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Research paper

Patient Age and Gender Analysis of Oral and Maxillofacial Clinical Conditions in Iraq: A Retrospective Study

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ABSTRACT

Background This study aims at assessing the age and gender distribution among patients with various clinical conditions who sought treatment at the Department of Oral and Cranio-maxillofacial Surgery in Al Kindy Teaching Hospital in Baghdad, Iraq.

Methods The research data for this study was obtained from the Department of Oral and Cranio-maxillofacial Surgery at Al Kindy Teaching Hospital in Baghdad, Iraq. The data was collected between April 2019 and February 2020, involving 1443 patients spanning various age groups, from infants to 85-year-olds. The patients are categorized based on age, sex, and diagnosis using the International Classification of Diseases. The diagnosed diseases were classified according to the Contemporary Oral and Maxillofacial Surgery textbook guidelines.

Results The majority of patients are in their second decades, and most of the samples that attended the hospital are from the male category, female patients had to do with temporomandibular problems, trauma, and surgical extraction. In contrast, the most common category among male patients is trauma, followed by jaw fractures. Trauma, Follow-up, Facial Palsy, Ranula, Trigeminal Neuralgia, and Parotid Gland Swelling were all significantly different between males and females when compared on their own in each category.

Conclusions Males exhibit a higher hospital attendance rate compared to females, with males being more prone to oral trauma, while females are more susceptible to temporomandibular joint disorders. Young children have a greater likelihood of experiencing trauma rather than jaw fractures due to the presence of a thicker adipose tissue layer and the absence of paranasal sinus pneumatization.

Keywords: Age, gender distribution, clinical conditions, temporomandibular disorders, trauma, jaw fracture.

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INTRODUCTION

The Oral Maxillofacial Surgery Clinic at Al Kindy Hospital is the primary healthcare facility offering management for mandibular fractures and trauma in the eastern part of Baghdad, Iraq's capital. While face fractures constitute a small percentage of emergency room admissions, the mandible, along with the nasal and zygomatic bones, is frequently affected. Fractures occurring at the angle of the mandible pose the greatest risk of complications. Trauma from various sources, such as car accidents, physical altercations, industrial accidents, falls, and contact sports is the leading cause of these fractures.[1,2] Disfiguring facial injuries resulting from mandibular fractures and trauma can have profound psychological and social effects on patients. These injuries significantly impair essential functions such as eating, communicating, and connecting with others, which can have a detrimental impact on their overall well-being. The psychological consequences of these injuries underscore the importance of timely and effective management to restore both physical function and the patient's ability to engage in daily activities[3].

Patients should be adequately informed about the post-operative recovery process and potential complications when considering surgical extraction of lower third molars in dental surgery[5]. Awareness of the potential for early postoperative lifestyle disruption may increase patients' satisfaction with the procedure[6].

Patients should be informed that during the initial postoperative period following tooth extraction, they may feel some level of difficulty in chewing and swallowing[7]. Suturing helps to promote both initial wound healing and hemorrhage control[8]; particularly in individuals with chronic illnesses, saliva, bacteria, and moist oral circumstances result in suture contamination, produce a persistent acute inflammatory response, hinder wound healing, and result in life-threatening problems[9]. Temporomandibular joint disorders (TMJD) are a prevalent health issue characterized by a range of clinical manifestations and diverse causes[10]. Along with other characteristics that are regularly linked to TMJ dysfunctions, such as musculoskeletal pain conditions like chronic headaches, fibromyalgia, autoimmune illnesses, sleep apnea, and mental illness.[11,12]

Clinicians should be cautious when diagnosing TMJD in patients who have pain in the area of the TMJ as other conditions, such as trauma, dislocation, maxillary sinusitis, and trigeminal neuralgia, can mimic TMJD. These conditions include dental caries, dental abscesses, oral lesions, or conditions caused by muscle overuse (clenching, excessive chewing, spasm, and bruxism).[13,14]

The term "face muscle spasm" (FMS) is used to describe the painless, erratic, intermittent, and clonic rigidity of the facial muscles on one side. Typically, the orbicularis oculi muscle and the orbicularis oris muscle, which control facial expression, are affected by FMS twitching, with the condition often starting in the orbicularis oculi muscle. Stress and anger can exacerbate clonus, while calmness and sleep tend to reduce their occurrence and frequency[16,17]. Pyogenic Granuloma (PG), also known as a lobular capillary hemangioma, is a benign vascular tumor that most frequently affects the skin and mucous membranes but can also occasionally be seen subcutaneously or intravascularly.

