadi city, Anbar governorate, Iraq. One thousand five hundred students from medium schools were chosen at random and split into three age groups. There were 500 pupils in each of the three groups, evenly split between males and females. Tongue issues were evaluated using a disposable mirror to retract the lips and cheeks, natural lighting, and privacy. The information was examined with SPSS version 22's chi-square test for significance. Fissured tongue, tongue knot, and coated tongue were determined to be the most prevalent tongue anomalies (7.7%, 11%, and 6.66% prevalence, respectively). There was no correlation between age or gender and the presence of tongue abnormalities. The findings show that promoting good tooth hygiene and avoiding environmental triggers for symptoms might be beneficial. Acidic or spicy foods and the abrasives in some dental hygiene products are two potential culprits.

KEYWORDS: Tongue anomalies, Median Rhomboid Glossitis, Tongue Disorders, Middle School Students

INTRODUCTION
Chewing, swallowing, and speaking all rely heavily on the tongue. It also has a major effect on the growth of the face, the teeth, and the entire body [1]. When the normal progression of development and growth of oral tissues is impeded, a variety of abnormalities can occur. Some birth defects are manifested early in foetal development and persist throughout a person's life, while others show up later. [2]. It is possible to have a restricted comprehension of the tongue's function due to an anomaly of the tongue, which can be classified as major, minor, or inherited and can be produced by systemic or local reasons [3].

Fissured tongue
Deep grooves on the dorsal and lateral surfaces of the tongue are the hallmark of a fissured tongue, sometimes called a scrotal or placated tongue. These cracks can range in size, number, and placement [4], with a central crack being particularly common. These splits occur more frequently in men than in women, and they typically appear in the center one-third of the tongue. Although the exact reason for a fissured tongue is unknown, some studies have pointed to genetics as a possible explanation. A fissured tongue affects less than 10% of the population, but a recent study indicated that heredity likely contributes to its development. [5].

Migratory glossitis
When the upper part of the tongue is affected by the benign disorder known as migraine glossitis, the tongue might take on abnormal forms, develop red patches where the bumps usually are, and have a thinner top layer of cells. This syndrome is sometimes referred to as "geographic tongue" [6] because of the striking similarities between the pattern and maps.Despite the lack of discomfort, researchers have yet to pinpoint what triggers this illness [7].

Macroglossia
Macroglossia is a condition characterized by a disproportionately big tongue. Muscle hypertrophy, endocrine problems, and tumors are all possible causes of

this expansion [8]. Macroglossia is less likely in children who have tooth spacing and an anterior open bite [9]. According to studies on children with tongue anomalies, macroglossia accounts for 24% of all tongue diseases. [10]. It can be difficult to determine the true prevalence of macroglossia [11] due to the wide variety of potential causes.

Tongue tie

Tongue ties, or ankyloglossia, are caused by a short and thick lingual frenulum [12]. Ankyloglossia can range from a moderate form characterized by a narrow band of mucous membrane to a severe form characterized by extensive fibrosis of the frenulum and the fibres underpinning the genioglossus muscle. The severity of ankyloglossia might worsen over time. A full tongue tie, in which the tongue becomes fused to the floor of the mouth, occurs only very rarely [13].

Median rhomboid glossitis

In the case of central papillary atrophy, also known as median rhomboid glossitis, no papillae are present in the centre of the tongue's surface, which is located towards the back, immediately in front of the vallate papillae [14]. Recent years have seen interest in the link between candidiasis and the main inflammation of the tongue that causes central papillary atrophy [15].

Coated tongue

The oral waste and germs can accumulate in a special habitat provided by the tongue's papillary structure on the dorsum, resulting to the formation of a coated tongue. [16].

In Ramadi City, Anbar Governorate, Iraq, middle school pupils between the ages of 12 and 14 were surveyed to determine how often they experienced common tongue conditions.

MATERIALS AND METHODS

A cross-sectional study was conducted with 1500 students in Ramadi City between the ages of 12 and 14 from November 2021 and April 2022. Using stratified cluster random selection, we randomly selected 750 male and female middle school pupils from around the country. In each of the three age groups, we tested 500 students (250 boys and 250 girls). Official consent was secured from Dentistry College, the University of Anbar, the Ministry of Health and Environment, and the governing agency responsible for managing education in Ramadi City, so the study could be carried out without compromising ethics. The examination took place in a clean, well-lit room with disposable mirrors to help the patient retract their lips and cheeks. The chi-square test in SPSS version 22 was used to evaluate the gathered data.

