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## Prevalence, Knowledge, and Awareness of Atypical Facial Pain among Adults in Saudi Population



**Abstract:** - Atypical facial pain is a persistent orofacial pain that is difficult to identify and can be distinguished from trigeminal neuralgia. Symptoms of facial pain are often widespread and not specific, leading to misdiagnosis and ineffective or even harmful treatments from multiple medical specialties. Therefore, knowing the prevalence among Saudi population & early detection aids in successful intervention and treatments.

**Objectives:** This observational study aimed to investigate the prevalence of atypical facial pain among Adults Saudi population and their knowledge and awareness levels.

**Methodology:** A cross-sectional observational study was conducted through an online self-administrated questionnaire. A total of (at least) 384 participants were the sample size intent in this study. All statistical analysis will be done by using the "Microsoft Office Excel software" program and "IBM SPSS Statistics " version 20 program.

**Results:** Our study enrolled 594 participants, the majority fall within 20-30 age group, comprising 33.5%, also the sample is predominantly males accounting for 61.4% of the total respondents. It is evident from the data that the largest proportion of individuals, constituting 42.3% of the total, falls into the Low Knowledge and Awareness category. On the other hand, both the High Knowledge and Awareness and Intermediate Knowledge and Awareness categories each account for 28.8% of the total, indicating a relatively balanced distribution of individuals with varying levels of knowledge and awareness. All sociodemographic characteristics had no significant association with knowledge and awareness score of AFP.

**Conclusion:** Our results revealed that participants exhibited low knowledge and awareness score regarding AFP.

**Keywords:** facial pain, Atypical, idiopathic facial pain , prevalence , Adults Saudi population.

### 1. Introduction:

Persistent idiopathic facial pain (PIFP), previously known as atypical facial pain, refers to a continuous facial pain that is dull, difficult to pinpoint [1].

The International Classification of Headache Disorders (ICHD-3), published in 2018, defines persistent idiopathic facial pain (PIFP) as recurring daily facial and/or oral pain lasting for more than two hours per day and persisting for over three months, in the absence of any clinical neurological deficit. The classification recognizes that PIFP can present in various forms, but all are characterized by persistent pain that is difficult to manage and lacks an identifiable cause [2]. (persistent idiopathic facial pain) and its association with related conditions like trigeminal neuralgia, temporomandibular joint disorder, burning mouth syndrome [3].

PIFP is a type of chronic pain syndrome, which cannot be defined solely by the duration of its existence. In addition to the length of time it has been present, factors such as emotional, sensory, psychological, and social elements must also be taken into account when trying to understand and treat chronic pain. The biopsychosocial pain model is a framework that integrates all of these factors and provides the basis for current understanding and treatment of chronic pain [4].

While there is no definitive evidence regarding the mechanism of AFP (atypical facial pain), the use of pharmacological treatments indicates the presence of increased excitability in both central and peripheral neurons. The typical initial treatment approach involves the administration of anticonvulsant medications like gabapentin and pregabalin, along with antidepressants such as amitriptyline and duloxetine [5].

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The condition known as PIFP is uncommon, affecting approximately 4.4 out of every 100,000 individuals. Its symptoms are often widespread and not specific, leading to misdiagnosis and ineffective or even harmful treatments from multiple medical specialties [6].

In 2020, A Comprehensive Review that intended to give a brief overview of the most common causes of facial pain and to give medical professionals an overall framework for managing patients who are shown with facial pain, Only a multidisciplinary strategy will be capable to do it, orofacial pain refers to any pain in the area bounded by the eyes and the mandibles, the oral cavity included and The study results indicate that a multidisciplinary approach is mandatory for assessing a patient with facial pain [7]. Despite the prevalence of facial pain this study focused only on how to assess facial pain.

Atypical facial pain is a persistent orofacial pain that is difficult to identify and can be distinguished from trigeminal neuralgia. In 2017, A prospective systematic study of clinical characteristics and neuroimaging findings in Atypical facial pain demonstrated that women (75%) had greater atypical facial pain than males (25%) reported, Bilateral pain was more common than other types of chronic pain, while stabbing pain was less common, and found that Atypical facial pain is separated from trigeminal neuralgia both clinically and neuroimaging finding [3]. There is no comparable study in Saudi Arabia.