According to a study, 45% of cadavers had ranulas, which are unusual mucoceles that typically impact the major salivary glands and grow on the floor of the mouth through mylohyoid muscle dehiscence at the anterior 2/3[18]. Malignant salivary gland tumors were substantially more common than benign tumors[19]. The nasal alar region of the midface is where a soft tissue cyst of the growing nonodontogenic kind known as a nasolabial cyst form. The nasolabial cyst has also been known as the nasovestibular cyst, nasoglobular cyst, and nasoalveolar cyst since Zukerkandl's original description of it in 1882. There are two hypotheses for the pathophysiology of nasolabial cysts. According to the first idea, the medial and lateral nasal processes joined at around the fourth week of intrauterine life, and epithelial cells were maintained in the mesenchyme after that. The second explanation contends that the lateral nasal process and maxillary prominence still include epithelial remnants from the nasolacrimal duct[20]. One or more trigeminal nerve branches may experience sudden, acute, transient, stabbing, and recurrent pain, which is known as trigeminal neuralgia (TN).[21]

METHODS

The study sample was collected from the Department of Oral and Cranio-maxillofacial Surgery at Al Kindy Teaching Hospital in Baghdad, Iraq. A total of 1443 patients attended the clinic between April 2019 and February 2020, with ages ranging from less than one year to 85 years old. The patients were categorized based on age, sex, and diagnosis, utilizing the International Classification of Disease. The diagnosed diseases were classified according to the guidance provided by the textbook

"The Contemporary Oral and Maxillofacial Surgery." The study obtained ethical approval from the institutional ethical committee of the College of Dentistry at Mustansiriyah University in Baghdad, Iraq.

RESULTS

During the period from April 2019 to February 2020, a total of 1443 patients with various clinical conditions were treated at Al Kindy Teaching Hospital. Among these patients, 483 oral and maxillofacial pathology specimens were obtained from female patients, while 960 specimens were obtained from male patients. The age range of the patients was from less than one year to 85 years, with most patients falling within their second decade of life.

Among female patients, trauma cases were the most common samples in the age range of 0-9. TMJ Disorder accounted for most samples in the age groups of 10-19, 20-29, 40-49, 50-59, and patients aged 70 and above. Surgical extraction was the most prevalent diagnosis in the age group of 30-39. Additionally, abscess drainage and TMJ Disorder were frequently observed in the age range of 60-69.

The most common category among male patients is trauma, followed by jaw fracture. Between ages (0-9) (10-19) (20-29) (30-39) (40-49), Trauma were the most samples, while TMJD was the most sample between (50-59) (60-69) and >70 (Table 2).

Table 1. Number of oral and maxillofacial clinical conditions according to age in female patients.

Females	0-9	10-19	20-29	30-39	40-49	50-59	60-69	>70	Total
Jaw fracture	7	8	23	4	4	1	1		48
TMJD		30	51	6	36	23	8	5	159
Surgical exo.	2	9	26	25	10	1	1	1	75
Suture removal	5	5	10	7	4	4	7	1	43
Trauma	11	10	16	9	7	5	5	2	65
ulcer		2	1	3	4	4	2	1	17
Abscess drainage	1	4	5	3	5	3	8		29
Follow up	1	2	3	2	1	1		1	11
Facial muscle spasm		1	1	3	1	1			7
Facial palsy		4	5		1	1	1		12
Pyogenic granuloma			1		1	1			3
ranula	2	2	1						5
Nasolabial cyst				1					1
Parotid gland swelling			1	1	2			2	6
T. neuralgia			1		1				2

Table 2. Number of oral and maxillofacial clinical conditions according to age in male patients.