RESULTS

The research showed that 446 cases (29.7%) of students (750 boys and 750 girls) had tongue issues. There was a non-significant increase in the rate of tongue abnormalities among females (30.2%) compared to males (29.2%; P = 0.65). One hundred and sixty-five cases (11%) were diagnosed with a disease known as tongue tie, which was seen in substantially more females (105 cases, 14%) than males (60 cases, 8%) (P0.0001) figure 1.

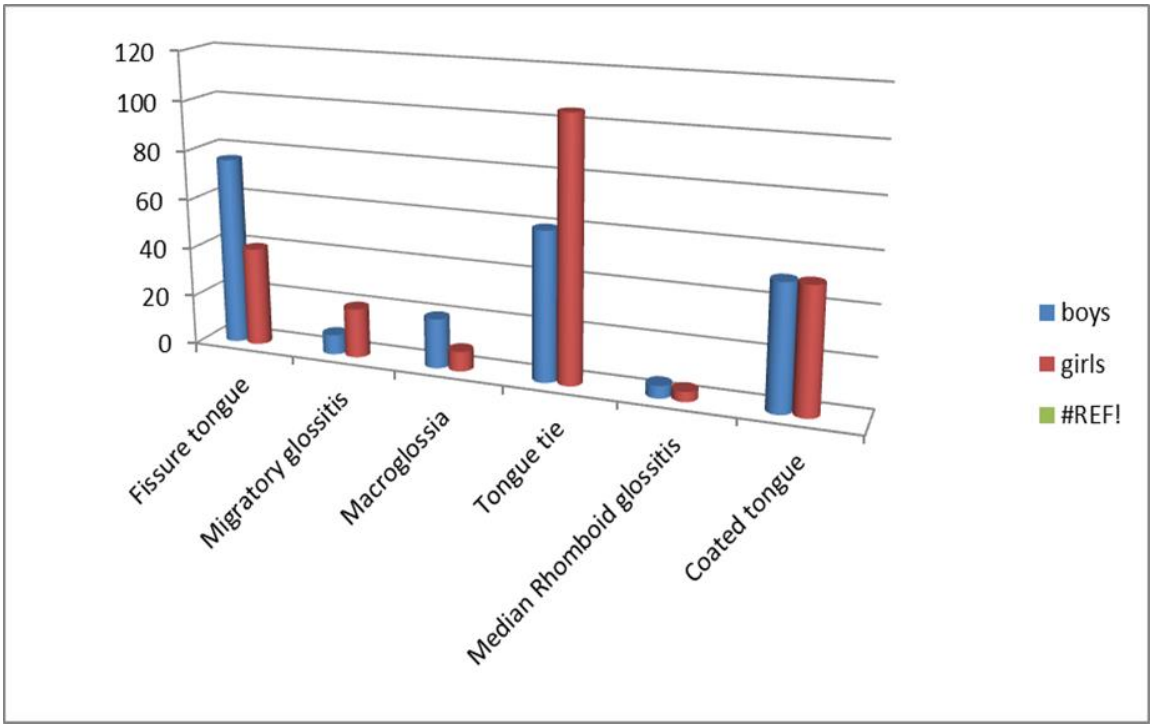


Figure 1: distribution of tongue disorder based on gender

Figures 2 and 3 show that the prevalence of geographic tongue was higher among females (20 cases or 2.66%) than males (8 instances or 1.06%), a difference that was statistically significant (P0.05).

