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A COMPARISON BETWEEN RURAL AND URBAN RESIDENTS ATTENDING BASRAH DENTAL COLLEGE SOUTH OF IRAQ FOR TOOTH EXTRACTION BETWEEN 2018-2021 AND ITS RELATION TO THE DENTAL HEALTH CARE SITUATION IN IRAQ

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Abstract

Most studies confirmed caries are the main cause of tooth extraction in urban and rural areas, especially in young people. There is a relationship between the level of education and dental extraction, particularly in rural areas. In this cross-sectional examination overall 1257 patients were treated in the teaching clinic of the oral and maxillofacial surgery department, College of Dentistry, the University of Basrah between 2018-2021. Data were collected from patients' data after taking the agreement of the ethical committee in the college. The comparisons include age, gender, educational level, occupation, chief complaint, diagnosis, and tooth site. reasons and pattern of tooth loss were recorded and data were computed on SPSS. Version 20. The numbers of tooth extraction in urban and rural were very close 632(50.3%) and 624(49.7%) extractions respectively. The male to female percentage was 38.2 %, 61.8% respectively and the highest number of extractions was observed in females in rural areas most of the patients are a housewife. Tooth extraction has seen more in the third, fourth and fifth decade than other age groups 20.4%, 22%, 19.9% respectively. A significant difference between education and dental extraction was noted between urban and rural areas. The main complaint was for prosthetic therapy 45.3% and 43.2% because of pain. The largest proportion considered as the main cause of extraction was dental caries consequences of 80.5% and the lowest 16.9% from periodontal disease.

Keywords: Extraction, Rural, Urban, dental health care, First Molar.

Introduction

The College of Dentistry is an essential entity of Basrah University in Iraq, established an educational and training program in 2005 and has provided a variety of free dental services to the community. Basrah dental college received 12134 patients between 2018-2021 and 11143 patients who were treated in the teaching clinics in different departments; the majority of patients attended the college for seeking conservative treatment 41% then periodontics treatment 19.1% followed by tooth extraction 12.7% and other dental treatments. Patients seeking extraction in oral and maxillofacial surgery department 1257 patients. As with dental educational institutions, dual benefits for students and patients are achieved by providing training opportunities for students and fulfilling the treatment needs of the patients.

The position of the college between the centre of Basrah and the nearby rural areas like Abil Al-Kaseeb, Al Zubair, Al Hartha and Shatti Arab, allows the patients from urban and rural areas to visit the college for dental treatment, in addition to the different types of treatment which consider being free comparing with the private clinics' prices, also, the treatment occurs under the supervision of specialists in each department; all of the above played an important role in encouraging the patients to visit it for treatment. Many studies around the world indicate that tooth decay, gum disease, trauma, orthodontics and prosthetics are the main causes of tooth extraction. Many have found that caries is the primary reason for tooth extractions in young people [1]. Other studies maintain that caries and periodontal disease are haring the responsibility for tooth loss [2], & still, other researchers found that periodontal disease is the primary cause of teeth extractions in elderly patients [3]. Socio-economic status is associated with dental caries which is the main cause of tooth extraction, affects the oral health of elderly people [4].

While decay and periodontitis are the most reasons for tooth extractions ,while age, gender, socio-economic, behavioural and attitudinal characteristics tend to influence the tooth status of the population; additional causes the studies have mentioned that people with low income and low

education have more tooth loss than their counterparts of high income and education. The correlation between reasons of tooth extraction and gender showed that tooth loss occurs more in the low educated rural male [5]. The relationship between the housing area (urban and rural areas) and the causes of dental extraction is of particular interest; studies have shown that people living in rural areas have less access to dental care services than their urban counterparts, which increases the desire for dental extraction among the rural population [6].

Aim of study

The study compared rural and urban patients treated at the College of Dentistry in the southern Iraqi city of Basrah to extract teeth and the results were compared with data from other studies and their relationship to the reality of dental health care in Iraq.

Patients & Methods

Records of patients attending the teaching clinics in the College of Dentistry in Basrah between 2018 and 2021 were collected from the medical program of the teaching clinic. A total of 1257 patients were treated by tooth extraction, from all ages. The patients categorised is according to the age that divided into six groups: [under 20, 20-29, 30-39, 40-49, 50-59, and above 59 years old], gender [male and female], education [illiterate, literate, primary, secondary, intermediate and graduate], occupation included [employer, housewife, worker, unemployed and student], site of the tooth extracted [Lower Anterior (LA), Lower Posterior (LP), Upper Anterior (UA), Upper Posterior (UP). A major complaint divided into [pain, prosthetics, aesthetics, orthodontics, discomfort, examination and mobility], diagnosis includes [caries consequences, periodontitis, sound tooth and trauma].
All patient data was collected, analyzed, entered into version 20 of SPSS, and then evaluated, based on $P < 0.05$ where it was considered statistically significant.