In 2019, A retrospective study conducted to compare neuropathic characteristics between Atypical facial pain and postherpetic neuralgia Using the Douleur Neuropathique questionnaire revealed that, both before and after matching, the DN4 score was considerably lower in the postherpetic neuralgia group than in the group with atypical facial pain and 10% of those who suffer from a typical face pain condition probably have neuropathic pain features [8].

Due to insignificant number related to our topic, no previous studies were done in Saudi Arabia to investigate the prevalence of atypical Facial pain. All the previous studies showed that Females had greater percentage of having atypical facial pain than Males, among the existing studies, they didn't investigate the the highest age group to have atypical Facial pain (if there is any age relation), among the existing studies and most focused on the assessment & the most common causes of atypical facial pain, but they didn't investigate the prevalence of atypical Facial pain.

## 2. Objectives:

To investigate the Knowledge, Awareness, prevalence of atypical facial pain among adults in Saudi Arabia and their knowledge and awareness levels, to compare the prevalence of atypical facial pain between Male and Female, to determine if persistent idiopathic facial pain, a diagnosis of exclusion, has similar symptoms that can aid in its diagnosis and to determine the age and distribution of the various types of psychogenic orofacial pain in an adult Saudi population.

### Materials and Methods:

**Study design:** Observational cross-sectional study conducted in Saudi Arabia.

**Study setting: Participants, recruitment, and sampling procedure:** The study's population consisted of Adults Male and Female in Saudi Arabia from July 2023 to March 2024.

**Inclusion and Exclusion criteria:** Saudi Adult male and female who are older than 18 with facial pain for 6 months or longer while on stable analgesic medication will be included. The Saudi adult younger than 18, patient with an obvious peripheral or systemic cause of pain will be excluded. If the patient agrees to the questioner's participation, indicating willingness to participate, they will be included in this study; otherwise, they will be excluded. The patients with pain is confined at onset to a limited area on one side of the face, and is deep and poorly localized will include in this study, they will be excluded if not.

**Sample size:** The sample size suggested for this study was calculated to be 385 participants with a 95% confidence interval, an error rate of less than 5% in a population of 32,175,224 with a prevalence of 50% using Roasoft Sample size calculator.

**Method for data collection and instrument (Data collection Technique and tools):** We will collect the data from adults Male and Female in Saudi Arabia by online self-administered questionnaire, the survey tool was designed as a self-administered questionnaire with the intention of safeguarding participant confidentiality and ensuring ease of completion. It comprises a set of questions in Arabic that cover the topics of Prevalence, Knowledge, and Awareness of Atypical Facial Pain. The questionnaire was created to be user-friendly and straightforward in order to encourage a high response rate. It aims to gather information on four main aspects: obtaining participant consent, collecting demographic data, assessing knowledge and awareness, and determining the prevalence of Atypical Facial Pain among adults in the Saudi population.

**Scoring system:** Scoring system of knowledge & awareness:

There were questions to measure the level of knowledge and awareness of Atypical facial pain among adults in Saudi Population, "Yes ", "Both " and was measured by one value," No" and "I don't know" were calculated with zero value. The total scores of each section varied from 0-5 and were allocated into three levels as follows: low level:0-2 scores; moderate level:3 scores; high level: 4-5 scores [9].

**Analyzes and entry method:** 1) Data was entered on the computer using the " Microsoft Office Excel Software " program (2016) for windows Data was then transferred to the Statistical Package of Social Science Software (SPSS) program, version 20 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) to be statistically analyzed. Collected Data was entered on computer using the Microsoft Excel program (2016) for windows. Data was then transferred to the Statistical-Package of Social-Science Software (SPSS) program, version 20. To be statistically analyzed.

### 3. Results:

The data presented in table (1) showed that in terms of age, the majority of respondents fall within the 20-30 age group, comprising 33.5% of the sample, followed by the 31-40 age group at 21.2%. Gender-wise, the sample is predominantly male, accounting for 61.4% of the total respondents, while females make up the remaining 38.6%. Nationality data reveals a significant majority of Saudi nationals, constituting 90.7% of the respondents, with non-Saudis comprising the remaining 9.3%. Education level is another crucial parameter, the data indicated that the largest group consists of individuals with a high school education, representing 23.6% of the sample. This is followed by those with a Bachelor of Science (BSC) degree at 20.4% and those with a middle school education at 14.5%. Furthermore, 8.4% of respondents reported not having an education level. Occupation data showcases the varied professional backgrounds of the respondents. The largest group comprises individuals working in the non-health sector, representing 23.1% of the sample, followed closely by students at 19.2% and employees in the health sector at 18.4%.