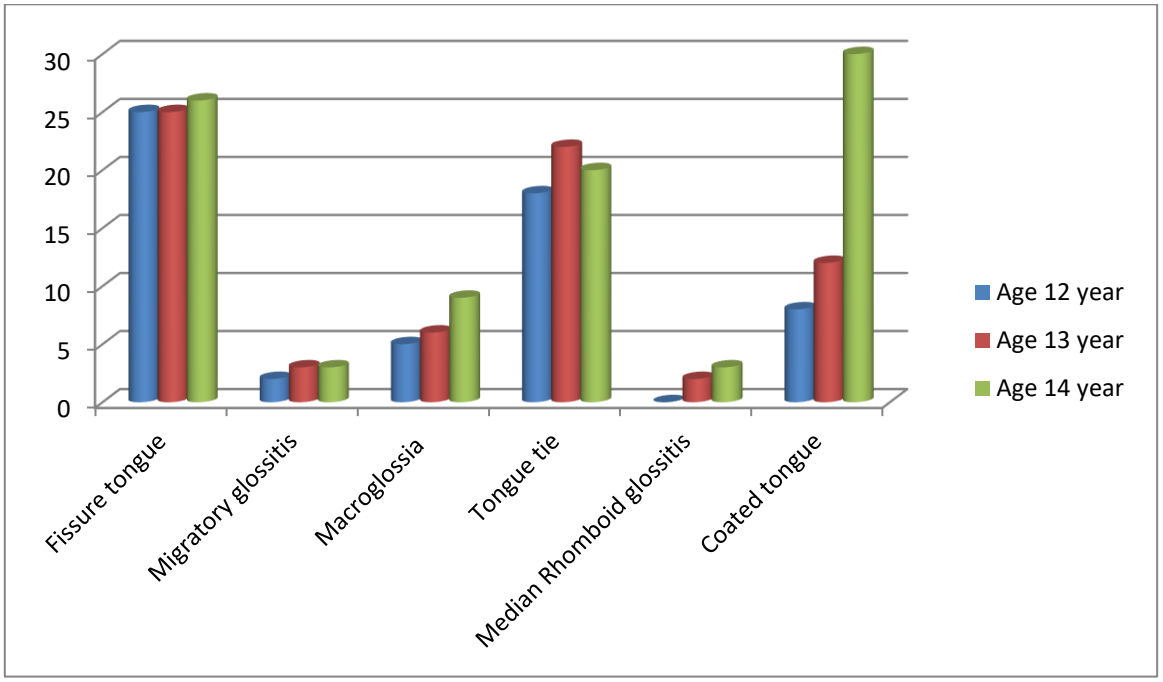


Figure 2: distribution of tongue disorder in male subjects based on their age

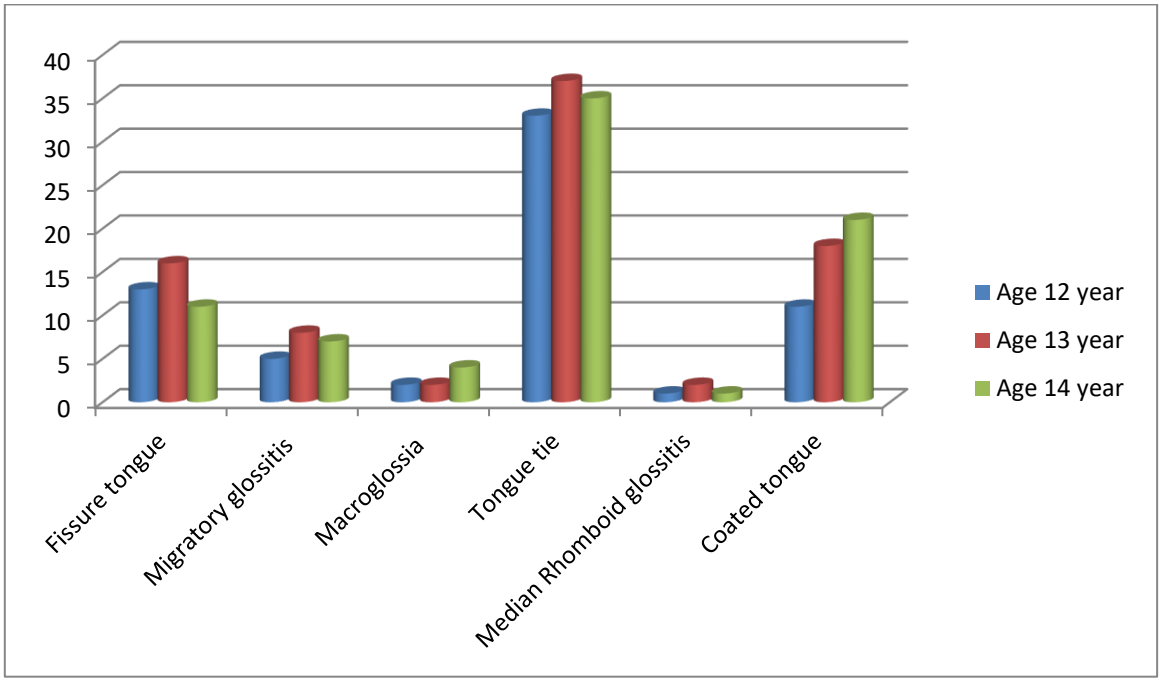


Figure 3: distribution of tongue disorder in female subjects based on their age

Figure 4 displays the results of the study showing that the prevalence of tongue problems increased with age for both sexes. However, the connection between tongue disorders and age or gender did not differ significantly ($P > 0.05$). Images (A-F) of middle school children with tongue issues were included in the figure.

