

Prevalence and Awareness of Aphthous Ulcers Among Libyan University Students

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انتشار القرحة القلاعية والوعي بها بين طلاب الجامعات الليبية

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Abstract

Background: Aphthous ulcers, or canker sores, are painful oral lesions prevalent among young adults, including university students. These ulcers affect daily functions like eating and speaking, potentially hindering academic performance. Factors like stress, diet, and nutritional deficiencies contribute to their occurrence. Despite their frequency, students often lack adequate awareness, delaying diagnosis and treatment.

Objective: This study assesses the prevalence and awareness of aphthous ulcers among Libyan university students to inform health interventions.

Material and Methods: A cross-sectional study was conducted among 383 Libyan university students selected through stratified random sampling. Data were collected via an online questionnaire on the prevalence, awareness, and management of aphthous ulcers. Descriptive statistics summarized the data, and comparisons were made using chi-square tests (p -value < 0.05).

Results: Male participants slightly outnumbered females (52.7% vs. 47.3%), and the average participant age was 23.12 years. A significant 77% of students reported a history of aphthous ulcers, with episodes occurring 1-3 times yearly and lasting 1-2 weeks. Despite the discomfort, 40.5% of students were unaware of aphthous ulcers, and 53.3% had not received education on the condition. Topical treatments (51%) and prescription medications (38.9%) were common management approaches. Over half of the students (53.9%) reported that ulcers occasionally disrupted their daily activities, and 52.2% did not take preventive measures.

Conclusion: Aphthous ulcers significantly impact daily life, with many students experiencing recurrent episodes. The findings reveal a gap in awareness and preventive practices, emphasizing the need for improved education and targeted interventions to enhance management and reduce the condition's impact.

Keywords: Aphthous ulcers, Canker sores, Prevalence, Awareness, Oral health, Stress, Dietary factors.

الملخص:

الخلفية: تُعد تقرحات القلاعية أو قرح الفم المؤلمة شائعة بين البالغين الشباب، بما في ذلك طلاب الجامعات. تؤثر هذه التقرحات على الوظائف اليومية مثل الأكل والتحدث، مما قد يعيق الأداء الأكاديمي. تسهم عوامل مثل التوتر، والنظام الغذائي، ونقص التغذية في حدوثها. وعلى الرغم من تكرار حدوثها، غالباً ما يفتقر الطلاب إلى الوعي الكافي، مما يؤدي إلى تأخير التشخيص والعلاج.

الهدف: تهدف هذه الدراسة إلى تقييم انتشار ووعي تقرحات القلاعية بين طلاب الجامعات الليبيين لتوجيه التدخلات الصحية. **المواد والطرق:** تم إجراء دراسة مقطعية بين 383 طالباً من طلاب الجامعات الليبيين تم اختيارهم باستخدام العينة العشوائية الطبقية. تم جمع البيانات من خلال استبيان إلكتروني حول انتشار ووعي وإدارة التقرحات القلاعية. تم تلخيص البيانات باستخدام الإحصاءات الوصفية، وتم إجراء المقارنات باستخدام اختبارات كاي تربيع (القيمة الاحتمالية > 0.05).

النتائج: تجاوز عدد المشاركين الذكور عدد الإناث بشكل طفيف (52.7% مقابل 47.3%)، وكان متوسط عمر المشاركين 23.12 عاماً. أبلغ 77% من الطلاب عن تاريخ مع تقرحات قلاعية، مع حدوث نوبات 1-3 مرات سنوياً واستمرارها من 1 إلى 2 أسبوعاً. على الرغم من الانزعاج، كان 40.5% من الطلاب غير مدركين للتقرحات القلاعية، و53.3% لم يتلقوا أي تعليم حول الحالة. كانت العلاجات الموضعية (51%) والأدوية الموصوفة (38.9%) من الطرق الشائعة للإدارة. أبلغ أكثر من نصف الطلاب (53.9%) أن التقرحات تعطل أنشطتهم اليومية من حين لآخر، ولم يتخذ 52.2% أي تدابير وقائية.