Results

The total number of patients treated at Bsarah Dental College between 2018 and 2021 was 11,143, of whom (1,257) files were dental extraction. In 2018, (8,830) patients have attended the college's teaching clinics from whom 904 extractions. In 2019 the number of patients reviewed fell to (623) Patients, of whom only (83) extractions because of unstable situations of youth protests and demonstrations in October 2019, then the COVID19 epidemic, there was a restriction on the number of patients treated by students as a precautionary measure to protect students and medical staff from the risk of infection. After the improvement of the overall health situation in Iraq and the control of the epidemic, the number of patients increased again to (2,536) patients between 2020 and 2021, of whom (430) dental extractions.
The results of the research showed that the number of urban and rural patients is very close to 632 patients (50.3 %) from urban areas and 625 (49.7 %) from the rural figure (1a). The information has been analysed according to the following variables:
•**Gender**: total male patients is 480 (38.2%) con-

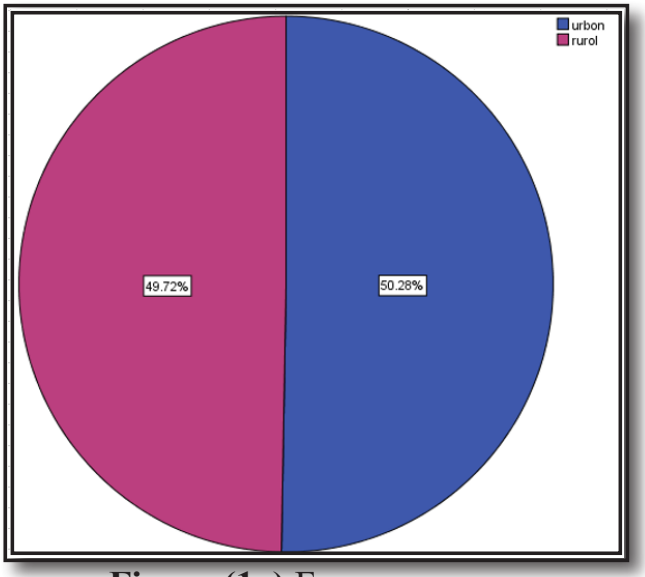

Figure (1a) Frequancy

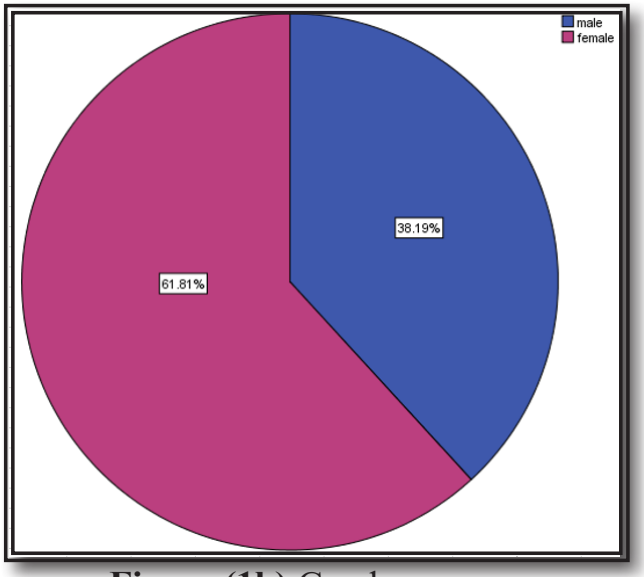

Figure (1b) Gender

cerning 256 (20.4%) from urban and 224 (17.8%) from rural; whereas for female 777 (61.8%) total files, 376 (29.9%) from urban and 401 (31.9%) from rural areas figure (1b), figure (2).

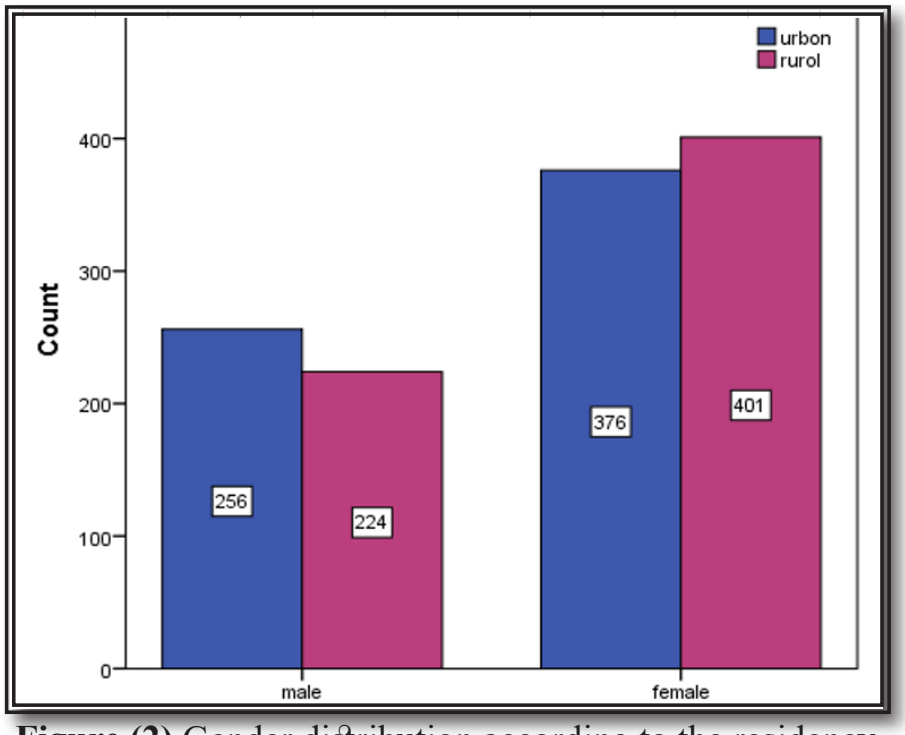

Figure (2) Gender distribution according to the residency

•**Age groups:** The average age of patients was 44 years. The majority of patients are in their 30s,40s,and 50s. There has been an increase in the number of urban patients for the age groups under-20, 20-29 and above 59 [59 (4.7%), 103 (8.2%), 103 (8.2%)] respectively, while patients from rural areas increased in age groups 40-49, 30 -39 and 50-59 [277 (22%), 257 (20.4%), 250 (19.9%) respectively figure (3).