Table (1): Sociodemographic characteristics of participants (n=594)

Parameter	No.	%	
<b>Age</b>	less than 20	39	6.6
	20_30	199	33.5
	31_40	126	21.2
	41_50	101	17.0
	51_60	88	14.8
	more than 60	41	6.9
<b>Gender</b>	Male	365	61.4
	Female	229	38.6
<b>Nationality</b>	Saudi	539	90.7
	Non-Saudi	55	9.3
<b>Education Level</b>	I do not have an education level	50	8.4
	primary	81	13.6
	middle	86	14.5
	High School	140	23.6
	diploma	75	12.6
	BSC	121	20.4
	Higher education (Master's or PhD)	41	6.9
<b>Occupation</b>	free busineses	51	8.6
	Student	114	19.2
	An employee in the health sector	109	18.4
	An employee in the non-health sector	137	23.1
	Retired	86	14.5
	I do not work	70	11.8
	Other	27	4.5

Table (2) indicated that a significant portion of respondents, 27.6%, have experienced such pain, while the majority, 72.4%, have not. Moreover, the types of orofacial pain reported include a recurring form of pain in the face and/or oral cavity, with 39.1% of respondents acknowledging this, and a general term that covers pain felt in the mouth, jaws, and face, which was recognized by 26.1% of participants. Additionally, 34.8% of respondents reported experiencing both types of pain. The survey also inquired about encounters with individuals suffering from mouth and face pain, revealing that 43.4% of respondents have witnessed such cases, while 56.6% have not. Furthermore, the sources of information about orofacial pain were explored, with (14.3%) responses indicating that family members, (15.7%) hospitals, (16.7%) social networking sites, and informal meetings (13.8%) are significant sources of information on this topic.

Table (2): Prevalence of Atypical Facial Pain (n=594).

Parameter		No.	%
Heard of pain that affects the mouth and face	Yes	164	27.6
	No	430	72.4
Pains that affect the mouth and face	Orofacial pain is a general term that covers any pain felt in the mouth, jaws, and face.	232	39.1
	A recurring form of pain in the face and/or oral cavity.	155	26.1
	both of them	207	34.8
Seen someone with pain in the mouth and face	Yes	258	43.4
	No	336	56.6
Sources of information about pain that affects the mouth and face	Family members	85	14.3
	In the neighbourhood	58	9.8
	At school	68	11.4
	in the hospital	93	15.7
	In public places	54	9.1
	In an informal meeting	82	13.8
	On social networking sites	99	16.7
Other sources	55	9.3	

Based on the provided data in table (3), it appeared that a significant portion of the surveyed population experiences pain in the mouth or face. Out of the total respondents, 8.8% reported suffering from such pain, while the majority (91.2%) did not. The specific locations and types of pain reported varied, with the highest percentage of respondents experiencing pain in the area directly in front of the ear (25.0%), followed by pain in the jaw joint (17.3%) and pain in or around the eyes (11.5%). The duration and frequency of the pain were also diverse. For instance, 46.2% of respondents reported that the pain started less than 3 months ago, while 53.8% indicated that it began more than 3 months ago. Additionally, 44.2% of respondents reported feeling pain at the time of the survey, and the frequency of pain recurrence varied, with 55.8% experiencing it 2-3 times a week, once a week. The duration of the pain episodes also varied, with 40.4% reporting that the pain lasted less than half an hour to about an hour. However, a notable percentage of respondents reported longer durations, with 25.0% experiencing pain for 5-8 hours and 13.5% enduring pain for more than 12 hours. The impact of the pain on daily activities was also explored. A significant portion of respondents (50.0%) reported having taken time off work or being unable to carry out normal activities due to the pain. Furthermore, the severity of the pain's interference with daily activities varied, with 15.4% indicating that the pain was so severe that complete rest or bed rest was necessary, and 25.0% reporting that the pain interfered with many daily activities except basic self-care tasks. The potential causes and responses to the pain were also addressed in the survey. A notable percentage of respondents (34.6%) reported taking medications because of the pain, while 59.6% sought advice from a specialist. Moreover, 71.2% believed that a specific event was responsible for the pain, and 34.6% thought that being hit or shocked contributed to their pain.

Table (3): Knowledge and Awareness of Atypical Facial Pain (n=52).