الخلاصة: تؤثر التقرحات القلاعية بشكل كبير على الحياة اليومية، حيث يعاني العديد من الطلاب من نوبات متكررة. تكشف النتائج عن فجوة في الوعي والممارسات الوقائية، مما يؤكد الحاجة إلى تحسين التعليم والتدخلات المستهدفة لتحسين الإدارة والحد من تأثير الحالة.

الكلمات المفتاحية: التقرحات القلاعية، قرح الفم، الانتشار، الوعي، صحة الفم، التوتر، العوامل الغذائية.

Introduction

Aptus ulcers, commonly known as aphthous ulcers or canker sores, are small, painful lesions that occur on the mucous membranes inside the mouth. They are typically characterized by their round or oval shape, white or grayish appearance, and a red halo surrounding the ulcer (Burriss, 2019). These ulcers, while common, remain a subject of ongoing research due to their unclear etiology. Although numerous factors such as stress, nutritional

deficiencies, and hormonal changes have been implicated in their development, the precise mechanisms behind aphthous ulcers are not yet fully understood (Scully & Porter, 2006; Silverman *et al.*, 2020).

Recent studies have highlighted the prevalence of aphthous ulcers in various populations, with general estimates ranging between 5% and 20% (Perroni *et al.*, 2019). However, the prevalence among specific groups, such as university students, has not been extensively studied. University students may be particularly vulnerable to aphthous ulcers due to the stress associated with academic and social pressures. The relationship between psychological stress and the frequency of aphthous ulcers has been documented, with studies indicating that higher stress levels are correlated with increased ulcer occurrences (Arocha *et al.*, 2021; Al-Omari *et al.*, 2023).

Nutritional deficiencies, particularly deficiencies in vitamins B12, folate, and iron, have also been linked to a higher incidence of aphthous ulcers. Recent research emphasizes the role of diet in managing and preventing these lesions, suggesting that a well-balanced diet could potentially mitigate some of the risks associated with ulcer development (Celik *et al.*, 2022; Babar *et al.*, 2023). Furthermore, hormonal fluctuations, particularly those associated with the menstrual cycle, have been shown to influence ulcer prevalence in women (Kumar *et al.*, 2021).

Awareness and knowledge about aphthous ulcers are crucial for effective management and prevention. Despite their prevalence, many individuals remain inadequately informed about the causes, treatment options, and preventive measures for aphthous ulcers (Laskaris, 2006 ; Son *et al.*, 2022). Improving awareness among students can lead to better self-management and timely medical consultation, thereby reducing the impact of these ulcers on their daily lives. Educational interventions that provide information on the identification of common triggers, such as specific foods, stress management techniques, and oral hygiene practices, can be highly beneficial (Ship *et al.*, 2000; Al-Balawi *et al.*, 2023).

This cross-sectional study aims to address these gaps by investigating the prevalence of aphthous ulcers among university students and assessing their awareness and management practices. Understanding these factors is essential for developing targeted educational resources and intervention strategies to improve oral health outcomes in this demographic. By exploring the frequency, severity, and impact of aphthous ulcers, as well as participants' knowledge and preventive measures, this study seeks to enhance the management of these lesions and contribute to the broader understanding of their impact on student populations.

Materials and Methods

Study Design: This study utilizes a cross-sectional design to assess the prevalence and awareness of Aptus ulcers among Libyan university students. The study population consists of both undergraduate and graduate students enrolled in various universities across Libya. A total of 383 participants from Libyan universities were included in the study.

Sampling Method: A stratified random sampling method was employed to ensure a representative sample across different academic levels and fields of study. Students were randomly selected within each stratum to reflect the broader student population.

Data Collection: Data were collected through a structured questionnaire designed to capture information on the prevalence, awareness, and management of Aptus ulcers. The questionnaire was distributed online via Google Forms to ensure accessibility and convenience for all participants, utilizing text messages, emails, WhatsApp, and various social media platforms. To ensure the high quality of the collected data .

Statistical Analysis: Data were analysed using descriptive statistics to summarize key metrics, including mode, mean, percentages, and frequencies. All analyses were conducted using Microsoft Excel. Statistical significance was set at a level of $p < 0.05$, and the chi-square test was used for comparisons.