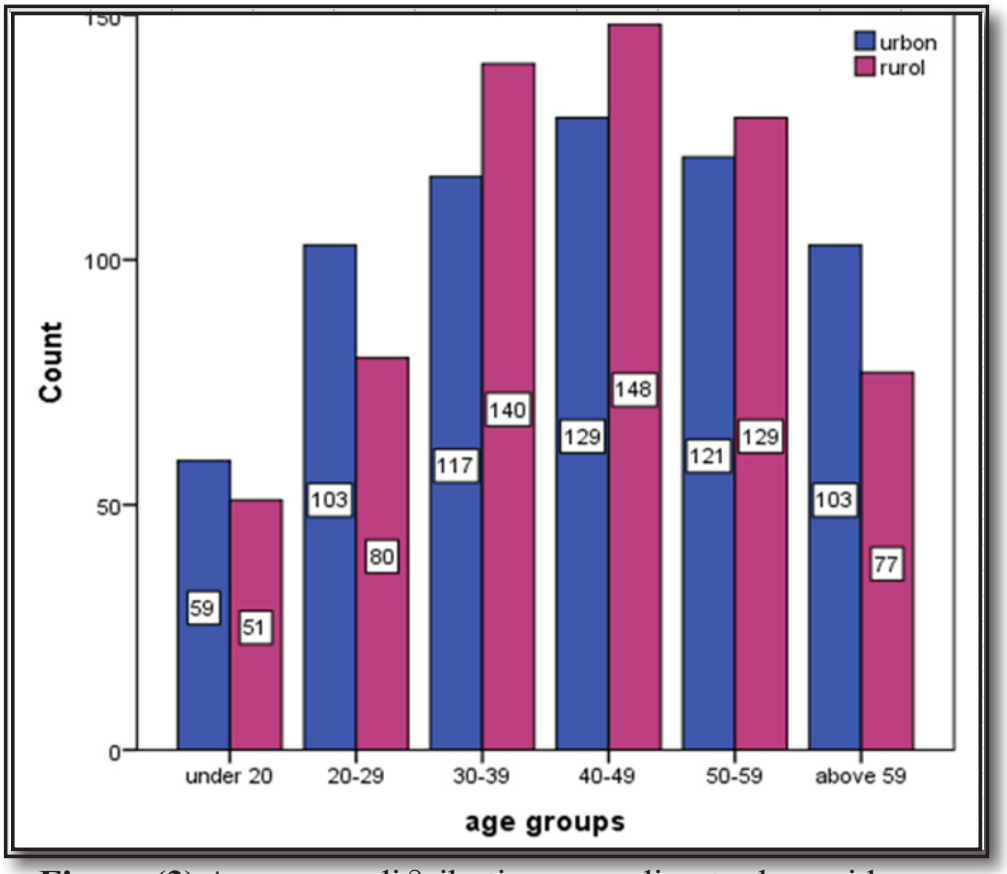

Figure (3) Age group distribution according to the residency

•**Education:** Primary education is predominantly 499 (39.7 %) 236 (18.8 %) of urban areas and 263 (20.9 %) of rural, then intermediate education 303 (24.1%) divided to 171(13.6%) from urban 132(10.5% from rural, followed by secondary education 141 (11.2%), illiterate 134 (10.7%) then graduate 128 (10.2%) and the last is literate 52(4.1%) figure (4).