Parameter		No.	%
Suffer from pain in the mouth or face	Yes	2	8.8
	no	542	91.2
Description of pain if present	Sharp pain in the face or cheeks		3.8
	Muscle pain on the side of the face	4	7.7
	Pain when the mouth is opened widely	6	11.5
	Pain in or around the eyes	6	11.5
	Pain in the jaw joint	9	17.3
	Pain in the jaw joint when chewing food	3	5.8
	Pain in the area directly in front of the ear	13	25.0
	A long-term burning sensation in the tongue or in other parts of the mouth	4	7.7
When did the pain first start?	Pain above and around the ears	5	9.6
	Less than 3 months ago	4	46.2
	More than 3 months ago	28	53.8
Feel any pain now	Yes	3	4.2
	No	29	55.8
Recurrence of pain during the past month	every day		3.5
	2-3 times a week	29	55.8
	Once a week	16	30.8
How long does the pain last	4-5 times a week		
	Less than half an hour	1	0.4
	About an hour	4	7.7
	1-4 hours	13	25.0
	5-8 hours	7	13.5
Pain prevent you from practicing your activities	9-12 hours	7	13.5
	More than 12 hours	7	13.5
	I can usually ignore the pain	7	2.7
	The pain is so severe that it interferes with all activities. Complete rest or bed rest is necessary	8	15.4
	The pain cannot be ignored but it only affects my ability to concentrate	5	9.6
Think that being hit or shocked is responsible for the pain	Pain cannot be ignored but interferes with daily activities	9	17.3
	The pain interferes with many daily activities except basic things like taking care of myself	13	25.0
Think that being hit or shocked is responsible for the pain	Yes	8	4.6
	no	34	65.4
Think that a specific thing (event) is responsible for the pain	Yes	7	1.2
	no	15	28.8
Taken time off work or been unable to do normal activities because of pain	Yes	6	0.0
	no	26	50.0
Sought advice from a specialist?	Yes	1	9.6
	no	21	40.4

Take medications because of pain	Yes	4	5.4
	no	18	34.6

It is evident from the data provided in figure (1) that the largest proportion of individuals, constituting 42.3% of the total, falls into the Low Knowledge and Awareness category. On the other hand, both the High Knowledge and Awareness and Intermediate Knowledge and Awareness categories each account for 28.8% of the total, indicating a relatively balanced distribution of individuals with varying levels of knowledge and awareness.

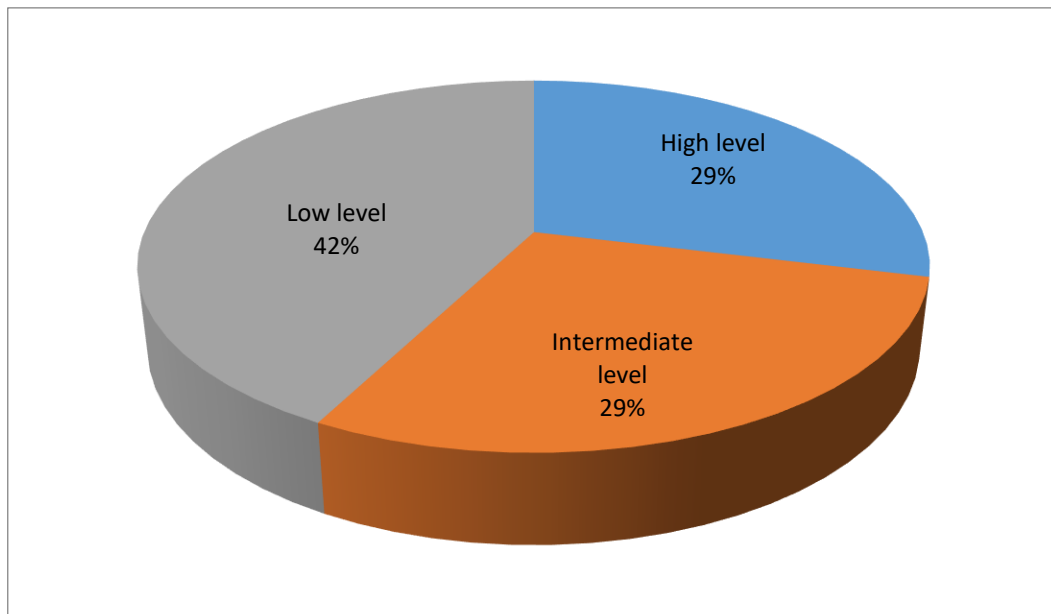


Figure 1 Knowledge and awareness score of atypical facial pain among adults in Saudi Population (n=594).