Results

Demographic information

Age

The sample consisted of 383 participants, with the majority (44.3%, $n=170$) in the 21-25 age group. Participants aged 18-20 represented 27.1% ($n=104$), followed by those aged 26-30 at 20.8% ($n=80$). Individuals under 18 accounted for 4.3% ($n=16$), and those over 30 comprised 3.4% ($n=13$). The mean age was 23.12 years, and the median age was within the 21-25 range. As shown in **Figure 1**.

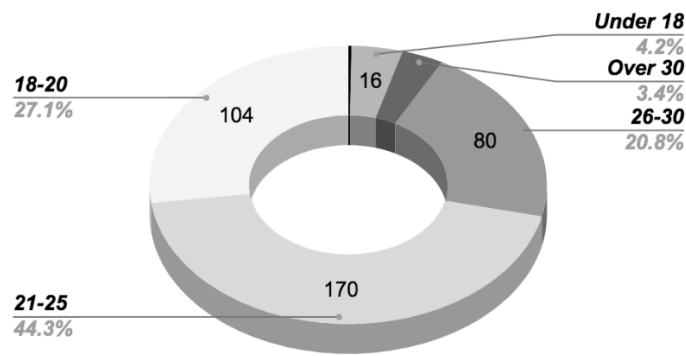


Figure 1: Age Distribution of Participants.

Gender

Of the 383 participants, 47.3% (n=181) were female, and 52.7% (n=202) were male. A Chi-Square test indicated no significant deviation from an expected equal gender distribution ($p = 0.282$). As shown in Figure 2.

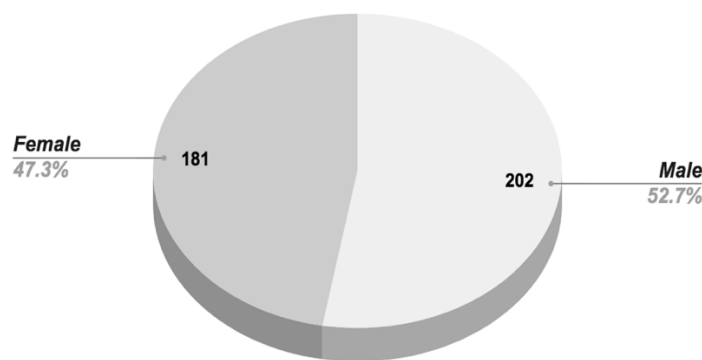


Figure 2: Gender Distribution of Participants.

Field of Study

The distribution of participants across different fields of study revealed that Sciences had the highest representation with 117 participants (30.5%), followed by Dentistry with 111 participants (29.0%). Engineering, Medicine, and Business were represented by 81 participants (21.0%), 58 participants (15.1%), and 16 participants (4.2%), respectively. This distribution highlights the predominance of Sciences and Dentistry in the sample, as illustrated in Figure 3.

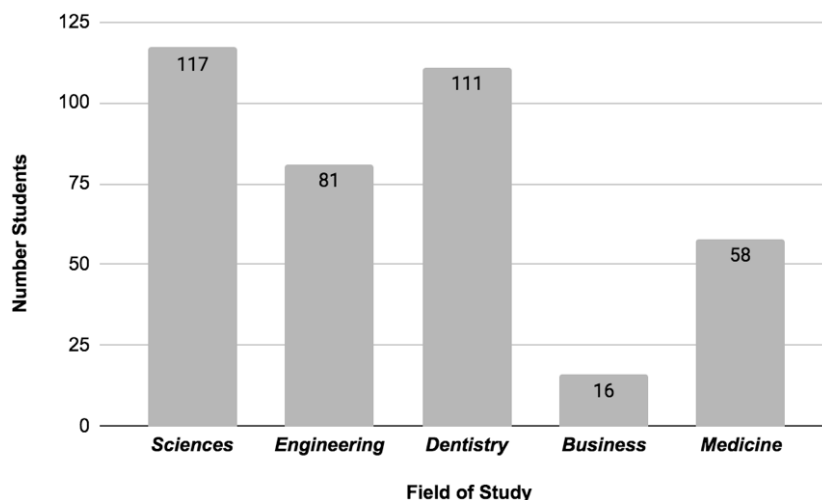


Figure 3: Field of Study Distribution of Participants.