Males	0-9	10-19	20-29	30-39	40-49	50-59	60-69	>70	Total
Jaw fracture	12	69	82	33	6	5	5		212
Tmj d	1	15	38	26	20	22	9	7	138
Surgical exo	6	15	42	22	18	12	7	2	124
Suture removal	10	12	16	13	10	5	4		70
Trauma	43	72	92	46	21	7	6	3	290
ulcer		7	2	7	6	5	1	1	29
Abscess drainage	4	3	21	7	2	4	1		42
Follow up	3	7	10	4	3	1	1		29
Facial muscle spasm		2	2	1		4	1		10
Facial palsy		2	2						4
Pyogenic granuloma ranula			1						1
Nasolabial cyst									
Parotid gland swelling			1	2	4	1	1	2	11
T. neuralgia									

Table 3. The number of clinical conditions in each diagnostic category.

	Female	Male
Clinical condition	**Mean**	
Jaw fracture	6	21.5000
TMJD	20.125	17.2500
Surgical exo	9.375	15.5000
Suture removal	5.375	8.7500
Trauma	8.125	36.6250
ulcer	2.125	3.6250
Abscess drainage	3.625	5.2500
Follow up	1.375	3.6250
Facial muscle spasm	0.875	1.2500
Facial palsy	1.5	.0000
Pyogenic granuloma	0.375	.5000
ranula	0.625	.0000
Nasolabial cyst	0.125	.1250
Parotid gland swelling	0.75	.0000
T. neuralgia	0.25	1.3750

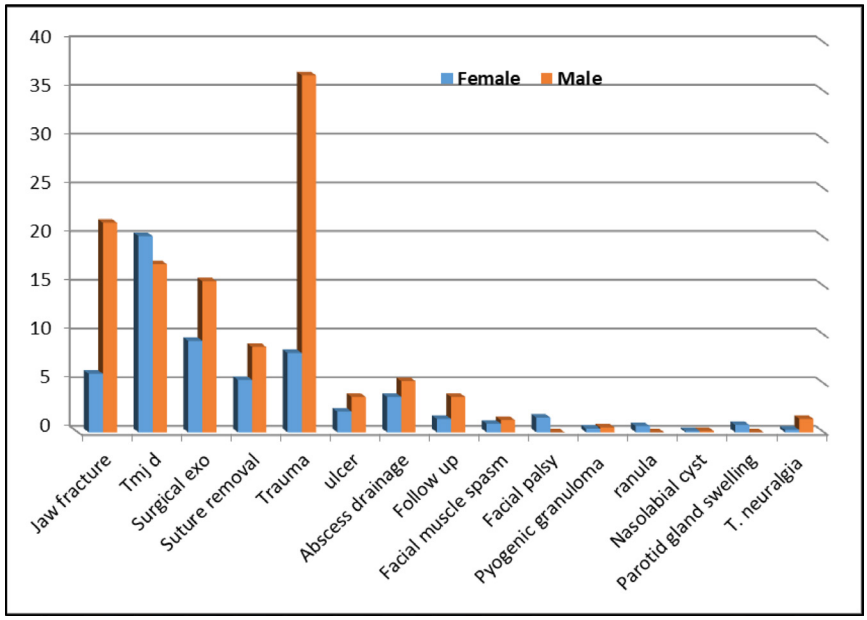

Figure 1. The number of clinical conditions in patients.

In females, the diagnostic category with the highest mean value is temporomandibular joint disorders, while the lowest mean value is observed in the Nasolabial cyst. On the other hand, in males, the highest mean value is found in trauma, followed by jaw fracture, while the lowest mean value is observed in Facial palsy, ranula, and Parotid gland swelling (Table 3).

Comparison between Males and Females for each category independently showed significant differences found in Trauma, follow up, Facial palsy, ranula, T. neuralgia, and Parotid gland swelling. At the same time, there were non-significant differences found in the rest of the sample categories (Table 4).

Table 4. Comparison between males and females.