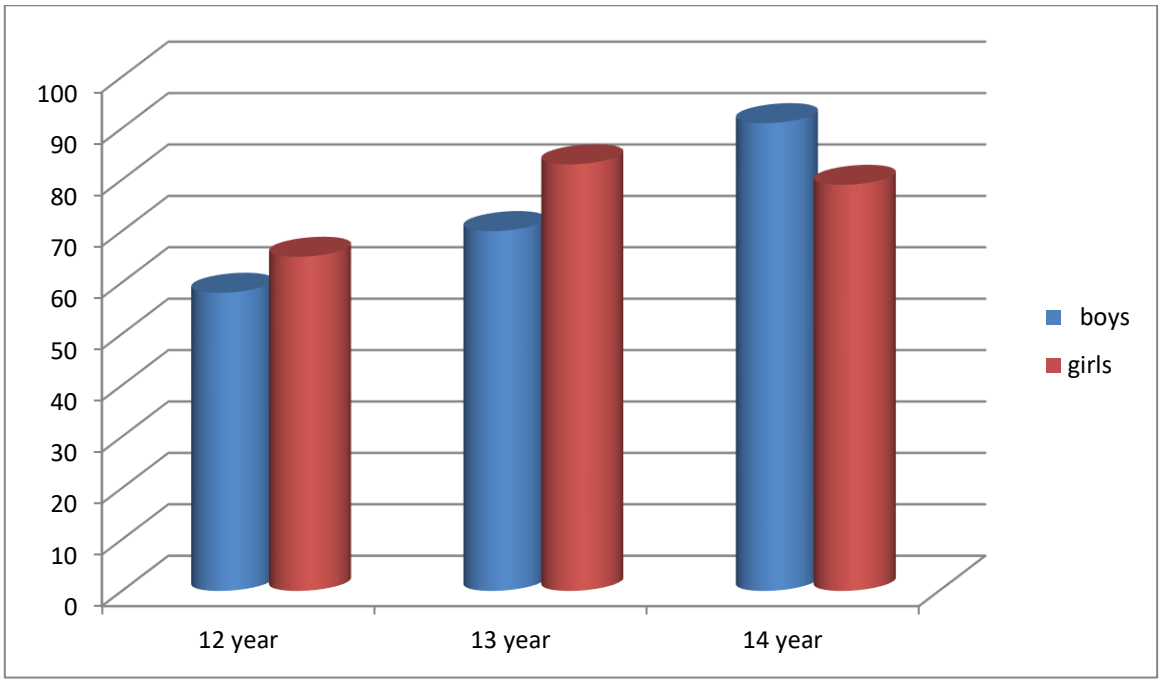


Figure 4: The distribution of tongue disorder was analyzed based on gender and age

DISCUSSION

In order to create effective and exact treatment regimens, it is essential to get an understanding of frequent tongue irregularities. Because these abnormalities can cause a wide range of clinical difficulties, prompt diagnosis is essential for avoiding further complications. In addition, the study found a difference in the prevalence of the identified defects between the sexes. In this study, researchers observed that 11% of the population was affected by tongue tie, with a

higher prevalence in females (14% vs. 8% in males). The prevalence of ankyloglossia in school-aged children was reported to be 3.07% in a study by Shah et al. [17]. It was shown by Hill et al. that the prevalence of ankyloglossia was considerably lower in genetically isolated tribes, with just 7% of males and 4% of females affected. [18]. When compared to the prevalence of fissured tongue found in previous research by Mohammed et al. (5) in Andkhoy City, Afghanistan, our findings showed a greater prevalence at 7.7%. Elmezwghi et al. (19) in Libya had 37.9% male participants, while Hedayatullah Ehsan et al. (31.7%) in Kabul City had 68.3% female participants. When compared to other research conducted in other parts of Iraq and elsewhere in the world, ours yielded contradictory results. Variations in study populations' ages and sample sizes can explain the contradictory results. Abbaszadeh et al. found that 6.6% of participants had a coated tongue; in Iran, the prevalence of coated tongue was 96% (21); and Poudyal et al. found that 61.2% of people had a coated tongue (22). Our findings differ from those of earlier studies, which may be attributable to the narrower age range and larger sample size of our study. Inadequate oral hygiene practises and low socioeconomic level may contribute to the high prevalence of coated tongue that has been found. The children and adults in our study were all from the city's lowest socioeconomic classes, which is correlated with lower rates of healthcare access and better rates of poor oral hygiene. [23]. Our study found a significantly lower prevalence of geographic tongue than previous studies by Piplani et al. (1.4% (24) and Jalili et al. (8.8%) [25]; we detected it in just 1.86% of the whole sample. Variations in diagnostic criteria, sample size, and age range of participants may account for observed discrepancies in the prevalence of geographic tongue across research. Although the exact cause of migrating glossitis is unknown, there is some evidence to suggest a hereditary component. Vitamin B shortages, hormonal shifts, allergies, stress, and diets heavy in sugar or processed foods are also thought to have a role in its onset. [26]. The prevalence of macroglossia was 1.86 percent in our study, which was greater than the prevalence rates reported in other studies (0.06 percent [27], 1.5 percent [28], and 2.6 percent [29]). Sample size may explain why some studies find lower prevalence rates than others. Macroglossia, the condition characterised by an abnormally big tongue, may have a musculoskeletal basis [30]. Median rhomboid glossitis was found to have a prevalence of 0.6%, which is less than what was previously reported by Vörös-Balog et al. (0.78%) [31]. Deficiencies in riboflavin, niacin, pyridoxine, folic acid, vitamin B12, iron, zinc, and vitamin E have been linked to the onset of Median rhomboid glossitis [32]. Previous studies found that individuals with atrophic glossitis were more likely to be deficient in iron, vitamin B12, and folic acid than those with central papillary atrophy (16.9%, 5.3%, and 2.3% of 1064 patients, respectively) [33].