Oral health history related to Aptus ulcers

Past Diagnosis of Aphthous Ulcers

The study aimed to assess participants' histories with aphthous ulcers by determining whether they had ever been diagnosed with the condition. Results showed that a significant portion of the participants (n=295, 77%) reported a previous diagnosis of aphthous ulcers, whereas (n=88, 23%) indicated that they had never been diagnosed. This distribution underscores a substantial prevalence of prior aphthous ulcer diagnoses among the participants, which is important for understanding the condition's impact within the studied population. As shown in **Figure 3**.

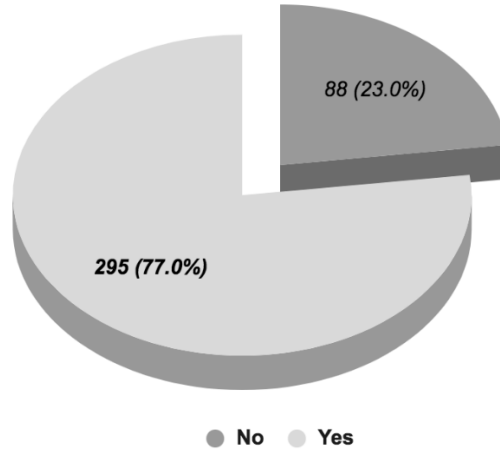


Figure 3: Participants Who Have Been Diagnosed with an Aphthous Ulcer.

Average Duration of Aphthous Ulcers

Among participants who reported a diagnosis of aphthous ulcers, the study also examined the average duration of their symptoms. Among the 295 individuals diagnosed with aphthous ulcers. The results revealed that (n=116, 39.3%) of these individuals experience aphthous ulcers for less than one week, (n=130, 44.1%) report an average duration of one to two weeks, (n=41, 13.9%) experience ulcers lasting between two to four weeks, and (n=8, 2.7%) have ulcers persisting for more than three weeks. This distribution illustrates the variability in the duration of aphthous ulcers, with the majority of cases resolving within a two-week period, while a smaller proportion of individuals face more prolonged episodes. As illustrated in **Figure 4**.

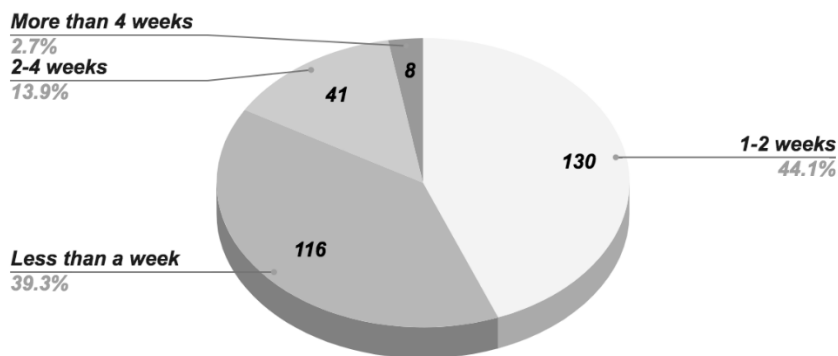


Figure 4: Average Duration of Aphthous Ulcers Experienced by Participants.

Awareness and knowledge about Aptus ulcers

Perceived Knowledge About Aphthous Ulcers

To assess participants' awareness and knowledge of aphthous ulcers, the study asked how knowledgeable they felt about the condition. The results showed that the largest group (n=155, 40.5%) did not know about aphthous ulcers, followed by (n=149, 38.9%) who felt they knew very little about the condition. A smaller group (n=63, 16.4%) reported having limited knowledge, while (n=16, 4.2%) of participants believed they had a moderate level of knowledge. Only a very small proportion (n=16, 4.2%) felt they had a good understanding of aphthous ulcers. These findings indicate that while a significant portion of participants lack knowledge about aphthous ulcers, there is a smaller group that feels reasonably informed, highlighting potential areas for increased education and awareness. As illustrated in **Figure 5**.