Clinical condition	Gander	N	Mean	SD	p-value	Significance
Jaw fracture	Female	8	6.0000	7.44504	0.143	NS
	Male	8	21.5000	27.21869		
TMJD	Female	8	19.8750	18.09055	0.736	NS
	Male	8	17.2500	11.82914		
Surgical exo	Female	8	9.3750	10.59565	0.31	NS
	Male	8	15.5000	12.58117		
Suture removal	Female	8	5.3750	2.66927	0.131	NS
	Male	8	8.7500	5.31171		
Trauma	Female	8	8.1250	4.35685	0.028	S
	Male	8	36.6250	32.64938		
ulcer	Female	8	2.1250	1.45774	0.215	NS
	Male	8	3.6250	2.92465		
Abscess drainage	Female	8	3.6250	2.50357	0.532	NS
	Male	8	5.2500	6.71353		
Follow up	Female	8	1.3750	0.91613	0.049	S
	Male	8	3.6250	3.37797		
Facial muscle spasm	Female	8	0.8750	0.99103	0.544	NS
	Male	8	1.2500	1.38873		
Facial palsy	Female	8	1.5000	1.92725	0.045	S
	Male	8	0.0000	0.00000		
Pyogenic granuloma	Female	8	0.3750	0.51755	0.744	NS
	Male	8	0.5000	0.92582		
ranula	Female	8	0.6250	0.91613	0.049	S
	Male	8	0.0000	0.00000		
Nasolabial cyst	Female	8	0.0000	0.00000	0.334	NS
	Male	8	0.1250	0.35355		
Parotid gland swelling	Female	8	0.7500	0.88641	0.031	S
	Male	8	0.0000	0.00000		
T. neuralgia	Female	8	0.2500	0.46291	0.037	S
	Male	8	1.3750	1.30247		

DISCUSSIONS

The number of males (960) attending the hospital is nearly twice that of females (483), in line with Lam[22] who found that Nearly two to one men suffer greater oral trauma than women. Regarding the female age group (0-9), the trauma is a higher value than the jaw, in line with Singaram et al.[23], who found that The suppleness of the facial bones, the larger ratio of the head to the face, the thicker layer of adipose tissue and the absence of pneumatization of the paranasal sinuses in young children have all been suggested as contributing factors to the low incidence of maxillofacial injuries in children. While the females aged between (10-19)(20-29)(40-49)(50-59), TMJD were the most samples collected in line with Oleszek-Listopad et al.[24] who wrote that, Although they affect all adults, these illnesses are more prevalent in those between the ages of 20 and 40. With females

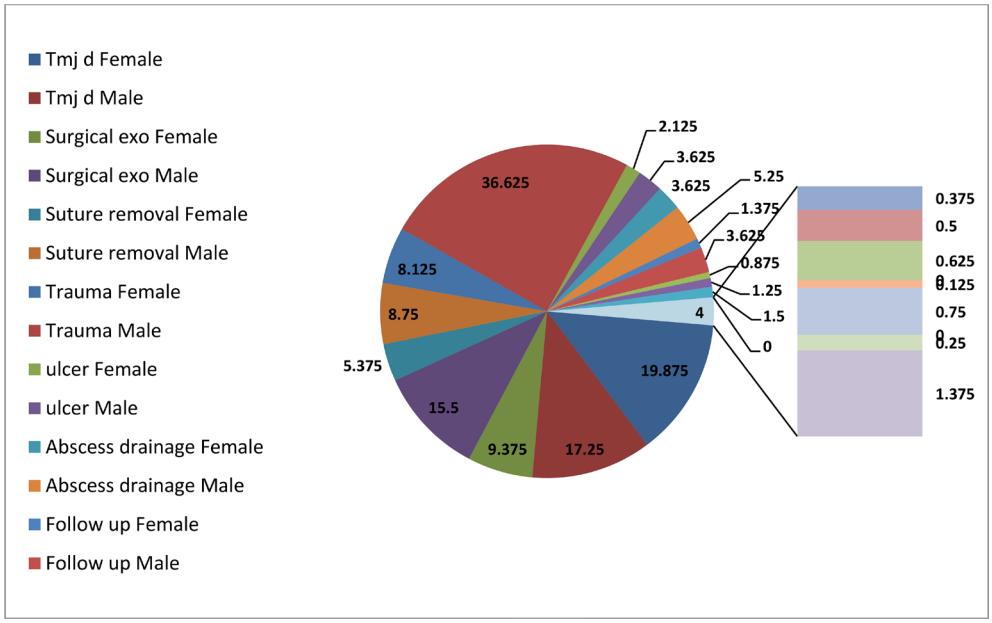

Figure 2. Comparison between male and female patients.

aging from (30-39), the surgical extraction condition is the most in controversial to Kautto et al.[25] The peak age for third molar extraction, was between 23 and 25 years old. The third molar extractions occurred between the ages of 15 and 25 years, with a peak age of 18 years, based on insurance data[26].