In table (4), age appears to have a limited impact on knowledge and awareness scores, as indicated by the relatively consistent distribution of high, intermediate, and low scores across different age groups. For instance, individuals aged 20-30 represented the highest proportion of the sample, with 40.4% exhibiting an intermediate score. On the other hand, participants aged 51-60 and those over 60 showed lower levels of knowledge and awareness, comprising 11.5% and 5.8% of the sample, respectively. When considering gender, the data suggests a slightly higher prevalence of high knowledge and awareness scores among females (17.3%) compared to males (11.5%). However, the difference in scores between the two groups does not appear to be statistically significant, as indicated by the P value of 0.520. Nationality also seems to have a notable influence on knowledge and awareness scores, with Saudi nationals exhibiting higher scores compared to non-Saudi individuals. This is evident from the fact that 88.5% of the sample comprised Saudi nationals, among whom 36.5% demonstrated high knowledge and awareness scores. However, nationality doesn't exhibit statistical significance as the p-value= 0.212. Education level emerged as a significant factor influencing knowledge and awareness scores, with individuals holding higher educational qualifications displaying a greater propensity for high scores. Notably, those with a BSC degree represented the largest proportion of the sample, with 23.1% exhibiting high scores. Conversely, individuals with a primary education level demonstrated the lowest knowledge and awareness scores, comprising 11.5% of the sample. However, educational level doesn't exhibit statistical significance as the p-value= 0.564. In terms of occupation, the data showcases varying levels of knowledge and awareness scores across different employment categories. Students and employees in the health sector exhibited relatively higher scores, with 21.2% and 21.2% respectively, while retired individuals and those employed in the non-health sector displayed lower scores, at 17.3% and 23.1% respectively. Occupation p-value was 0.881.

Table (4): association between sociodemographic characteristics and knowledge and awareness score of atypical facial pain (n=52).

Parameter		Knowledge and Awareness Score			Total (N=52)	P value
		High score	Intermediate score	Low score		
<b>Age</b>	less than 20	1	1	0	2	0.920
		1.9%	1.9%	0.0%	3.8%	
	20_30	5	5	11	21	
		9.6%	9.6%	21.2%	40.4%	
	31_40	4	2	4	10	
		7.7%	3.8%	7.7%	19.2%	
	41_50	3	3	4	10	
		5.8%	5.8%	7.7%	19.2%	
51_60	1	3	2	6		
	1.9%	5.8%	3.8%	11.5%		
more than 60	1	1	1	3		
	1.9%	1.9%	1.9%	5.8%		
<b>Gender</b>	Male	6	9	12	27	0.520
		11.5%	17.3%	23.1%	51.9%	
	Female	9	6	10	25	
		17.3%	11.5%	19.2%	48.1%	
<b>Nationality</b>	Saudi	15	12	19	46	0.212
		28.8%	23.1%	36.5%	88.5%	
	Non-Saudi	0	3	3	6	
		0.0%	5.8%	5.8%	11.5%	
<b>Education Level</b>	I have an educational level	1	1	2	4	0.564
		1.9%	1.9%	3.8%	7.7%	
	primary	1	4	1	6	
		1.9%	7.7%	1.9%	11.5%	
	middle	2	3	4	9	
		3.8%	5.8%	7.7%	17.3%	
	High School	4	3	9	16	
		7.7%	5.8%	17.3%	30.8%	
	diploma	2	1	1	4	
		3.8%	1.9%	1.9%	7.7%	
BSC	5	2	5	12		
	9.6%	3.8%	9.6%	23.1%		
Higher education (Master's or PhD)	0	1	0	1		
	0.0%	1.9%	0.0%	1.9%		
<b>Occupation</b>	free business	0	0	1	1	0.881
		0.0%	0.0%	1.9%	1.9%	
	Student	3	3	5	11	
		5.8%	5.8%	9.6%	21.2%	
	An employee in the health sector	4	2	5	11	
		7.7%	3.8%	9.6%	21.2%	
	An employee in the non-health sector	4	3	5	12	
		7.7%	5.8%	9.6%	23.1%	
	Retired	1	5	3	9	
		1.9%	9.6%	5.8%	17.3%	
I don't know	1	1	2	4		
	1.9%	1.9%	3.8%	7.7%		
Other	2	1	1	4		
	3.8%	1.9%	1.9%	7.7%		

**Discussion:**

Atypical facial pain (AFP) is a complex and often misunderstood condition that affects a significant number of individuals worldwide. In the Saudi population, the prevalence, knowledge, and awareness of AFP among adults are important factors to consider in order to improve diagnosis, treatment, and overall management of the condition [1].