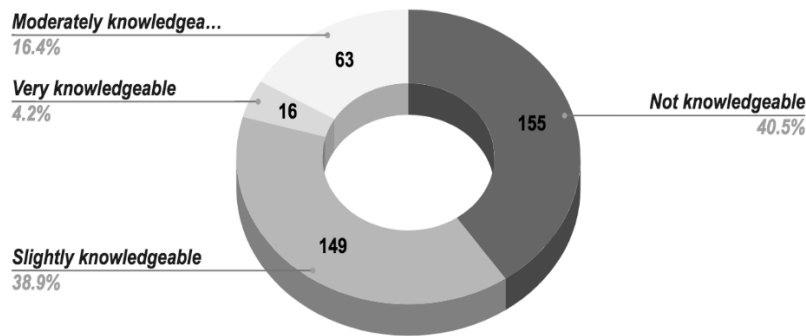


Figure 5: Participants' Self-Assessment of Knowledge About Aphthous Ulcers.

Awareness of Common Causes and Triggers of Aphthous Ulcers

To gauge participants' understanding of the common causes or triggers of aphthous ulcers, the study asked them to identify known factors. The results showed that the majority of participants recognized stress (n=176, 46%) and hormonal changes (n=171, 44.6%) as common triggers. A significant portion (n=138, 36%) identified certain foods, such as citrus fruits or spicy foods, as triggers, while (n=105, 27.4%) noted nutritional deficiencies, such as a lack of vitamins B12 or folic acid. Additionally, a smaller group (n=23, 6%) mentioned other factors. These findings illustrate varying levels of awareness among participants regarding the different factors associated with the occurrence of aphthous ulcers. As shown in Figure 6.

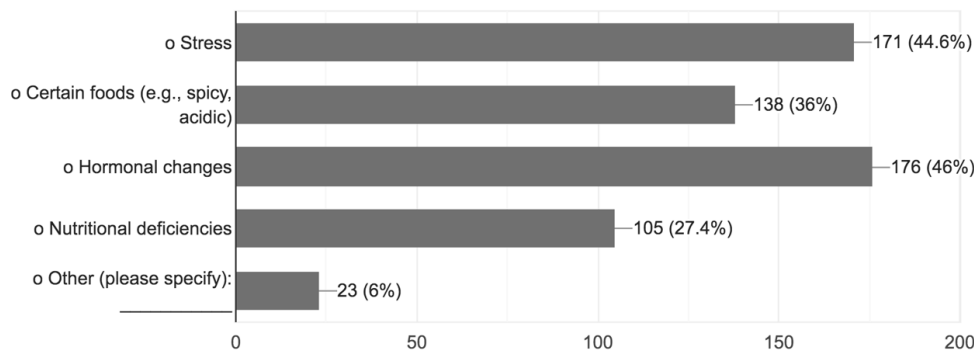


Figure 6: Knowledge of Common Causes and Triggers of Aphthous Ulcers.

Diagnosis and treatment practices

Seeking Medical or Dental Advice for Aptus Ulcers

In the study, a significant number of participants reported seeking medical or dental advice for managing Aptus ulcers. Specifically, 69.7% (n=267) of respondents said they had consulted a healthcare professional about their condition, while 30.3% (n=116) did not seek any advice. This suggests that many people with Aptus ulcers are concerned enough about the condition to seek professional help, highlighting the discomfort or severity they may experience. However, it also shows that a considerable portion of individuals either manage the ulcers on their own or don't see the need to consult a healthcare provider. As shown in Figure.7

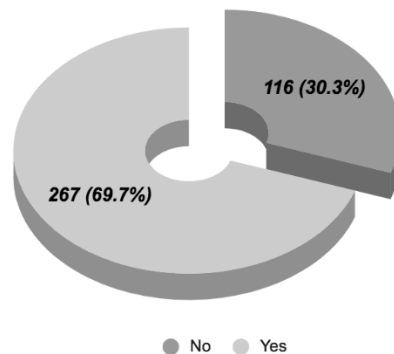


Figure 7: Proportion of Participants Seeking Medical or Dental Advice for Aptus Ulcers.