Trauma is the most common category among males, followed by jaw fractures, attributed to their engagement in risky activities and lower use of protective equipment. The higher prevalence of trauma over jaw fractures in the age group (0-9) can be linked to males' participation in outdoor activities, athletics, and aggression.[27,28,29] Male predominance in the occurrence of face trauma has been suggested by various earlier studies.[30] women exhibit a higher likelihood of experiencing pain during masticatory tasks compared to men, and TMJ disorders have the highest mean value among all diagnostic categories in females, potentially due to the presence of estrogen receptors in TMJ-related tissues.[31,32] AbdulRazzak et al. found a high prevalence of females (87%) in their study, suggesting that estrogenic levels may play a role in the development, restoration, and metabolism of the temporomandibular joint, bone, and related structures, potentially influencing the prevalence of TMD.[33,34] The lowest mean value in females in all diagnostic category was in Nasolabial cyst (0.125) because, as Aquilino et al.[35] wrote, Rare soft tissue non-odontogenic cysts include nasolabial cysts and when black women are in their fourth to fifth decades of life, they are frequently observed. While the highest mean value in males in all diagnostic category occurred with jaw fractures (21.5000), in the same line with Afrooz et al.[36] who reported that Plastic surgeons frequently see mandible fractures, which make up a sizable fraction of maxillofacial injuries.

Comparison between males and females for trauma, follow-up, facial palsy, ranula, parotid gland swelling, and T. neuralgia show that there were significant differences and the mean of trauma in males four times more than the trauma in females this in matches with Yazawa et al.[37] at Overall, men suffer stressful and traumatic events more frequently than women. There was significant difference also in follow-up, at odds with Fidjeland et al.[38] In terms of follow-up care, there were generally nonsignificant gender differences, with the exception that 69% of male general practitioners and 32% of female general practitioners reported frequently providing follow-up care for patients with prostate cancer. Regarding facial palsy LaFrance et al.[39] reported that There is compelling evidence that women grin more than males do when they smile. In a significant meta-analysis, women were also discovered to grin more frequently. However, it is less certain if women will exhibit more activity than men in terms of most facial movements. Studies show that women are typically more expressive than men. However, compared to men, women may suppress the manifestation of some negative valence activities. For instance, research indicates that women are

more inclined to conceal than to show their anger in overt ways [40]. Sjögren's syndrome predominantly affects women, Trigeminal neuralgia is more common in women and worsens with age, while the mean value of surgical extraction is higher in males compared to females, aligning with the findings of Al-Noori's study on higher prevalence in men.[41,42,43]

There was a non-significant difference regarding jaw fracture, TMJD, Surgical extraction, Suture removal, ulcer, Abscess drainage, Facial muscle spasm, Pyogenic granuloma, and Nasolabial cyst between males and females in controversy to Christoffersen et al.[44] with Boys' bigger bone growth and higher peak bone mass than girls' is explained by variations in testosterone and estrogen.

CONCLUSIONS

our retrospective analysis reveals that males have a higher attendance rate at the hospital and are more susceptible to oral trauma. The higher prevalence of trauma over jaw fractures in young children is attributed to anatomical factors. Additionally, TMJ disorders show the highest mean value in females, likely due to the presence of estrogen receptors in TMJ-related tissues, suggesting the influence of estrogenic levels on the development and prevalence of TMD disorders.

Conflict of Interest

All authors declare no conflict of interest.

Abbreviation

TMJD: temporomandibular joint disorders
FMS: face muscle spasm
PG: pyogenic granuloma
TN: trigeminal neuralgia

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