Firstly, it is essential to understand the prevalence of AFP in the Saudi population. While there is limited research specifically focused on AFP in Saudi Arabia, studies from other countries suggest that AFP is not uncommon, and it is likely that a similar prevalence exists in Saudi adults. However, more research is needed to accurately determine the prevalence of AFP in this population [3].

In terms of knowledge and awareness, it is important to assess the level of understanding of AFP among healthcare professionals, as well as the general public. Healthcare providers need to be knowledgeable about the symptoms, diagnostic criteria, and treatment options for AFP in order to provide accurate and effective care for patients. Additionally, raising awareness of AFP among the general population can help individuals recognize the symptoms and seek appropriate medical attention [5,6].

The aim of our study was to assess the prevalence, knowledge, and awareness of AFP among adults in the Saudi population, and to our research our study is the first to be assessed on this topic.

Upon our search, results indicated that all sociodemographic parameters exhibit no significant association with knowledge and awareness score of AFP. Moreover, our study showed that 42.3% of participants exhibited low score level which indicated that knowledge and awareness among population is not sufficient. Another study reveals that dental experts possess greater expertise and confidence in managing orofacial discomfort compared to regular dentistry practitioners. Nevertheless, this distinction does not automatically result in a greater level of proficiency in practical medical application. Hence, incorporating orofacial pain courses into dental schools' curricula should prove advantageous for aspiring dentists and enhance the quality of patient care [10].

In our study 59.6% sought advice from a specialist, and 65.4% took medications because of pain. Similarly, a study showed that 46% of the participants sought advice [9]. There are several factors that may contribute to the lack of knowledge and awareness of AFP in the Saudi population. These include a lack of specific education and training on AFP for healthcare professionals, cultural stigmas surrounding chronic pain conditions, and limited public awareness campaigns about AFP [8].

To address these issues, efforts should be made to improve education and training on AFP for healthcare professionals in Saudi Arabia. This can be achieved through the development of specific guidelines and protocols for the diagnosis and management of AFP, as well as continuing medical education programs focused on chronic pain conditions [8].

In addition, public awareness campaigns can help to increase understanding and recognition of AFP among the general population. These campaigns can provide information about the symptoms of AFP, the importance of seeking medical attention, and available treatment options. Furthermore, raising awareness can help to reduce the stigma associated with chronic pain conditions and encourage individuals to seek appropriate care [9].

The study provides valuable insights into the understanding of atypical facial pain in the Saudi population. However, it is important to note that the study has certain limitations that should be taken into consideration. Firstly, the study's findings may not be generalizable to the entire Saudi population as it may have only focused on a specific region or group of individuals. Additionally, the study's sample size and methodology may have limitations in terms of accurately capturing the prevalence and awareness of atypical facial pain. Furthermore, the study may have relied on self-reported data, which could introduce bias and inaccuracies in the results. It is also important to consider the potential cultural and societal factors that may have influenced the participants' knowledge and awareness of atypical facial pain.

The findings of this study have significant future implications for healthcare professionals, policymakers, and researchers in Saudi Arabia. By understanding the prevalence, knowledge, and awareness of atypical facial pain among adults, healthcare providers can improve diagnosis and treatment strategies. Additionally, this study can inform public health campaigns and educational initiatives aimed at raising awareness about atypical facial pain. Furthermore, the findings may also pave the way for future research into the underlying causes and risk factors associated with this condition. Overall, this study has the potential to positively impact the healthcare landscape in Saudi Arabia by improving the management of atypical facial pain and ultimately enhancing the quality of life for affected individuals.



#### 4. Conclusion:

In conclusion, the prevalence, knowledge, and awareness of AFP among adults in the Saudi population are important considerations for improving the diagnosis and management of this complex condition. As our results revealed that participants exhibited low knowledge and awareness score regarding AFP. By addressing these factors through education, training, and public awareness campaigns, it is possible to improve the overall understanding and treatment of AFP in Saudi Arabia.

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#### Conflict of interests

The authors declare that there are no conflicts of interest.

#### Informed consent:

Written informed consent was obtained from all individual participants included in the study.

#### Data and materials availability

All data associated with this study are present in the paper.

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