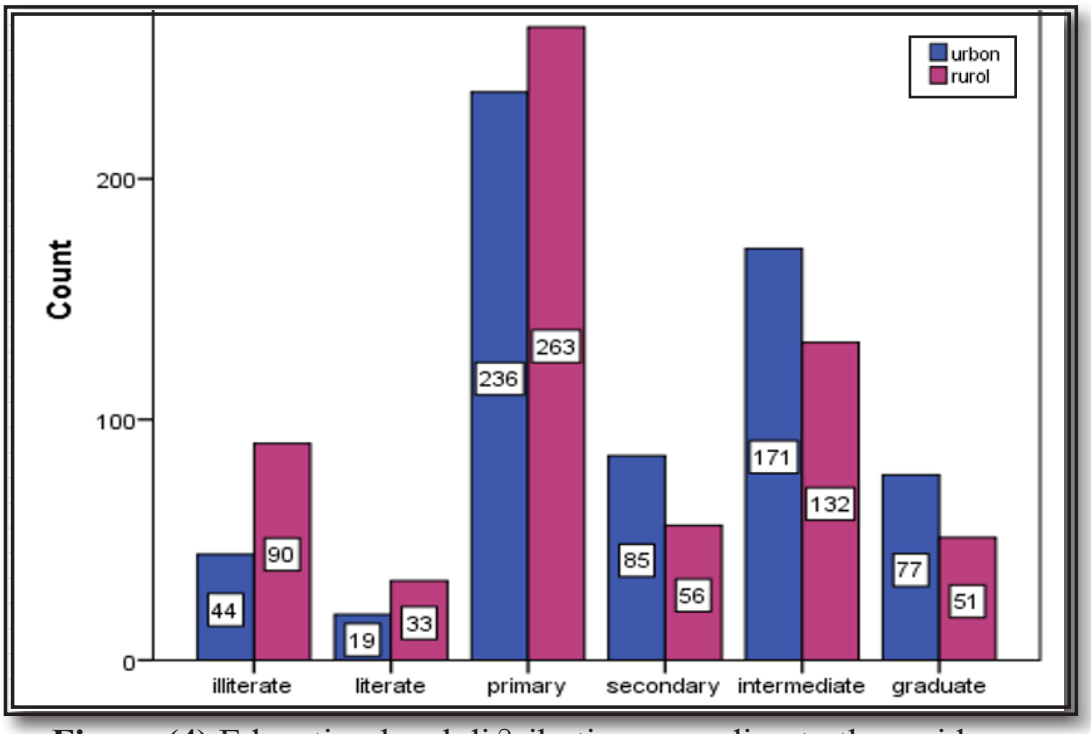

Figure (4) Education level distribution according to the residency

•**Occupation**: The overwhelming majority of patients are housewives 660 (52.5%) patients more from rural than urban [350(27.8%), 310(24.7%) respectively] and the second type are employees 244 (19.4%) more from urban than rural [127(10.1%), 117(9.3%) respectively], then workers 179 (14.2%) and unemployed 156 (12.5%) figure (5).

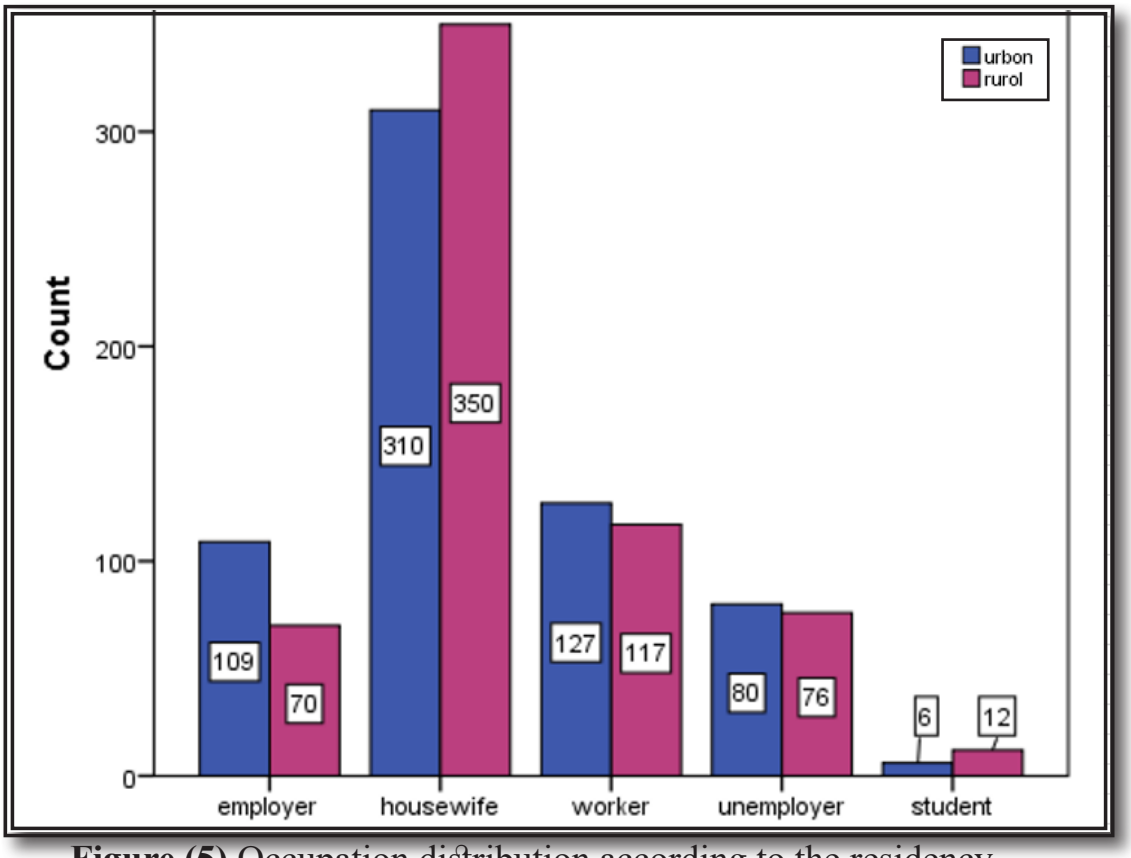

Figure (5) Occupation distribution according to the residency

•Chief Complaint: The bulk of the extraction for prosthetic treatment was 570 (45.3 %) and the results showed that the number of tooth extractions was equal to 285 (22.7 %) in urban and rural areas. The second reason for tooth extractions was dental pain 543 (34.2%), & there were other reasons such as (aesthetic, dental treatment, discomfort, examination, mobility) shown in figure (6).