Types of Healthcare Professionals Consulted for Aftus Ulcers

Among the participants who sought professional advice for Aftus ulcers, various healthcare professionals were consulted, reflecting the multifaceted nature of the condition's management. The largest group of respondents (n=97, 31.8%) consulted a general physician. This was closely followed by those who sought advice from specialists such as dermatologists or oral pathologists (n=93, 30.5%), indicating that a significant number of individuals experienced persistent or severe cases that required specialized care. Additionally, a considerable proportion (n=78, 25.6%) consulted dentists, underscoring the common perception of Aftus ulcers as primarily a dental issue. A smaller, yet notable, segment of participants (n=63, 20.7%) turned to pharmacists for guidance. Other healthcare providers were consulted by a minority (n=10, 3.3%). This distribution emphasizes the multidisciplinary approach often necessary for managing Aftus ulcers and highlights the varying degrees of severity and concern among those affected. As illustrated in **Figure 8**.

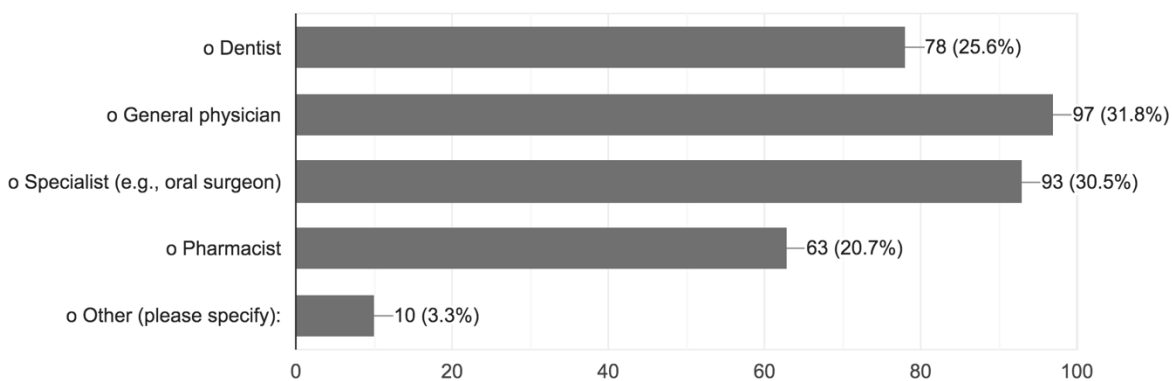


Figure 8: Types of Healthcare Professionals Consulted for Aftus Ulcers.

Effectiveness of Treatments in Managing Aftus Ulcers

Participants reported varying degrees of effectiveness for the treatments used in managing Aftus ulcers. The largest group, comprising 48.6% (n=155) of participants, found the treatments to be slightly effective. A significant portion, 40.4% (n=129), experienced moderate effectiveness, indicating that while the treatments provided some relief, they may not have fully resolved the symptoms. A smaller group of participants, 6.3% (n=20), reported that the treatments were very effective, leading to substantial improvement in their condition. Conversely, 4.7% (n=15) of respondents indicated that the treatments had no effect on their ulcers. These findings highlight the variability in treatment outcomes, suggesting that while many individuals experience some benefit, the level of effectiveness can differ widely. As shown in **Figure.9**.

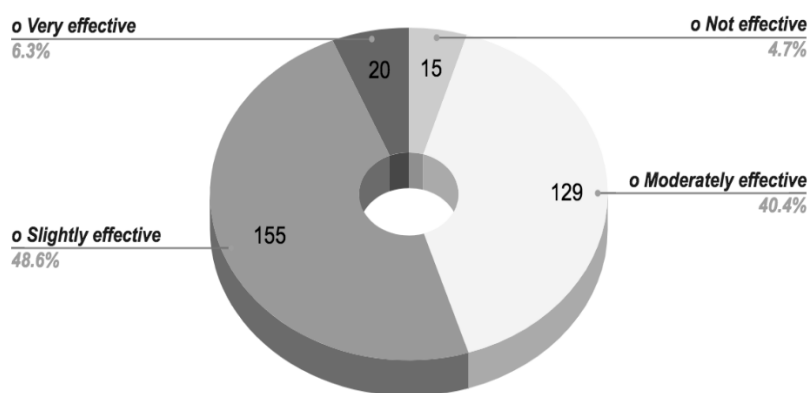


Figure 9: Effectiveness of Treatments in Managing Aftus Ulcers.