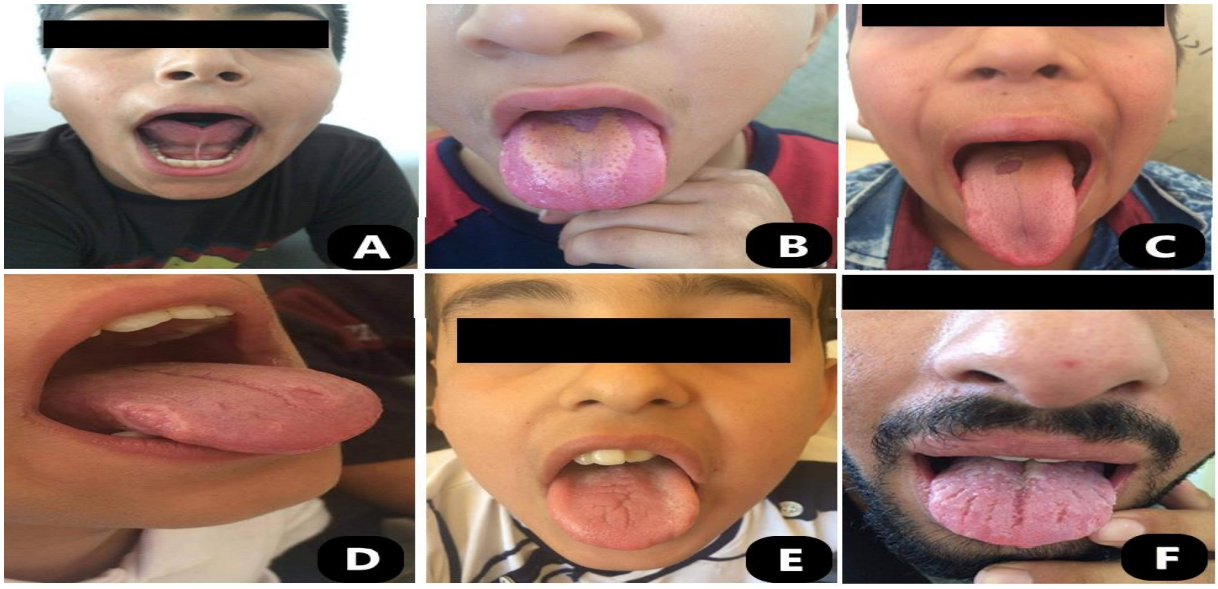
CONCLUSION

Tongue abnormalities were found to affect 29.7% of the sample population, with a slightly higher prevalence among females than males. The most prevalent condition was a tongue-tie. The least common form of glossitis was medial rhomboid glossitis. The association between tongue disorders and either age or gender was not statistically significant. This study highlights the need for early detection and treatment of tongue diseases in Ramadi City's schoolchildren. Children's health and development might be negatively impacted by oral and speech problems. When healthcare clinicians and educators have a better understanding of the frequency of various tongue disorders and the distribution of these conditions across age groups and genders, they are better able to devise targeted interventions and raise awareness about oral health in this young population.

Limitation of the study

There are a number of caveats to this study's methodology, results, and conclusions concerning the prevalence of tongue problems among 12–14-year-old students in Ramadi City, Iraq. First, the generalizability of the results may be affected by the sample size and the composition of the participants. Furthermore, the cross-sectional design of the study makes it difficult to determine causation or detect trends over time.

A:



Tongue tie; B: Coated tongue; C: Median Rhomboid glossitis; D: Geographic tongue; E: Macroglossia; F: Fissure tongue

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