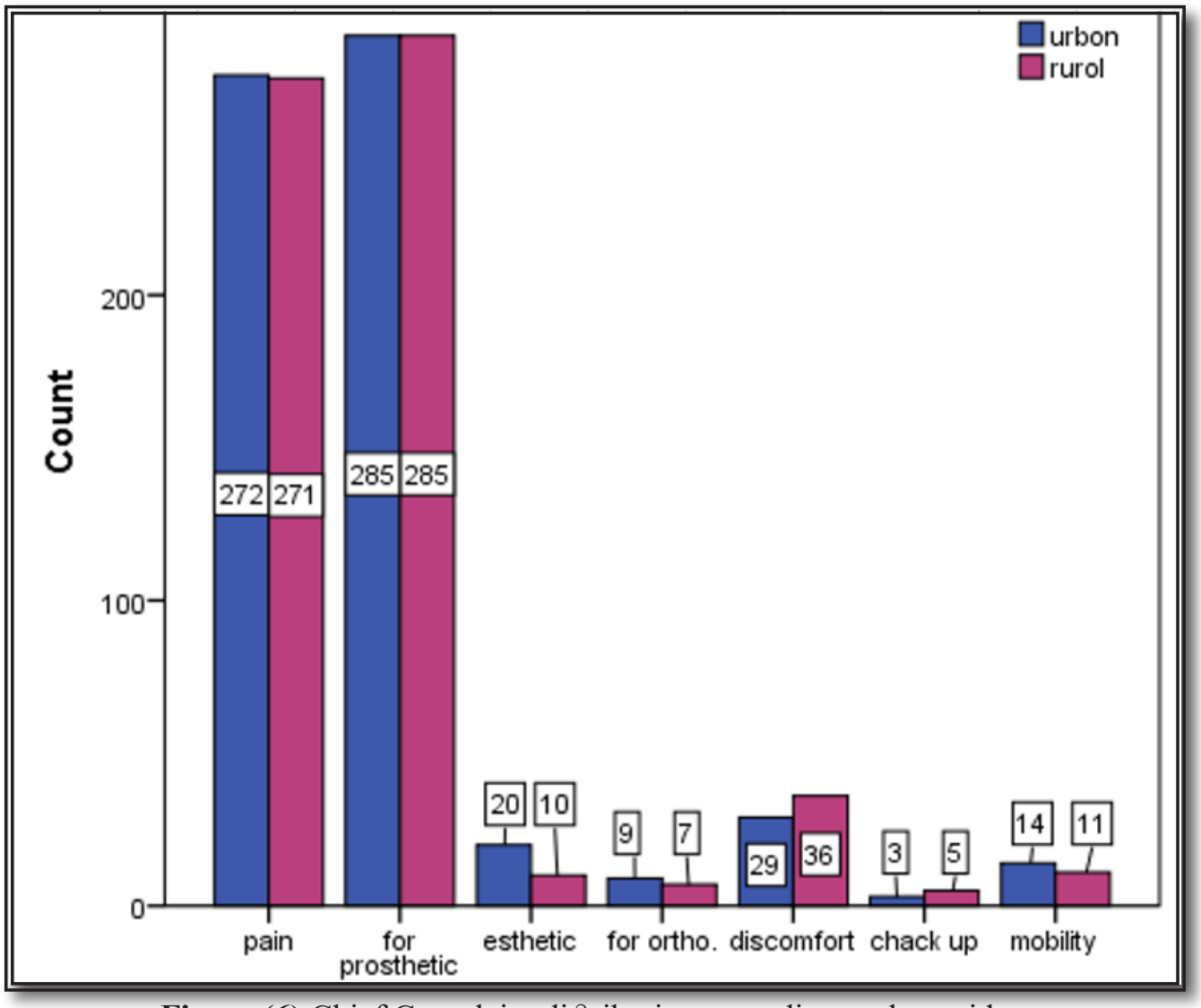

Figure (6) Chief Complaint distribution according to the residency

•Diagnosis: The consequences of Caries are the main cause of extraction where the number was 1012 (80.5%) cases that appear more in urban 517 (41.1%) than rural areas 495 (39.39).” 4%), while dental extraction due to gum disease was about 212 (16.9%) more in rural areas 114 (9.1%) than in urban areas (7.8%) in addition to other diagnoses with a small range seen in figure (7). The statistical analysis shows significant differences between age and diagnosis in rural and urban areas Table (1).

•Extracted teeth: Upper posterior teeth are the common extracted teeth 527 (41.9%), more in rural about 202 (16.1%) than urban 196 (15.6%), followed by lower posterior 398 (31.7%) in which 262 (20.8%) from urban and 265 (21.1%) from rural, then upper anterior 173 (13.8%), at last 66 (5.3%) for lower anterior figure (8).