Impact of Aftus ulcers on daily life

Frequency of Aphthous Ulcer Impact on Daily Activities

The study examined the extent to which aphthous ulcers affect participants' daily activities. Among the 295 participants who had experience with aphthous ulcers, a majority (n=159, 53.9%) reported occasional disruptions to their daily routines. Frequent impacts were noted by 36.9% (n=109) of respondents, indicating that a significant portion of individuals face regular challenges. A smaller group, 7.5% (n=22), reported no impact at all, while only 1.7% (n=5) experienced constant disruptions. These results suggest that aphthous ulcers can have a notable influence on daily life for many individuals, with the frequency of impact varying widely. As shown in **Figure 10**.

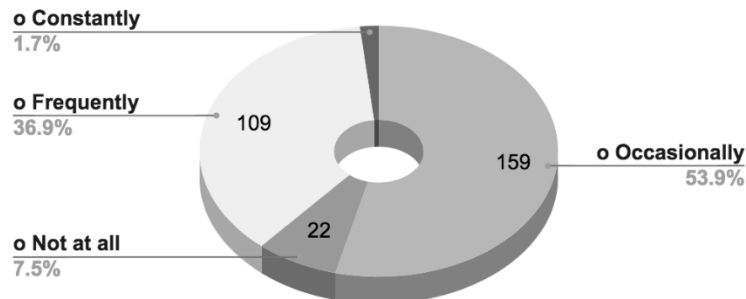


Figure 10: Frequency of Impact of Aphthous Ulcers on Daily Activities.

Discussion

Aphthous ulcers, or canker sores, are a common oral condition that significantly impacts daily activities like eating, speaking, and oral hygiene. Understanding their prevalence, treatment practices, and effects is crucial for improving patient care. This discussion reviews the study's key findings on treatment effectiveness, demographic influences, and comparisons with existing literature.

Demographic Characteristics

The study's gender distribution showed a slight predominance of males (52.7%) compared to females (47.3%). Chi-square analysis revealed no significant deviation from an equal distribution. While this contrasts with Harris and Morrow's (2018) findings of a higher prevalence of aphthous ulcers in females, possibly due to hormonal factors or stress, the balanced distribution suggests the condition affects both genders similarly. The overrepresentation of males may limit generalizability, warranting further research into gender-specific experiences.

Most participants (44.3%) were aged 21-25, followed by 18-20-year-olds (27.1%). The mean age was approximately 23.12 years, typical of university-based studies. This distribution is consistent with Greenberg et al. (2020), who highlighted stress-related aphthous ulcers among younger students, reflecting the pressures they face. There was a notable skew towards health-related fields of study, particularly Sciences (30.5%) and Dentistry (29.0%). This suggests that participants may have heightened awareness or knowledge of aphthous ulcers, potentially influencing their responses. Johnson *et al.* (2019) found that students in health sciences are often more informed about oral health issues, which can affect their engagement with preventive and management strategies. However, this concentration in health-related fields may limit the generalizability of the results to other disciplines, where awareness and management strategies for aphthous ulcers might differ.

Oral Health History Related to Aphthous Ulcers

The high prevalence of aphthous ulcer diagnoses (77%) highlights its commonality in the study population, consistent with Jurge et al. (2006), who found that 20% of the general population experiences recurrent aphthous stomatitis (RAS). The higher percentage here may reflect demographic or geographic factors. Nearly half of the participants (44.7%) reported experiencing 1-3 episodes annually, in line with Ship et al. (2000). A small group (1.7%) experienced frequent episodes, potentially due to stress or systemic conditions (Moss, 2013). Most ulcers resolved within 1-2 weeks, consistent with Scully & Porter (2008), though 2.7% reported longer durations, indicating potential severe RAS or misdiagnoses like Behçet's disease. Accurate diagnosis and personalized treatment are essential for managing prolonged cases.