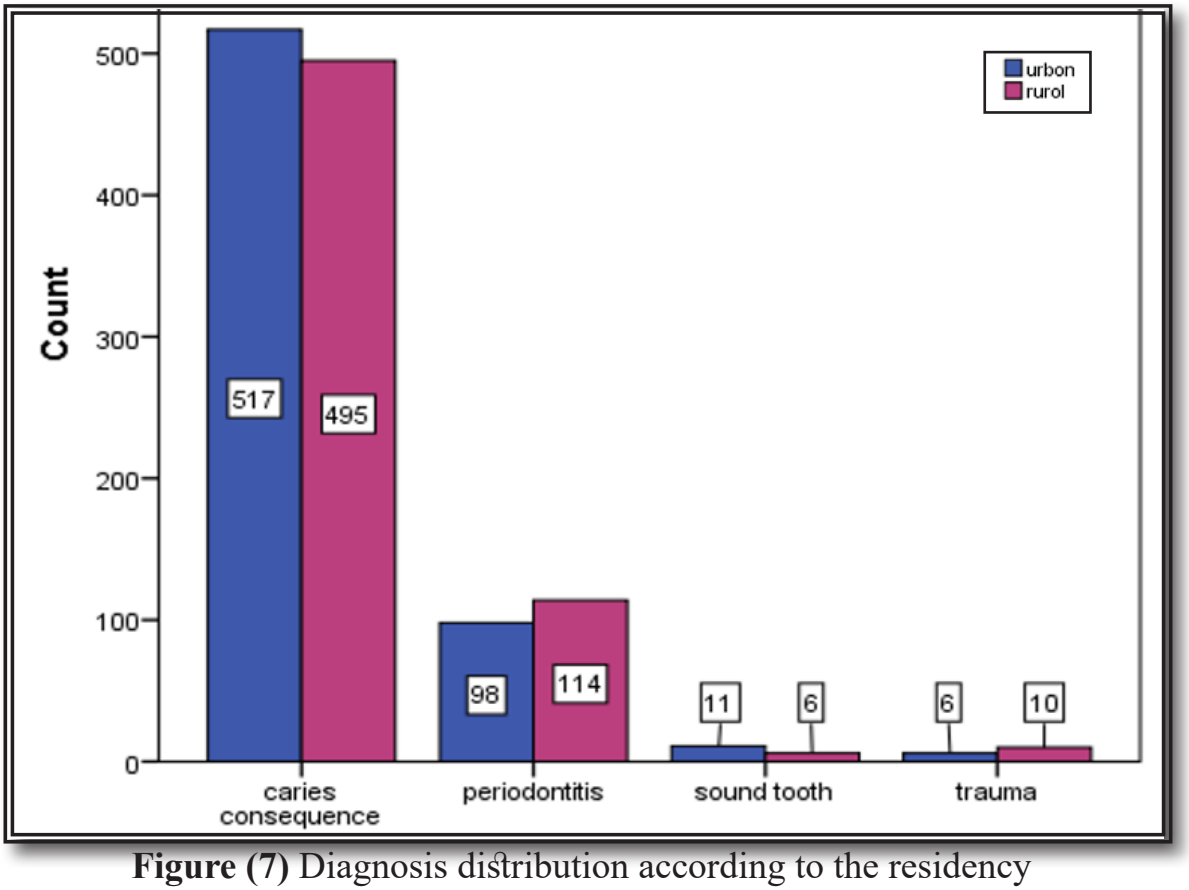

Figure (7) Diagnosis distribution according to the residency

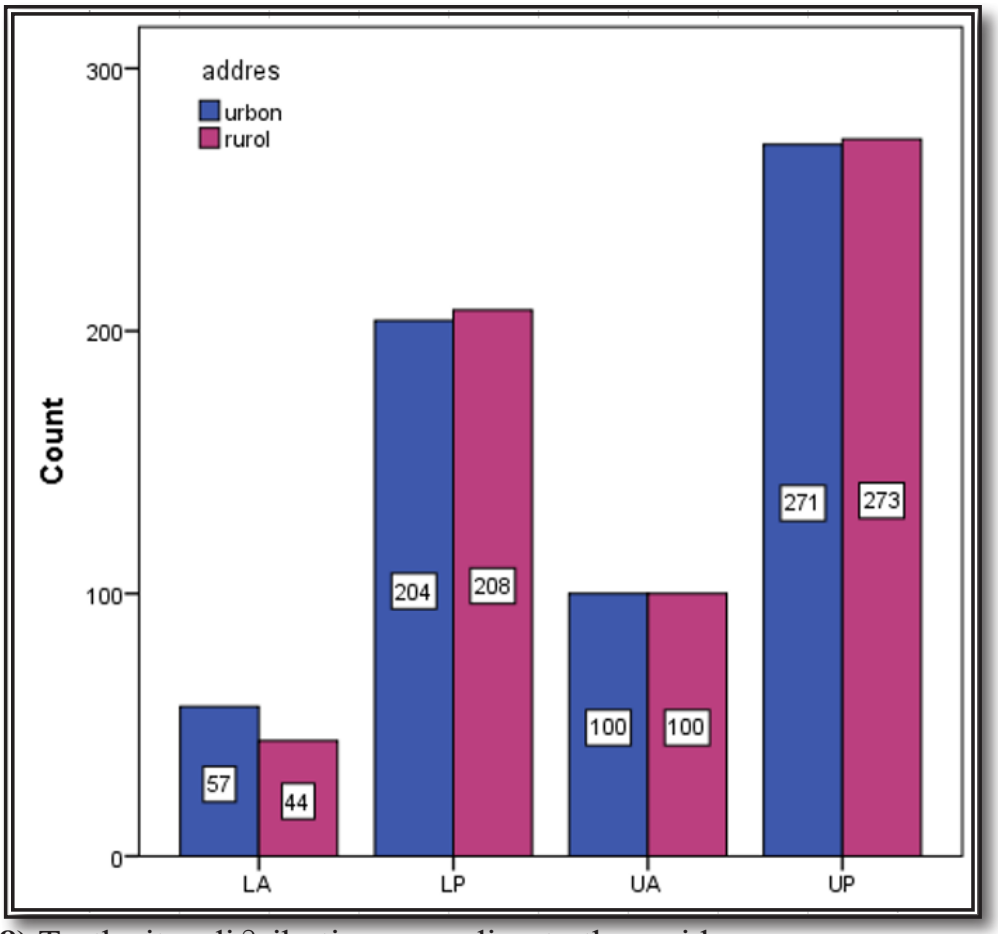

Figure (8) Teeth sites distribution according to the residency.
(LA: lower anterior, LP: lower posterior, UA: upper anterior, UP: upper posterior)

Table 1: Correlation between age group and diagnosis in rural and urban resedncy.

Address	Age group	Diagnosis				Total	p value
		caries consequence	periodontitis	sound tooth	trauma		
Urbon	under 20	48	1	8	2	59	<0.05
		7.6%	0.2%	1.3%	0.3%	9.3%	
	20-29	100	2	1	0	103	
		15.8%	0.3%	0.2%	0.0%	16.3%	
	30-39	109	7	1	0	117	
		17.2%	1.1%	0.2%	0.0%	18.5%	
	40-49	105	22	0	2	129	
		16.6%	3.5%	0.0%	0.3%	20.4%	
	50-59	90	29	1	1	121	
		14.2%	4.6%	0.2%	0.2%	19.1%	
	above 59	65	37	0	1	103	
		10.3%	5.9%	0.0%	0.2%	16.3%	
	Total	517	98	11	6	632	
		81.8%	15.5%	1.7%	0.9%	100.0%	
Rurol	under 20	45	2	3	1	51	<0.05
		7.2%	0.3%	0.5%	0.2%	8.2%	
	20-29	73	6	0	1	80	
		11.7%	1.0%	0.0%	0.2%	12.8%	
	30-39	127	10	0	3	140	
		20.3%	1.6%	0.0%	0.5%	22.4%	
	40-49	127	19	1	1	148	
		20.3%	3.0%	0.2%	0.2%	23.7%	
	50-59	80	45	1	3	129	
		12.8%	7.2%	0.2%	0.5%	20.6%	
	above 59	43	32	1	1	77	
		6.9%	5.1%	0.2%	0.2%	12.3%	
	Total	495	114	6	10	625	
		79.2%	18.2%	1.0%	1.6%	100.0%	

Discussion

This study is conducted to explore explanations for urban and rural dental extraction of patients treated at Basrah Dental College between 2018-2021, among 11143 patients treated in teaching clinics, only 1257(12.7%) were patients. This small percentage of dental extraction compared to conservative treatments and periodontal treatments indicates an increase in the health awareness of the Iraqi individual to maintain their teeth, and the largest percentage of dental extraction is

to reconstruct denture after tooth extraction. Comparisons include age, sex, educational level, profession, major complaints, diagnosis and tooth site. To date, no study has been conducted comparing the causes of the spread of dental extraction among rural and urban populations and according to these variables in Basrah or possibly in Iraq. Observations of this study showed that caries is the most important cause of tooth loss by 41.1% in urban areas and 39.4% in rural areas, and the largest proportion of patients are in their 30s,4os,and 50s, most of the patients are female 61.8% figure (1b), and most patients with a primary level of education 39.7% these results are consistent with the study conducted in Sulaimaniyah [7].

Concerning periodontal diseases, rural patients who have lost their teeth because of periodontal disease was (9.1 %), more than urban patients (7.8 %), females who prefer to extract teeth as a result of caries were more than males in both rural and urban areas. Tooth extraction in females in rural areas was (28.37 %) is more than in females in urban areas; while males in urban areas extract more teeth than males in rural areas. A statistically significant difference (p. 0.05) between gender and diagnosis was found in both the rural and urban areas as shown in Table (1). These results are similar to studies in Sulaimaniyah,Iraq and the Singi region of Croatia [7,8] but disagree with studies Al-Muthana,Iraq Province in which males are found to be more than females [9]. A significant difference between females and males within the following variables: occupation, education, and diagnosis in the whole sample as shown in Table (2).

People living in rural areas are more likely to be poorer, less health-conscious, have greater decay, have fewer teeth, have no adequate health care centres or health insurance, and have less money to spend on dental care than people living in urban areas [10]. The study showed that most urban and rural patients are housewives with 52.5% more housewives, workers and employers in the rural areas, while it has been shown that the unemployed are more in urban areas than in rural areas Figure (5).

According to WHO evidence-based records, tooth decay and periodontal diseases are the foremost common causes of patients attending dental clinics worldwide [11]. In this study, caries consequences are more than the periodontal disease in both residencies.

Most dental extractions occurred in the third, fourth and fifth decades, consistent with other studies [12,13] in both rural and urban areas. The lack of sufficient oral health centres in these areas appears to be the main determinant of the overall dental health status of the population as well as the neglect of patients and the lack of interest in dental and oral health [14,15]. There was a big difference between the level of education between rural and urban, which is consistent with the result of studying in Saudi Arabia concerning urban areas but differs in education in rural areas for the same study [5]. Rural areas are often associated with lower education levels, which in turn are related to it seems that the unavailability of a sufficient number of oral health centres in these rural areas is the lower levels of health literacy and poor use of health care services these factors have an impact on oral health care, service delivery; hence, unmet dental care remains one of the most urgent health care needs in these communities, especially in the African and Middle East [16].

The distribution and severity of oral and dental diseases vary among different parts of the world and within the same country or region, it varies considerably from one country to another, regions and social and ethnic backgrounds [17]. Iraq has a very diverse population and access to healthcare will as much depend on a person's social status, ethnicity, geographical location (especially in terms of whether they are urban- or rural-based), culture/religion, etc, on their gender and age [18]. In respect to gender difference, in most of the health centres, patient attendance due to gingivitis and periodontal inflammatory conditions were more common in males than females [19]. In the light of the above analysis, it was evident that females were in higher proportion for extraction as compared to males in Sulaimani; the reason for this might be the low self-care and especially dental care, it could also be due to lack of awareness, dependency and difficult approach to dental facilities [6,7,11,19–23].