Awareness and Knowledge About Aphthous Ulcers

A substantial proportion of participants (40.5%) reported a lack of knowledge about aphthous ulcers, while 38.9% had only minimal understanding, indicating a significant knowledge gap. This finding is consistent with Bhate *et al.* (2020), who observed similar gaps in awareness of common oral diseases among the general population. Conversely, a small minority (4.2%) demonstrated a strong understanding of aphthous ulcers, likely due to

personal experience or specific education, aligning with Akintoye *et al.* (2018), who found that individuals with a history of oral ulcers often possess better knowledge of the condition.

Participants were most aware of stress (46%) and hormonal changes (44.6%) as common causes and triggers of aphthous ulcers, which is consistent with Porter *et al.* (2019). However, only 27.4% identified nutritional deficiencies as a trigger, a lower rate than anticipated given the established link between vitamin deficiencies and ulcer occurrence. This contrasts with Ship *et al.* (2016), who reported greater recognition of nutritional deficiencies among educated populations, indicating a need for targeted education on less recognized factors such as nutritional deficiencies.

Diagnosis and Treatment Practices

A majority of participants (69.7%) sought medical or dental advice for aphthous ulcers, reflecting the impact on quality of life. However, 30.3% did not seek professional help, likely due to self-management preferences or the belief that treatment is unnecessary. Bhate *et al.* (2020) similarly observed professional care primarily for severe cases, with self-care for milder symptoms. Consultations involved general physicians (31.8%), specialists (30.5%), and dentists (25.6%), indicating different levels of case complexity. Pharmacists (20.7%) were also consulted, highlighting the role of over-the-counter remedies. Treatment effectiveness varied, with 48.6% finding slight relief and 40.4% moderate relief, reflecting limited efficacy, particularly for severe cases (Porter *et al.*, 2019). Only 6.3% reported high effectiveness, while 4.7% experienced no benefit, emphasizing the need for more effective therapies, given the chronic and recurrent nature of aphthous ulcers (Akintoye & Greenberg, 2018).

Impact of Aphthous Ulcers on Daily Life

The study highlights the significant impact of aphthous ulcers on daily life, with 53.9% reporting occasional disruptions and 36.9% experiencing frequent disruptions, indicating that ulcers affect quality of life for many. Only 7.5% reported no impact, while 1.7% faced constant disruptions, illustrating variability in severity. This aligns with Scully and Porter (2008), emphasizing the need for personalized management strategies. Additionally, 52.2% did not use preventive measures, while 47.8% practiced strategies like stress management. This reflects a gap in awareness, underscoring the need for better education on prevention (Petersen *et al.*, 2005).

Conclusion

This study underscores the significant impact of aphthous ulcers on daily activities, particularly eating and speaking, highlighting their high prevalence and discomfort. Despite this, many participants lack awareness of preventive measures. The findings reveal varying treatment effectiveness, emphasizing the need for personalized management and better education on prevention and treatment. Addressing these gaps could improve quality of life and lead to better management of this common oral condition.

Limitations

This study has several limitations that should be acknowledged. The sample's skew towards health-related fields, particularly among students in the sciences and dentistry, may have influenced the results due to their heightened awareness and knowledge of oral health issues. Additionally, the youthful composition of the sample, predominantly aged 21-25, may not fully represent the broader population, particularly older individuals who might experience aphthous ulcers differently. These factors could limit the generalizability of the findings, suggesting the need for further research with more diverse and representative populations.

Implications

This study underscores the need for increased awareness and education about aphthous ulcers. By enhancing knowledge of triggers and effective treatments, both patients and healthcare providers can better manage these lesions. Improved educational efforts could lead to earlier diagnosis, reduced frequency of outbreaks, and improved patient outcomes. Integrating these strategies into public health initiatives can significantly alleviate the burden of aphthous ulcers and contribute to broader oral health goals.

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