Globally, the greatest burden of oral disease lies on disadvantaged and poor populations; there are significant differences in the distribution of oral health services, accessibility, utilization, and outcomes between urban and rural areas of both developing and developed countries [24]. The major-

Table 2: Correlation between gender and occupation, education and diagnosis.

Variables		sex		Total
		male	female	
employer	135	44	179	
		28.1%	5.7%	14.2%
	houswife	0	660	660
		0.0%	84.9%	52.5%
	worker	236	8	244
		49.2%	1.0%	19.4%
	unemployer	104	52	156
		21.7%	6.7%	12.4%
	student	5	13	18
		1.0%	1.7%	1.4%
illiterate	28	106	134	
		5.8%	13.6%	10.7%
	literate	22	30	52
		4.6%	3.9%	4.1%
	primary	177	322	499
		36.9%	41.4%	39.7%
	secondary	61	80	141
		12.7%	10.3%	11.2%
	intermatiate	127	176	303
		26.5%	22.7%	24.1%
	graduate	65	63	128
		13.5%	8.1%	10.2%
caries consequence	355	657	1012	
		74.0%	84.6%	80.5%
	periodontitis	112	100	212
		23.3%	12.9%	16.9%
	sound tooth	7	10	17
		1.5%	1.3%	1.4%
	trauma	6	10	16
		1.3%	1.3%	1.3%
Total		480	777	1257
		100.0%	100.0%	100.0%

ity of individuals in rural settings lack insurance coverage and cannot afford treatment, many dental procedures require very high financial commitment far beyond the affordability levels of the economically poor population; that is why rural dwellers may not have the benefit of visiting the dental clinic for preventive dental care [25].

In this study, the number of patients referred to teaching clinics from the city centre and rural areas alike, this related to the location of the college and to the services it provides and the symbolic prices of treatment but the main reason is the inadequacy of oral and dental centres in rural and urban compared to the population growth that has occurred in recent years, that is why a compelling need exists for oral health policies and to implement plans that recognize the urban-rural differences in oral health and that emphasize the prevention, early detection, and management of oral diseases [9].

Regarding the type of teeth extraction in both urban and rural the most common teeth extracted are upper posterior than lower posterior followed by upper anterior lastly lower anterior these findings agree with studies in Saudi Arabia [5].

One of the factors affecting the delay in the attendance of Iraqi patients in the dental clinic is the initial impression taken negatively or positively by the patient depending on the treatment of the dentist. Many patients suffer either from improper dental treatment by the dentist, which makes them lose confidence in other dentists or due to local oral factors [2]. Many people fear pain and feelings of anxiety when they want to visit a dental clinic which naturally is unpleasant, the interaction between dentists and patients during dental treatment may influence the frequency of dental visits in the future because this interaction may increase the fear of dental treatment of the patients [26].

Efforts to preserve additional natural teeth of the population should concentrate on the interference and treatment of caries and periodontal diseases. Besides the preventive measures, dental education programmes for the population in conjunction with dental professionals have to be compelled to be implemented, within the purpose of rising oral hygiene and demand on conservative therapy than extraction [27].

The Ministry of Health, the Dental Association and public health organizations should educate the population about dental health and its relevance to body health through guidance following policies related to labelling, marketing and distribution of products containing free sugars that consume refined sugary foods and sweetened beverages that are highly related to tooth decay and other dental diseases [28]. Also provide a health strategy by the government and the ministry of health that provides an adequate number of health care centres in the southern regions of Iraq in addition to the allocation of sufficient budget to supply such centres with adequate equipment, materials and human resources that ensure the minimum needs of the individuals to care for their dental condition in addition, making access to health centres available to all in the rural and urban areas is important to reduce the spread of tooth decay [29].

The most significant threat to Iraqis' health comes from the overall deterioration in health facilities and services resulting from the cumulative effect of many years of economic sanctions, neglect and wars. Access to quality health care for all Iraqi people is severely undermined [29].

Ministry of high education must pay attention to the situation of dental colleges and how to Improve the reality of teaching clinics and provide materials and human resources and equip them with the latest advanced equipment to keep pace with the development in this field to attract the largest number of patients and provide oral and dental health care for the citizens of Basrah and other provinces [28].

Community Service can provide dental students with the knowledge, and motivation to engage in the health profession and to promote public healthcare by understanding and appreciating the concepts, objectives and characteristics of community service and its impact on the pupulation [30]. Providing chances for dentists and dental students to treat patients who are underserved increase their awareness of the social determinants of poor oral health, and help them to understand the value of their professional contributions in providing care for these patients [31].

Conclusion

Most studies confirmed caries are the main cause of tooth extraction in urban and rural areas, especially in young people, with the number of extractions because of periodontitis visible in younger patients. Females have more tooth extraction than

males. The low level of education is associated with more tooth extraction, in urban and rural areas; so to overcome this problem, the government and ministry of health should put a strategy to make essential dental care facilities available to all populations in the southern regions of Iraq, especially in rural areas.

Acknowledgements

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Suggestions

The Ministry of Health should activate the law to establish dental units for every 10,000 individuals in addition to implementing the Primary Health Care Act to include all patients within the centre and the rural areas so that citizens receive the treatment specified in their areas of residence and strive to provide a database for all patients in the health centre to follow up on their health as in most regional and international countries.

Recommendation

A study of associate degree outsized sample of patients in varied provinces of Iraq, to figure out the reasons that drive people to extract their teeth, understand solutions and measure the effectiveness of the services provided by the Ministry of Health and Dental colleges to reinforce the oral and dental health status in Iraq.

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